

1996 PIT TAG SPECIFICATION DOCUMENT

COLUMBIA RIVER BASIN PIT TAG INFORMATION SYSTEM DATA SOURCE INPUT SPECIFICATIONS

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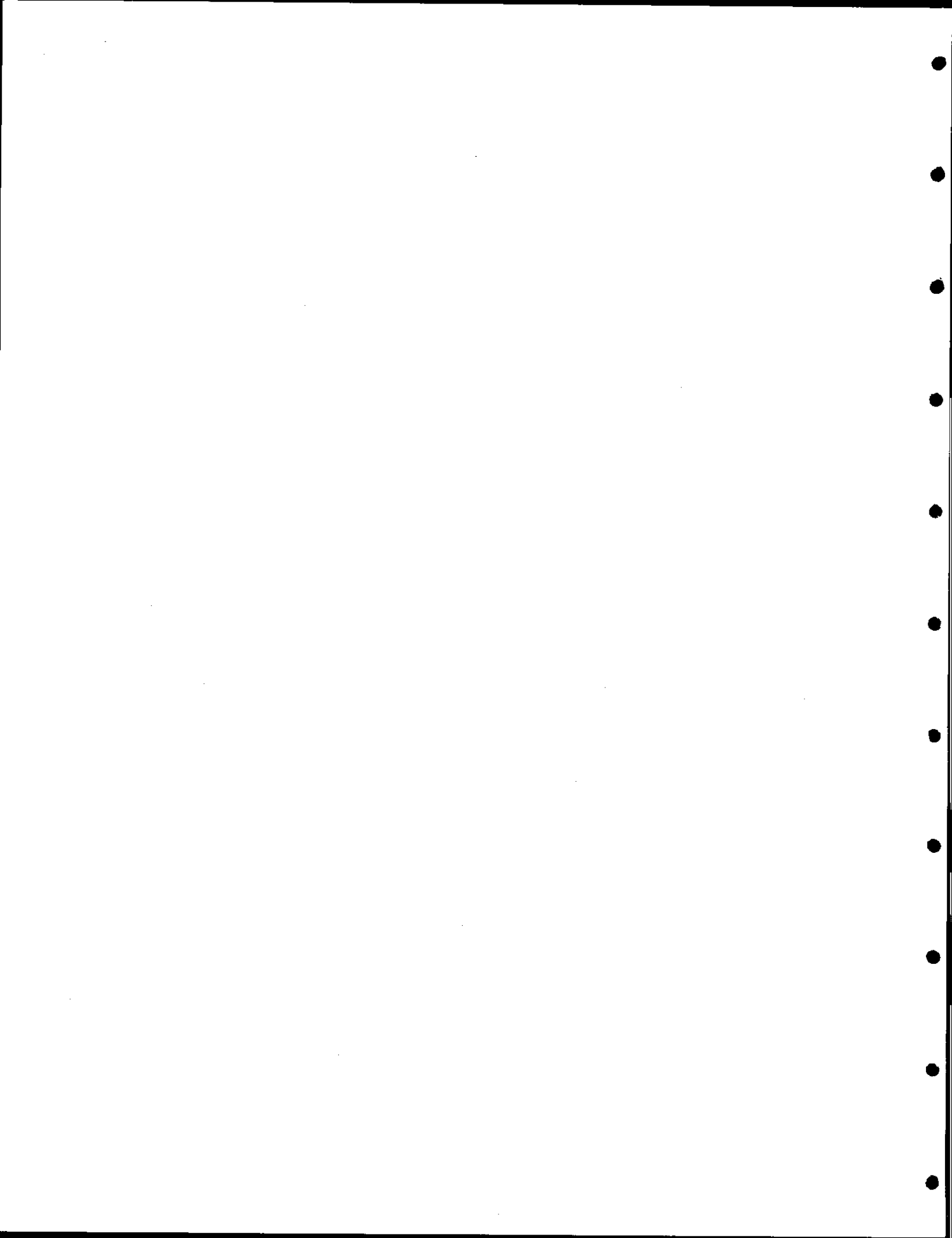
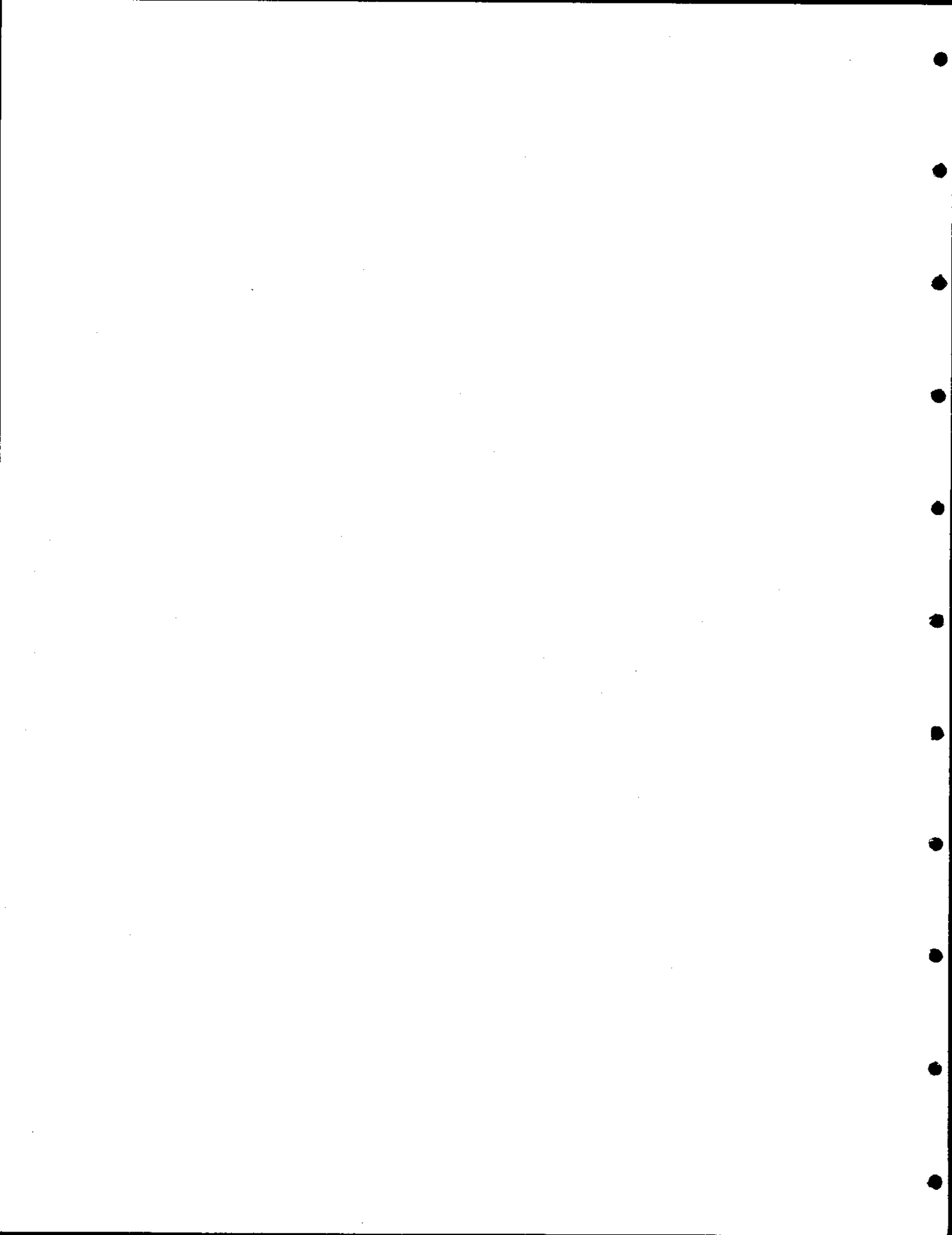


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1996 CHANGES

The following is a list of significant changes that have been recommended by the PIT-Tag Steering Committee and made to the *PIT Tag Specification Document*. These changes will be effective after February 24, 1996. PITVAL.EXE V2.1 will enforce these changes and it will automatically upgrade older file formats to meet the new specification.

1. All Validation Code Tables and Appendices have been updated.
2. Tagging File changes.
 - a. Species, Run and Rearing Type have been removed from the Tagging File Header.
 - b. Tagging Date and Tagging Time have been combined into one header record called Tagging Date.
 - c. CHECKSUM changed from mandatory to optional.
 - d. FORKLENGTH changed to optional.
 - e. Close Date now includes Hours and Minutes. Close Time has been removed.
 - f. TAGGING DATE changed to TAG DATE in the *Specification Document* to match the PITTAG.EXE code and the format of old Tagging Files.
3. Release Information File changes.
 - a. RELEASE TIME has been removed.
 - b. RELEASE DATE now includes the time in the format, HH:MM.
 - c. MONITORED RELEASE YES/NO has been added as a header record.
 - d. MONITORED RELEASE SITE CODE has been added as a header record.
 - e. Close Date now includes Hours and Minutes. Close Time has been removed.
 - f. The additional record type, File Close has been changed to Close Date and includes hours and minutes.
4. Monitored Release Site Code list has been added.
5. Bypass Facility Raceway Collection (BPRCOL) has been added as a new Capture Method Code.
6. McNary Dam in Appendix C has been corrected to name river exit monitors River-1 and River-2 rather than A-River and B-River since these exits can be used by either the A (upstream) or B (downstream) side.
7. The Test Tag File type has been defined.
8. Appendix E has been added to help to explain the duplicate tag phenomena.

Note: Remember, all code lists in the *1996 PIT TAG Specification Document* can be generated from the PTAGIS application. To see the list of valid river reach codes in the PTAGIS application, go to:

Reports --> Reference/Lookup --> Run Report --> A: River Reach Codes

To see any of the other codes, go to:

Reports --> Reference/Lookup --> Run Report --> B: Validation Codes

1996 PIT TAG SPECIFICATION DOCUMENT

Section I. Rationale

This specification document has been prepared to ensure interagency continuity of PIT-tag data as well as facilitate data entry and retrieval to and from the Columbia River Basin PIT-Tag Information System (PTAGIS). Some flexibility exists to modify data inputs as the system evolves. However, all proposed changes to this document must be reviewed annually by the PIT-Tag Steering Committee. Reviewing and changing this specification document will occur annually prior to February. Questions concerning this document should be addressed to the PIT-Tag Steering Committee members (See Section III.M. on page 35).

Section II. Data Files

There are six file types that are recognized by the PTAGIS system. These are **Tagging, Release Information, Interrogation, Monitored Release, Mortality and Test Tag**. All files must be in ASCII format and comply with the following specifications. The first record of each of these files will be the "FILE TYPE" record.

Format: "FILE TYPE" starting in column 5; a colon (:) in column 36; and the File Type Name (as listed below) starting in column 38 ("TAGGING", "RELEASE INFORMATION", "INTERROGATION", "MONITORED RELEASE", "MORTALITY" or "TEST TAG").

See Figures 1-5 (examples) for additional information.

A. Tagging File

Tagging files are created using the program PITTAG.EXE or an equivalent program that is 100% compatible. Only the most current version of the program (02/01/96 Version 7.1) should be used. This document refers to features not found in previous versions of the program. Older versions of the program should be discarded. Updated programs are available through Pacific States Marine Fisheries Commission (See Section III.M. on page 35).

NOTICE ABOUT Recaptures Events: A recaptured fish is a fish, with a PIT-tag, that is handled subsequent to the release event. Cases where it is known that only PIT-Tagged fish will be handled are commonly referred to as **Recapture Events**. The tagging file is used to record recaptures. The flag code **RE** must be added to each recapture tag record in the Tagging file. Tagging files in which each tagging record contains an RE flag are processed the same way as Tagging files. In the Header records described below, references will be made to substitute information about the recapture event into the appropriate Tagging Header records. For example, during a recapture event, use the name of the person handling or scanning fish for the recapture event in the field called **Tagger**. In cases where there is a question about how to set a Header Record value, defer to the judgement of the tagging coordinator or study designer.

A tagging file consists of seven record categories: **File Type, Program Version, Session or Project Message, Header, Tag, Note, and Additional Record Types**. All records must have at least four characters (even blank records will have four spaces). Any number of TAG and

NOTE records are allowed. A HEADER record is distinguished by spaces in columns 1-4 and a colon (:) in column 36. The first 19 HEADER records must match this specification document in format and order. A TAG record is distinguished by at least one right-justified integer (0-9) in columns 1-4. NOTE, HEADER, and SESSION MESSAGE records are distinguished by spaces in columns 1-4.

Tagging Headers can be generated with PITTAG.EXE Version 7.1.

1. **File Type Record** (Format description, See Section II. "Data Files" on page 1.)

FILE TYPE: TAGGING (Computer generated, mandatory)

2. **Program Version Record** (See Figure 1. Example Tagging File on page 39.)

PROGRAM VERSION: PITTAG.EXE ;PITVAL.EXE

(Computer generated, presence of PITVAL.EXE V2.1 is mandatory)

3. **Session or Project Message:** TEXT, 76 characters max., optional, entered when in initialization portion of PITTAG.EXE program.

4. **Header Records** The HEADER format used during the PIT tagging process will be provided by PTAGIS. The format of the header is standardized and cannot be changed. If the format is changed, it will not be recognized by the PTAGIS data system. The Mutable/Immutable designator (M/I) can be modified as necessary by the individual researcher and the default contents of the fields can also be modified to reflect individual data requirements as long as the format of the HEADER Record is not changed. Data should be entered using the following format: Data (columns 38 on to end) follows the colon (:) in column 36. Lines of alternate dashes and spaces bracket the Session Message on line 4.

- a. **FILE TITLE:** xxxYYDDD.zzz Mandatory format, includes a three character (xxx) ID (initials) of the individual tagging supervisor and the julian date (YYDDD). The extension (zzz) is optional, variable, and up to the discretion of the tagging supervisor.
- b. **TAG DATE:** MM/DD/YY HH:MM (Computer generated, mandatory. This is the default Tagging Date.) In the case of a recapture event, this is the date of that event. This date is computer generated. The time is Pacific Standard Time and is mandatory. In the case of a recapture event, this is the time of that event.
- c. **TAGGER:** Primary tagger, last name followed by a space and first initial of first name, 15 characters max. In the event of a recapture event, this is the name of the person scanning or handling fish. This is determined by the supervisor on site at the time data is collected. Mandatory.
- d. **HATCHERY SITE:** Four characters max. See Section III.F. on page 15 for codes. Leave blank if not tagged at hatchery. Mandatory if tagging occurs at a hatchery.
- e. **STOCK:** 15 characters max. Optional.
- f. **BROOD YR:** Last two digits of calendar year when eggs were collected. Optional.
- g. **MIGRATORY YEAR:** Last two digits of earliest possible calendar year when fish will out-migrate. Mandatory. During a recapture event use the current year.
- h. **TAG SITE:** Six characters max. See Section III.L.4. on page 20 for valid codes. Mandatory. During a recapture event this code designates the recapture site.
- i. **RACEWAY/TRANSECT:** Six characters max. Optional.

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- j. **CAPTURE METHOD:** Six characters max. See Section III.G. on page 17 for codes. **Mandatory.**
 - k. **TAGGING TEMP:** nn.n, temperature (°C) in tagging troughs. **Mandatory.**
 - l. **POST TAGGING TEMP:** nn.n, temperature (°C) of water in post-tagging holding facilities (*e.g.*-- an outdoor raceway). **Optional.**
 - m. **TAGGING METHOD:** AUTO, HAND or NONE. **Mandatory.** During a recapture event, use NONE.
 - n. **ORGANIZATION:** Six characters max. See Section III.I. on page 18 **Mandatory.**
 - o. **COORDINATOR ID:** See Section III.A. on page 12 for codes. **Mandatory.**
 - p. **RELEASE WATER TEMP:** nn.n, temperature (°C) of water in stream fish were released into. Required when fish are released to the stream and Tagging file will act as a Release Information File. During a recapture event this is the temperature of the water where recaptured fish are released. Otherwise, optional.
 - q. **RELEASE DATE:** MM/DD/YY HH:MM. Required when fish are released to the stream and the Tagging File will act as a Release Information File (not needed if using Variable Release Times, see below). The time is in Pacific Standard Time.
 - r. **RELEASE SITE:** Six characters max. See Section III.L.4. on page 20 for correct codes. Required when fish are released to the stream and Tagging File will act as a Release Information File.
 - s. **RELEASE RIVER KM:** See Section III.L.4. on page 20 for codes. Required when fish are released to the stream and Tagging File will act as a Release Information File. 27 characters maximum.

5. Tag Records

- a. **SEQUENCE NUMBER:** Columns 1-4, numeric. Mandatory.
- b. **PITCODE:** Columns 7-16, alpha-numeric. Mandatory.¹
- c. **CHECKSUM:** Columns 19-20, alpha-numeric. Optional. (Automatically generated by some scanners)
- d. **FORKLENGTH:** Columns 21-28, integer numeric and right-justified, in millimeters. Optional.
- e. **WEIGHT:** Columns 29-38, floating point numeric with one digit to the right of the decimal point and right-justified, in grams. Optional.
- f. **COMMENTS:** Three types: specific comments for individual fish.

(1) **POSITIONAL COMMENTS** (normally entered via the digitizer). Only Positional Comments defined in this specification document can be used in columns 41-45. Additional Positional Comments, required by individual research projects can be added after column 45, up to the maximum total of 50 columns, but will not be recognized by PTAGIS without prior PIT-Tag Steering Committee approval. Positional Comments will overwrite corresponding header information for the individual tag record it is assigned to when the tagging file is loaded into the central data base. The Positional Comments currently specified are as follows:

- (a). **SPECIES:** Column 41, numeric, Mandatory. See Section III.B. on page 13 for codes.
- (b). **RUN:** Column 42, numeric, Mandatory. See Section III.C. on page 13 for codes.
- (c). **REARING TYPE:** Column 43, alpha-numeric, Mandatory. See Section III.D. on page 13 for codes.
- (d). **VARIABLE RELEASE TIME = 01...99:** Columns 44-45. Each unique release time variable must have a corresponding accompanying note record that reports the actual date and time of release (See Section II.6. on page 5 "Note Records"). Required if fish are released after tagging to a stream and Tagging File will double as a Release Information File and a time (HH:MM) does not follow the RELEASE DATE (MM/DD/YY) in the Header Records of this file.

(2) **CONDITIONAL COMMENTS** (normally entered via the digitizer). Only approved Flag Codes will be recognized as Conditional Comments (See Section III.E. on page 13). Conditional Comments, if present, are preceded by a vertical bar symbol "|" and are separated by spaces². Space is allocated for up to 50 characters in this field.

¹ PIT tags can only be re-used in the Columbia River system if the Tag is removed from a fish and the tag code with check sum are changed to ten periods followed by a space and two periods (..... ..) prior to the tagging file being submitted to PTAGIS. All other fields in the record must remain intact for future reference.

² When this document refers to a space or spaces as characters within a file, it means the ASCII character code 32 decimal (0x20 i.e. 20 hexadecimal).

- (3) **TEXTUAL COMMENTS** (entered via the keyboard). Textual Comments are separated from Conditional Comments by a single vertical bar, "|" ³. If no Conditional Comments are present, Textual Comments are preceded by two vertical bar symbols "||" and consist of information specific to the individual fish. Space is allocated for up to 50 characters in this field.

6. Note Records

Note Records are defined as all text comments beginning in column five. Note Records are entered via the keyboard. All notes of a non-specific nature, or those pertaining to previous or subsequent fish recorded in the file, can be entered from the keyboard starting at column five.

VARIABLE RELEASE TIME Required if Tagging File doubles as a Release Information File and a time (HH:MM) does not follow the RELEASE DATE (MM/DD/YY) in the Header Records of this file. The record begins with an upper case "V" in column five, followed by the two digit release variable in columns six and seven, an equals sign "=" in column eight, the two digit month "MM" in columns nine and ten, a slash "/" in column 11, the two digit day "DD" in columns 12 and 13, a slash "/" in column 14, the two digit year "YY" in columns 15 and 16, a space in column 17, the two digit military-style hour of release, in Pacific Standard time, in column 18 and 19, a colon (:) in column 20, and the two digit minutes of release in columns 21 and 22:

e.g: V01=04/08/91 16:45

Only one Variable Release Time per line in the NOTE Record.

7. Additional Record Types Additional Record Types include Time Stamp (pre-formatted), blank lines, and Closing records. All Additional Record types start in column five. The Closing records are the same format as HEADER records and are created by the PITTAG.EXE program and are **mandatory**.

CLOSE DATE, beginning in column 5, (:) at column 36, MM/DD/YY HH:MM starting at column 38.

³ When the vertical bar character "|" is referred to in this document, it means the ASCII character code 124 decimal (0x7C). This character is sometimes referred to as a "pipe" character.

B. Release Information File

A **Release Information File** consists of information about a Tagging file, or a group of Tagging files, which was not available at the time of tagging. This type of file contains five record categories: **File Type**, **Header**, **Tag File Name(s)**, **Release Remarks**, and **Additional Record Types**. The **FILE TYPE** record must be formatted as previously mentioned (section II. Data Files). The **HEADER** records are formatted with the description beginning in column five, the colon (:) at column 36, and the data beginning in column 38. **TAG FILE NAME** records are formatted the same as the previously mentioned **HEADER** records. Additional Tag file titles must form a column, each with the same format (See Figure 2. Example Release Information File on page 40.) The **Release Information File** must be created and sent to PTAGIS prior to any of the fish from the tagging files reaching any interrogation site.

1. File Type Record (For format, see Section II. on page 1.)

FILE TYPE: RELEASE INFORMATION (Mandatory)

2. Header Records

- a. **FILE TITLE: RELYYXXX.ZZZ** Format includes REL, year of release (two digits), and the coordinator ID (XXX). The extension ZZZ is up to the tagging coordinator and is optional.
- b. **RELEASE DATE: MM/DD/YY HH:MM** Mandatory unless the release event is a Monitored Release in which case the value of Release Date is blank or null. Time is Pacific Standard time
- c. **RELEASE SITE: Name, six characters max.,** See Section III.L.4. on page 20, Mandatory.
- d. **MONITORED RELEASE: Mandatory.** Use YES if this is a Monitored Release, NO if it is not. If MONITORED RELEASE is YES then MONITORED RELEASE SITE CODE is mandatory otherwise Monitored Release Site Code is blank or null.
- e. **MONITORED RELEASE SITE CODE: Mandatory** if MONITORED RELEASE is YES. See Section III.I. on page 18 for list of valid three character codes.
- f. **RELEASE RIVER KM: See Section III.L. on page 20. 27 Characters Maximum.** Mandatory.
- g. **TRANSPORT DURATION: HH:MM** Time elapsed while fish are being transported. Optional.
- h. **TRANSPORT TYPE: Ten characters.** Optional.
- i. **RELEASE WATER TEMP: nn.n, (°C)** Mandatory.
- j. **ASSOCIATED MARK: (TEXT)** Optional. 76 characters max.

3. Tag File List

TAG FILE NAME: Name of tag file associated with release tags (12 characters max.). Follows the naming convention in section II.A.2.b. One or more tag file records are allowed. For example;

TAG FILE NAME	: CSM88189.FC1
TAG FILE NAME	: CSM88188.BS1
TAG FILE NAME	: CSM88189.BS2

4. **Release Remarks Note** field begins in column 5, up to 10 lines with no more than 200 characters total.

5. **Additional Record Types** Additional Record Types include Time Stamp (pre-formatted), blank lines, and Closing records. All Additional Record types start in column five.

CLOSE DATE, (:) at column 36, MM/DD/YY HH:MM starting at column 38.

C. Interrogation Files

Interrogation files are created at the monitor sites by the automatic detection equipment. The format is explained below, See Figure 3. Example Interrogation and Monitored Release File on page 41. All records are computer generated. Interrogation site codes (See Section III.K. on page 19), system ID codes, and coil ID codes (See Section III.N. on page 36) are assigned by PTAGIS when a new system is installed.

Interrogation files consist of four categories of records: **File Type, Start and End Messages, Interrogation Data Records, and Other Record Types.**

1. **File Type Record** (For format, See Section II. "Data Files" on page 1.)
FILE TYPE: INTERROGATION (Mandatory)
2. **Start and End Message Records**
 - a. **FILE TITLE:** File name. **Mandatory.** File Titles are 12 characters (format includes a three character site code and the julian date. The extension is reserved for partitions -- *e.g.* PRJ89114.A).
 - b. **FILE CREATED:** date and time (*e.g.* 24 April 1989 at 16:45). **Mandatory.**
 - c. **FILE CLOSED:** date and time (*e.g.* 25 April 1989 at 16:45). **Mandatory.**
3. **Interrogation Data Records** Computer generated. **Mandatory.**
 - a. | Column 1
 - b. **CONTROLLER:** Columns 3-4, alpha-numeric.
 - c. **DATE:** MM/DD/YY Columns 6-13.
 - d. **TIME:** HH:MM:SS Columns 15-22, Pacific Standard Time
 - e. **PITCODE:** Columns 24-33, alpha-numeric.
 - f. **CHECKSUM:** Columns 35-36, alpha-numeric.
 - g. **COILID:** Columns 39-40, 42-43, 45-46, 48-49, 51-52, 54-55, 57-58, and 60-61; alpha-numeric.
4. **Other Record Types** (Do not begin with " | " in column 1).
 - a. System checks.
 - b. Time Checks.
 - c. Blank Lines.

D. Monitored Release File

Same format as interrogation file, except that first record is **FILE TYPE: MONITORED RELEASE**.

Monitored release files are created by the MONITOR.EXE program which is available from the PIT Tag Operations Center. When these files are sent to PTAGIS, the date and time stamps associated with individual tag codes are used to update the release date associated with the individual tag code in the tag_data table.

PTOC is not responsible for the operation of any interrogation units used in monitored release events. Therefore, coil identification codes, monitor efficiency and other attributes of a monitored release not related to tag codes and date/time stamps are the responsibility of the organization managing the monitored release event.

The naming convention used for these files (the file names are automatically generated by the MONITOR.EXE program) are of the form: **XXXYYDDD.A**. **XXX** is the Monitored Release Site Code (See Section III.I. on page 18), **YY** is the last two digits of the year and **DDD** is the day of the year number.

Monitored Release Site Codes are coordinated through PTOC.

E. Mortality File

Mortality files are created using PITTAG.EXE. A mortality file consists of the following categories: **File Type Record; Header Records; Mortality Records; Note Records; and Additional Record Types** (See Figure 4. Example Mortality File on page 42.)

1. **File Type Record** (For format, see Section II. on page 1.)
 - a. By typing "PITTAG /M" (PITTAG <space> /capital M) to start the PITTAG.EXE program, the file type MORTALITY will automatically be entered.
2. **SESSION or PROJECT MESSAGE:** Text; 76 characters max. **Mandatory.**
3. **Header Records**
 - a. **FILE TITLE:** xxxYYDDD.zzz Format includes a 3 character (xxx) ID (initials) of the individual creating the mortality file and the julian date (YYDDD). The extension (zzz) is up to the coordinator and is optional.
 - b. **CREATION DATE:** MM/DD/YY HH:MM. **Mandatory.**
 - c. **COLLECTION SITE:** 6 character max. See Section III.L.4. on page 20 for correct code list. **Mandatory.**
 - d. **COLLECTION RIVER KM:** See Section III.L.4. on page 20. **Mandatory.**
 - e. **CAPTURE METHOD:** 6 character max. -See Section III.G. on page 17. **Mandatory.**
 - f. **RECOVERY ORGANIZATION:** Organization creating mortality file. 6 character max. - See Section III.I. on page 18. **Mandatory.**
 - g. **COORDINATOR ID:** See Section III.A. on page 12. **Mandatory.**
4. **Mortality Records**
 - a. **SEQUENCE NUMBER:** Columns 1-4, numeric. **Mandatory.**
 - b. **PITCODE:** Columns 7-16, alpha-numeric. **Mandatory.**
 - c. **CHECKSUM:** Columns 19-20, alpha-numeric. **Optional.**
 - d. **FORKLENGTH:** Columns 21-28, numeric. **Optional.**
 - e. **WEIGHT:** Columns 29-38, numeric with 1 digit right of the decimal point. **Optional.**
 - f. **MORT. DATE:** MM/DD/YY Columns 41-48. **Optional.**
 - g. **COMMENTS:** Conditional (Flag Codes, See Section III.E. on page 13) and textual, See Section II.A.5.f.(3) for format. **Optional.**
5. **Note Records** See Section II.A.5. on page 10 Note Records.
6. **Additional Record Types** See Section II.A.7. on page 5 Additional Record Types.

NOTE: ANY TAGS USED IN MORTALITY FILES CANNOT BE RE-USED. ALL MORTALITY TAGS ARE TO BE RETURNED TO PTOC.

F. Test Tag File

Test Tags are used to determine the health of an interrogation unit. There are two types of test tags. The first type of test tag is referred to colloquially as *stick tags* or formally as variable reference tags. These tags are usually embedded in a piece of wood and passed through the detection field of a monitor. The second type of test tag is referred to colloquially as *timer tags* or *spider tags*, or formally as fixed reference tags. These "tags" are a passive, electronic device that is powered by the electro-magnetic field of the interrogation unit they are testing. The timer tag fires at a frequency of every four hours. **ALL TEST TAGS MUST BE REGISTERED WITH PTOC VIA THE TEST TAG FILE TYPE.**

At least 10 test tags should be passed through remote interrogation systems daily, if possible, to ensure the system is functioning.

Please contact PTOC to coordinate submission of these files.

1. **File Type Record**
 - a. **FILE TYPE: TEST TAGS** (Computer generated, mandatory)
2. **ORGANIZATION: Six characters max. See Section III.I. on page 18 Mandatory**
3. **Tag Records**
 - a. **SEQUENCE NUMBER:** Columns 1-4, numeric. Optional.
 - b. **PITCODE:** Columns 7-16, alpha-numeric. **Mandatory.**
 - c. **CHECKSUM:** Columns 19-20, alpha-numeric. Optional.
4. **CLOSE DATE,** beginning in column 5, (:) at column 36, MM/DD/YY HH:MM starting at column 38.

Section III. Code Lists

The following are lists of standardized codes that must be used in the Columbia River Basin PIT Tag Information System (PTAGIS). If tagging coordinators have additional codes they would like to use, please submit these to your organization's PIT-Tag Steering Committee member for review by the PIT-Tag Steering Committee and inclusion in the next Specification Document.

Note: Remember, all code lists in the *1996 PIT TAG Specification Document* can be generated from the PTAGIS application. To see the list of valid river reach codes in the PTAGIS application, go to:

Reports --> Reference/Lookup --> Run Report --> A: River Reach Codes

To see any of the other codes, go to:

Reports --> Reference/Lookup --> Run Report --> B: Validation Codes

A. Coordinator ID Code Description

Coordinator ID codes are the initials (use all, three max.) for the person or project leader responsible for the PIT Tag data (not necessarily the person conducting the tagging or creating the tagging file). Only codes reported in this specification document will be recognized. (The date column of the following table represents the dates of responsibility for the associated agency of these tag coordinators.):

Tag Coordinator Identification Codes

Coord ID	Name	Org	From	To
AAB	ALAN BYRNE	IDFG	1993	PRESENT
BCJ	BRIAN JONASSON	ODFW	1992	PRESENT
BDA	BILL ARNSBERG	NPT	1992	PRESENT
BRB	BRIAN BECKMAN	NMFS	1993	PRESENT
CFM	CHARLES MORRILL	WDFW	1993	PRESENT
CSM	SCOTT MCCUTCHEON	NMFS	1985	1990
CSM	SCOTT MCCUTCHEON	BIOMRK	1991	PRESENT
DAC	DAVE CANNAMELA	IDFG	1990	PRESENT
DAN	DUANE NEITZEL	PNL	1991	PRESENT
DDT	DOUG TAKI	SHOBAN	1993	PRESENT
DMM	DOUG MARSH	NMFS	1993	PRESENT
DPC	DOUG CRAMER	PGE	1992	PRESENT
EFP	EARL PRENTICE	NMFS	1989	PRESENT
EJL	ERIC LEITZINGER	IDFG	1991	1994
EWB	ED BEUTTNER	IDFG	1987	PRESENT
FSE	STEVE ELLE	IDFG	1994	PRESENT
HLB	HOWARD BURGE	USFWS	1992	PRESENT
JKB	JODY BROSTROM	IDFG	1993	PRESENT
JSS	SCOTT SPALDING	SHOBAN	1993	PRESENT
KAA	KIM APPERSON	IDFG	1993	PRESENT
KB	KENT BALL	IDFG	1992	PRESENT
LCS	LOWELL STUEHRENBURG	NMFS	1987	1989
LRB	LARRY BASHAM	FPC	1988	PRESENT
PAK	PAUL KUCERA	NPT	1992	PRESENT
PKL	PAUL KLEIN	IDFG	1994	PRESENT
PTL	PETER LOFY	CTUIR	1993	PRESENT
RBK	RUSS KIEFER	IDFG	1988	PRESENT
RBR	RALPH ROSEBERG	USFWS	1993	PRESENT
RMK	ROBERT KEITH	SHOBAN	1993	PRESENT
RNI	ROBERT IWAMOTO	NMFS	1993	PRESENT
SA	STEVE ACHORD	NMFS	1987	PRESENT
TAF	TOM FLAGG	NMFS	1989	PRESENT
TBH	TERRY HOLUBETZ	IDFG	1994	PRESENT
TCB	TED BJORN	ICFWRU	1991	PRESENT
TDR	DEAN RHINE	IDFG	1993	PRESENT
TER	TOM RUEHLE	NMFS	1990	PRESENT
TGC	TIM COCHNAUER	IDFG	1989	PRESENT
TRW	TIM WALTERS	ODFW	1993	1995
TSC	TOM CURET	IDFG	1993	PRESENT
WDM	WILLIAM MUIR	NMFS	1990	PRESENT
WPC	WILLIAM CONNOR	NPT	1990	1991
WPC	WILLIAM CONNOR	USFWS	1991	PRESENT

B. Species Codes

1	=	Chinook
2	=	Coho
3	=	Steelhead
4	=	Sockeye
5	=	Chum
9	=	Non-Salmonid or Other Species

C. Run Codes

0	=	N/A
1	=	Spring
2	=	Summer
3	=	Fall
4	=	Winter
5	=	Unknown (use for river migrants or mixed stock rearing areas where run is unknown).

D. Rearing Type Codes

H	=	Hatchery reared fish
W	=	Wild fish or natural production
U	=	Unknown

E. Flag Codes

Code	Comment
0	= POSSIBLE 0 AGED CHINOOK
1<	= DESCALED LESS THAN 10 PERCENT
1>	= DESCALED GREATER THAN 10 PERCENT
1P	= DESCALED - PATCHY
1S	= DESCALED - SCATTERED
<2	= DESCALING BETWEEN 11 AND 20%
>2	= DESCALING GREATER THAN 20%
AD	= ADIPOSE FIN CLIP
AF	= ADIPOSE FIN DAMAGE
AN	= ANAL FIN DAMAGE
AT	= TAGGED AS ADULT
B	= BLEEDING AFTER TAGGED
BL	= BLOATED
BR	= BROOD STOCK
BS	= BODY SCARS

E. Flag Codes (Continued)

Code	Comment
CA	= CAUDAL FIN DAMAGE
CW	= CODED WIRE TAG
CY	= CYST
D	= DROPPED
DB	= DOUBLE TAGGED
DF	= DORSAL FIN DAMAGE
DI	= DEEP INSERTION
DK	= DARK
DO	= DIS-ORBITED EYE
DT	= DUPLICATE TAG
EB	= ELECTRO-SHOCKER BURN
EL	= DAMAGED EYE - LEFT - AFTER TAGGING
EM	= EXCESSIVE MUCOUS
ER	= DAMAGED EYE - RIGHT - AFTER TAGGING
FE	= FEMALE
FU	= FUNGUS
GS	= GILL SAMPLE
HE	= HEMMORHAGE
I	= BODY INJURY - PRIOR TO TAGGING
IM	= IMMATURE
JA	= JACK
JW	= JAW DAMAGE
KD	= POSSIBLE BKD
L	= FISH LOST/REJECTED TAG BEFORE RELEASE
LA	= LACERATIONS
LF	= LARGE FLUME FROM SEPARATOR
LP	= LEFT PECTORAL FIN RAY SAMPLE
LT	= LIGHT BODY COLOR
LV	= LEFT VENTRAL FIN CLIP
M	= MORTALITY
MA	= MALE
MB	= BLEEDING AT TAGGING/DIED PRE-REL
MK	= REMOVED FROM RELEASE GROUP(KILLED)
MS	= SAMPLE MORT (INTENTIONAL SACRIFICE)
MT	= MATURE
NF	= NON-FUNCTIONAL TAG ALSO IN FISH
NM	= NO MUCOUS
OP	= OPERCULE DAMAGE
PA	= PARASITE
PB	= PREVIOUSLY BRANDED
PR	= PRECOCIOUS
PT	= PECTORAL FIN DAMAGE
PV	= PELVIC FIN DAMAGE
Q1	= COMPLETE AND LEGIBLE FREEZE BRAND

E. Flag Codes (Continued)

Code	Comment
Q2	= BRAND IS LEDGIBLE BUT INCOMPLETE
Q3	= BRAND IS NOT LEDGIBLE
Q4	= BRAND ROTATION OR POSITION WRONG
Q5	= NO BRAND
Q6	= BRAND CAUSED LT. TO EXCESSIVE BURN
RE	= RECAPTURE
RP	= RIGHT PECTORAL FIN RAY SAMPLE
RV	= RIGHT VENTRAL FIN CLIP
SC	= SCOLIOSIS
SF	= SMALL FISH FLUME FROM SEPARATOR
SM	= SUBSEQUENT MORT
SU	= SURGERY
SV	= SILVERY BODY COLOR
TM	= TAGGED IN MUSCLE
UL	= ULCER
WD	= POSSIBLE WHIRLING DISEASE
X	= DUPLICATE TAG FOR PRE-RELEASE MORT
Y	= POSSIBLE AGE ONE (YEARLING)

F. Hatchery Codes

Code	Hatchery Name
ABEH	ABERNATHY HATCHERY
BEAH	BEAVER CREEK HATCHERY
BIGC	BIG CREEK HATCHERY
BONH	BONNEVILLE HATCHERY
CARS	CARSON NATIONAL FISH HATCHERY
CASC	CASCADE HATCHERY
CHEL	CHELAN PUD HATCHERY
CLAH	CLACKAMAS HATCHERY
CLWH	CLEARWATER HATCHERY
COWH	COWLITZ HATCHERY
CROP	CROOKED RIVER REARING POND
DEXT	DEXTER POND
DWOR	DWORSHAK NATIONAL FISH HATCHERY
EAGH	EAGLE CREEK NATIONAL FISH HATCHERY
EAGL	EAGLE HATCHERY
EBNK	EAST BANK HATCHERY FACILITY
ELOK	ELOKOMIN HATCHERY

F. Hatchery Codes (Continued)

Code	Hatchery Name
ENTH	ENTLAT NATIONAL FISH HATCHERY
GNAT	GNAT CREEK HATCHERY
GRAY	GRAYS RIVER HATCHERY
HAGE	HAGERMAN NATIONAL FISH HATCHERY
IRRI	IRRIGON HATCHERY
KALA	KALAMA FALLS HATCHERY
KLAS	KLASKANINE HATCHERY
KLIH	KLICKITAT HATCHERY
KOOS	KOOSKIA NATIONAL FISH HATCHERY
LEAB	LEABURG HATCHERY
LEAV	LEAVENWORTH NATIONAL FISH HATCHERY
LEWH	LEWIS RIVER HATCHERY
LOOH	LOOKINGGLASS HATCHERY
LOWK	LOWER KALAMA HATCHERY
LWSH	LITTLE WHITE SALMON HATCHERY
LYFE	LYONS FERRY HATCHERY
MARI	MARION FORKS HATCHERY
MAVA	MAGIC VALLEY HATCHERY
MCCA	MCCALL HATCHERY
MCKE	MCKENZIE HATCHERY
MONT	MONTLAKE HATCHERY
NCHH	NACHES HATCHERY
NISP	NIAGARA SPRING HATCHERY
OASP	OAK SPRINGS HATCHERY
OXBO	OXBOW HATCHERY
PAHH	PAHSIMEROI HATCHERY
POWP	POWELL REARING POND
PRDH	PRIEST RAPIDS HATCHERY
RAPH	RAPID RIVER HATCHERY
REDP	RED RIVER REARING POND
RINH	RINGOLD HATCHERY
ROAR	ROARING RIVER HATCHERY
ROBU	ROUND BUTTE HATCHERY
RRHH	ROCKEY REACH HATCHERY
SAND	SANDY HATCHERY
SAWT	SAWTOOTH HATCHERY
SIMP	SIMILKAMEEN POND/HATCHERY
SKAM	SKAMANIA HATCHERY
SOSA	SOUTH SANTIAM HATCHERY
SPEE	SPEELYAI HATCHERY
SPRC	SPRING CREEK NATIONAL FISH HATCHERY
STAY	STAYTON POND
SWSP	SWEETWATER SPRINGS HATCHERY
TOUT	TOUTLE HATCHERY

F. Hatchery Codes (Continued)

Code	Hatchery Name
TRAS	TRASK HATCHERY
TROJ	TROJAN POND
TUCH	TUCANNON HATCHERY
TURO	TURTLE ROCK HATCHERY
VANC	VANCOUVER HATCHERY
WAHA	WASHOUGAL HATCHERY
WAHK	WAHKEENA POND
WALH	WALLOWA HATCHERY
WELH	WELLS HATCHERY, WDFW
WILH	WILLAMETTE/DEXTER HATCHERY
WILL	WILLARD NATIONAL FISH HATCHERY
WINT	WINTHROP NATIONAL FISH HATCHERY
WSPH	WARM SPRINGS HATCHERY
YAKH	YAKIMA HATCHERY

G. Capture Method Codes

BPRCOL	=	Bypass Facility Raceway Collection
BPSUB	=	Bypass facility sub-sample
BSEINE	=	Beach Seine
BTRAP	=	Box Trap
CMTRAP	=	Cray-Meecken Trap
DIPNET	=	Dip Net
DIPTRP	=	Dipper Trap
DIVSYS	=	PIT Tag diversion system
GWAIRL	=	Gatewell Air Lift
GWDIP	=	Gatewell Dip net
GWFYKE	=	Gatewell Fyke net
HOOK	=	Hook and line
MTRAP	=	Minnow Trap
PSEINE	=	Purse Seine
SCOTRP	=	Scoop Trap
SCREWT	=	Screw Trap
SHOCK	=	Electro-Shock
WTRAP	=	Weir Trap

H. Tagging Method Codes

AUTO = Automatic Tag Injector
HAND = Hand Operated Syringe
NONE = Not Tagging -- Use for Recapture Events

I. Organization Codes

BIOMRK = Biomark
CPUD = Chelan Public Utility District
CTUIR = Confederated Tribes of Umatilla I.R.
FPC = Fish Passage Center
ICFWRU = Idaho Cooperative Fish and Wildlife Research Unit
IDFG = Idaho Dept. of Fish and Game
NMFS = National Marine Fisheries Service
NPT = Nez Perce Tribe
ODFW = Oregon Dept. of Fish and Wildlife
PGE = Portland General Electric
PNL = Pacific Northwest Laboratory
PSMFC = Pacific States Marine Fisheries Commission
SHOBAN = Shoshone-Bannock Indian Nation
USFWS = U.S. Fish and Wildlife Service
WDFW = Washington Dept. of Fish & Wildlife
YINN = Yakama Indian Nation

J. Monitored Release Codes

Code	Monitored Release Name
CAR	CARLTON ACCLIMATION POND
CHI	CHIWAWA REARING POND
DRY	DRYDEN ACCLIMATION POND

K. Interrogation Site Codes

Site Name	Code	River Kilometer	Active Period
Bonneville Dam DSM1 Subsample	= BVJ	234	5/1/92-PRESENT
Bonneville Dam Adult Trap	= BVA	234	1989 - 1989
Challis Diversion North	= CHN	522.525	9/11/91-PRESENT
Challis Diversion South	= CHS	522.523	9/9/91-PRESENT
Clearwater River Trap Juvenile	= CLJ	522.224.010	3/30/89-PRESENT
Imnaha River Trap Juvenile	= IMJ	522.308.007	3/1/94-PRESENT
John Day Dam Gatewell Airlift Subsample	= JDJ	347	5/14/92-PRESENT
Lemhi River Weir Juvenile	= LWJ	522.303.416.049	
Little Goose Dam Juvenile	= GOJ	522.113	4/7/87-PRESENT
Lower Granite Dam Juvenile	= GRJ	522.173	3/25/88-PRESENT
Lower Granite Dam Adult	= GRA	522.173	4/22/88-PRESENT
Lower Monumental Dam Juvenile	= LMJ	522.067	3/93-PRESENT
McNary Dam Juvenile	= MCJ	470	4/8/88-PRESENT
Prosser, Juvenile (Chandler Diversion)	= PRJ	539.076	4/25/89-PRESENT
Redfish Lake Creek Trap A	= RFA	522.303.615.003	4/1/95 - PRESENT
Redfish Lake Creek Trap B	= RFB	522.303.615.003	4/1/95 - PRESENT
Rosa Dam Juvenile	= ROZ	539.206	3/26/92-3/29/92
Salmon River Trap Juvenile	= SAJ	522.303.103	3/28/93 - PRESENT
Snake River Trap Juvenile	= SNJ	522.225	3/23/89-PRESENT
Sunnyside Juvenile	= SSJ	539.167	4/11/91-6/4/91
Wanapum Dam Juvenile (Gatewell Dip)	= WAJ	415.008	4/1/94 - PRESENT
Wapato Diversion Juvenile	= WPJ	539.172	5/8/91-6/4/91
Yakima River Trap Juvenile	= YIJ	539.014	5/4/90-6/10/90

L. Tag, Release, and Collection Site Codes and Associated River KMs:

1. **River kilometer** - Hierarchical coding scheme: Kilometers from mouth of Columbia to Tag, Release or Collection site or (up to 7th order stream for point release sites), with each tributary delimited with a period.(eg. code for location of Lower Granite dam is 522.173 = 522 km from the mouth of the Columbia to the mouth of the Snake, and 173 km from the mouth of the Snake to the dam.) Each segment of the code is three characters long, zero padded from the left. If additional sites are required contact PIT-Tag Steering Committee member to add requests to the list. PTAGIS supports 27 characters in the Tagging and Release Information File headers, and twenty three characters in the following tables.

For in-river marking specify river kilometers using the mouth of the stream in this list that is closest down-stream. Then, append an additional suffix to the release river kilometer that represents the distance (in kilometers) of your marking from that release site.

For example, for a project that is tagging 10 Kilometers above the Salmon River South Fork confluence, the correct codes to use would be:

SALRSF

522.303.215.010

2. **GIS Hydrounits** - See Appendix B for a more formal treatment of this topic. For the purposes of this system, this is an eight digit number assigned to areas of land based on drainages. The GIS Hydrounits for the recognized site codes are listed below. However, there are several rivers (Columbia, Snake, Middle Fork of the Salmon) that flow through more than one drainage. The hydrounit codes listed below for these rivers only contain the digits that are common to all drainages along that river. For example, for the tag site COLR (Columbia River), only the first three digits, 170, are common to all the areas drained by the Columbia river. To determine the complete GIS Hydrounit code for the site you are tagging at, you need to know the precise point along the river where you are tagging, and then locate that point on a GIS map (see Appendix D for these maps). Your state or federal representative on the PIT-Tag Steering Committee should be able to aid in this. Also known as USGS Hydro-unit.

3. Point Release Sites vs. Fixed Release Sites

In the following two tables, the column labeled **I** contains an N or Y. This indicator specifies 'Y' if the associated Tag, Release or Collection site is a "Point Release Site", otherwise the indicator specifies 'N'.

A point release site cannot be modified with an additional suffix or segment. Examples of point release sites are dams, weirs, traps, bridges etc. For release locations upstream from point release sites, find the code for the confluence of the first stream down from the point release site and then append the suffix you need to that River KM value.

4. **List of Tag, Release or Collection Sites** - With associated River Kilometer and GIS Hydrounit.

Tag, Release, and Collection Site Codes and Associated River KMs:

a. Tag, Release or Collection Site by Site Code

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	4JULYC	FOURTH OF JULY C	522.303.630	N	1455	17060201
3/1/94	ALTULC	ALTURAS L C	522.303.633	N	1458	17060201
3/1/94	AMERR	AMERICAN R	522.224.120.101	N	967	17060305
3/1/94	BBC	BIG BEEF C		Y		17110018
3/1/94	BCANF	BIG CANYON FACILITY	522.271.131.018.001	Y	943	17060105
3/1/94	BEARC	BEAR C	522.224.120.037.081	N	984	17060301
3/1/94	BEARVC	BEAR VALLEY C	522.303.319.170	N	1314	17060205
3/1/94	BEAVEC	BEAVER C	522.303.642	N	1467	17060201
3/1/94	BEDRKC	BEDROCK C	522.224.042	N	788	10760306
3/1/94	BIGC	BIG C	522.303.319.029	N	1173	17060206
3/1/94	BIGCAC	BIG CANYON C	522.224.057	N	803	10760306
3/1/94	BIGFLC	BIG FLAT C	522.224.120.037.113.026	N	1042	17060204
3/1/94	BO1	BONNEVILLE D PHI	234	Y	234	17080001
3/1/94	BO2	BONNEVILLE D PH2	234	Y	234	17080001
3/1/94	BOUNDC	BOUNDARY C	522.303.319.154	N	1298	17060205
3/1/94	BRUSHC	BRUSHY FORK C	522.224.120.037.113.011	N	1027	17060303
3/1/94	BSHEEC	BIG SHEEP C	522.308.032	N	862	17060102
3/1/94	BURNLC	BURNT LOG C	522.303.215.060.024.024	N	1148	17060208
3/1/94	CAMASC	CAMAS C	522.303.319.057	N	1011	17060206
3/1/94	CAPEHC	CAPEHORN C	522.303.319.170.010	N	1324	17060205
12/11/95	CARP	CARLTON ACCLIMATION P	843.058	Y	902	17020008
3/1/94	CATCMF	CATHERINE CREEK, M FK	522.271.232.052.005	N	1082	17060104
3/1/94	CATCNF	CATHERINE CREEK, N FK	522.271.232.052	N	1077	17060104
3/1/94	CATCSF	CATHERINE CREEK, S FK	522.271.232.052	N	1077	17060104
3/1/94	CATHEC	CATHERINE C	522.271.232	N	1025	17060104
3/1/94	CFCTRP	CROOKED FK C T	522.224.120.037.113.003	Y	1019	17060303
3/1/94	CHAMBC	CHAMBERLAIN C	522.303.282	N	1107	17060207
3/1/94	CHAMPC	CHAMPION C	522.303.631	N	1456	17060201
3/1/94	CHAMWF	CHAMBERLAIN C WF	522.303.282.024	N	1131	17060207
3/1/94	CHANDL	CHANDLER CANAL	539.076	N	615	17030003
12/11/95	CHIP	CHIWAHA REARING P	754.077.002	Y	834	17020011
3/1/94	CLEARC	CLEAR C	522.224.120.004	N	870	17060305
3/1/94	CLELMD	CLE ELUM D	539.299.013	Y	851	17030001
3/1/94	CLELMR	CLE ELUM R	539.299	N	838	17030001
12/20/95	CLWH	CLEARWATER H	*	N		N/A
3/1/94	CLWR	CLEARWATER R	522.224	N	746	17060306
3/1/94	CLWRNF	CLEARWATER R, N FK	522.224.065	N	811	17060308
3/1/94	CLWRSF	CLEARWATER R, S FK	522.224.120	N	866	17060305
3/1/94	CLWTRP	CLEARWATER T	522.224.010	Y	756	17060306
12/20/95	COLR	COLUMBIA R	*	N		170
3/1/94	COLTC	COLT C	522.224.120.037.113.020	N	1036	17060303
3/1/94	COTNWC	COTTONWOOD C	522.224.031	N	777	17060306
3/1/94	CROOKC	CROOKED FORK C	522.224.120.037.113	N	1016	17060303
12/11/95	CROOKP	CROOKED RIVER P	522.224.120.094.015	Y	975	17060305

Tag, Release, and Collection Site Codes and Associated River KMs:

a. Tag, Release or Collection Site by Site Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	CROOKR	CROOKED R	522.224.120.094	N	960	17060305
3/1/94	CROTRP	CROOKED RIVER T	522.224.120.094.001	Y	961	17060305
12/11/95	CURP	CURL LAKE REARING P	522.100.079	Y	701	17060107
3/1/94	DAGGEC	DAGGER C	522.303.319.155	N	1299	17060205
3/1/94	DECKEC	DECKER C	522.303.624.001	N	1450	17060201
3/1/94	DRYP	DRYDEN ACCLIMATION P	754.026	Y	780	17020011
3/1/94	DWOR	DWORSHAK H	522.224.065	Y	811	17060306
12/20/95	EAGL	EAGLE H	*	N		N/A
3/1/94	EAGLEC	EAGLE C	522.224.120.037.253.003	N	1159	17060301
12/20/95	EBNK	EAST BANK H	*	N		N/A
3/1/94	ELDORC	ELDORADO C	522.224.087.041	N	874	17060304
3/1/94	ELKC	ELK C	522.303.319.170.014	N	1328	17060205
3/1/94	ENTH	ENTIAT H	778.017	Y	795	17020010
3/1/94	FALLC	FALL C	522.303.319.163	N	1307	17060205
3/1/94	FISHC	FISH C	522.224.120.037.039	N	942	17060303
3/1/94	FISHEC	FISHER C	522.303.628	N	1453	17060201
3/1/94	FISTRP	FISH C T	522.224.120.037.039.002	Y	1044	17060303
3/1/94	FIVEMC	FIVE MILE C	522.224.120.094.018	N	978	17060305
3/1/94	FLOSSC	FLOSSIE C	522.303.282.027	N	1134	17060207
3/1/94	FRENC	FRENCHMAN C	522.303.647	N	1472	17060201
3/1/94	GEDCWF	GEDNEY C W FK	522.224.120.037.029.005	N	937	17060302
3/1/94	GEDNEC	GEDNEY C	522.224.120.037.029	N	932	17060302
3/1/94	GOLDC	GOLD C	522.303.621	N	1446	17060201
3/1/94	GRANDR	GRANDE RONDE R	522.271	N	793	17060106
12/20/95	HAGE	HAGERMAN H	*	N		N/A
3/1/94	HAZARC	HAZARD C	522.303.140.031	N	996	17060209
3/1/94	HCD	HELLS CANYON D	522.397	Y	919	17050201
3/1/94	HELLRC	HELL ROARING C	522.303.631	N	1456	17060201
3/1/94	HERDC	HERD C	522.303.552.014	N	1391	17060202
3/1/94	HUCKLC	HUCKELBERRY C	522.303.624	N	1449	17060201
3/1/94	HWY93B	US HWY 93 BRIDGE	522.303.647	Y	1472	17060201
3/1/94	ICICLC	ICICLE C	754.041	N	795	17020011
3/1/94	IHR	ICE HARBOR D	522.016	Y	538	17060110
3/1/94	IMNAHR	IMNAHA R	522.308	N	830	17060102
3/1/94	IMNAHW	IMNAHA R W	522.308.074	Y	904	17060102
3/1/94	IMNTRP	IMNAHA T	522.308.007	Y	837	17060102
12/20/95	IRRI	IRRIGON H	*	N		N/A
12/11/95	JACKSC	JACKS C	522.225.047	N	793	17060306
3/1/94	JDA	JOHN DAY D	347	Y	347	17070101
3/1/94	JOHNC	JOHNS C	522.224.120.056	N	922	17060305
3/1/94	JOHNSC	JOHNSON C	522.303.215.060.024	N	1124	17060208
3/1/94	KNAPPC	KNAPP C	522.303.319.170.015	N	1329	17060205
3/1/94	KNOXB	KNOX BRIDGE	522.303.215.112	Y	1152	17060208
3/1/94	KOOS	KOOSKIA H	522.224.120.004.001	Y	871	17060305
3/1/94	LAKEC	LAKE C	522.303.215.059.045	N	1144	17060208

Tag, Release, and Collection Site Codes and Associated River KMs:

a. Tag, Release or Collection Site by Site Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	LEAB	LEABURG H	163.282.056	Y	501	17090004
3/1/94	LEAV	LEAVENWORTH H	754.041.005	Y	800	17020011
3/1/94	LEMHIR	LEMHI R	522.303.416	N	1241	17060204
3/1/94	LEMHIW	LEMHI W	522.303.416.049	Y	1290	17060204
3/1/94	LGR	LOWER GRANITE D	522.173	Y	695	17060107
3/1/94	LGS	LITTLE GOOSE D	522.113	Y	635	17060107
12/11/95	LITCAC	LITTLE CANYON C	522.224.057.005	N	808	17060306
3/1/94	LMN	LOWER MONUMENTAL D	522.067	Y	589	17060110
3/1/94	LOLOC	LOLO C	522.224.087	N	833	17060306
3/1/94	LOOH	LOOKINGGLASS H	522.271.137.003	Y	933	17060106
3/1/94	LOOKGC	LOOKING GLASS C	522.271.137	N	930	17060106
3/1/94	LOONC	LOON C	522.303.319.073	N	1217	17060205
3/1/94	LOSTIR	LOSTINE R	522.271.131.042	N	966	17060105
3/1/94	LSALR	LITTLE SALMON R	522.303	N	825	170602
3/1/94	LSHEEF	LITTLE SHEEP FACILITY	522.308.032.005.008	Y	875	17060102
3/1/94	LYFE	LYONS FERRY H	522.095	Y	617	17060107
3/1/94	MARSHC	MARSH C	522.303.319.170	N	1314	17060205
3/1/94	MARTRP	MARSH C T	522.303.319.170.011	Y	1325	17060205
12/20/95	MAVA	MAGIC VALLEY H	*	N		N/A
3/1/94	MAYSC	MAYS C	522.303.631	N	1456	17060201
12/20/95	MCCA	MCCALL H	*	N		N/A
3/1/94	MCKE	MCKENZIE H	163.282.053	Y	498	17090004
3/1/94	MCKER	MCKENZIE R	163.282	N	445	17090004
3/1/94	MCN	MCNARY D	470	Y	470	17070101
3/1/94	MEADOC	MEADOW C	522.224.120.037.031	N	934	17060302
3/1/94	MINAMR	MINAM R	522.271.131.016	N	940	17060106
12/11/95	MISSC	MISSION C	522.224.018.016	N	780	17060306
12/20/95	MONT	MONTLAKE H	*	N		N/A
3/1/94	MOOSEC	MOOSE C	522.303.282.031	N	1138	17060207
3/1/94	NATCHR	NATCHES R	539.187	N	726	17030002
3/1/94	NEWSOC	NEWSOME C	522.224.120.084	N	950	17060305
12/20/95	NISP	NIAGARA SPRINGS H	*	N		N/A
12/11/95	OROF C	OROFINO C	522.224.072	N	818	17060306
3/1/94	PAHP	PAHSIMEROI P	522.303.489.011	N	1325	17060202
3/1/94	PAHSIR	PAHSIMEROI R	522.303.489	N	1314	17060202
12/20/95	PAHSIW	PAHSIMEROI W	522.303.489.002	Y	1316	17060202
3/1/94	PAHTRP	PAHSIMEROI R T	522.303.489.002	Y	1316	17060202
3/1/94	PAPOOC	PAPOOSE C	522.224.120.037.105	N	1008	17060303
3/1/94	PETEK C	PETE KING C	522.224.120.037.003	N	906	17060303
8/1/95	PETIL	PETIT LAKE	522.303.633.002.002	Y	1462	17060201
3/1/94	PETIL C	PETIT L C	522.303.633.002	N	1460	17060201
3/1/94	POLEC	POLE C	522.303.642	N	1467	17060201
12/11/95	POTR	POTLATCH R	522.224.024	N	770	17060306
12/11/95	POWP	POWELL REARING P	522.224.120.037.113	Y	1016	17060302
3/1/94	PRD	PRIEST RAPIDS D	639	Y	639	17020016

Tag, Release, and Collection Site Codes and Associated River KMs:

a. Tag, Release or Collection Site by Site Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
12/11/95	PRDH	PRIEST RAPIDS H	639	Y	639	17020016
3/1/94	PROSRD	PROSSER D	539.076	Y	615	17030003
12/20/95	PROTRP	PROSSER T	539.076	Y	617	17030003
3/1/94	RAPH	RAPID R H	522.303.140.007.006	Y	978	17060210
3/1/94	RAPIDR	RAPID R	522.303.140.007	N	972	17060210
3/1/94	REDFL	REDFISH L	522.303.615.005	N	1445	17060201
3/1/94	REDFLC	REDFISH L C	522.303.615	N	1440	17060201
3/1/94	REDP	RED R REARING P	522.224.120.101.027	N	994	17060305
3/1/94	REDR	RED R	522.224.120.101	N	967	17060305
3/1/94	REDRSF	RED R, S FK	522.224.120.101.028	N	995	17060305
3/1/94	REDTRP	RED R T	522.224.120.101.001	Y	968	17060305
3/1/94	RELIEC	RELIEF C	522.224.120.094.013	N	973	17060305
6/16/95	RINH	RINGOLD H	567	Y	567	17020016
3/1/94	RIS	ROCK ISLAND D	730	Y	730	17020010
3/1/94	RLCTRP	REDFISH L C T	522.303.615.003	Y	1443	17060201
3/1/94	ROSAD	ROSA D	539.206	Y	745	17030001
3/1/94	RPDTRP	RAPID R T	522.303.140.007.007	Y	979	17060210
3/1/94	RRE	ROCKY REACH D	763	Y	763	17020010
3/1/94	RUNNIC	RUNNING C	522.224.120.037.253	N	1156	17060301
3/1/94	RUSHC	RUSH C	522.303.319.029.011	N	1184	17060206
3/1/94	SALEFT	SALMON R E FK T	522.303.552.029	Y	1406	17060201
3/1/94	SALEFW	SALMON R E FK W	522.303.552.030	Y	1407	17060202
3/1/94	SALR	SALMON R	522.303	N	825	17060209
3/1/94	SALREF	SALMON R E FK	522.303.552	N	1377	17060202
3/1/94	SALRMF	SALMON R M FK	522.303.319	N	1144	17060206
3/1/94	SALRNF	SALMON R N FK	522.303.381	N	1206	17060204
3/1/94	SALRSF	SALMON R S FK	522.303.215	N	1040	17060208
3/1/94	SALSFW	SALMON R S FK W	522.303.215.111	Y	1151	17060202
3/1/94	SALTRP	SALMON T	522.303.103	Y	910	17060209
3/1/94	SAWT	SAWTOOTH H	522.303.617	Y	1442	17060201
3/1/94	SAWTRP	SAWTOOTH T	522.303.617	Y	1442	17060201
3/1/94	SECESR	SECESH R	522.303.215.059	N	1099	17060208
3/1/94	SFSTRP	SALMON R S FK T	522.303.215.111	Y	1151	17060202
3/1/94	SIMP	SIMILKAMEEN P/H	941.121.008	Y	1070	17020007
3/1/94	SLATEC	SLATE C	522.303.106	N	931	17060209
3/1/94	SMILEC	SMILEY C	522.303.644	N	1469	17060201
3/1/94	SNAKER	SNAKE R	522	N	522	17060110
3/1/94	SNKTRP	SNAKE T	522.225	Y	747	17060103
3/1/94	SQUAWC	SQUAW C	522.224.120.037.096	N	999	17060303
3/1/94	SSD	SUNNYSIDE D	539.167	Y	706	17030003
3/1/94	SSIDEC	SUNNYSIDE CANAL	539.167	N	706	17030003
3/1/94	SSIDES	SUNNYSIDE SCREEN	539.167.001	Y	707	17030003
3/1/94	STANLC	STANLY L C	522.303.609.009	N	1443	17060201
3/1/94	STANLE	STANLEY (GAGE2945)	522.303.609	Y	1434	17060201
3/1/94	SUL	SULLIVAN D	163.043	Y	206	17090102

Tag, Release, and Collection Site Codes and Associated River KMs:

a. Tag, Release or Collection Site by Site Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	SULFUC	SULFER C	522.303.319.150	N	1294	17060205
12/11/95	SWSP	SWEETWATER SPRINGS H	522.224.012.006.010.004	Y	778	17060306
3/1/94	TDA	THE DALLES D	308	Y	308	17070101
12/11/95	TUCH	TUCANNON RIVER H	522.100.069	Y	691	17060107
12/11/95	TUCR	TUCANNON R	522.100	N	622	17060107
3/1/94	TURO	TURTLE ROCK P	765	Y	765	17020010
3/1/94	VALEYC	VALLEY C	522.303.609	N	1434	17060201
3/1/94	VATC	VAT C	522.303.633.003	N	1461	17060201
3/1/94	VGISNB	VAN GIESSEN BRIDGE	539	Y	539	17030003
3/1/94	WALH	WALLOWA H	522.271.131.063.001	Y	988	17060105
3/1/94	WALLOR	WALLOWA R	522.271.131	N	924	17060106
3/1/94	WAPATC	WAPATO CANAL	539.171	N	710	17030003
3/1/94	WAPATD	WAPATO D	539.172	Y	711	17030003
3/1/94	WAPATS	WAPATO SCREEN	539.172.001	Y	712	17030003
12/11/95	WELH	WELLS H	830	Y	830	17020005
3/1/94	WENATR	WENATCHEE R	754	N	754	17020011
3/1/94	WENR	WENAHA R	522.271.073	N	866	17060106
3/1/94	WENRNF	WENAHA R. N FK	522.271.073.035	N	901	17060106
3/1/94	WENRSF	WENAHA R. S FK	522.271.073.035	N	901	17060106
3/1/94	WHITCC	WHITE CAP C	522.224.120.037.264	N	1167	17060303
3/1/94	WHITSC	WHITE SAND C	522.224.120.037.113	N	1016	17060303
3/1/94	WILLIC	WILLIAMS C	522.303.622	N	1447	17060201
3/1/94	WILLR	WILLAMETTE R	163	N	163	17090012
3/1/94	WINT	WINTHROP H	843.081	Y	924	17020005
3/1/94	WOPTXD	WOPATOX D	539.187.028	Y	754	17030002
3/1/94	WPOOSH	WISH POOSH C	539.299.004	N	852	17030001
3/1/94	YAKIMR	YAKIMA R	539	N	539	17030003
3/1/94	YANKWF	YANKEE FK, W FK	522.303.591.011	N	1427	17060201
3/1/94	YELLC	YELLOWBELLY L C	522.303.633.001	N	1459	17060201

b. Tag, Release or Collection Site by River Kilometer Code

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
12/20/95	COLR	COLUMBIA R	*	N		170
12/20/95	CLWH	CLEARWATER H	*	N		N/A
12/20/95	EAGL	EAGLE H	*	N		N/A
12/20/95	EBNK	EAST BANK H	*	N		N/A
12/20/95	HAGE	HAGERMAN H	*	N		N/A
12/20/95	IRRI	IRRIGON H	*	N		N/A
12/20/95	MAVA	MAGIC VALLEY H	*	N		N/A
12/20/95	MCCA	MCCALL H	*	N		N/A

b. Tag, Release or Collection Site by River Kilometer Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
12/20/95	MONT	MONTLAKE H	*	N		N/A
12/20/95	NISP	NIAGARA SPRINGS H	*	N		N/A
3/1/94	WILLR	WILLAMETTE R	163	N	163	17090012
3/1/94	SUL	SULLIVAN D	163.043	Y	206	17090102
3/1/94	MCKER	MCKENZIE R	163.282	N	445	17090004
3/1/94	MCKE	MCKENZIE H	163.282.053	Y	498	17090004
3/1/94	LEAB	LEABURG H	163.282.056	Y	501	17090004
3/1/94	BO1	BONNEVILLE D PH1	234	Y	234	17080001
3/1/94	BO2	BONNEVILLE D PH2	234	Y	234	17080001
3/1/94	TDA	THE DALLES D	308	Y	308	17070101
3/1/94	JDA	JOHN DAY D	347	Y	347	17070101
3/1/94	MEN	MENARY D	470	Y	470	17070101
3/1/94	SNAKER	SNAKE R	522	N	522	17060110
3/1/94	IHR	ICE HARBOR D	522.016	Y	538	17060110
3/1/94	LMN	LOWER MONUMENTAL D	522.067	Y	589	17060110
3/1/94	LYFE	LYONS FERRY H	522.095	Y	617	17060107
12/11/95	TUCR	TUCANNON R	522.100	N	622	17060107
12/11/95	TUCH	TUCANNON RIVER H	522.100.069	Y	691	17060107
12/11/95	CURP	CURL LAKE REARING P	522.100.079	Y	701	17060107
3/1/94	LGS	LITTLE GOOSE D	522.113	Y	635	17060107
3/1/94	LGR	LOWER GRANITE D	522.173	Y	695	17060107
3/1/94	CLWR	CLEARWATER R	522.224	N	746	17060306
3/1/94	CLWTRP	CLEARWATER T	522.224.010	Y	756	17060306
12/11/95	SWSP	SWEETWATER SPRINGS H	522.224.012.006.010.004	Y	778	17060306
12/11/95	MISSC	MISSION C	522.224.018.016	N	780	17060306
12/11/95	POTR	POTLATCH R	522.224.024	N	770	17060306
3/1/94	COTNWC	COTTONWOOD C	522.224.031	N	777	17060306
3/1/94	BEDRKC	BEDROCK C	522.224.042	N	788	10760306
3/1/94	BIGCAC	BIG CANYON C	522.224.057	N	803	10760306
12/11/95	LITCAC	LITTLE CANYON C	522.224.057.005	N	808	17060306
3/1/94	DWOR	DWORSHAK H	522.224.065	Y	811	17060306
3/1/94	CLWRNF	CLEARWATER R, N FK	522.224.065	N	811	17060308
12/11/95	OROF	OROFINO C	522.224.072	N	818	17060306
3/1/94	LOLOC	LOLO C	522.224.087	N	833	17060306
3/1/94	ELDORC	ELDORADO C	522.224.087.041	N	874	17060304
3/1/94	CLWRSF	CLEARWATER R, S FK	522.224.120	N	866	17060305
3/1/94	CLEARC	CLEAR C	522.224.120.004	N	870	17060305
3/1/94	KOOS	KOOSKIA H	522.224.120.004.001	Y	871	17060305
3/1/94	PETEK	PETE KING C	522.224.120.037.003	N	906	17060303
3/1/94	GEDNEC	GEDNEY C	522.224.120.037.029	N	932	17060302
3/1/94	GEDCWF	GEDNEY C W FK	522.224.120.037.029.005	N	937	17060302
3/1/94	MEADOC	MEADOW C	522.224.120.037.031	N	934	17060302
3/1/94	FISHC	FISH C	522.224.120.037.039	N	942	17060303
3/1/94	FISTRP	FISH C T	522.224.120.037.039.002	Y	1044	17060303
3/1/94	BEARC	BEAR C	522.224.120.037.081	N	984	17060301

Tag, Release, and Collection Site Codes and Associated River KMs:

b. Tag, Release or Collection Site by River Kilometer Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	SQUAWC	SQUAW C	522.224.120.037.096	N	999	17060303
3/1/94	PAPOOC	PAPOOSE C	522.224.120.037.105	N	1008	17060303
12/11/95	POWP	POWELL REARING P	522.224.120.037.113	Y	1016	17060302
3/1/94	CROOKC	CROOKED FORK C	522.224.120.037.113	N	1016	17060303
3/1/94	WHITSC	WHITE SAND C	522.224.120.037.113	N	1016	17060303
3/1/94	CFCTRP	CROOKED FK C T	522.224.120.037.113.003	Y	1019	17060303
3/1/94	BRUSHC	BRUSHY FORK C	522.224.120.037.113.011	N	1027	17060303
3/1/94	COLTC	COLT C	522.224.120.037.113.020	N	1036	17060303
3/1/94	BIGFLC	BIG FLAT C	522.224.120.037.113.026	N	1042	17060204
3/1/94	RUNNIC	RUNNING C	522.224.120.037.253	N	1156	17060301
3/1/94	EAGLEC	EAGLE C	522.224.120.037.253.003	N	1159	17060301
3/1/94	WHITCC	WHITE CAP C	522.224.120.037.264	N	1167	17060303
3/1/94	JOHNC	JOHNS C	522.224.120.056	N	922	17060305
3/1/94	NEWSOC	NEWSOME C	522.224.120.084	N	950	17060305
3/1/94	CROOKR	CROOKED R	522.224.120.094	N	960	17060305
3/1/94	CROTTP	CROOKED RIVER T	522.224.120.094.001	Y	961	17060305
3/1/94	RELIEC	RELIEF C	522.224.120.094.013	N	973	17060305
12/11/95	CROOKP	CROOKED RIVER P	522.224.120.094.015	Y	975	17060305
3/1/94	FIVEMC	FIVE MILE C	522.224.120.094.018	N	978	17060305
3/1/94	AMERR	AMERICAN R	522.224.120.101	N	967	17060305
3/1/94	REDR	RED R	522.224.120.101	N	967	17060305
3/1/94	REDTRP	RED R T	522.224.120.101.001	Y	968	17060305
3/1/94	REDP	RED R REARING P	522.224.120.101.027	N	994	17060305
3/1/94	REDRSF	RED R, S FK	522.224.120.101.028	N	995	17060305
3/1/94	SNKTRP	SNAKE T	522.225	Y	747	17060103
12/11/95	JACKSC	JACKS C	522.225.047	N	793	17060306
3/1/94	GRANDR	GRANDE RONDE R	522.271	N	793	17060106
3/1/94	WENR	WENAHA R	522.271.073	N	866	17060106
3/1/94	WENRNF	WENAHA R, N FK	522.271.073.035	N	901	17060106
3/1/94	WENRSF	WENAHA R, S FK	522.271.073.035	N	901	17060106
3/1/94	WALLOR	WALLOWA R	522.271.131	N	924	17060106
3/1/94	MINAMR	MINAM R	522.271.131.016	N	940	17060106
3/1/94	BCANF	BIG CANYON FACILITY	522.271.131.018.001	Y	943	17060105
3/1/94	LOSTIR	LOSTINE R	522.271.131.042	N	966	17060105
3/1/94	WALH	WALLOWA H	522.271.131.063.001	Y	988	17060105
3/1/94	LOOKGC	LOOKING GLASS C	522.271.137	N	930	17060106
3/1/94	LOOH	LOOKINGGLASS H	522.271.137.003	Y	933	17060106
3/1/94	CATHEC	CATHERINE C	522.271.232	N	1025	17060104
3/1/94	CATCNF	CATHERINE CREEK, N FK	522.271.232.052	N	1077	17060104
3/1/94	CATCSF	CATHERINE CREEK, S FK	522.271.232.052	N	1077	17060104
3/1/94	CATCMF	CATHERINE CREEK, M FK	522.271.232.052.005	N	1082	17060104
3/1/94	LSALR	LITTLE SALMON R	522.303	N	825	170602
3/1/94	SALR	SALMON R	522.303	N	825	17060209
3/1/94	SALTRP	SALMON T	522.303.103	Y	910	17060209
3/1/94	SLATEC	SLATE C	522.303.106	N	931	17060209

b. Tag, Release or Collection Site by River Kilometer Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	RAPIDR	RAPID R	522.303.140.007	N	972	17060210
3/1/94	RAPH	RAPID R H	522.303.140.007.006	Y	978	17060210
3/1/94	RPDTRP	RAPID R T	522.303.140.007.007	Y	979	17060210
3/1/94	HAZARC	HAZARD C	522.303.140.031	N	996	17060209
3/1/94	SALRSF	SALMON R S FK	522.303.215	N	1040	17060208
3/1/94	SECESR	SECESH R	522.303.215.059	N	1099	17060208
3/1/94	LAKEC	LAKE C	522.303.215.059.045	N	1144	17060208
3/1/94	JOHNSC	JOHNSON C	522.303.215.060.024	N	1124	17060208
3/1/94	BURNLC	BURNT LOG C	522.303.215.060.024.024	N	1148	17060208
3/1/94	SFSTRP	SALMON R S FK T	522.303.215.111	Y	1151	17060202
3/1/94	SALSFW	SALMON R S FK W	522.303.215.111	Y	1151	17060202
3/1/94	KNOXB	KNOX BRIDGE	522.303.215.112	Y	1152	17060208
3/1/94	CHAMBC	CHAMBERLAIN C	522.303.282	N	1107	17060207
3/1/94	CHAMWF	CHAMBERLAIN C WF	522.303.282.024	N	1131	17060207
3/1/94	FLOSSC	FLOSSIE C	522.303.282.027	N	1134	17060207
3/1/94	MOOSEC	MOOSE C	522.303.282.031	N	1138	17060207
3/1/94	SALRMF	SALMON R M FK	522.303.319	N	1144	17060206
3/1/94	BIGC	BIG C	522.303.319.029	N	1173	17060206
3/1/94	RUSHC	RUSH C	522.303.319.029.011	N	1184	17060206
3/1/94	CAMASC	CAMAS C	522.303.319.057	N	1011	17060206
3/1/94	LOONC	LOON C	522.303.319.073	N	1217	17060205
3/1/94	SULFUC	SULFER C	522.303.319.150	N	1294	17060205
3/1/94	BOUNDC	BOUNDARY C	522.303.319.154	N	1298	17060205
3/1/94	DAGGEC	DAGGER C	522.303.319.155	N	1299	17060205
3/1/94	FALLC	FALL C	522.303.319.163	N	1307	17060205
3/1/94	BEARVC	BEAR VALLEY C	522.303.319.170	N	1314	17060205
3/1/94	MARSHC	MARSH C	522.303.319.170	N	1314	17060205
3/1/94	CAPEHC	CAPEHORN C	522.303.319.170.010	N	1324	17060205
3/1/94	MARTRP	MARSH C T	522.303.319.170.011	Y	1325	17060205
3/1/94	ELKC	ELK C	522.303.319.170.014	N	1328	17060205
3/1/94	KNAPPC	KNAPP C	522.303.319.170.015	N	1329	17060205
3/1/94	SALRNF	SALMON R N FK	522.303.381	N	1206	17060204
3/1/94	LEMHIR	LEMHI R	522.303.416	N	1241	17060204
3/1/94	LEMHIW	LEMHI W	522.303.416.049	Y	1290	17060204
3/1/94	PAHSIR	PAHSIMEROI R	522.303.489	N	1314	17060202
3/1/94	PAHTRP	PAHSIMEROI R T	522.303.489.002	Y	1316	17060202
12/20/95	PAHSIW	PAHSIMEROI W	522.303.489.002	Y	1316	17060202
3/1/94	PAHP	PAHSIMEROI P	522.303.489.011	N	1325	17060202
3/1/94	SALREF	SALMON R E FK	522.303.552	N	1377	17060202
3/1/94	HERDC	HERD C	522.303.552.014	N	1391	17060202
3/1/94	SALEFT	SALMON R E FK T	522.303.552.029	Y	1406	17060201
3/1/94	SALEFW	SALMON R E FK W	522.303.552.030	Y	1407	17060202
3/1/94	YANKWF	YANKEE FK, W FK	522.303.591.011	N	1427	17060201
3/1/94	VALEYC	VALLEY C	522.303.609	N	1434	17060201
3/1/94	STANLE	STANLEY (GAGE2945)	522.303.609	Y	1434	17060201

b. Tag, Release or Collection Site by River Kilometer Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	STANLC	STANLY L C	522.303.609.009	N	1443	17060201
3/1/94	REDFLC	REDFISH L C	522.303.615	N	1440	17060201
3/1/94	RLCTRP	REDFISH L C T	522.303.615.003	Y	1443	17060201
3/1/94	REDFL	REDFISH L	522.303.615.005	N	1445	17060201
3/1/94	SAWT	SAWTOOTH H	522.303.617	Y	1442	17060201
3/1/94	SAWTRP	SAWTOOTH T	522.303.617	Y	1442	17060201
3/1/94	GOLDC	GOLD C	522.303.621	N	1446	17060201
3/1/94	WILLIC	WILLIAMS C	522.303.622	N	1447	17060201
3/1/94	HUCKLC	HUCKELBERRY C	522.303.624	N	1449	17060201
3/1/94	DECKEC	DECKER C	522.303.624.001	N	1450	17060201
3/1/94	FISHEC	FISHER C	522.303.628	N	1453	17060201
3/1/94	4JULYC	FOURTH OF JULY C	522.303.630	N	1455	17060201
3/1/94	CHAMPC	CHAMPION C	522.303.631	N	1456	17060201
3/1/94	HELLRC	HELL ROARING C	522.303.631	N	1456	17060201
3/1/94	MAYSC	MAYS C	522.303.631	N	1456	17060201
3/1/94	ALTULC	ALTURAS L C	522.303.633	N	1458	17060201
3/1/94	YELLLC	YELLOWBELLY L C	522.303.633.001	N	1459	17060201
3/1/94	PETTL C	PETTIT L C	522.303.633.002	N	1460	17060201
8/1/95	PETTL	PETTIT LAKE	522.303.633.002.002	Y	1462	17060201
3/1/94	VATC	VAT C	522.303.633.003	N	1461	17060201
3/1/94	BEAVEC	BEAVER C	522.303.642	N	1467	17060201
3/1/94	POLEC	POLE C	522.303.642	N	1467	17060201
3/1/94	SMILEC	SMILEY C	522.303.644	N	1469	17060201
3/1/94	FRENCC	FRENCHMAN C	522.303.647	N	1472	17060201
3/1/94	HWY93B	US HWY 93 BRIDGE	522.303.647	Y	1472	17060201
3/1/94	IMNAHR	IMNAHA R	522.308	N	830	17060102
3/1/94	IMNTRP	IMNAHA T	522.308.007	Y	837	17060102
3/1/94	BSHEEC	BIG SHEEP C	522.308.032	N	862	17060102
3/1/94	LSHEEF	LITTLE SHEEP FACILITY	522.308.032.005.008	Y	875	17060102
3/1/94	IMNAHW	IMNAHA R W	522.308.074	Y	904	17060102
3/1/94	HCD	HELLS CANYON D	522.397	Y	919	17050201
3/1/94	YAKIMR	YAKIMA R	539	N	539	17030003
3/1/94	VGISNB	VAN GIESSEN BRIDGE	539	Y	539	17030003
3/1/94	CHANDL	CHANDLER CANAL	539.076	N	615	17030003
3/1/94	PROSRD	PROSSER D	539.076	Y	615	17030003
12/20/95	PROTRP	PROSSER T	539.076	Y	617	17030003
3/1/94	SSIDEC	SUNNYSIDE CANAL	539.167	N	706	17030003
3/1/94	SSD	SUNNYSIDE D	539.167	Y	706	17030003
3/1/94	SSIDES	SUNNYSIDE SCREEN	539.167.001	Y	707	17030003
3/1/94	WAPATC	WAPATO CANAL	539.171	N	710	17030003
3/1/94	WAPATD	WAPATO D	539.172	Y	711	17030003
3/1/94	WAPATS	WAPATO SCREEN	539.172.001	Y	712	17030003
3/1/94	NATCHR	NATCHES R	539.187	N	726	17030002
3/1/94	WOPTXD	WOPATOX D	539.187.028	Y	754	17030002
3/1/94	ROSAD	ROSA D	539.206	Y	745	17030001

Tag, Release, and Collection Site Codes and Associated River KMs:

b. Tag, Release or Collection Site by River Kilometer Code (Continued)

Rev Date	Codes	Tag, Release or Collection Site	River Kilometer	I	Total Rkm	GIS Hydrounit
3/1/94	CLELMR	CLE ELUM R	539.299	N	838	17030001
3/1/94	WPOOSH	WISH POOSH C	539.299.004	N	852	17030001
3/1/94	CLELMD	CLE ELUM D	539.299.013	Y	851	17030001
6/16/95	RINH	RINGOLD H	567	Y	567	17020016
3/1/94	PRD	PRIEST RAPIDS D	639	Y	639	17020016
12/11/95	PRDH	PRIEST RAPIDS H	639	Y	639	17020016
3/1/94	RIS	ROCK ISLAND D	730	Y	730	17020010
3/1/94	WENATR	WENATCHEE R	754	N	754	17020011
3/1/94	DRYP	DRYDEN ACCLIMATION P	754.026	Y	780	17020011
3/1/94	ICICLC	ICICLE C	754.041	N	795	17020011
3/1/94	LEAV	LEAVENWORTH H	754.041.005	Y	800	17020011
12/11/95	CHIP	CHIWAWA REARING P	754.077.002	Y	834	17020011
3/1/94	RRE	ROCKY REACH D	763	Y	763	17020010
3/1/94	TURO	TURILE ROCK P	765	Y	765	17020010
3/1/94	ENTH	ENTIAT H	778.017	Y	795	17020010
12/11/95	WELH	WELLS H	830	Y	830	17020005
12/11/95	CARP	CARLTON ACCLIMATION P	843.058	Y	902	17020008
3/1/94	WINT	WINTHROP H	843.081	Y	924	17020005
3/1/94	SIMP	SIMLKAMEEN P/H	941.121.008	Y	1070	17020007
3/1/94	BBC	BIG BEEF C		Y		17110018

c. Intra-Site Release Locations by Site

Rev Date	Codes	Intra Site Release Location	River Kilometer	Parent Site	Total Rkm	GIS Hydrounit
3/1/95	LGRBPS	RELEASE INTO PIT-TAG DIVERSION SYSTEM BETWEEN THE DIVERSION GATE AND THE FURTHEST DOWNSTREAM PIT DETECTOR	522.173	LGR	695	17060107
3/1/95	LGRBYP	RELEASE INTO THE FACILITY BYPASS FLUME/PIPE	522.173	LGR	695	17060107
3/1/95	LGRCOL	RELEASE INTO THE COLLECTION CHANNEL UPSTREAM OF THE DEWATERING FACILITY	522.173	LGR	695	17060107
3/1/95	LGRDTG	RELEASE INTO THE COLLECTION FLUME/PIPE BETWEEN THE DEWATERING FACILITY AND THE FACILITYSCOLLECTION/BYPASSGATE	522.173	LGR	695	17060107
3/1/95	LGRDWT	RELEASE INTO THE DEWATERING FACILITY	522.173	LGR	695	17060107
3/1/95	LGRFBY	RELEASE INTO FOREBAY WITHIN 0.5 KM UPSTREAM OF DAM	522.173	LGR	695	17060107
3/1/95	LGRGAT	RELEASE INTO FLUME BETWEEN SEPARATOR EXIT AND THE PRIMARY PIT-TAG DIVERSION GATE	522.173	LGR	695	17060107

c. Intra-Site Release Locations by Site (Continued)

Rev Date	Codes	Intra Site Release Location	River Kilometer	Parent Site	Total Rkm	GIS Hydrounit
3/1/95	LGRGWL	RELEASE INTO THE GATEWELL	522.173	LGR	695	17060107
3/1/95	LGRICE	RELEASE INTO THE ICE/TRASH SLUICE-WAY	522.173	LGR	695	17060107
3/1/95	LGRNFL	RELEASE INTO PIT-TAG DIVERSION SYSTEM DOWNSTREAM OF THE LAST PIT DETECTOR	522.173	LGR	695	17060107
3/1/95	LGRORI	RELEASE INTO THE ORIFICE	522.173	LGR	695	17060107
3/1/95	LGRRBR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT BARGE TRANSPORTATION FROM THE FACILITY	522.173	LGR	695	17060107
3/1/95	LGRRRR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT RETURN TO THE RIVER AT THE FACILITY	522.173	LGR	695	17060107
3/1/95	LGRRTR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRUCK TRANSPORTATION FROM THE FACILITY	522.173	LGR	695	17060107
3/1/95	LGRRXR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRANSPORTATION FROM THE FACILITY	522.173	LGR	695	17060107
3/1/95	LGRSEP	RELEASE INTO FLUME DOWNSTREAM OF COLLECTION/BYPASS GATE OR INTO THE SEPARATOR	522.173	LGR	695	17060107
3/1/95	LGRSPL	RELEASE INTO SPILL BAY	522.173	LGR	695	17060107
3/1/95	LGRSTS	RELEASE ONTO THE SUBMERGED TRAVELING SCREEN	522.173	LGR	695	17060107
3/1/95	LGR TAL	RELEASE INTO THE TAILRACE WITHIN 0.5 KM DOWNSTREAM OF DAM	522.173	LGR	695	17060107
3/1/95	LGRTRB	RELEASE INTO TURBINE	522.173	LGR	695	17060107
3/1/95	LGSBPS	RELEASE INTO PIT-TAG DIVERSION SYSTEM BETWEEN THE DIVERSION GATE AND THE FURTHEST DOWNSTREAM PIT DETECTOR	522.113	LGS	635	17060107
3/1/95	LGSBYP	RELEASE INTO THE FACILITY BYPASS FLUME/PIPE	522.113	LGS	635	17060107
3/1/95	LGS COL	RELEASE INTO THE COLLECTION CHANNEL UPSTREAM OF THE DEWATERING FACILITY	522.113	LGS	635	17060107
3/1/95	LGS DTG	RELEASE INTO THE COLLECTION FLUME/PIPE BETWEEN THE DEWATERING FACILITY AND THE FACILITY'S COLLECTION/BYPASS GATE	522.113	LGS	635	17060107
3/1/95	LGS DWT	RELEASE INTO THE DEWATERING FACILITY	522.113	LGS	635	17060107
3/1/95	LGS FBY	RELEASE INTO FOREBAY WITHIN 0.5 KM UPSTREAM OF DAM	522.113	LGS	635	17060107

c. Intra-Site Release Locations by Site (Continued)

Rev Date	Codes	Intra Site Release Location	River Kilometer	Parent Site	Total Rkm	GIS Hydrounit
3/1/95	LGSGAT	RELEASE INTO FLUME BETWEEN SEPARATOR EXIT AND THE PRIMARY PIT-TAG DIVERSION GATE	522.113	LGS	635	17060107
3/1/95	LGSGWL	RELEASE INTO THE GATEWELL	522.113	LGS	635	17060107
3/1/95	LGSICE	RELEASE INTO THE ICE/TRASH SLUICeway	522.113	LGS	635	17060107
3/1/95	LGSOFL	RELEASE INTO PIT-TAG DIVERSION SYSTEM DOWNSTREAM OF THE LAST PIT DETECTOR	522.113	LGS	635	17060107
3/1/95	LGSORI	RELEASE INTO THE ORIFICE	522.113	LGS	635	17060107
3/1/95	LGSRBR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT BARGE TRANSPORTATION FROM THE FACILITY	522.113	LGS	635	17060107
3/1/95	LGSRRR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT RETURN TO THE RIVER AT THE FACILITY	522.113	LGS	635	17060107
3/1/95	LGSRTR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRUCK TRANSPORTATION FROM THE FACILITY	522.113	LGS	635	17060107
3/1/95	LGSRXR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRANSPORTATION FROM THE FACILITY	522.113	LGS	635	17060107
3/1/95	LGSSEP	RELEASE INTO FLUME DOWNSTREAM OF COLLECTION/BYPASS GATE OR INTO THE SEPARATOR	522.113	LGS	635	17060107
3/1/95	LGSSPL	RELEASE INTO SPILL BAY	522.113	LGS	635	17060107
3/1/95	LGSSTS	RELEASE ONTO THE SUBMERGED TRAVELING SCREEN	522.113	LGS	635	17060107
3/1/95	LGSTAL	RELEASE INTO THE TAILRACE WITHIN 0.5 KM DOWNSTREAM OF DAM	522.113	LGS	635	17060107
3/1/95	LGSTRB	RELEASE INTO TURBINE	522.113	LGS	635	17060107
3/1/95	LMNBPS	RELEASE INTO PIT-TAG DIVERSION SYSTEM BETWEEN THE DIVERSION GATE AND THE FURTHEST DOWNSTREAM PIT DETECTOR	522.067	LMN	589	17060110
3/1/95	LMNBYP	RELEASE INTO THE FACILITY BYPASS FLUME/PIPE	522.067	LMN	589	17060110
3/1/95	LMNCOL	RELEASE INTO THE COLLECTION CHANNEL UPSTREAM OF THE DEWATERING FACILITY	522.067	LMN	589	17060110
3/1/95	LMNDTG	RELEASE INTO THE COLLECTION FLUME/PIPE BETWEEN THE DEWATERING FACILITY AND THE FACILITY COLLECTION/BYPASSGATE	522.067	LMN	589	17060110

c. Intra-Site Release Locations by Site (Continued)

Rev Date	Codes	Intra Site Release Location	River Kilometer	Parent Site	Total Rkm	GIS Hydrounit
3/1/95	LMNDWT	RELEASE INTO THE DEWATERING FACILITY	522.067	LMN	589	17060110
3/1/95	LMNFBY	RELEASE INTO FOREBAY WITHIN 0.5 KM UPSTREAM OF DAM	522.067	LMN	589	17060110
3/1/95	LMNGAT	RELEASE INTO FLUME BETWEEN SEPARATOR EXIT AND THE PRIMARY PIT-TAG DIVERSION GATE	522.067	LMN	589	17060110
3/1/95	LMNGWL	RELEASE INTO THE GATEWELL	522.067	LMN	589	17060110
3/1/95	LMNICE	RELEASE INTO THE ICE/TRASH SLUICeway	522.067	LMN	589	17060110
3/1/95	LMNOFL	RELEASE INTO PIT-TAG DIVERSION SYSTEM DOWNSTREAM OF THE LAST PIT DETECTOR	522.067	LMN	589	17060110
3/1/95	LMNORI	RELEASE INTO THE ORIFICE	522.067	LMN	589	17060110
3/1/95	LMNRBR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT BARGE TRANSPORTATION FROM THE FACILITY	522.067	LMN	589	17060110
3/1/95	LMNRRR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT RETURN TO THE RIVER AT THE FACILITY	522.067	LMN	589	17060110
3/1/95	LMNRTR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRUCK TRANSPORTATION FROM THE FACILITY	522.067	LMN	589	17060110
3/1/95	LMNRXR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRANSPORTATION FROM THE FACILITY	522.067	LMN	589	17060110
3/1/95	LMNSEP	RELEASE INTO FLUME DOWNSTREAM OF COLLECTION/BYPASS GATE OR INTO THE SEPARATOR	522.067	LMN	589	17060110
3/1/95	LMNSPL	RELEASE INTO SPILL BAY	522.067	LMN	589	17060110
3/1/95	LMNSTS	RELEASE ONTO THE SUBMERGED TRAVELING SCREEN	522.067	LMN	589	17060110
3/1/95	LMNTAL	RELEASE INTO THE TAILRACE WITHIN 0.5 KM DOWNSTREAM OF DAM	522.067	LMN	589	17060110
3/1/95	LMNTRB	RELEASE INTO TURBINE	522.067	LMN	589	17060110
3/1/95	MCNBPS	RELEASE INTO PIT-TAG DIVERSION SYSTEM BETWEEN THE DIVERSION GATE AND THE FURTHEST DOWNSTREAM PIT DETECTOR	470	MCN	470	17070101
3/1/95	MCNBYP	RELEASE INTO THE FACILITY BYPASS FLUME/PIPE	470	MCN	470	17070101
3/1/95	MCNCOL	RELEASE INTO THE COLLECTION CHANNEL UPSTREAM OF THE DEWATERING FACILITY	470	MCN	470	17070101

c. Intra-Site Release Locations by Site (Continued)

Rev Date	Codes	Intra Site Release Location	River Kilometer	Parent Site	Total Rkm	GIS Hydrounit
3/1/95	MCNDTG	RELEASE INTO THE COLLECTION FLUME/PIPE BETWEEN THE DEWATERING FACILITY AND THE FACILITYSCOLLECTION/BYPASSGATE'	470	MCN	470	17070101
3/1/95	MCNDWT	RELEASE INTO THE DEWATERING FACILITY	470	MCN	470	17070101
3/1/95	MCNFBY	RELEASE INTO FOREBAY WITHIN 0.5 KM UPSTREAM OF DAM	470	MCN	470	17070101
3/1/95	MCNGAT	RELEASE INTO FLUME BETWEEN SEPARATOR EXIT AND THE PRIMARY PIT-TAG DIVERSION GATE	470	MCN	470	17070101
3/1/95	MCNGWL	RELEASE INTO THE GATEWELL	470	MCN	470	17070101
3/1/95	MCNICE	RELEASE INTO THE ICE/TRASH SLUICeway	470	MCN	470	17070101
3/1/95	MCNOFL	RELEASE INTO PIT-TAG DIVERSION SYSTEM DOWNSTREAM OF THE LAST PIT DETECTOR	470	MCN	470	17070101
3/1/95	MCNORI	RELEASE INTO THE ORIFICE	470	MCN	470	17070101
3/1/95	MCNRBR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT BARGE TRANSPORTATION FROM THE FACILITY	470	MCN	470	17070101
3/1/95	MCNRRR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT RETURN TO THE RIVER AT THE FACILITY	470	MCN	470	17070101
3/1/95	MCNRTR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRUCK TRANSPORTATION FROM THE FACILITY	470	MCN	470	17070101
3/1/95	MCNRXR	RELEASE BELOW THE PIT-TAG DIVERSION SYSTEM GATE, WITH SUBSEQUENT TRANSPORTATION FROM THE FACILITY	470	MCN	470	17070101
3/1/95	MCNSEP	RELEASE INTO FLUME DOWNSTREAM OF COLLECTION/BYPASS GATE OR INTO THE SEPARATOR	470	MCN	470	17070101
3/1/95	MCNSPL	RELEASE INTO SPILL BAY	470	MCN	470	17070101
3/1/95	MCNSTS	RELEASE ONTO THE SUBMERGED TRAVELING SCREEN	470	MCN	470	17070101
3/1/95	MCNTAL	RELEASE INTO THE TAILRACE WITHIN 0.5 KM DOWNSTREAM OF DAM	470	MCN	470	17070101
3/1/95	MCNTRB	RELEASE INTO TURBINE	470	MCN	470	17070101

M. PIT-Tag Steering Committee Members, 1996

Name	Org	Street	City	St	Zip	Voice Phone	Fax Phone
Ed Buettner	IDFG	1540 Warner Ave.	Lewiston	ID	83501	(208)799-3475	(208)799-5012
Billy Connor	USFWS	PO Box 18	Ahsahka	ID	83520	(208)476-7242	(208)476-3252
Carter Stein	PSMFC	45 SE 82nd Dr., Suite 100	Gladstone	OR	97027	(503)650-5400	(503)650-5426
Ann Setter	ODFW	10507 N. McAllister Rd.	La Grande	OR	97850	(503)963-7952	(503)962-1022
Doug Marsh	NMFS CZES	2725 Montlake Boulevard	Seattle	WA	98112	(206)860-3235	(206)860-3267
Dave Marvin	FPC / CRITFC	2501 S.W. First Ave., Suite 230	Portland	OR	97232- 2295	(503)230-4289	(503)230-7559
Charles Morrill	WDFW	600 N. Capital Way	Olympia	WA	98504- 1091	(360)753-3009	(360)664-8693

N. PIT-Tag System Codes

PIT-Tag System Codes are assigned by the agency maintaining the monitoring equipment. During 1996, the majority of the monitoring equipment will be maintained by PTOC. Therefore, any questions, changes, or corrections should be addressed to that agency.

SITE CONFIGURATION HISTORY

As of 17-Aug-95

Site Name	Monitor Name	-----Coil-----					
		1	2	3	4	5	6
=====							
BONNEVILLE DAM DMS1 SUBSAMPLE From 1-May-92 To Present	SAMPLE ROOM	C0					
CHALLIS DIVERSION NORTH From 11-Sep-91 To Present	NORTH	F1	F3				
CLEARWATER RIVER TRAP JUVENILE From 30-Mar-89 To Present	MAIN	D0	D2				
LITTLE GOOSE DAM JUVENILE From 1-Apr-90 To Present	A-SEPARATOR GATE	40	42	44	46		
	A-RACEWAY/EXIT	90	92	94	96		
	A-DIVERSION	A0	A2	A4			
	B-SEPARATOR GATE	48	4A	4C	4E		
	B-RACEWAY/EXIT	98	9A	9C	9E		
	B-DIVERSION	A6	A8	AA			
	SAMPLE ROOM	50	52				
	DIVERSION EXIT	54	56	58	5A		
From 7-Apr-87 To 1-Apr-90	A-MAIN	40	42	44	46		
	B-MAIN	90	92	94	96		
	SAMPLE ROOM	A0	A2	A4			
LOWER GRANITE DAM ADULT From 1-Feb-95 To Present	EAST	00	02	04	06	08	
	WEST	10	12	14	16	18	
From 1-Jan-87 To 1-Feb-95	EAST	00	02	08	0A		
	WEST	04	06	0C	0E		
LOWER GRANITE DAM JUVENILE From 25-Mar-88 To Present	A-SEPARATOR GATE	28	2A				
	B-SEPARATOR GATE	2C	2E				
	RACEWAY EAST	10	12	14	16		
	RACEWAY WEST/EXIT	18	1A	1C	1E		
	DIVERSION 1	36	38	3A			
	DIVERSION 2	30	32	34			
	SUBSAMPLE	20	22	24	26		

LOWER GRANITE DAM EXPERIMENTAL				
From 1-Apr-95 To Present				
DIVERSION RIVER GATE	70	72	74	76
DIVERSION RIVER EXIT	80	82	84	86
DIVERSION HOLD TANK	90	92	94	96
JOHN DAY GATEWELL AIRLIFT SUB				
From 1-Apr-95 To Present				
SAMPLE ROOM	F4			
SAMPLE BYPASS	F6			
From 1-Jan-92 To 1-Apr-95				
SAMPLE ROOM	F4			
LOWER MONUMENTAL DAM JUVENILE				
From 1-Jan-94 To Present				
A-SEPARATOR	00	02		
A-SEPARATOR GATE	04	06		
A-DIVERSION	20	22	24	26
A-RACEWAY	10	12	14	16
A-EXIT	30	32	34	36
B-SEPARATOR	08	0A		
B-SEPARATOR GATE	0C	0E		
B-DIVERSION	28	2A	2C	2E
B-RACEWAY	18	1A	1C	1E
B-EXIT	38	3A	3C	3E
DIVERSION EXIT	40	42	44	46
SAMPLE ROOM	48	4A		
MCNARY DAM JUVENILE				
From 1-Jan-94 To Present				
A-SEPARATOR	50	52		
A-SEPARATOR GATE	00	02		
A-SUBSAMPLE	30	32	34	
A-RACEWAY	10	12	14	16
A-DIVERSION	20	22	24	26
A-RIVER	40	42	44	46
B-SEPARATOR	54	56		
B-SEPARATOR GATE	08	0A		
B-SUBSAMPLE	36	38	3A	
B-RACEWAY	18	1A	1C	1E
B-DIVERSION	28	2A	2C	2E
B-RIVER	48	4A	4C	4E
SAMPLE ROOM	3C	3E		
From 1-Jan-86 To 1-Jan-94				
A-MAIN	68	6A	6C	6E
B-MAIN	60	62	64	66
A-SUB	70	72	74	76
SAMPLE ROOM	80	82		
PROSSER JUVENILE (CHAND DIV)				
From 25-Apr-89 To Present				
SEPARATOR	C8	CA	CC	CE
SAMPLE ROOM	C4	C6		
REDFISH LK CR TRAP JUVENILE A				
From 13-Apr-95 To Present				
RIVER EXIT	F3			
REDFISH LK CR TRAP JUVENILE B				
From 13-Apr-95 To Present				
RIVER EXIT	F5			

PIT-Tag System Codes

SALMON RIVER TRAP JUVENILE From 28-Mar-93 To Present	MAIN	D8
SNAKE RIVER TRAP JUVENILE From 23-Mar-89 To Present	MAIN	D4 D6
SULLIVAN DAM JUVENILE From 1-Jan-94 To Present	SAMPLE ROOM	AA
ESTUARY TOWED ARRAY EXPERIMENT From 13-Apr-95 To Present	RIVER EXIT	10 12 20 22

Figure 1. Example Tagging File.

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FILE TYPE                : TAGGING
PROGRAM VERSION          : PITTAG.EXE 7.1; PITVAL.EXE 2.1
-----
TAGGING FILE EXAMPLE FOR 1995 SPECIFICATION DOCUMENT
-----

FILE TITLE               : ATL95118.KF1
TAGGING DATE             : 04/28/95 04:30
TAGGER                   : LOSER A
HATCHERY SITE           :
STOCK                    :
BROOD YR                 :
MIGRATORY YR            : 95
TAG SITE                 : KILFAT
RACEWAY/TRANSECT        :
CAPTURE METHOD           : SCREW
TAGGING TEMP             : 8.9
POST TAGGING TEMP       :
RELEASE WATER TEMP      : 8.9
TAGGING METHOD           : HAND
ORGANIZATION            : SPCA
COORDINATOR ID          : ATL
RELEASE DATE            : 04/28/95
RELEASE SITE            : KILFAT
RELEASE RIVER KM        : 999.748.048

MARKING AT KILLUM FALLS TRAP FOR AMERICAN SPCA. ONLY SALMONIDS MARKED.
ALL FISH CAPTURED WERE TREATED WITH RESPECT AND WITHOUT CONSIDERATION OF
EXTERNAL APPEARANCE, ECONOMIC IMPORTANCE, OR POSITION IN FOOD CHAIN.

CLIP #2194

1 1F5F6B187F 80      231      25.2      32H01      | AD
2 1F565D5A54 80      223              32H01      | AD LV | TEXT COMMENT
3 ..... ..          133              32H01      | AD M

THE BRUTE RESPONSIBLE FOR THE MURDER ABOVE HAS BEEN FIRED.

4 1F56304D0E 00      111              11H01      | AD RV
5 200F03034B 80      118              11W01
6 1F5F47310A 00      190              32H01      | AD 1>
7 1F562F726A 80      213              32H01      | AD LV
8 200F0E3112 80      240              32H01      | AD

V01=04/28/95 06:30

< TIME CHECK > 04 APRIL 1995 AT 07:02

9 200F0E6E55 00      246              32W02
10 1F57080B77 00      262              32H02      | AD LV
11 200F1D072D 80      186              32W02      | GS

V02=04/28/95 07:20

CLOSE DATE                : 04/28/95 14:52

```

Figure 2. Example Release Information File.

FILE TYPE : RELEASE INFORMATION
FILE TITLE : REL95ATL.COL
RELEASE DATE : 04/01/95 06:00
RELEASE SITE : COLR
MONITORED RELEASE : NO
MONITORED RELEASE SITE CODE :
RELEASE RIVER KM : 774
TRANSPORT DURATION : 1:30
TRANSPORT TYPE : TRUCK
RELEASE WATER TEMP : 5.6
ASSOCIATED MARK : SOME AD & CWT
TAG FILE NAME : ATL94047.002
TAG FILE NAME : ATL94047.003
TAG FILE NAME : ATL94048.001

THESE FISH RELEASED PRIOR TO BEGINNING OF MID-COLUMBIA SPILL PROGRAM.
REFER TO TAGGING FILE FOR RACEWAY DISTRIBUTION AND ASSOCIATED MARK DATA.
ALL TAGGED FISH RELEASED WITH GENERAL PRODUCTION.

CLOSE DATE : 04/02/95 14:53

Figure 3. Example Interrogation and Monitored Release File.

Format is consistent for both files except the File Type is INTERROGATION for the Interrogation file and MONITORED RELEASE for the Monitored Release file. All times must be recorded in Pacific Standard Time even if the location of the Interrogation or Monitored Release is in Mountain Standard/Daylight or Pacific Daylight time.

```

FILE TYPE           : INTERROGATION
FILE TITLE          : SIT95114.A
FILE CREATED        : 24 April 1995 AT 00:00

04/24/95 01:00:00
| F2 04/12/89 01:26:47 7F7E495445 DF C8 CA
04/24/95 02:00:00
| F2 04/12/89 02:26:49 7F7E4D1A30 94 C8 CA CC
04/24/95 03:00:00
04/24/95 04:00:00
04/24/95 05:00:00
04/24/95 06:00:00
04/24/95 07:00:00
04/24/95 08:00:00
SYSTEM ID
STATION #F2
04/12/89 14:26:38

TOTAL NUMBER ID CARDS = 04
CARD ADDRESSES|C8 CA CC CE

C8-SELFTTEST|00

CA-SELFTTEST|00

CC-SELFTTEST|00

CE-SELFTTEST|00
04/24/95 08:10:00
04/24/95 09:00:00
04/24/95 10:00:00
| F2 04/12/89 10:26:52 7F7E4D5236 D2 C8 CA CC CE
04/24/95 11:00:00
04/24/95 12:00:00
04/24/95 13:00:00
04/24/95 14:00:00
| F2 04/12/89 14:26:49 7F7E201243 72 CC CE
04/24/95 15:00:00
04/24/95 16:00:00
04/24/95 17:00:00
04/24/95 18:00:00
FILE CLOSED           : 25 April 1996 AT 00:00

```

Figure 4. Example Mortality File.

```

FILE TYPE                : MORTALITY
PROGRAM VERSION          : PITTAG.EXE 7.1; PITVAL.EXE 2.1
-----
MORTALITY FILE EXAMPLE FOR 1995 SPECIFICATION DOCUMENT
-----

FILE TITLE               : ATL95118.DED
CREATION DATE            : 04/28/95 04:30
COLLECTION SITE          : KILFAT
COLLECTION RIVER KM      : 999.748.048
CAPTURE METHOD            : SCREW
RECOVERY ORGANIZATION    : SPCA
COORDINATOR ID           : ATL

THESE FISH DIED DUE TO UNAVOIDABLE TRAP OPERATIONS (M)
OR WERE SACRIFICED (MS) AS PART OF AN ONGOING RESEARCH PROGRAM.

1 1F5F6B187F 80      231          04/21/95 | RE M
2 1F565D5A54 80      223          29.8 04/21/95 | RE MS FU | #95-103
3 200F0E3112 80      133          04/21/95 | RE M
4 1F56304D0E 00      111          04/22/95 | RE M
5 200F10023F 80       95          8.3 04/23/95 | RE MS | #95-107
6 1F56586D46 80      159          17.1 04/23/95 | RE MS <1 | #95-108
7 1F5F5B0324 00      152          04/27/95 | RE M
8 200F0F281A 80      103          04/28/95 | RE M | FOUND IN SM BASS

CLOSE DATE                : 04/28/95 07:32

```

GLOSSARY

ASSOCIATED MARKS: Other identification marks associated with the group of fish being released, such as freeze brand marks, fin clips, visible implant or coded wire tags.

BROOD YEAR :The last two digits of the calendar year when the eggs were laid.

CAPTURE METHOD: The abbreviated code (See Section III.G. on page 17) for the method used to collect the fish.

CHECKSUM: Value comprising the 11th and 12th characters of the PIT code. The Checksum is computer generated with the 11th character representing the last digit of the hex sum of the left most five characters of the PIT code and the 12th character representing the last digit of the hex sum of the right most five characters of the ten character PIT code.

COLLECTION SITE :The six character code of the collection site. See Section III.L.4. on page 20 for the list of valid codes.

COIL : A loop antenna, made from a coil of wire, which transmits a signal that excites the PIT tag and receives the signal from the PIT tag. Coils or loops are found in all interrogation equipment from table top detectors to automatic interrogation systems.

COIL ASSEMBLY : A system of components used to create an electromagnetic field used to excite a PIT Tag and receive the signal sent by the PIT Tag. These components consist of 14-20 gauge insulated copper wire and a non-metallic pipe or flume used to pass fish.

COIL EFFICIENCY OR COIL READING EFFICIENCY : The number of PIT tags read (written onto a computer file) divided by the total number of tags that could have been read at that particular coil. See "Statistical Method of Determining PIT Tag Coil Reading Efficiency", Benjamin Sandford, Prentice et.al. 1991. Produced by the ANALYZER report.

COIL ID : The unique identification number associated with each coil of the automatic interrogation systems.

CONTROLLER: The computer hardware in an automatic interrogation system that operates interrogation coils associated with an interrogation system. A unique identification number is associated with each controller.

CONDITIONAL COMMENT: A comment in the Tag Records section of the Tagging file that corresponds to an individual fish. A list of approved conditional comments appears in section III.E. (Flag Codes). They can be entered from either the keyboard or the digitizer during the operation of the PITTAG.EXE program. Other conditional comments, important to the individual researcher, can be used but will not be recognized by the PTAGIS data system.

COORDINATOR ID: A three letter code consisting of the initials of the coordinator. The coordinators are the individuals who are in charge of the research that the PIT tag is being used for. Coordinators are not necessarily the people doing the tagging.

CREATION DATE : Used as a header record in Mortality files (See E. "Mortality File" on page 10.

CREATION TIME: Obsolete. See TAGGER on page 49.

DETECTOR: A colloquial term used to describe one or more coil assemblies used to interrogate PIT Tagged fish.

DIVERSION EFFICIENCY: See SLIDE-GATE EFFICIENCY on page 48.

EPA-REACH: See USGS HYDROLOGIC UNIT on page 49.

FILE TITLE: The file ID or name given to the particular file created. Each File Title must be unique from all others in the Columbia River Basin and therefore it is very important to follow the formats described in the PIT tag Specification Document for each individual file type.

FILE TYPE RECORD: This record type designates the type of file being created. It is generated by the PITTAG.EXE program for Tagging and Mortality files and by the researcher creating the other types of files. See the Specification Document for the correct format.

FIXED REFERENCE TAG: A tag having a unique code and an internal clock that is permanently connected inside of the PIT-tag monitor and is used to test the performance of individual coils. It receives power from the excitation coil and automatically transmits its code one or more times daily.

FLAG CODE: A PIT Tag conditional comment code (See Section II.5.f. on page 4.) These codes are used to provide information about the health and condition of individual fish.

FORKLENGTH: The length of the fish from the tip of the snout to the fork of the tail, recorded to the nearest millimeter.

GIS HYDRO UNIT: See USGS HYDROLOGIC UNIT on page 49.

HATCHERY SITE: A four character abbreviation to represent the hatchery at which the fish were reared, if tagging is being done at a hatchery. See Section III.F. on page 15 for the approved list of hatchery abbreviations.

HEADER RECORD: A record found at the beginning of the file and describing general information representative of the whole file. Only Tagging, Release information, and Mortality files have header records.

INTERROGATION FILE: A file created at a monitoring site by the automatic detection equipment and containing the PIT tag codes, date and time of interrogation, and the coil ID on which the tag was interrogated.

INTERROGATION UNIT READING EFFICIENCY: This would be the combined reading efficiencies for one or more coils depending upon the type of interrogation unit being evaluated (*e.g.*, both coils in a dual coil monitor). Produced by the ANALYZER report.

- MIGRATION YEAR:** Last two digits of the earliest calendar year when fish are expected to smolt and out-migrate to the ocean.
- MONITOR:** A combination of two or more PIT Tag interrogation units. Also called a detector.
- MONITORED RELEASE:** A release situation in which the PIT-tagged fish are passively exposed to an interrogation system as they leave a holding area such as a hatchery. In a Monitored Release, all fish are interrogated as they leave a holding area so the individual PIT code of each fish leaving is recorded along with the date and time of interrogation.
- MONITORED RELEASE FILE:** A file containing release information from a monitored release.
- MORTALITY FILE:** A file that contains information and PIT codes for fish that died subsequent to a release event reported in a Release Information File. Mortality files are created for fish that die or are found dead somewhere along their migration path, like at one of the dams. Mortality files are also created for fish that are sacrificed for sampling purposes subsequent to their reported release.
- MORTALITY RECORD:** That portion of a Mortality file that contains the PIT tag code and any other pertinent information about the individual fish, such as fork length, weight, etc.
- NOTE RECORDS:** A comment section in the Tag Records portion of the Tagging file. Note records can pertain to a group of fish instead of an individual fish. The Variable Release Time notation is the most common type of Note Record.
- OBSERVATION:** A colloquial name for an interrogation event as recorded in an INTERROGATION FILE.
- ORGANIZATION:** The code for the agency or organization that is responsible for the data in a tagging, mortality, or release information file.
- PASS-THROUGH REFERENCE TAG:** A PIT Tag is embedded in a wooden block, which is periodically passed through the interrogation system to determine coil, interrogation unit and system reading efficiencies. Normally, 10 tags floated through the monitor on a daily basis. Also called STICK TAGS.
- PIT-TAG DETECTOR:** See DETECTOR on page 44.
- PIT-TAG INTERROGATION NETWORK :** All of the equipment related to exciting, detecting, and on-site recording of PIT tags at all detection sites within the river or monitoring system.
- PIT-TAG INTERROGATION SYSTEM:** All of the equipment related to exciting, detecting, and on-site recording of PIT tags.
- PIT-TAG INTERROGATION UNIT:** (Combination of individual equipment) Smallest independent unit that can excite and read a tag. The present configuration that meets this definition would include the RF-emission shield, excitation/detection coil(s), coil housing, tuner box, exciter, power supply, and controller. The multi-port, computer and printer are not included. Today, most of the interrogation units are dual coil PIT-tag interrogation units.

PIT-TAG (Passive Integrated Transponder Tag): A computer chip attached to a wire antenna and encapsulated in a glass tube. The tag is excited when it is passed through the electromagnetic field of a detector and the information on the computer chip is transmitted to the detector.

PIT-TAG SEPARATION EFFICIENCY: The effectiveness of the individual slide-gate assemblies. This term applies only to PIT-tagged fish that according to the computer program should have been separated. The number of tagged fish read and successfully separated divided by the total number of tagged fish read. Contrast with Slide-Gate Efficiency. Different from CORP OF ENGINEERS SEPARATION.

PIT-TAG SEPARATION SUBSYSTEM: Presently, there are typically two PIT-tag separation subsystems (A and B) at each dam. In the future, there may be more if tagged fish were to get separated into multiple pathways. These subsystems include the flumes, the electronic and mechanical hardware including the computer program for controlling slide gates used to separate PIT-tagged fish.

PIT-TAG SEPARATION SYSTEM: (Entire site) This includes all components (*e.g.*, flumes, interrogation units, slide gates, electronic, computer-related) involved in separating PIT-tagged fish from un-tagged fish by any method. All of the PIT-tag interrogation units would also be part of the interrogation system.

PIT-TAG SLIDE-GATE ASSEMBLY: -- the electronic and mechanical hardware including the computer program for controlling an individual slide gate.

PIT-TAG STEERING COMMITTEE (PTSC) : A sub-committee of the Fish Passage Advisory Committee of the Columbia Basin Fish and Wildlife Authority. The committee is made up of representatives of the agencies and tribes. The committee's function is to provide guidance in the development of tagging methodologies and data standards and to serve as a forum for advise for the operation of PTAGIS and the PIT-Tag data collection and data distribution system.

PIT-CODE: A unique ten character alpha-numeric hexadecimal code recorded on the computer chip in the PIT tag. PTAGIS applications refer to this as `tag_id`.

POSITIONAL COMMENT : A comment that has a designated and reserved location in the Tag Records section of the Tagging file and pertains to an individual fish. Such Positional comments are Species, Run, Rearing type, and Release Time Variable. Individual researchers can designate their own positional comments but the PTAGIS data system will not recognize them. Positional comments are entered from the keyboard or from the digitizer.

POST TAGGING TEMP: The temperature (C°) of the raceway or live box the fish are held in after tagging but prior to release to a stream. This variable should be left blank if the fish are released to the stream after tagging.

PTAGIS: The PIT Tag Information System (PTAGIS) is the central repository of all the information generated by the PIT tag system of the Columbia River basin. The PTAGIS is managed by the Pacific States Marine Fisheries Commission and funded by the Bonneville Power Administration.

PTOC: The PIT Tag Operations Center (PTOC), which operates and maintains the PTAGIS, all detection equipment on the dams, and creates and updates software for the Columbia River Basin-wide PIT tag system. Administrative management is through the Pacific States Marine Fisheries Commission.

RACEWAY/TRANSECT: The raceway number or designation, or the transect number or name where the fish being PIT tagged came from.

REARING TYPE: A one character code (See Section III.D. on page 13) to indicate whether the fish was raised in a hatchery or reared in the wild. Use a rearing code of "U" (for unknown) when the rearing status of the fish is in question or can not be ascertained.

RECAPTURE: A recaptured fish is a fish that is handled subsequent to the release event. A recaptured fish is designated with the flag code RE. See Section II.A. on page 1 of this document regarding tagging files.

RECOVERY ORGANIZATION: The organization creating the mortality file.

RELEASE DATE: The date fish were released to a stream to rear or out-migrate naturally. This variable is left blank in the header record of the tagging file if the fish are released at a later date. If fish are released at a later date this date is recorded in a Release Information or the Monitored Release file.

RELEASE RIVER KM: The location of release, in river kilometers from the mouth of the Columbia River. This is a hierarchical coding scheme from the mouth of the Columbia River to the release site (up to 7th order streams for point release sites) with each tributary delimited with a period. An example would be a Release KM for Lower Granite Dam is 522.173 which means that it is 522 km from the mouth of the Columbia River to the mouth of the Snake River and 173 km from the mouth of the Snake River to Lower Granite Dam. See Section III.L. on page 20 in the PIT Tag Specification Document for a list of the release km for various Release sites. If you have additional release locations please provide your PIT-Tag Steering Committee Representative with the name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE INFORMATION FILE: A Release Information File consists of information about a Tag file or a group of tag files which was not available at the time of tagging. The Release Information File must be created and sent to PTAGIS prior to any of the fish from the tagging files reaching any interrogation site. If fish are released at the time of tagging, the tagging file can double as the release information file. If you have additional release locations please provide PIT-Tag Steering Committee Representative with the name of the location, a six character code and the release KM so the location can be added to the list.

RELEASE SITE: The six character code of the site or body of water the fish are released into. See Section III.L.4. on page 20 for the proper code of the release sites. If you have additional release locations please provide PIT-Tag Steering Committee Representative with the name of the location, a six character code and the release KM so the location can be added to the list.

GLOSSARY

RELEASE WATER TEMP : The temperature (C°) of the stream the fish are released into to rear naturally or migrate downstream. If the fish are released immediately after tagging and recovery this variable should be filled out in the header record of the Tagging file. If the fish are released at a later date, then this temperature is recorded in the Release Information file or Monitored Release file and not in the Tagging file.

RIVER REACH: See Release River KM in See Section III.L. on page 20.

RUN: A one character code (See Section III.C. on page 13) to continue the phylogenetic breakdown, to race, to describe the fish. Run is represented by spring, summer, etc. (Spring chinook, Summer steelhead, etc.).

SEQUENCE NUMBER: A sequential number from 1 to 9999 that individually identifies each tag record within the TAG RECORDS section of the tagging file; created by the PITTAG.EXE program.

SESSION MESSAGE: A textual comment at the beginning of the header record of the Tagging and Mortality files in which the researcher can record important information pertinent to that tagging session.

SLIDE GATE: A gate that slides open and shut on the bottom of a flume or pipe, causing the water and fish to enter a flume or pipe below the one they were flowing through. This would include all mechanical components immediately associated with gate operation.

SLIDE-GATE EFFICIENCY: The ratio of un-tagged fish diverted per diversion cycle. See Achord et.al., Nov. 1992. "Research Related to Transportation of Juvenile Salmonids on The Columbia and Snake Rivers 1991". This information can only be gathered by a qualified field researcher. PTOC cannot determine this information because of lack of data regarding non-PIT tagged fish.

SPECIES: A one character code (See Section III.B. on page 13) representing the species of the fish being tagged.

SPIDER TAG: See FIXED REFERENCE TAG on page 44.

STICK TAG: See PASS-THROUGH REFERENCE TAG on page 45.

STOCK : An additional population describer but in this instance it has no defined codes. Examples would be entries such as Rapid River stock or Wells stock.

SWING GATE: A gate positioned in a flume where that flume splits into two. The gate selects one of the two by blocking the other and changes by swinging across the original flume.

SYSTEM READING EFFICIENCY: Overall reading efficiency for the interrogation system (all of the coils combined for an entire site). This is the reading efficiency that must meet the 95% criterion established for the individual Columbia River dams.

TAG DATE : The date the file was created. It will automatically be entered into the file by the computer and will be the current date on the computer. Therefore, it is important to have the proper date in your computer. The creation date is the default tagging date.

- TAG RECORD:** That portion of a Tagging file that contains the PIT tag code, length, weight, and comments associated with each individual tagged fish.
- TAG SITE :** A six character code representing the geographic location of the tagging operation. See Section III.L.4. on page 20 for the correct Tag site code list. If you have additional Tag sites please submit the name, six character code, and river km for the site to PTAGIS so it can be added to the list.
- TAGGER:** The last name and initial of first name of the primary person doing the tag injection for that specific file.
- TAGGING FILE:** A file that contains information from a PIT tagging session during which PIT tags are implanted in fish. The file consists of five record category types: File type, Header record, Tag record, Notes, and Additional record types. The tagging file is created by the PITTAG.EXE program. The Tagging file can double as a Release file if the fish are released immediately after tagging and the release parameters in the Header Record of the Tagging file are filled out.
- TAGGING METHOD:** There are two methods of injecting tags into fish. One uses a hand held tagging needle (HAND) and the other uses a tagging machine that is fastened to a platform and has a clip which holds multiple tags (AUTO). NONE for recaptures.
- TAGGING TEMP:** Temperature (C°) of the trough or pan the fish are anesthetized in during the tagging operation.
- TEST TAG:** A special tag registered by PTOC as a "Test-Tag". Not used in fish. E.g., STICK TAG, FIXED REFERENCE TAG.
- TEXTUAL COMMENT:** A comment or message area with no established format and pertaining to an individual fish.
- TIMER TAG:** See FIXED REFERENCE TAG on page 44.
- TRANSPORTATION DURATION:** The amount of time from loading of fish onto the transport vehicle until they are released into the stream.
- TRANSPORTATION TYPE :** The type of transport vehicle mainly pertaining to tank truck, back pack, helicopter, etc.
- TUNNEL:** An enclosed detector.
- USGS HYDROLOGIC UNIT:** See Appendix B, "State Hydrologic Unit Maps".
- VARIABLE RELEASE TIME:** If groups of fish within a Tagging file are being tagged and released to a stream independently of other groups within the same Tagging file then release date and times must be recorded for each group of fish. This is done with the Variable Release Time which is a Positional Comment and ranges from 01 to 99. The Variable Release Time is located in columns 44 and 45 of

GLOSSARY

the Tag Records section of the Tagging file. There must be a corresponding Variable Release Time comment in the Note Records section of the Tagging file to define each Variable Release Time in the Tag Records section.

WEIGHT: The weight of the fish recorded to the nearest tenth of a gram.

Appendix A Monitor Naming Standards

Naming Standard for PIT Tag Monitors at Juvenile Fish Facilities

Section A-1. Naming Standard for PIT Tag Monitors at Juvenile Fish Facilities

Begin at the first monitor(s) fish encounter on entering the facility (generally, at the separator). To name each monitor, take the first of the following which applies to the monitor's location within the plumbing.

1. If the monitor comes directly from the separator, such that all fish leaving the separator through that flume pass through that monitor (with no intervening gates or splits), name it "SEPARATOR".
2. If the monitor is not in the PIT Tag diversion system, but leads to any of the following (trace the pipes and flumes downstream of the monitor), name the monitor what it goes to:

raceway(s): "RACEWAY". If a particular set, append that set's name.

back to the river: "RIVER"

truck loading: "TRUCK"

barge loading: "BARGE"

either truck or barge loading: "TRANSPORT"

back to the river, or truck or barge loading: "EXIT"

If one term describes the monitor's location, use it. Otherwise, use all necessary to describe the monitor (Ex: RACEWAY/EXIT).

3. If the monitor is between the Corps sample gate and the sample holding tank (the monitor may be before or after the sample head box), name it "SUBSAMPLE".
4. If the monitor is between the Corps sample holding tank and the lab, name it "SAMPLE ROOM".
5. If the monitor is the first monitor encountered after a PIT Tag diversion gate, name it "DIVERSION".
6. If the monitor is in the PIT Tag diversion system, but is not the first monitor encountered, call it "DIVERSION" plus the applicable term(s) from item 2 (Ex: DIVERSION EXIT).

Some of these names will be modified based on certain design features of the facility:

Naming Standard for PIT Tag Monitors at Juvenile Fish Facilities

1. If there are two parallel paths through part or all of the facility, beginning with the separator, prefix "A" or "B" to each monitor in the parallel portion; "A" will be the first encountered by the flow through the separator, "B" the second (Ex: A SEPARATOR, B TRANSPORT). If there are more than two parallel paths, continue with "C", "D", etc. Only use these prefixes for as long as the paths are parallel from the separator.
2. If there are two parallel paths through part of the facility, but they diverge from a point other than the separator, suffix "1" or "2" to each monitor in the parallel portion; "1" will be the first encountered by the flow into the parallel sections, "2" the second (Ex: DIVERSION 1, DIVERSION 2). If there are more than two parallel paths, continue with "3", "4", etc. Only use these suffixes for as long as the paths are parallel.
3. If the monitor controls a diversion gate, suffix "GATE" to the monitor. NOTE: If there are several coils in line, some controlling a diversion gate and others not, those that control the gate should be designated as a separate monitor from the others.
4. Abbreviations may be used to shorten the name of a monitor, providing the abbreviations are commonly known (Ex: "E" for "EAST") and do not create a situation where two monitors have the same name.

Section A-2. Naming Standard Examples

1. Lower Granite

At Lower Granite, there are seven monitors. The first two coming from the separator are the two 2-coil units which control the diversion gates. These are parallel; therefore, they are called "A SEPARATOR GATE" and "B SEPARATOR GATE".

Continuing down the undiverted path, the flumes come together; therefore, "A" and "B" will not be used further on this path. The flumes diverge again, with a gate to select between the two sets of raceways (East and West). These do not release anywhere else. The monitors on those flumes are called "RACEWAY EAST" and "RACEWAY WEST".

Now, going down the diversion system, the flumes which carry the fish from the diversion gates come together into a head box, from which two pipes with monitors emerge. These are parallel, but not from the separator; therefore, they are called "DIVERSION 1" and "DIVERSION 2".

There is also a monitor for the Corps sample. It diverges from before that head box, leading toward the lab. There is a holding tank between the monitor and the lab; therefore, this monitor is called "SUBSAMPLE".

2. Little Goose

At Little Goose, there are ten monitors. The first four coming from the separator are two 2-coil units that control the diversion gates and an additional 2-coil unit in line with each of the first. These are parallel; two are gate controllers. They are called "A SEPARATOR", "A SEPARATOR GATE", "B SEPARATOR" and "B SEPARATOR GATE".

Continuing down the undiverted path, each side has a monitor just after the Corps sample gate. The flow from these monitors can be sent to the raceways, truck loading, barge loading or the river. Since they are still parallel, these monitors are called "A RACEWAY/EXIT" and "B RACEWAY/EXIT".

Now, going down the diversion system, the flumes which carry the fish from the diversion gates lead to separate head boxes, then down separate pipes with monitors to holding tanks. Since these are also parallel, they are called "A DIVERSION" and "B DIVERSION".

There is one more monitor in the diversion system; this one leads to truck loading, barge loading or the river. The two sides come together before this monitor; therefore it is called "DIVERSION EXIT".

The last monitor is in the Corps Sample; it leads into the lab, after the holding tank. It is called "SAMPLE ROOM".

Document Definitions

Section A-3. Document Definitions

HOLDING TANK: a tank where fish are gathered and held for research purposes

HEAD BOX: a small holding tank located just beyond a diversion gate on the diverted pipe or flume. Used to stage fish through a diversion system.

DETECTOR: a single PITTAG detection coil, with supporting electronics, wrapped around a pipe or flume.

MONITOR: A set of PIT Tag Detectors within one shielded unit.

monitor: a group of detectors around the same pipe or flume within the same or adjoining shielding boxes, with no gates between them.

SLIDE GATE: a gate which slides open and shut on the bottom of a flume, causing the water and fish to enter a pipe or flume below the one they were flowing through.

SWING GATE: a gate positioned in a flume where that flume splits into two. The gate selects one of the two by blocking the other and changes by swinging across the original flume.

CORPS SAMPLE GATE: any gate used by the Corps of Engineers to divert fish into a sampling system for Corps research and monitoring. Controlled by a timer.

PITTAG DIVERSION GATE: any gate used to divert PIT tagged fish (only) into a sampling system. Controlled by a timing device attached to a PIT Tag detector.

Appendix B State Hydrologic Unit Maps

- This appendix is taken from "State Hydrologic Unit Maps", by Paul R. Seaber, F. Paul Kapinos and George L. Knapp. It was published as U.S. Geological Survey, Open-File Report 84-708, 1984.

**UNITED STATES DEPARTMENT OF THE INTERIOR
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DESCRIPTION OF THE HYDROLOGIC UNITS

Basically, the United States was divided and subdivided into successively smaller hydrologic units, which were classified into four levels as shown on Figure 1. The hydrologic units are arranged within each other, starting from the smallest (cataloging units) to the largest (regions). All Hydrologic units have been identified by a unique numeric hydrologic unit code consisting of from two to eight digits based on the four levels of classification in the hydrologic unit system.

The first level of classification divides the Nation into 21 major geographic areas or regions (Figure 2). These geographic areas (hydrologic areas based on surface topography) contain either the drainage areas of a major river, such as the Missouri Region, or the combined drainage areas of a series of rivers, such as the Texas-Gulf Region, which *includes a number of rivers draining into the Gulf of Mexico*. Eighteen of the regions occupy the land area of the conterminous United States. Alaska is Region 19, the Hawaiian Islands constitute Region 20, and Puerto Rico and other outlying Caribbean areas are Region 21. The Pacific Trust Territories are a potential Region 22.

The second level of classification divides the 21 regions into 222 subregions. A subregion includes that area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area.

The Third level of classification subdivides many of the subregions into accounting units. These 352 hydrologic accounting units nest within, or are equivalent to, the subregions. The accounting units are used by the Geological Survey for designing and managing the National Water Data Network. The area extent of the accounting units is shown on Plate 1.

The fourth level of classification is the cataloging units, the smallest element in the hierarchy of hydrologic units. A catalog unit is a geographical representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. These units subdivide the subregions and accounting units into smaller area (approximately 2,150 in the Nation) that are used by the U.S. Geological Survey for cataloging and indexing water-data acquisition activities in the (*Catalog of Information on Water Data*).

Within this hierarchy, units have been defined so that almost all cataloging units are larger than 700 square miles (1,813 square Kilometers) in area. In special circumstances, units smaller than 700 square miles are identified on some of the maps.

The boundaries or area extent of the hydrologic units may be revised at the request of local users, and with the approval of the Geological Survey. Changes are more likely to occur in the cataloging unit boundaries than in those of the regions, subregions, and accounting units.

An eight-digit code uniquely identifies each of the four levels of classification within four two-digit fields. The first two digits identify the water-resources region; the first four digits identify the subregion; the first six identify the accounting unit; and the addition of two more digits for cataloging units completes the eight-digit code. An example is given below using hydrologic unit code 01080204:

01 - the region
0108 - the subregion

010802 - the accounting unit
01080204 - the cataloging unit

A 00 in the two-digit accounting unit field indicates that the accounting unit and the subregion are the same. Likewise, if the cataloging unit code is 00, it is the same as the accounting unit.

Hydrologic Units Names

In addition to hydrologic unit codes, all hydrologic units have been assigned names corresponding to the principal hydrologic feature(s) within the unit. All regions and subregions are uniquely named; however, the accounting units are uniquely named only within each accounting unit. Duplication of some names at the cataloging unit level is unavoidable because a large number of streams found throughout the Nation share the same names.

A complete list of all hydrologic unit codes, their names, the names of the States or outlying areas in which they reside, and their drainage areas is given in Table 1.

DESCRIPTION OF THE HYDROLOGIC UNIT MAPS

The State Hydrologic Unit Map Series consists of 47 maps on 53 sheets, the maps present 49 States at a scale of 1:500,000 or about 8 miles to an inch (1 cm to 5 km). This scale permits most states to be shown on a single map of convenient size. Texas is shown on four sheets and Montana, Michigan, and California are shown on two sheets each. Three groups of States-- Massachusetts, Rhode Island, and Connecticut; Maryland, Delaware, and the District of Columbia; and Vermont and New Hampshire--are combined on a single sheet for each group. Alaska, because of its large size and less accurately defined drainage, is shown at a scale of 1:2,500,000 or about 40 miles to each inch (1cm to 25 km). Puerto Rico is shown on the Caribbean Region map at a scale of 1:340,000 or about 4 mile to an inch (1 cm to 2.4 km). The other outlying Caribbean areas are shown on this map at scales ranging from 1:250,00 to 1:1,000,000.

SUBREGION 1702- UPPER COLUMBIA: THE COLUMBIA RIVER BASIN WITHIN THE
UNITED STATES ABOVE THE CONFLUENCE WITH THE SNAKE RIVER
BASIN. WASHINTON.

AREA = 22600 SQ.MI.

ACCOUNTING UNIT 170200-- UPPER COLUMBIA. WASHINGTON.

AREA = 2170 SQ.MI

CATALOGING UNITS 17020001 -- FRANKLIN D. ROOSEVELT LAKE.
WASHINGTON.
AREA = 2170 SQ.MI.

17020002 -- KETTLE. WASHINGTON.
AREA = 966 SQ.MI

17020003 -- COLVILLE. WASHINGTON.
AREA = 1030 SQ.MI

17020004 -- SANPOIL. WASHINGTON.
AREA = 1080 SQ.MI.

17020005 -- CHIEF JOSEPH. WASHINGTON.
AREA = 1390 SQ.MI.

17020006 -- OKANOGAN. WASHINGTON.
AREA = 1640 SQ.MI.

17020007 -- SIMILKAMEEN. WAHINGTON.
AREA = 671 SQ.MI.

17020008 -- METHOW. WASHINGTON.
AREA = 1820 SQ.MI.

17020009 -- LAKE CHELAN. WASHINGTON.
AREA = 955 SQ.MI.

17020010 = UPPER COLUMBIA-ENTLAT. WASHINGTON
AREA = 1520 SQ.MI

17020011 -- WENATCHEE. WASHINGTON.
AREA = 1350 SQ.MI.

17020012 -- MOSES COULEE. WASHINGTON.
AREA = 926 SQ.MI

17020013 -- UPPER CRAB. WASHINGTON.
AREA = 1860 SQ.MI.

17020014 -- BANKS LAKE. WASHINGTON.
AREA = 609 SQ.MI.

17020015 -- LOWER CRAB. WASHINGTON.
AREA = 2510 SQ.MI.

17020016 -- UPPER COLUMBIA-PRIEST RAPIDS.
WASHINGTON.
AREA = 2070 SQ.MI.

SUBREGION 1703 -- YAKAMA. THE YAKAMA RIVER BASIN. WASHINGTON.

AREA = 6210 SQ.MI.

ACCOUNTING UNIT 170300 -- YAKIMA. WASHINGTON.
AREA = 6210 SQ.MI.

CATALOGING UNITS 17030001 -- UPPER YAKIMA. WASHINGTON.
AREA = 2130 SQ.MI.

17030002 -- NACHES. WASHINGTON.

AREA = 1130 SQ.MI.

17030003 -- LOWER YAKAMA. WASHINGTON.

AREA = 2950 SQ.MI.

SUBREGION 1705 -- MIDDLE SNAKE: THE SNAKE RIVER BASIN BELOW THE CLOVER
CREEK BASIN TO HELLS CANYON DAM. IDAHO,
NEVADA, OREGON.
AREA = 36700 SQ.MI.

ACCOUNTING UNIT 17052 -- MIDDLE SNAKE POWDER: THE SNAKE RIVER BASIN
BELOW THE WEISER RIVER BASIN TO HELLS
CANYON DAM. IDAHO OREGON.
AREA = 4100 SQ.MI.

CATALOGING UNITS 17050201 -- BROWNLEE RESERVOIR. IDAHO, OREGON.

17050202 -- BURNT. OREGON.

17050203 -- POWDER. OREGON.

SUBREGION 1706 -- LOWER SNAKE: THE SNAKE RIVER BASIN BELOW HELLS
CANYON DAM TO ITS CONFLUENCE WITH THE COLUMBIA
RIVER. IDAHO, OREGON, WASHINGTON.
AREA = 35200 SQ.MI

ACCOUNTING UNIT 170601 -- LOWER SNAKE: THE SNAKE RIVER BASIN BELOW
HELLS CANYON DAM TO ITS CONFLUENCE WITH
THE COLUMBIA RIVER, EXCLUDING THE
SALMON AND CLEARWATER RIVER BASINS.
IDAHO, OREGON, WASHINGTON.
AREA = 11800 SQ.MI.

CATALOGING UNITS 1706101 -- HELLS CANYON. IDAHO, OREGON.

AREA = 545 SQ.MI.

1760102 -- IMNAHA. OREGON.

AREA = 855 SQ.MI.

1760103 -- LOWER SNAKE-ASOTIN. IDAHO, OREGON,
WASHINGTON.

AREA = 711 SQ.MI.

1760104 -- UPPER GRANDE RONDE. OREGON.
 AREA = 1650 SQ.MI.
 176060105 -- WALLOWA. OREGON.
 AREA = 950 SQ.MI.
 1760106 -- LOWER GRANDE RONDE. OREGON,
 WASHINGTON.
 AREA = 1530 SQ.MI
 1760107 -- LOWER SNAKE- TUCANNON. WASHINGTON.
 AREA = 1480 SQ.MI.
 1706108 -- PALOUSE. IDAHO, WASHINGTON.
 AREA = 2360 SQ.MI.
 1706109 -- ROCK. IDAHO, WASHINGTON.
 AREA = 962 SQ.MI.
 1706110 - LOWER SNAKE. WASHINGTON.
 AREA = 731 SQ.MI.
 ACCOUNTING UNIT 170602 -- SALMON: THE SALMON RIVER BASIN. IDAHO
 AREA = 14000 SQ.MI.
 CATALOGING UNITS 17060201 -- UPPER SALMON. IDAHO.
 AREA = 2410 SQ.MI.
 17060202 -- PAHSIMEROL. IDAHO.
 AREA = 825 SQ.MI.
 17060203 -- MIDDLE SALMON-PANTHER. IDAHO.
 AREA = 1810 SQ.MI.
 17060204 -- LEMHI. IDAHO.
 AREA = 1270 SQ.MI.
 17060205 -- UPPER MIDDLE FORK SALMON. IDAHO.
 AREA = 1490 SQ.MI.
 17060206 -- LOWER MIDDLE FORK SALMON. IDAHO
 AREA = 1370 SQ.MI
 17060207 -- MIDDLE SALMON-CHBERLAN. IDAHO.
 AREA = 1700 SQ.MI.
 17060208 -- SOUTH FORK SALMON. IDAHO.
 AREA = 1310 SQ.MI
 17060209 -- LOWER SALMON. IDAHO
 AREA = 1240 SQ.MI.
 17060210 -- LITTLE SALMON. IDAHO.
 AREA = 582 SQ.MI.
 ACCOUNTING UNIT 170603 -- CLEARWATER: THE CLEARWATER RIVER BASIN
 IDAHO, WASHINGTON.
 AREA = 9420 SQ.MI.

CATALOGING UNITS 17060301 -- UPPER SELWAY, IDAHO.

- 17060302 -- LOWER SELWAY, IDAHO.
AREA = 997 SQ.MI.
- 17060303 -- LOCHSA, IDAHO.
AREA = 1030 SQ.MI.
- 17060304 - MIDDLE FORK CLEARWATER, IDAHO.
AREA = 213 SQ.MI.
- 17060305 -- SOUTH FORK CLEARWATER, IDAHO.
AREA = 1170 SQ.MI.
- 17060306 -- CLEARWATER, IDAHO, WASHINGTON.
AREA = 2340 SQ.MI.
- 17060307 -- UPPER NORTH FORK CLEARWATER,
IDAHO.
AREA = 1320 SQ.MI.
- 17060308 -- LOWER NORTH FORK CLEARWATER,
IDAHO.
AREA = 1170 SQ.MI.

SUBREGION 1707 -- MIDDLE COLUMBIA: THE COLUMBIA RIVER BASIN BELOW
THE CONFLUENCE WITH THE SNAKE RIVER BASIN TO
BONNEVILLE DAM, OREGON, WASHINGTON.
AREA = 29800 SQ.MI.

ACCOUNTING UNIT 1700701 -- MIDDLE COLUMBIA: THE COLUMBIA RIVER
BASIN BELOW THE CONFLUENCE WITH THE
SNAKE RIVER BASIN TO BONNEVILLE DAM,
EXCLUDING THE DESCHUTES AND JOHN DAY
RIVER BASINS, OREGON, WASHINGTON.
AREA = 29800 SQ.MI.

- CATALOGING UNITS 17070101 -- MIDDLE COLUMBIA-LAKE WALLULA,
OREGON, WASHINGTON.
AREA = 2550 SQ.MI.
- 17070102 -- WALLA WALLA, OREGON, WASHINGTON.
AREA = 11750 SQ.MI.
- 17070103 -- UMATILLA, OREGON.
AREA = 2540 SQ.MI.
- 17070104 -- WILLOW, OREGON.
AREA = 881 SQ.MI.
- 17070105 -- MIDDLE COLUMBIA-HOOD, OREGON,
WASHINGTON.
AREA = 2170 SQ.MI.
- 17070106 -- KLUCKITAT, WASHINGTON.
AREA = 1330 SQ.MI.

Appendix C Installation Diagrams

This appendix contains drawings of PIT Tag Identification System sites in use. If you need additional information about a site, please contact NMFS or PSMFC.

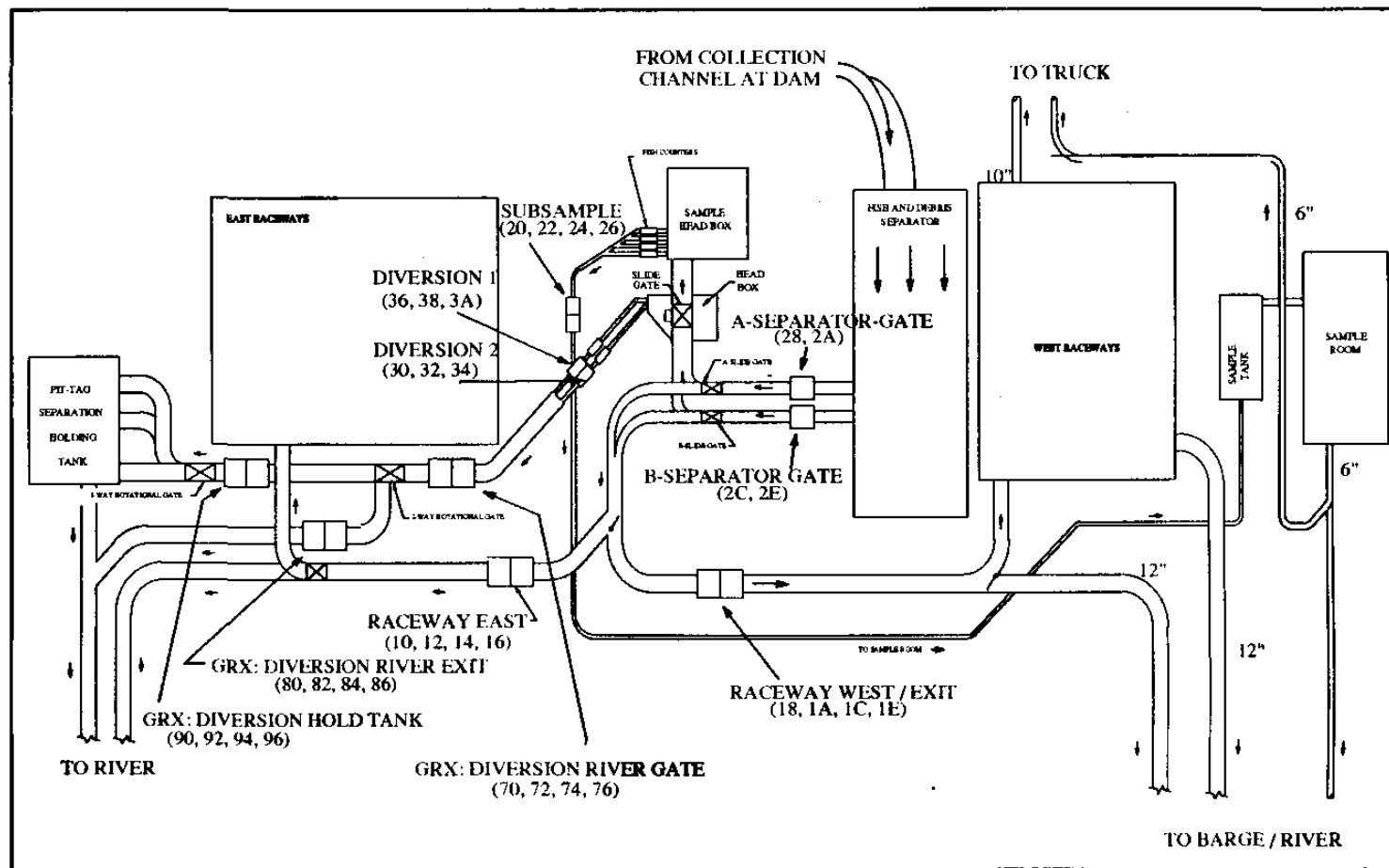


Figure C-4 Lower Granite Dam

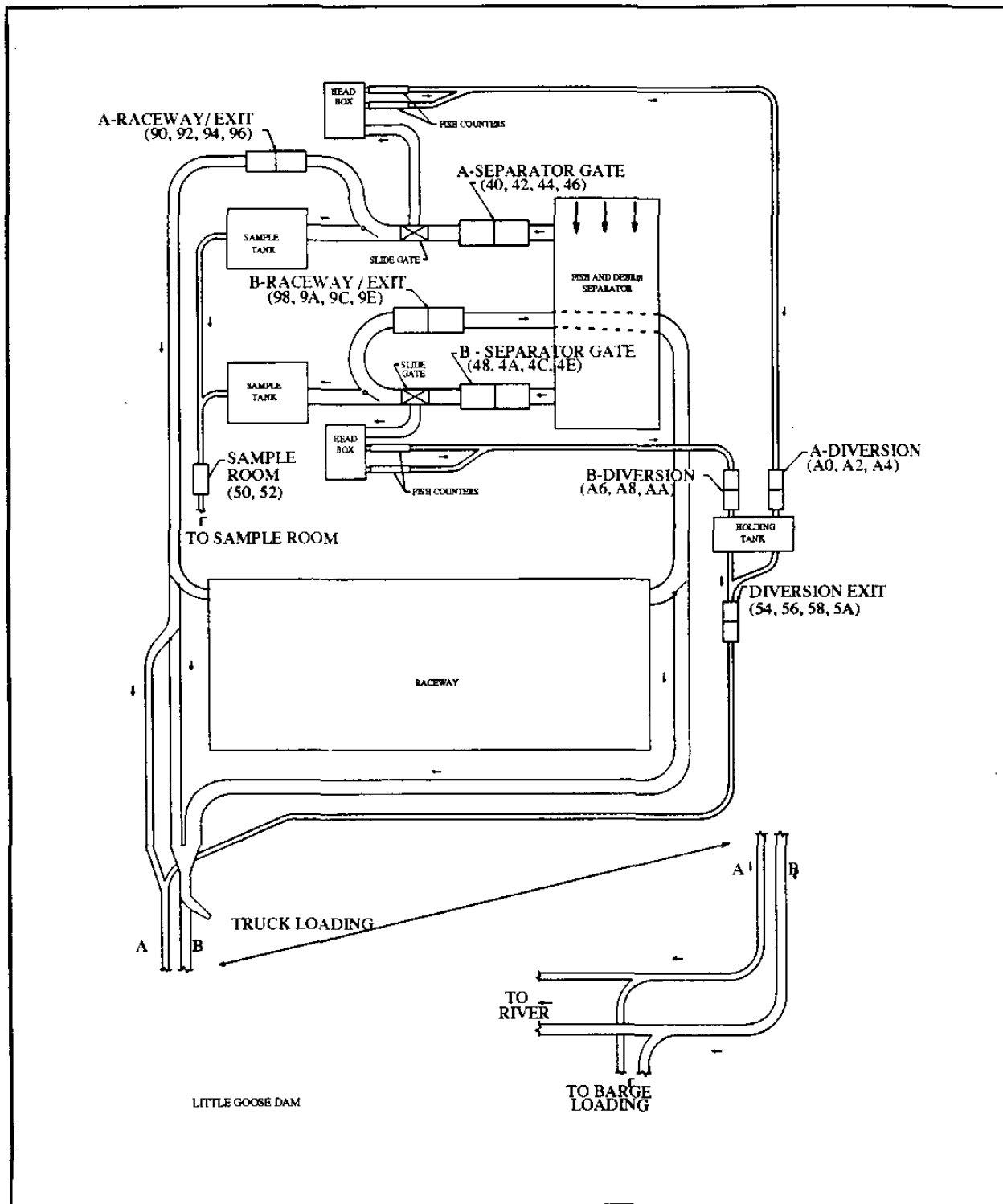


Figure C-5 Little Goose Dam

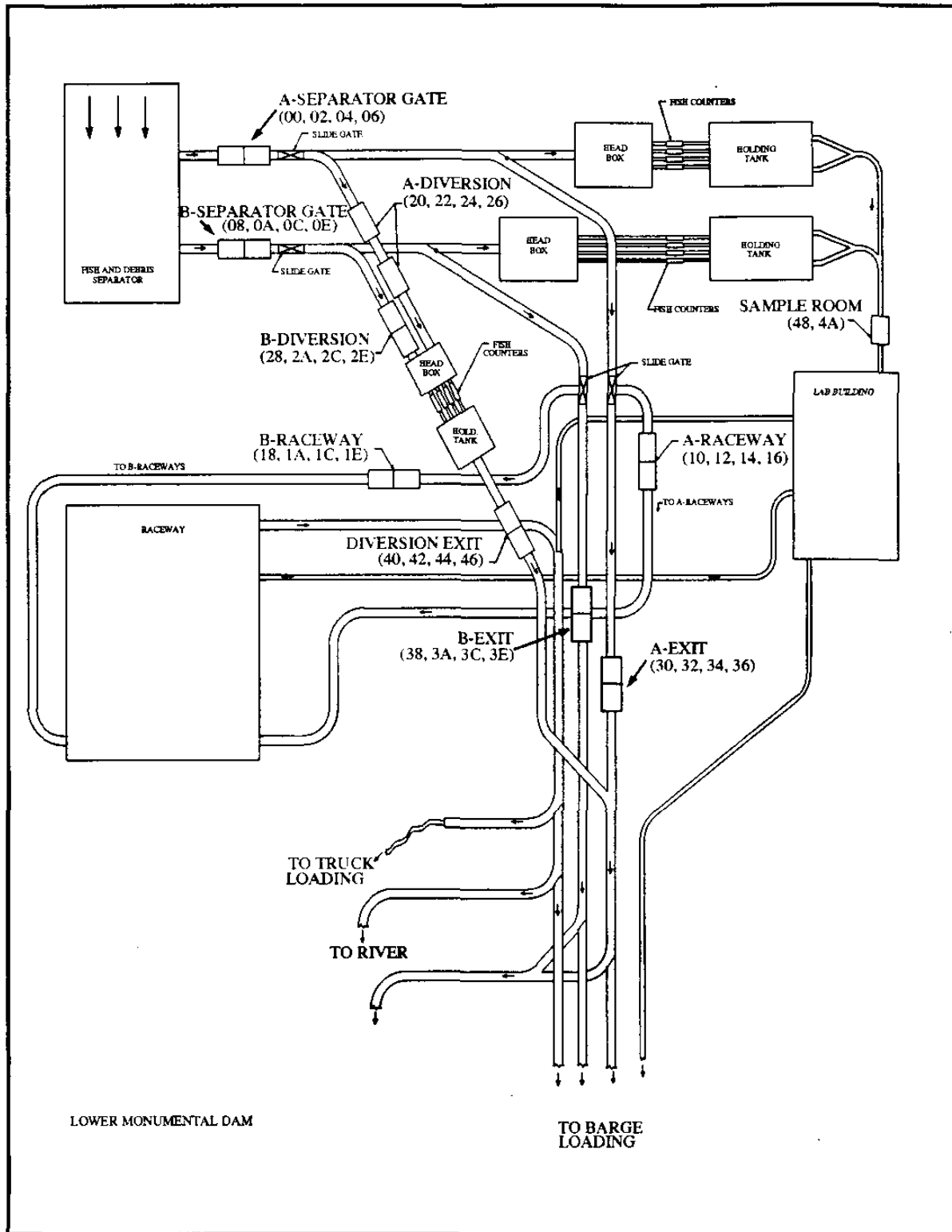


Figure C-6 Lower Monumental Dam

Pit Tag Specification Document

January 3, 1996

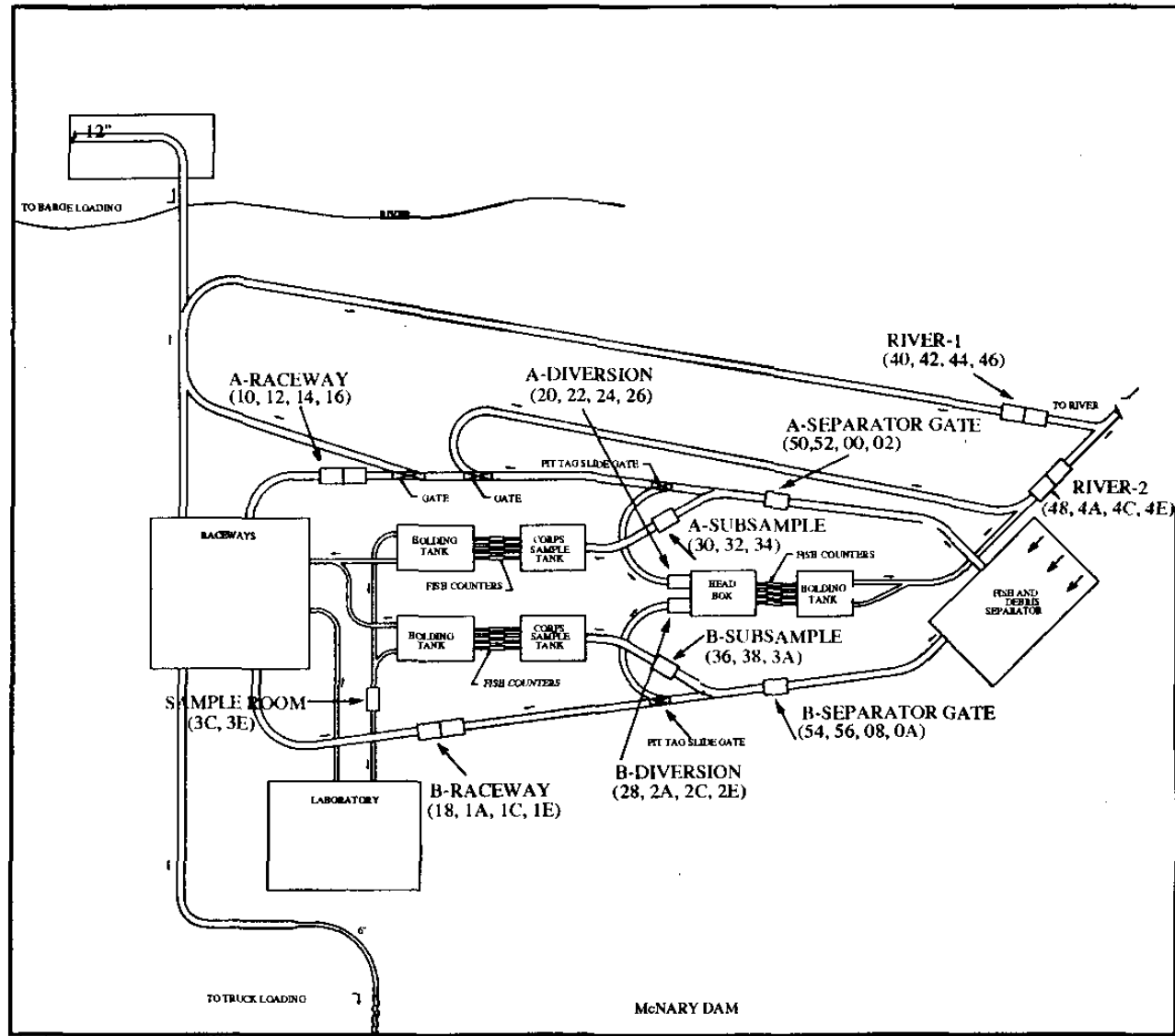


Figure C-7 McNary Dam

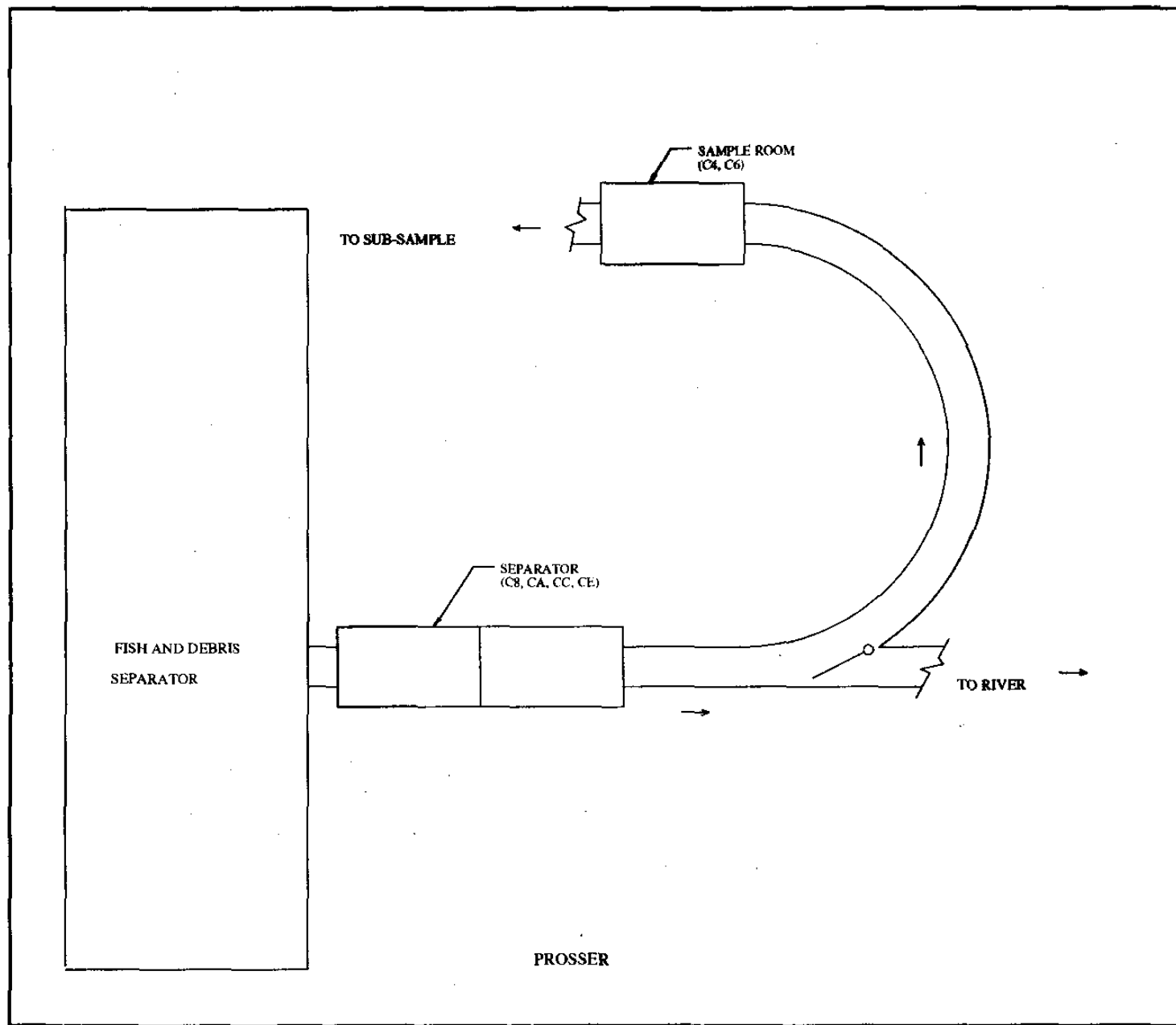
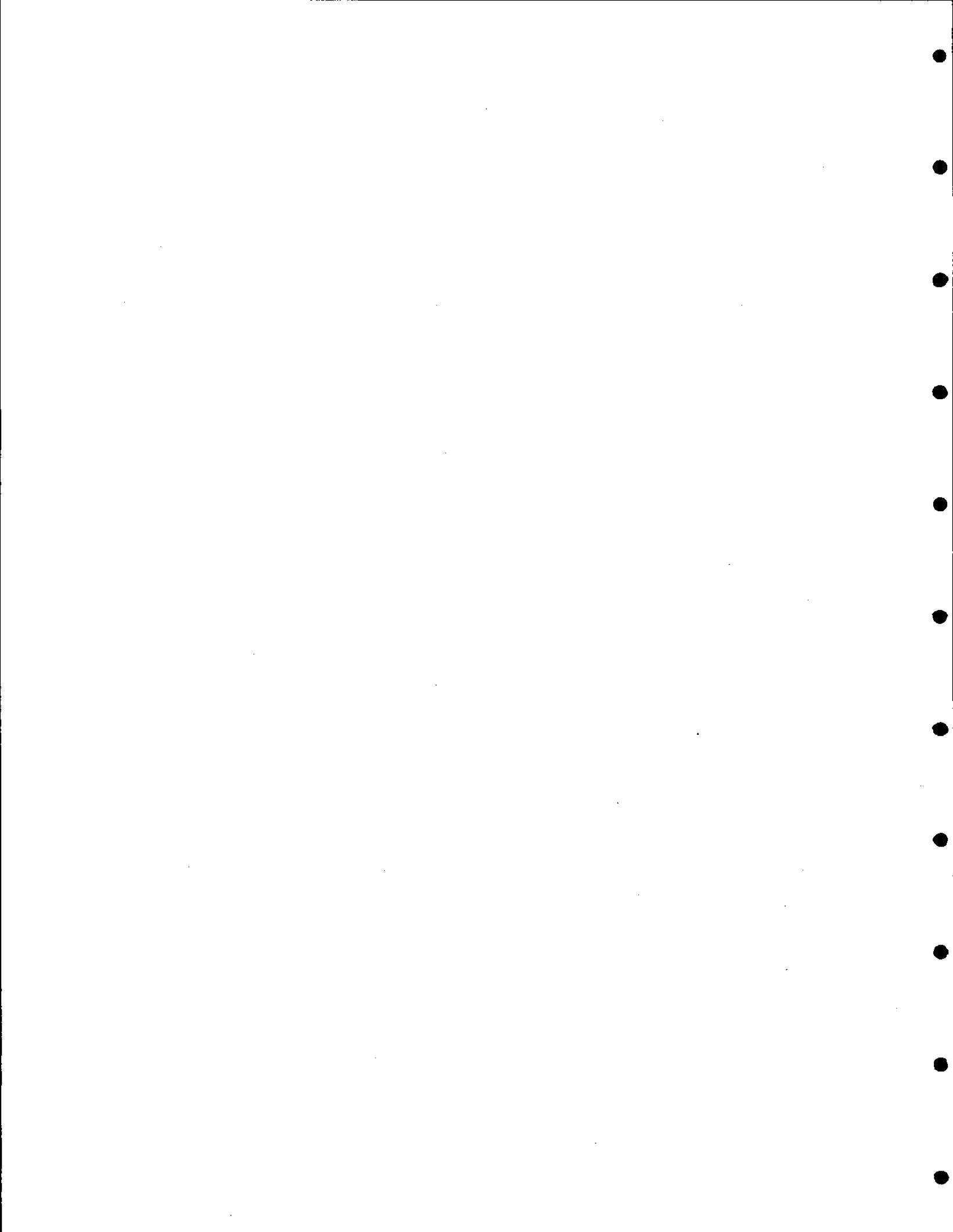


Figure C-8 Prosser Dam

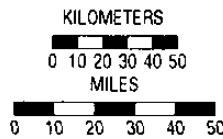
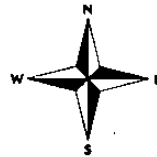
Appendix D Maps



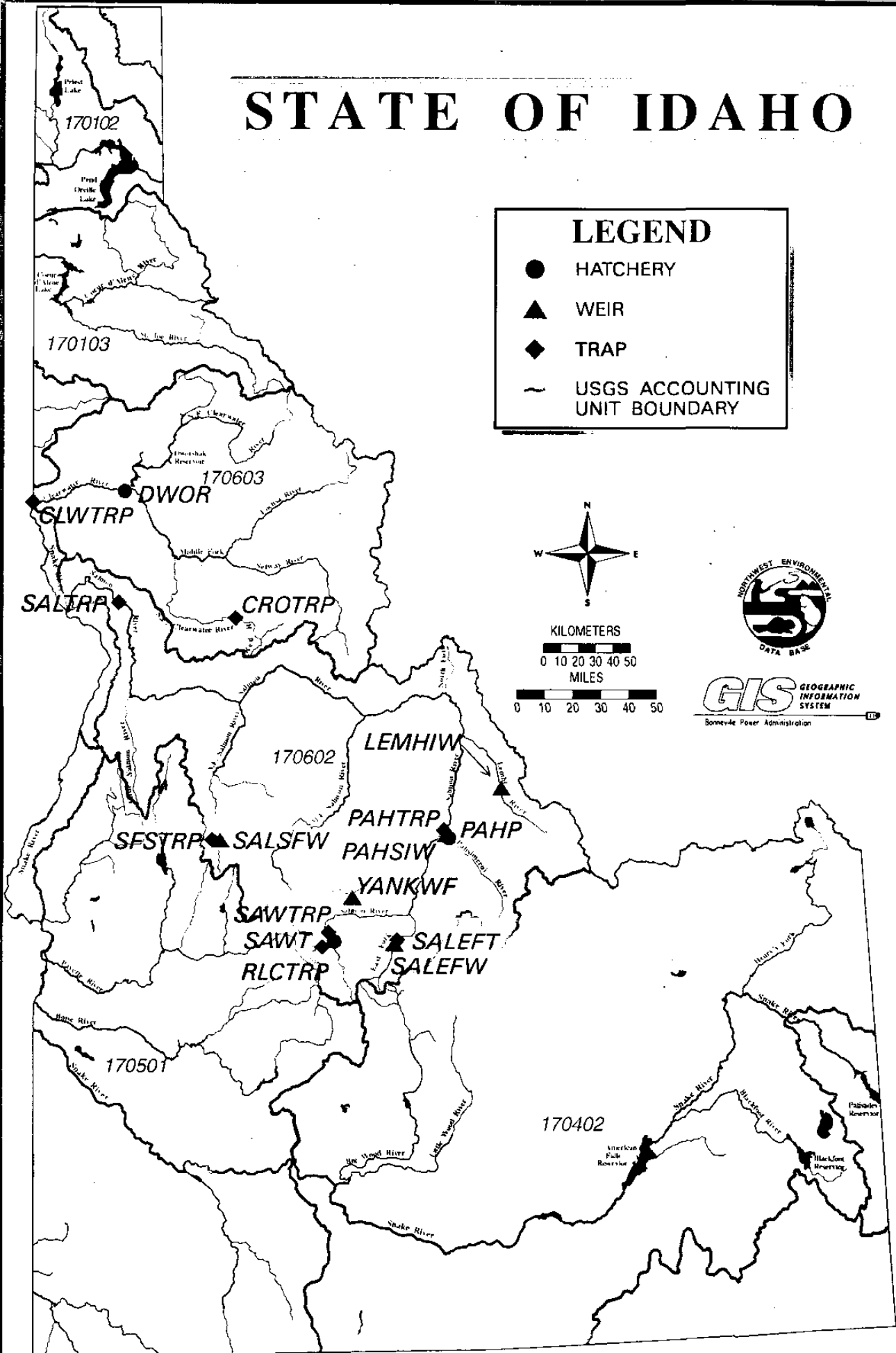
STATE OF IDAHO

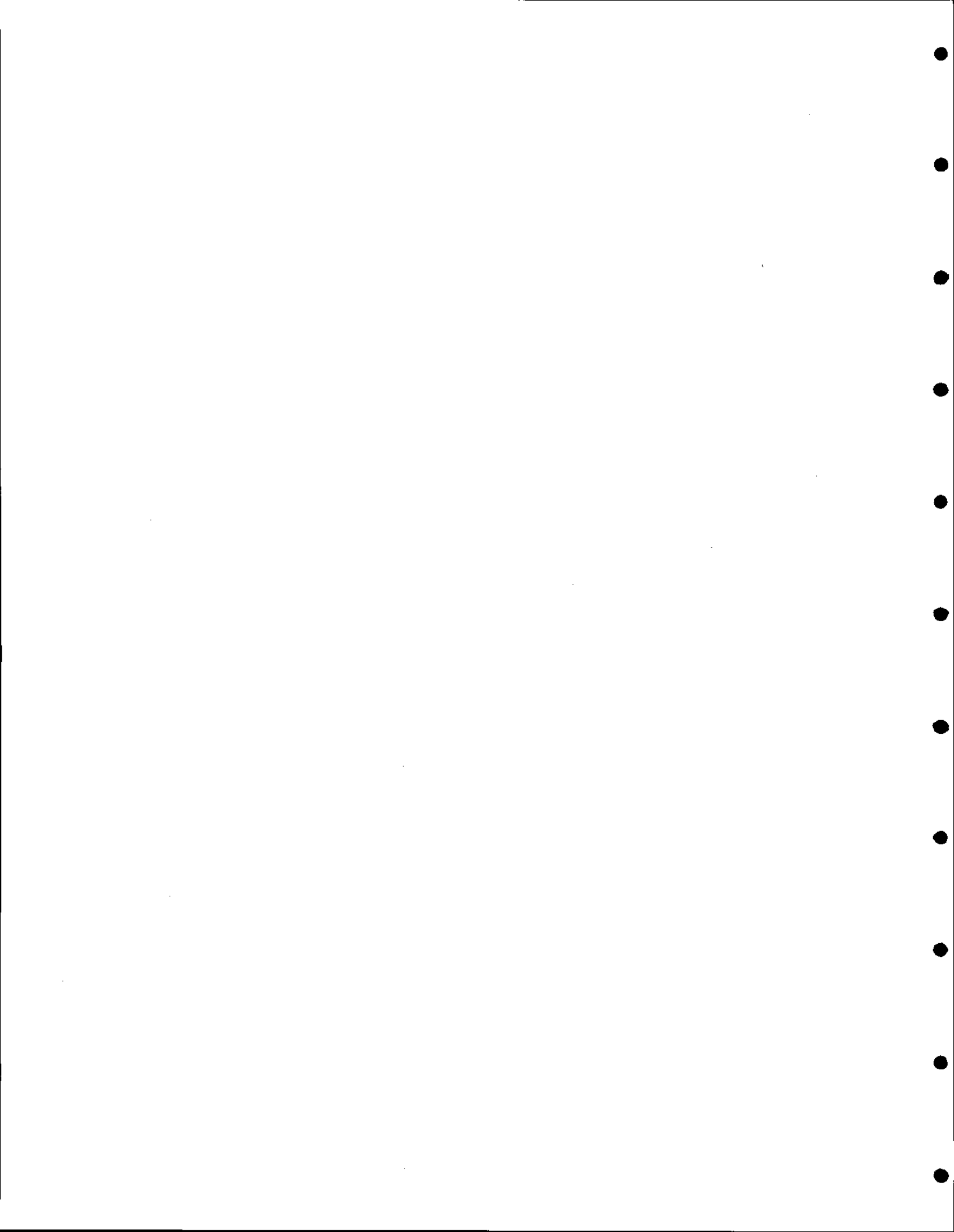
LEGEND

- HATCHERY
- ▲ WEIR
- ◆ TRAP
- ~ USGS ACCOUNTING UNIT BOUNDARY



GIS GEOGRAPHIC INFORMATION SYSTEM
Bonneville Power Administration





STATE OF OREGON

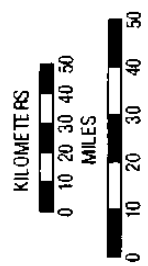


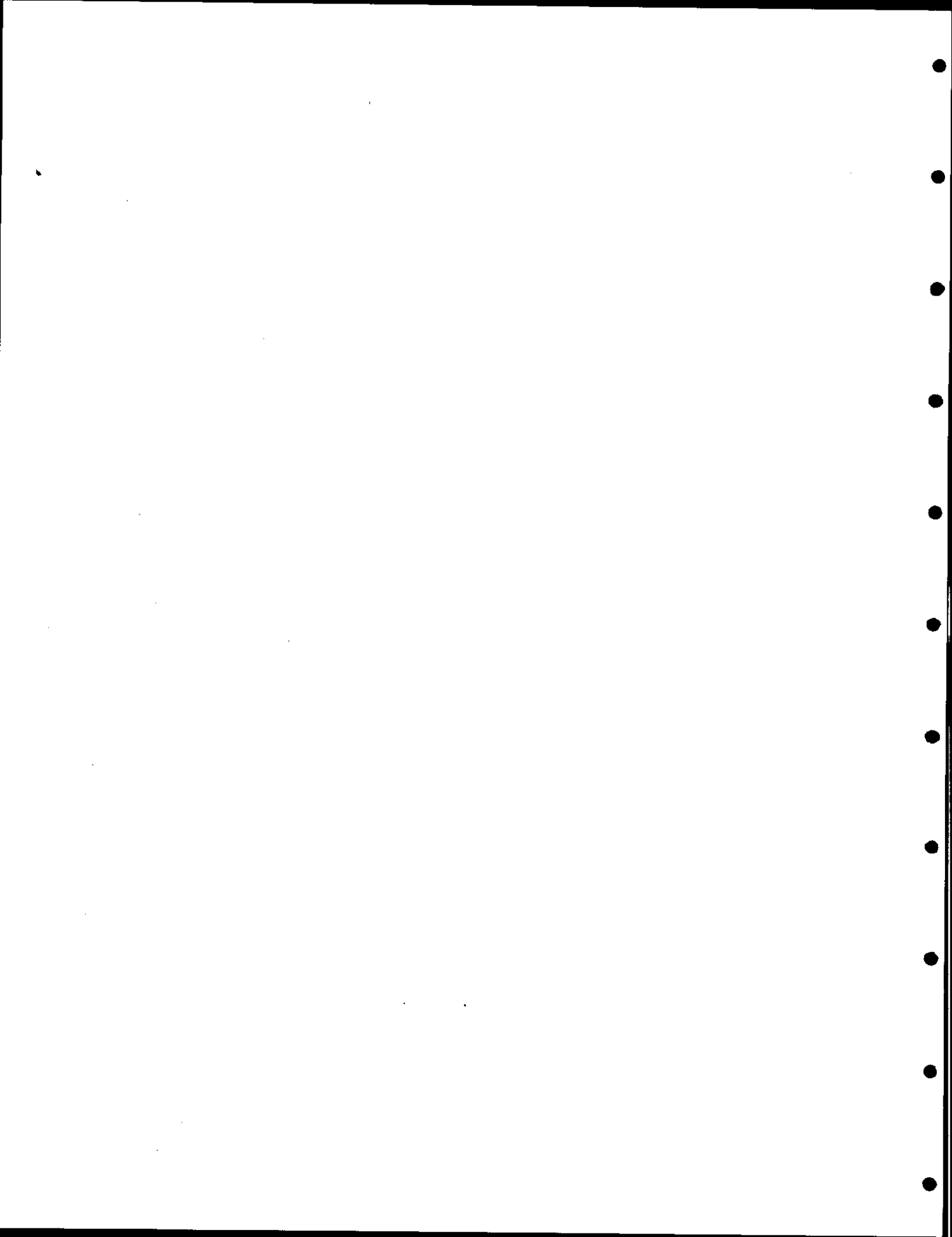
LEGEND

- WEIR
- DAM
- USGS ACCOUNTING UNIT BOUNDARY



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GEOGRAPHIC INFORMATION SYSTEM
Bonneville Power Administration





STATE OF WASHINGTON

LEGEND

- HATCHERY
- ◆ TRAP
- | DAM
- ~ USGS ACCOUNTING UNIT BOUNDARY



KILOMETERS

0 10 20 30 40 50

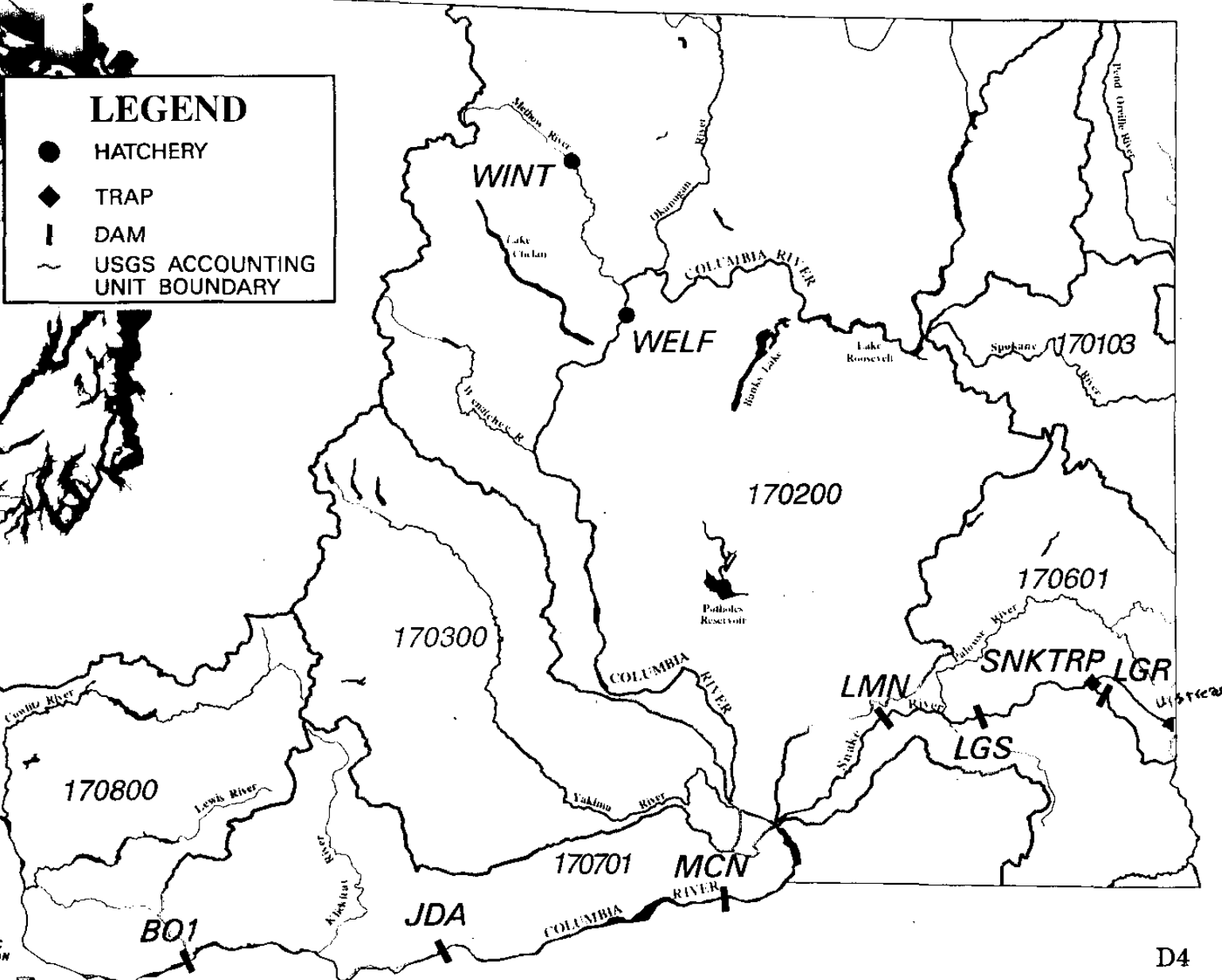
MILES

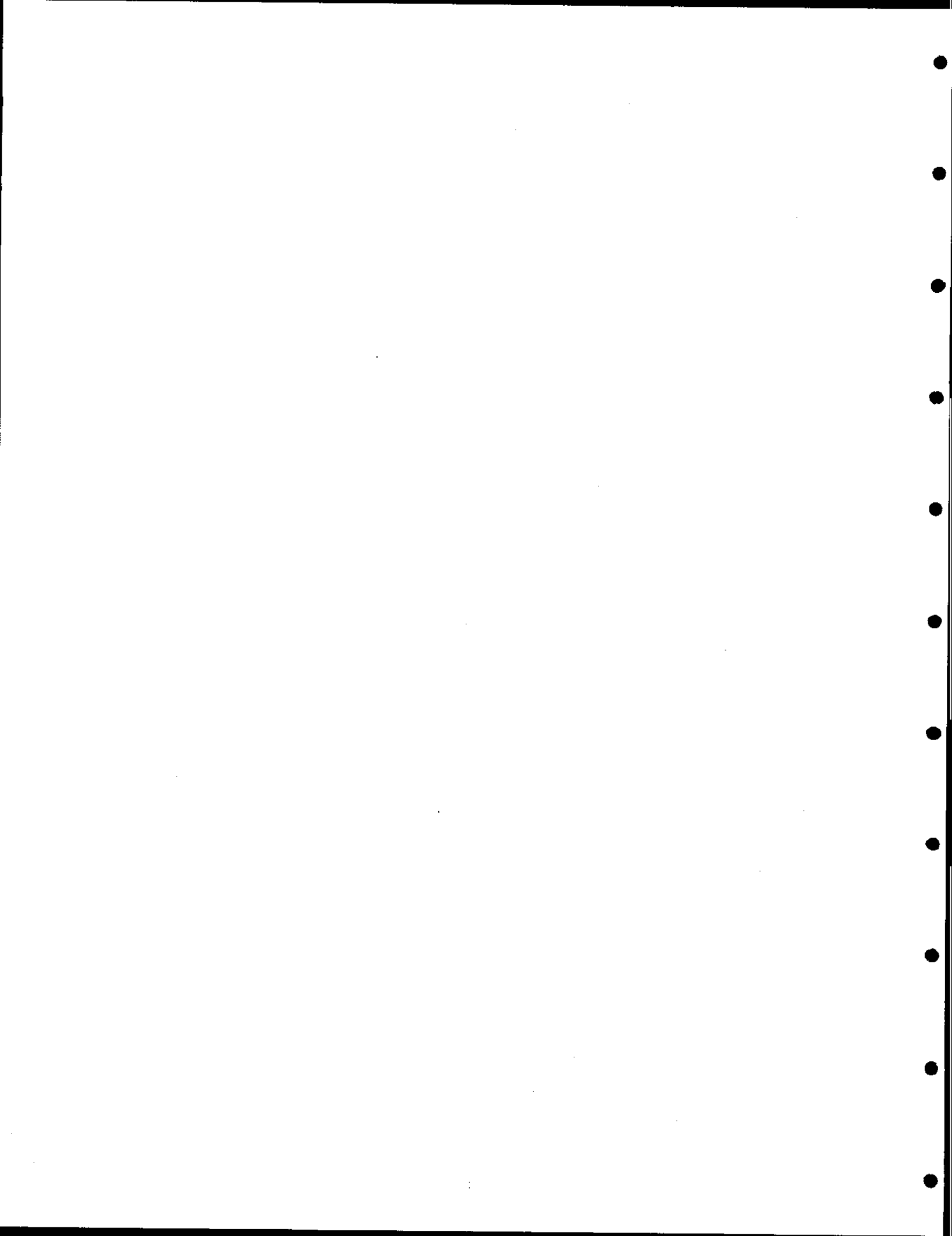
0 10 20 30 40 50



GIS GEOGRAPHIC INFORMATION SYSTEM

Bonneville Power Administration





Appendix E Julian Date Calendars

JULIAN DATE CALENDAR

(PERPETUAL)

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Day
1	001	032	060	091	121	152	182	213	244	274	305	335	1
2	002	033	061	092	122	153	183	214	245	275	306	336	2
3	003	034	062	093	123	154	184	215	246	276	307	337	3
4	004	035	063	094	124	155	185	216	247	277	308	338	4
5	005	036	064	095	125	156	186	217	248	278	309	339	5
6	006	037	065	096	126	157	187	218	249	279	310	340	6
7	007	038	066	097	127	158	188	219	250	280	311	341	7
8	008	039	067	098	128	159	189	220	251	281	312	342	8
9	009	040	068	099	129	160	190	221	252	282	313	343	9
10	010	041	069	100	130	161	191	222	253	283	314	344	10
11	011	042	070	101	131	162	192	223	254	284	315	345	11
12	012	043	071	102	132	163	193	224	255	285	316	346	12
13	013	044	072	103	133	164	194	225	256	286	317	347	13
14	014	045	073	104	134	165	195	226	257	287	318	348	14
15	015	046	074	105	135	166	196	227	258	288	319	349	15
16	016	047	075	106	136	167	197	228	259	289	320	350	16
17	017	048	076	107	137	168	198	229	260	290	321	351	17
18	018	049	077	108	138	169	199	230	261	291	322	352	18
19	019	050	078	109	139	170	200	231	262	292	323	353	19
20	020	051	079	110	140	171	201	232	263	293	324	354	20
21	021	052	080	111	141	172	202	233	264	294	325	355	21
22	022	053	081	112	142	173	203	234	265	295	326	356	22
23	023	054	082	113	143	174	204	235	266	296	327	357	23
24	024	055	083	114	144	175	205	236	267	297	328	358	24
25	025	056	084	115	145	176	206	237	268	298	329	359	25
26	026	057	085	116	146	177	207	238	269	299	330	360	26
27	027	058	086	117	147	178	208	239	270	300	331	361	27
28	028	059	087	118	148	179	209	240	271	301	332	362	28
29	029		088	119	149	180	210	241	272	302	333	363	29
30	030		089	120	150	181	211	242	273	303	334	364	30
31	031		090		151		212	243		304		365	31

(FOR LEAP YEAR USE REVERSE SIDE)

JULIAN DATE CALENDAR

For Leap Years

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Day
1	001	032	061	092	122	153	183	214	245	275	306	336	1
2	002	033	062	093	123	154	184	215	246	276	307	337	2
3	003	034	063	094	124	155	185	216	247	277	308	338	3
4	004	035	064	095	125	156	186	217	248	278	309	339	4
5	005	036	065	096	126	157	187	218	249	279	310	340	5
6	006	037	066	097	127	158	188	219	250	280	311	341	6
7	007	038	067	98	128	159	189	220	251	281	312	342	7
8	008	039	068	99	129	160	190	221	252	282	313	343	8
9	009	040	069	100	130	161	191	222	253	283	314	344	9
10	010	041	070	101	131	162	192	223	254	284	315	345	10
11	011	042	071	102	132	163	193	224	255	285	316	346	11
12	012	043	072	103	133	164	194	225	256	286	317	347	12
13	013	044	073	104	134	165	195	226	257	287	318	348	13
14	014	045	074	105	135	166	196	227	258	288	319	349	14
15	015	046	075	106	136	167	197	228	259	289	320	350	15
16	016	047	076	107	137	168	198	229	260	290	321	351	16
17	017	048	077	108	138	169	199	230	261	291	322	352	17
18	018	049	078	109	139	170	200	231	262	292	323	353	18
19	019	050	079	110	140	171	201	232	263	293	324	354	19
20	020	051	080	111	141	172	202	233	264	294	325	355	20
21	021	052	081	112	142	173	203	234	265	295	326	356	21
22	022	053	082	113	143	174	204	235	266	296	327	357	22
23	023	054	083	114	144	175	205	236	267	297	328	358	23
24	024	055	084	115	145	176	206	237	268	298	329	359	24
25	025	056	085	116	146	177	207	238	269	299	330	360	25
26	026	057	086	117	147	178	208	239	270	300	331	361	26
27	027	058	087	118	148	179	209	240	271	301	332	362	27
28	028	059	088	119	149	180	210	241	272	302	333	363	28
29	029	060	089	120	150	181	211	242	273	303	334	364	29
30	030		090	121	151	182	212	243	274	304	335	365	30
31	031		091		152		213	244		305		366	31

(USE IN 1964,1968,1972)

Appendix F Suspect Duplicate Tags

In March, 1989, Destron IDI received duplicate wafers. The wafers were manufactured into tags and were distributed within the Columbia River Basin. The range of the duplicate codes is:

7F7E42706C - 7F7E432E37

Other duplicate tag codes can be generated by mis-reads (bit-shifts) during the tagging or interrogation events. Tag Codes that do not begin with the number 7 and that are read with readers that incorporate a cyclic redundancy check are less likely to produce mis-reads.

All PSMFC supported interrogation sites will incorporate CRC firmware beginning in 1996.

