# DETAILED SYSTEM DESIGN AND SPECIFICATION FEDERAL WATER SUPPLY DATA SYSTEM

Prepared for

## THE OFFICE OF WATER SUPPLY
## U.S. ENVIRONMENTAL PROTECTION AGENCY

**Contract No. 68-01-3308**
**Task Order 68-01-3910**

Prepared by

**Index Systems, Inc.**
One Broadway
Cambridge, Mass.

**September 1976**

VOLUME III

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# VII. PROGRAM SPECIFICATIONS

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This chapter contains the program specifications, organized numerically within subsystem. Each specification contains several sections, as follows:

- General description
- Input/output chart
- Data file and table usage
- Report reference
- Control or report totals
- Logic chart
- Processing step descriptions

The detailed file and report layouts from chapters III and IV of this report should be used in conjunction with the program specifications. A separate table of contents is included for this chapter.

The programs are designed to be written in COBOL. The internal date retrieval function is to be used in all cases where the current processing date is required. The Periodic Reporting Subsystem is designed to utilize the string function of COBOL to access fields by means of offset and length values and thus facilitate the report selection programming. In addition

this subsystem is designed to use the internal sort facility.

Reference is made in the specifications to two functional subroutines which should be coded separately for incorporation in many of the programs. The STANDARD-ERROR routine is used to print error messages on reports. The JULIAN-DATE routine is used to convert Gregorian input dates to Julian for processing and back to Gregorian for reporting purposes.

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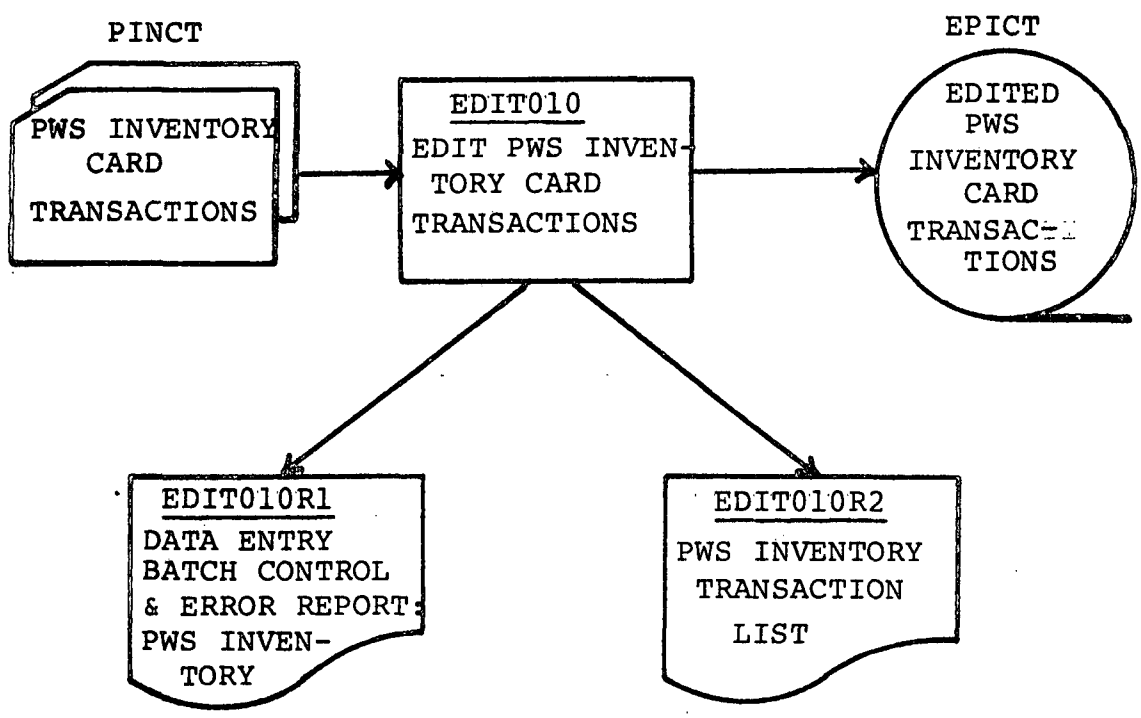
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT010 - Edit PWS Inventory Card Transactions

SUBSYSTEM: INPUT

DESCRIPTION: This program edits the PWS inventory card input transactions. It produces an edited tape for input to the PWS Inventory Update program UPDT010, a detailed Transaction Report EDIT010R2 and a Batch Control and Error Report EDIT010R1.



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1. INTRODUCTION:

Function: This program reads PWS inventory transactions, batched by state. It checks data values on each transaction and balances to batch control totals.

Transaction Source: Card input, keypunched from input forms.

Input Sort Sequence: Batch number

Reports: EDIT010R1 - Data Entry Batch Control and Error Report: PWS Inventory lists transactions in error, error messages, batch and run totals.

EDIT010R2 - PWS Inventory Transaction Listing - lists transactions accepted and the sequence numbers assigned by the program.

2. DATA USAGE:

Input File:

- File Name - PWS Inventory Card Transactions
  File I.D. - PINCT
  File Layout Reference - See PWS Inventory Entry Form
  Record Name - Not applicable

Output File:

- File Name - Edited PWS Inventory Card Transactions
  File I.D. - EPICT
  File Layout Reference - PWSUT
  Record Name - PWS Trans (00/01)-(13)

Tables:

- Table Name - Error Messages
  Table I.D. - ERRMSG

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

EDIT010R1 - Data Entry Batch Control and Error Report: PWS Inventory

EDIT010R2 - PWS Inventory Transaction Listing

4. CONTROL ACCUMULATORS:

Number of batches processed

Number of batches accepted

Number of batches rejected

Number of batches in balance

Number of batches out-of-balance

Number of transactions - per batch

Number of transactions accepted - per batch

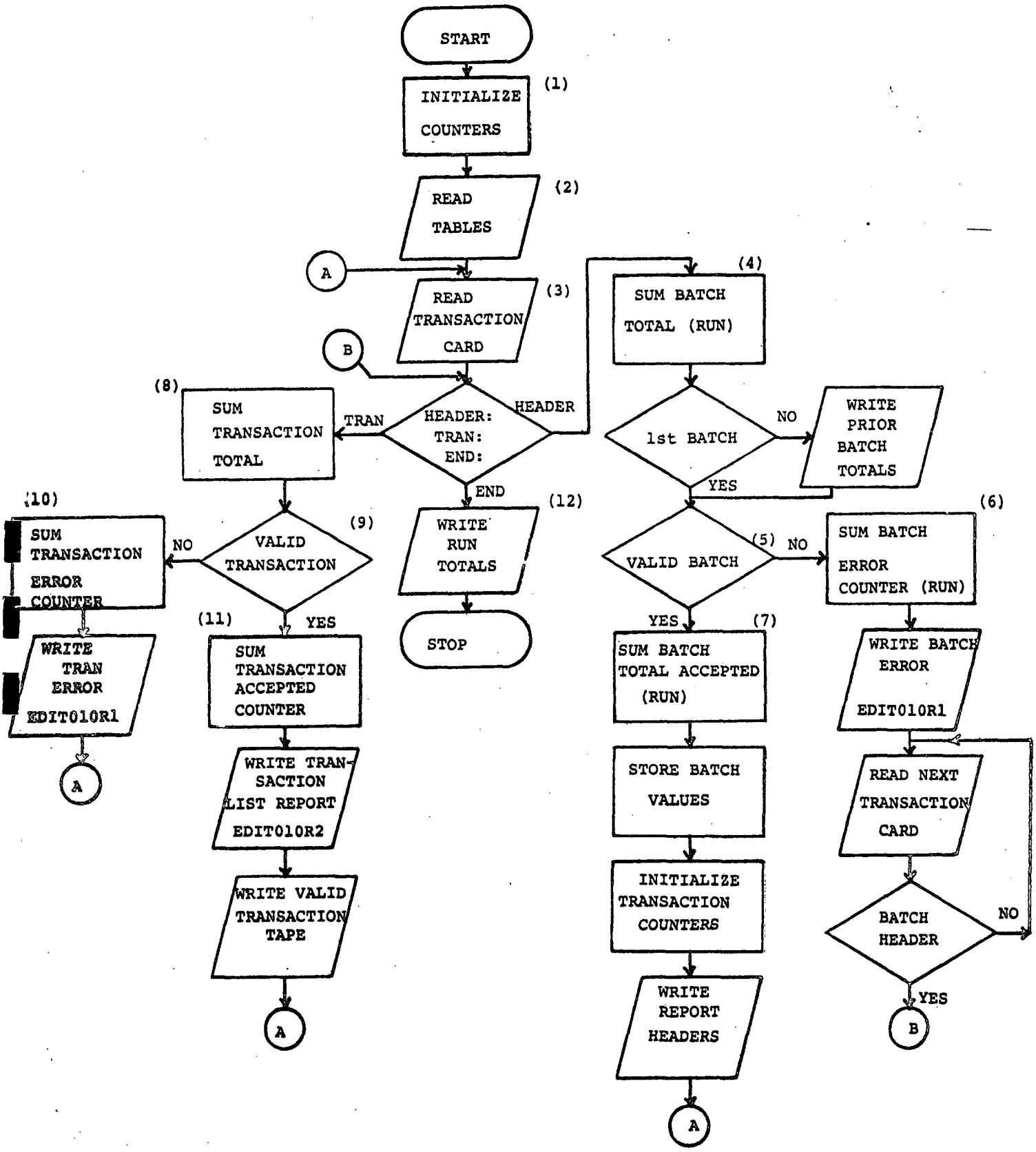
Number of transactions rejected - per batch

5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD-ERROR, is used to print error messages on EDIT010R1.

A common subroutine, JULIAN-DATE, is used to convert dates on the input cards to Julian dates.

## 6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read and store tables.

(3) Read a record from the transaction file.

(4) Increment batch counters for batch header. If not first batch write prior batch totals as indicated on EDIT010R1. Print the out of balance message if the transactions per batch accumulator does not equal the transaction count from the batch header.

(5) Validate batch header:

Tran code must be "BP", if not, perform step (6), using error message 001.

Check state code:

- If 0-10, use as the region number and set state code to blank.
- If not 0-10, match to State Table. Use corresponding region number from State Table as the region.
- If no match to table, perform step (6), using error message 002.

(6) For an invalid batch, increment batch rejected counter, write error message as indicated on EDIT010R1 layout and read to next batch header.

(7) For a valid batch, increment batch accepted counter, store header values for balancing and initialize transaction counters.

Write report headers to a new page for both EDIT010R1 and EDIT010R2. Read next transaction record.

(8) Process transactions by incrementing the transaction counter.

(9) Validate data values as described in the Edit Requirements section of the Data Element Description. The tran code on each transaction will indicate which of the 13 transaction types the record represents. The

appropriate error checks should be made to the data elements of each specific record type. It is valid to have blanks in any field beyond the key. It is also valid to have an asterisk (*) in the right-most position of any field and the remainder of the field blank. If a value is in error, perform step 10 using appropriate error message. If record is valid, perform step 11.

(10) For a transaction error, increment transaction rejected counter and write record to EDIT010R1 (as indicated on the report layout). Read next transaction.

(11) For a valid transaction, increment transaction accepted counter.

Write transaction to EDIT010R2 (as indicated on the report layout) using the PWSID and tran code for the first two fields respectively for the output record. The report should show a card image unformatted. All date fields should be converted to Julian dates using the subroutine JULIAN-DATE.

Write transaction to file EPICT Edited PWS Inventory Transactions File. Read the next transaction.

(12) At end of run, write run totals to EDIT010R1 as indicated on the report layout.

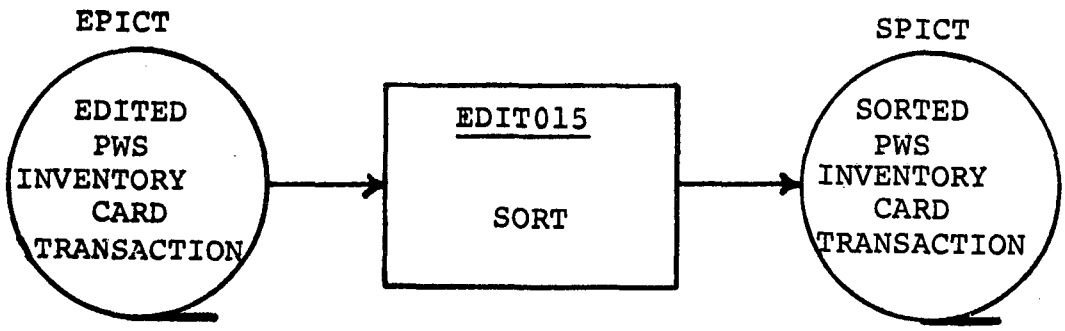
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT015 - Sort Edited PWS Inventory Card Transactions

SUBSYSTEM: INPUT

DESCRIPTION: Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| TRAN-CODE | 12 | 2 | character | ascending |
| SOURCE-ID-NUM | 20 | 2 | character | ascending |

2. DATA USAGE

Input File:

- File Name - Edited PWS Inventory Card Transactions
  File I.D. - EPICT
  File Layout Reference - PWSUT
  Record Name - PWS Trans (00/01) - (13)

Output File:

- File Name - Sorted PWS Inventory Card Transactions
  File I.D. - SPICT
  File Layout Reference - PWSUT
  Record Name - PWS Trans (00/01) - (13)

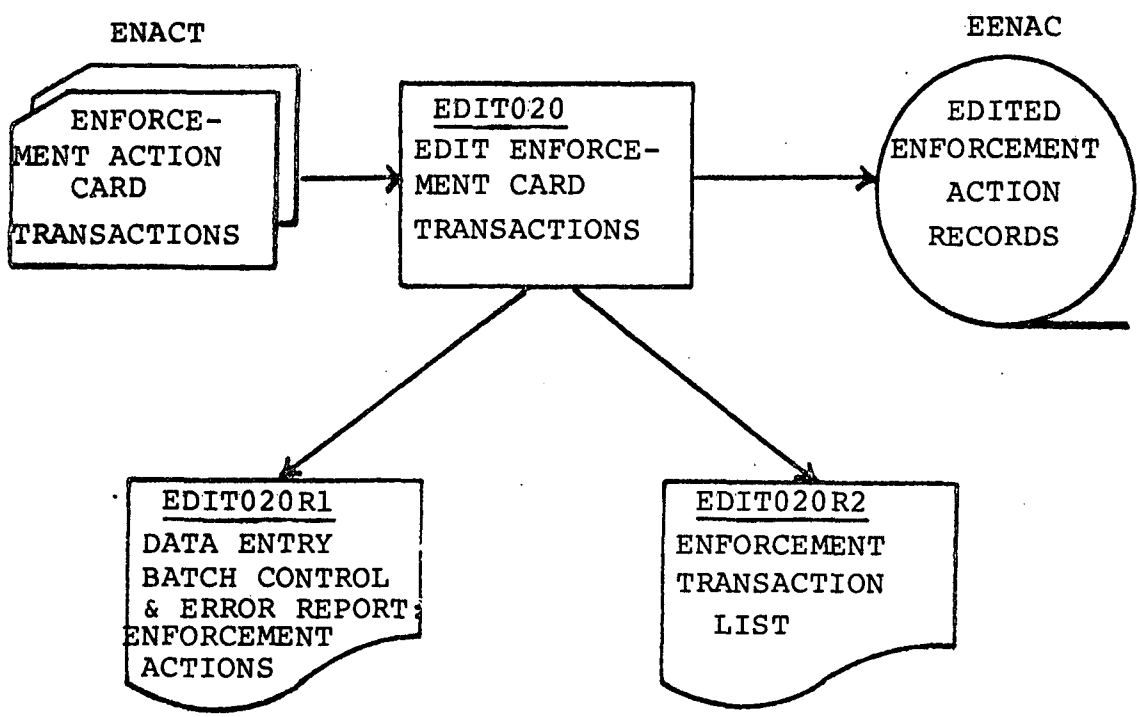
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT020 - Edit Enforcement Card Transactions

SUBSYSTEM: INPUT

DESCRIPTION: This program edits the enforcement card input transactions. It produces an edited tape to be merged with MSIS Transactions, a detailed Transaction Report EDIT020R2 and a Batch Control and Error Report EDIT020R1.



1. INTRODUCTION:

Function: This program reads enforcement transactions, batched by state. It checks data values on each transaction and balances to batch control totals.

Transaction Source: Card input, keypunched from input forms.

Input Sort Sequence: Batch number

Reports: EDIT020R1 - Data Entry Batch Control and Error Report: Enforcement Transactions list transactions in error, error messages, batch and run totals.

EDIT020R2 - Enforcement Transaction Listing lists transactions accepted and the sequence numbers assigned by the program.

2. DATA USAGE:

Input File:

. File Name - Enforcement Action Card Transactions
File I.D. - ENACT
File Layout Reference - See Enforcement Actions Entry Form
Record Name - Not applicable

Output File:

. File Name - Edited Enforcement Action Records
File I.D. - EENAC
File Layout Reference - ENACF
Record Name - Enforcement

Tables:

. Table Name - Error Messages
Table I.D. - ERRMSG

. Table Name - State Table
Table I.D. - STATAB



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3. REPORT OUTPUT:

EDIT020R1 - Data Entry Batch Control and Error Report: Enforcement Actions

EDIT020R2 - Enforcement Transaction Listing

4. CONTROL ACCUMULATORS:

Number of batches processed

Number of batches accepted

Number of batches rejected

Number of batches in balance

Number of batches out-of-balance

Number of transactions - per batch

Number of transactions accepted - per batch

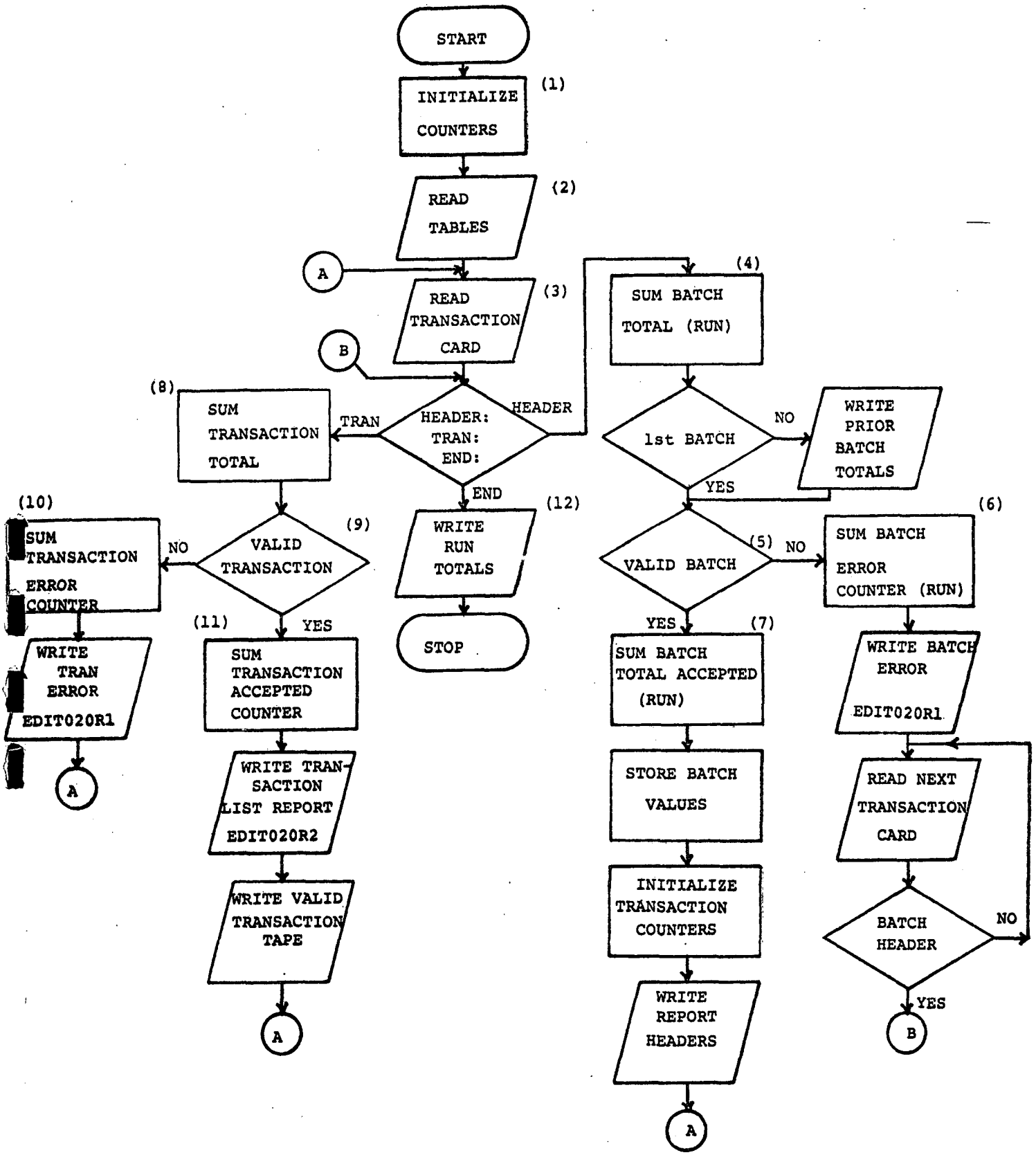
Number of transactions rejected - per batch

5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD-ERROR, is used to print error messages on EDIT020R1.

A common subroutine, JULIAN-DATE, is used to convert dates on the input cards to Julian dates.

## 6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read and store tables.

(3) Read a record from the transaction file.

(4) Increment batch counters for batch header. If not first batch write prior batch totals as indicated on EDIT020R1. Print the out of balance message if the transactions per batch accumulator does not equal the transaction count from the batch header.

(5) Validate batch header:

Tran code must be "BE", if not, perform step (6), using error message 001.

Check state code:

- If 0-10, use as the region number and set state code to blank.
- If not 0-10, match to State Table. Use corresponding region number from State Table as the region.
- If no match to table, perform step (6), using error message 002.

(6) For an invalid batch, increment batch rejected counter, write error message as indicated on EDIT020R1 layout and read to next batch header.

(7) For a valid batch, increment batch accepted counter, store header values for balancing and initialize transaction counters.

Write report headers to a new page for both EDIT020R1 and EDIT020R2. Read next transaction record.

(8) Process transactions by incrementing the transaction counter.

(9) Validate data values as described in the Edit Requirements section of the Data Element Description. It is valid to have blanks in any field beyond the key. If a value is in error, perform step 10 using appropriate error message. If record is valid, perform step 11.

(10) For a transaction error, increment transaction rejected counter and write record to EDIT020R1 (as indicated on the report layout). Read next transaction.

(11) For a valid transacton, increment transaction accepted counter.

Write transaction to EDIT020R2 (as indicated on the report layout) using the current value of the transaction counter as the TRAN number.

Write transaction to file EENAC Edited Enforcement Action Records. Read the next transaction.

(12) At end of run, write run totals to EDIT020R1 as indicated on the report layout.

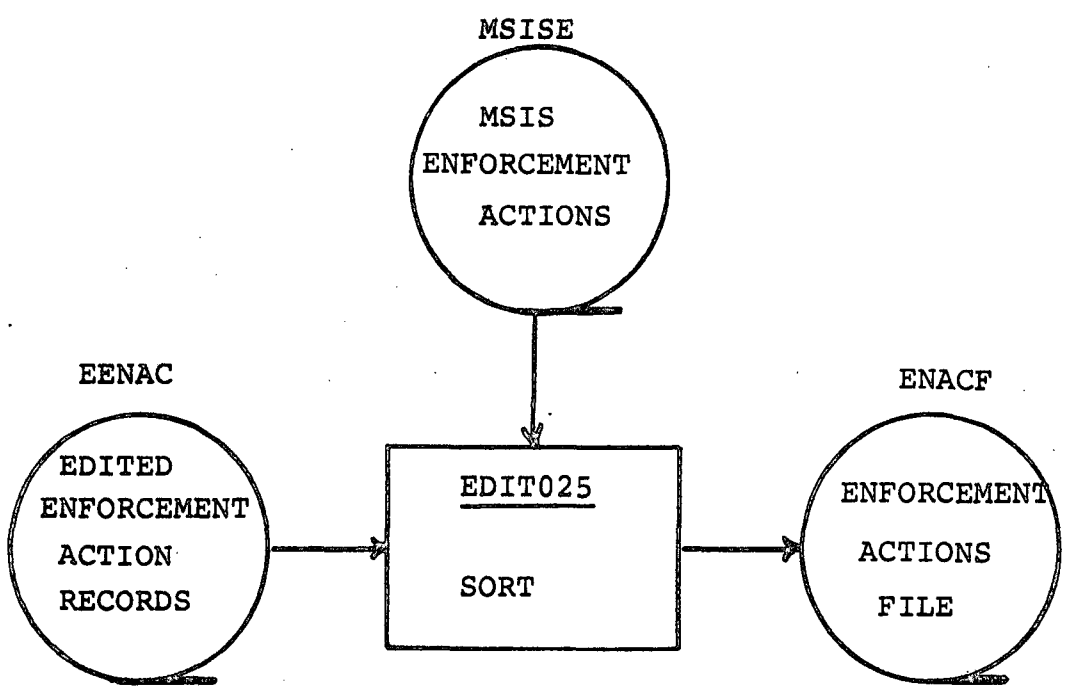
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT025 - Sort Enforcement Actions Records

SUBSYSTEM: INPUT

DESCRIPTION: Utility Sort/Merge Program



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1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| CASE-ID | 12 | 5 | character | ascending |

2. DATA USAGE:

Input Files:

- File Name - Edited Enforcement Action Records
  File I.D. - EENAC
  File Layout Reference - ENACF
  Record Name - Enforcement

- File Name - MSIS Enforcement Actions
  File I.D. - MSISE
  File Layout Reference - ENACF
  Record Name - Enforcement

Output File:

- File Name - Enforcement Actions File
  File I.D. - ENACF
  File Layout Reference - ENACF
  Record Name - Enforcement



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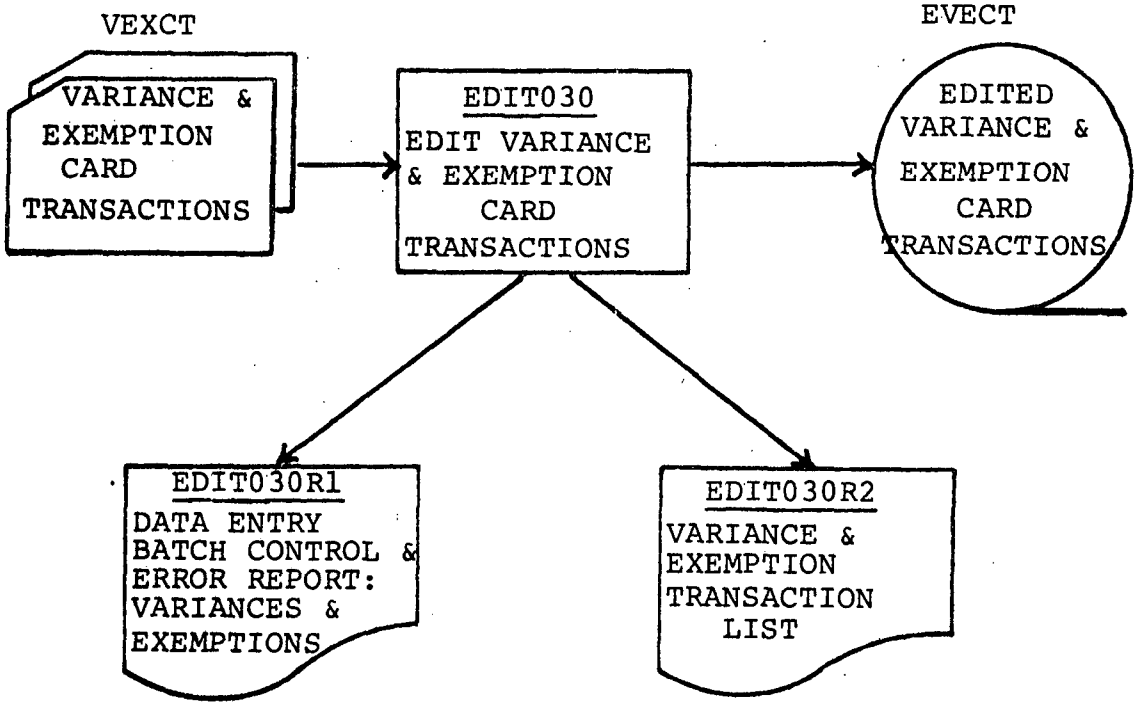
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** EDIT030 - Edit Variance and Exemption Card Transactions

**SUBSYSTEM:** INPUT

**DESCRIPTION:** This program edits the variance and exemption card input transactions. It produces an edited tape for input to the Variance and Exemption Update program UPDT050, a detailed Transaction Report EDIT030R2 and a Batch Control and Error Report EDIT030R1.



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1. INTRODUCTION:

Function: This program reads variance and exemption transactions, batched by state. It checks data values on each transaction and balances to batch control totals.

Transaction Source: Card input, keypunched from input forms.

Input Sort Sequence: Batch number

Reports: EDIT030R1 - Data Entry Batch Control and Error Report: Variances and Exemptions lists transactions in error, error messages, batch and run totals.

EDIT030R2 - Variance and Exemption Transaction Listing lists transactions accepted and the sequence numbers assigned by the program.

2. DATA USAGE:

Input File:

- File Name - Variance and Exemption Card Transactions
  File I.D. - VEXCT
  File Layout Reference - See Variance and Exemption Entry Form
  Record Name - Not applicable

Output File:

- File Name - Edited Variance and Exemption Card Transactions
  File I.D. - EVECT
  File Layout Reference - VAEXT
  Record Name - V&E Trans (00/01)

Tables:

- Table Name - Error Messages
  Table I.D. - ERRMSG

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

EDIT030R1 - Data Entry Batch Control and Error Report: Variances and Exemptions

EDIT030R2 - Variance and Exemption Transaction Listing

4. CONTROL ACCUMULATORS:

Number of batches processed

Number of batches accepted

Number of batches rejected

Number of batches in balance

Number of batches out-of-balance

Number of transactions - per batch

Number of transactions accepted - per batch

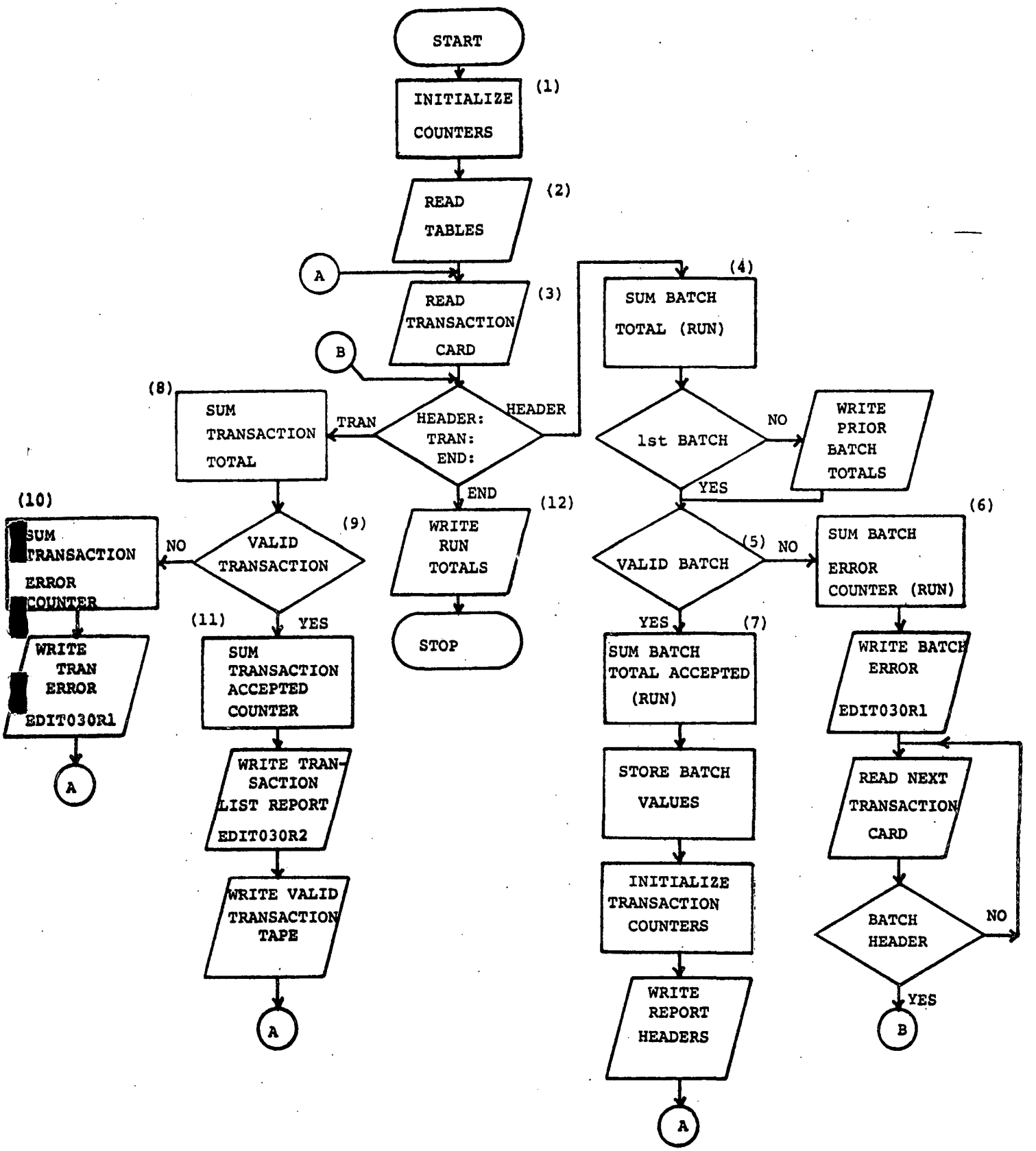
Number of transactions rejected - per batch

5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD ERROR, is used to print error messages on EDIT030R1.

A common subroutine, JULIAN-DATE, is used to convert dates on the input cards to Julian dates.

## 6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read and store tables.

(3) Read a record from the transaction file.

(4) Increment batch counters for batch header. If not first batch write prior batch totals as indicated on EDIT030R1 Print the out of balance message if the transactions per batch accumulator does not equal the transaction count from the batch header.

(5) Validate batch header:

Tran code must be "BV" , if not, perform step (6), using error message 001.

Check state code:

- If 0-10, use as the region number and set state code to blank.
- If not 0-10, match to State Table. Use corresponding region number from State Table as the region.
- If no match to table, perform step (6), using error message 002.

(6) For an invalid batch, increment batch rejected counter, write error message as indicated on EDIT030R1 layout and read to next batch header.

(7) For a valid batch, increment batch accepted counter, store header values for balancing and initialize transaction counters.

Write report headers to a new page for both EDIT030R1 and EDIT030R2. Read next transaction record.

(8) Process transactions by incrementing the transaction counter.

(9) Validate data values as described in the Edit Requirements section of the Data Element Description. It is valid to have blanks in any field beyond the key. It is also valid to have an asterisk (*) in the right-most position of any field and the remainder of the field blank. If a

value is in error, perform step 10 using appropriate error message. If record is valid, perform step 11.

(10) For a transaction error, increment transaction rejected counter and write record to EDIT030R1 (as indicated on the report layout). Read next transaction.

(11) For a valid transaction, increment transaction accepted counter.

Write transaction to EDIT030R2 (as indicated on the report layout) using the current value of the transaction counter as TRAN number. All date fields should be converted to Julian dates using the subroutine JULIAN-DATE.

Write transaction to file EVECT Edited Variance and Exemption Card Transactions File. Read the next transaction.

(12) At end of run, write run totals to EDIT030R1 as indicated on the report layout.

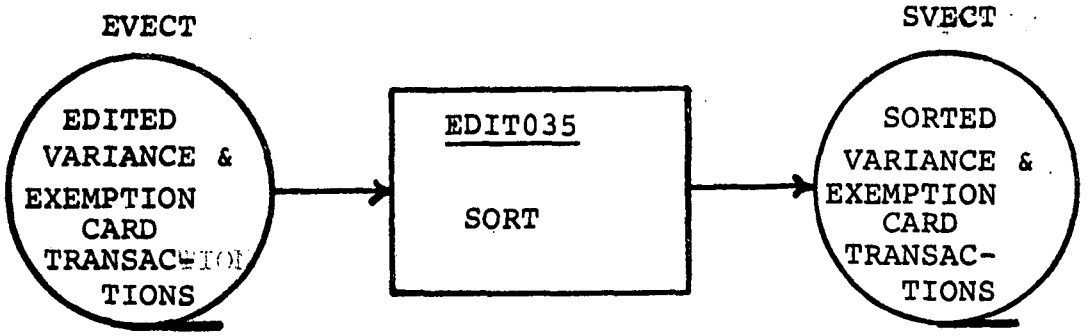
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** EDIT035 - Sort Edited Variance and Exemption Card Transactions

**SUBSYSTEM:** INPUT

**DESCRIPTION:** Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| VE-ID | 12 | 5 | character | ascending |
| TRAN-CODE | 17 | 2 | character | ascending |

2. DATA USAGE:

Input File:

- File Name - Edited Variance and Exemption Card Transactions
  File I.D. - EVECT
  File Layout Reference - VAEXT
  Record Name - V & E Trans (00/01)

Output File:

- File Name - Sorted Variance and Exemption Card Transactions
  File I.D. - SVECT
  File Layout Reference - VAEXT
  Record Name - V & E Trans (00/01)

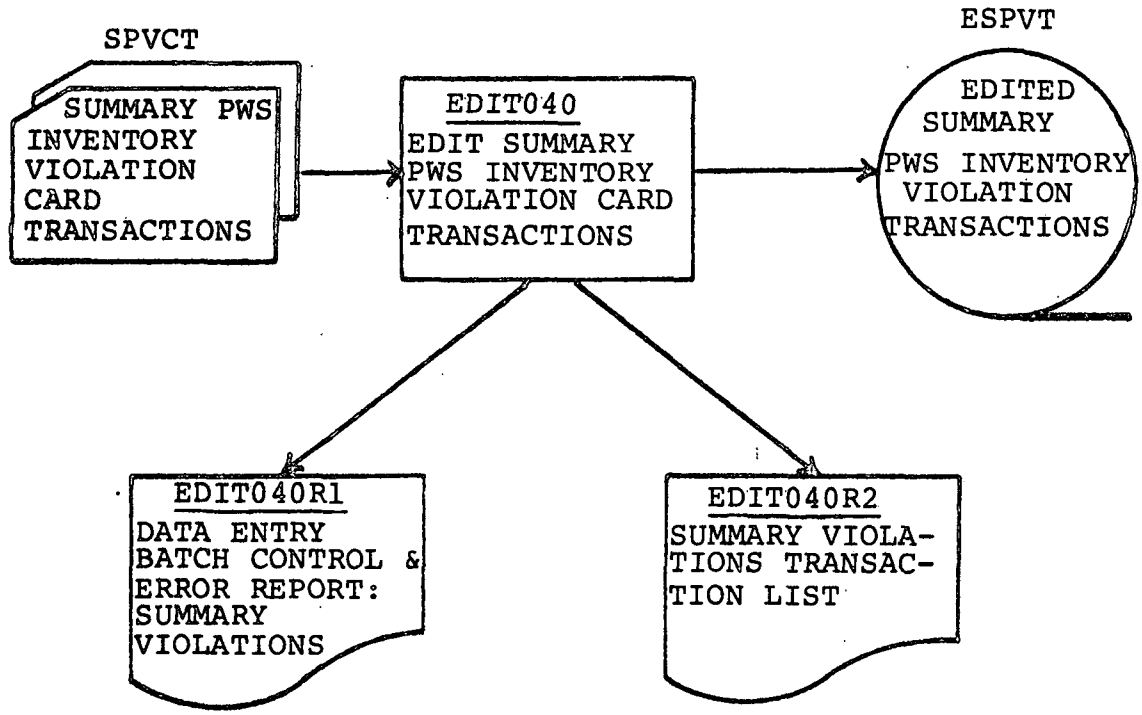
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT040 - Edit Summary Violation Card Transactions

SUBSYSTEM: INPUT

DESCRIPTION: This program edits the violations summary input transactions. It produces an edited tape for input to the Violations PWS Update Program UPDT030, a detailed Transaction Report EDIT040R2 and a Batch Control and Error Listing EDIT040R1.



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1. INTRODUCTION:

Function: This program reads violation summary transactions, batched by state. It checks data values on each transaction and balances to batch control totals.

Transaction Source: Card input, keypunched from input forms.

Input Sort Sequence: Batch Number

Reports: EDIT040R1 - Data Entry Batch Control and Error Report: Summary Violations lists transactions in error, error messages, batch and run totals.

EDIT040R2 - Summary Violations Transaction Listing lists transactions accepted and the sequence numbers assigned by the program.

2. DATA USAGE:

Input File:

- File Name - Summary Violation Card Transactions
  File I.D. - SPVCT
  File Layout Reference - See Violation Summary Entry Form
  Record Name - Not applicable

Output File:

- File Name - Edited Summary Violation Transactions
  File I.D. - ESPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)

Tables:

- Table Name - Error Messages
  Table I.D. - ERRMSG

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

EDIT040R1 - Data Entry Batch Control and Error Report: Summary Violations

EDIT040R2 - Summary Violations Transaction Listing

4. CONTROL ACCUMULATORS:

Number of batches processed

Number of batches accepted

Number of batches rejected

Number of batches in balance

Number of batches out-of-balance

Number of transactions - per batch

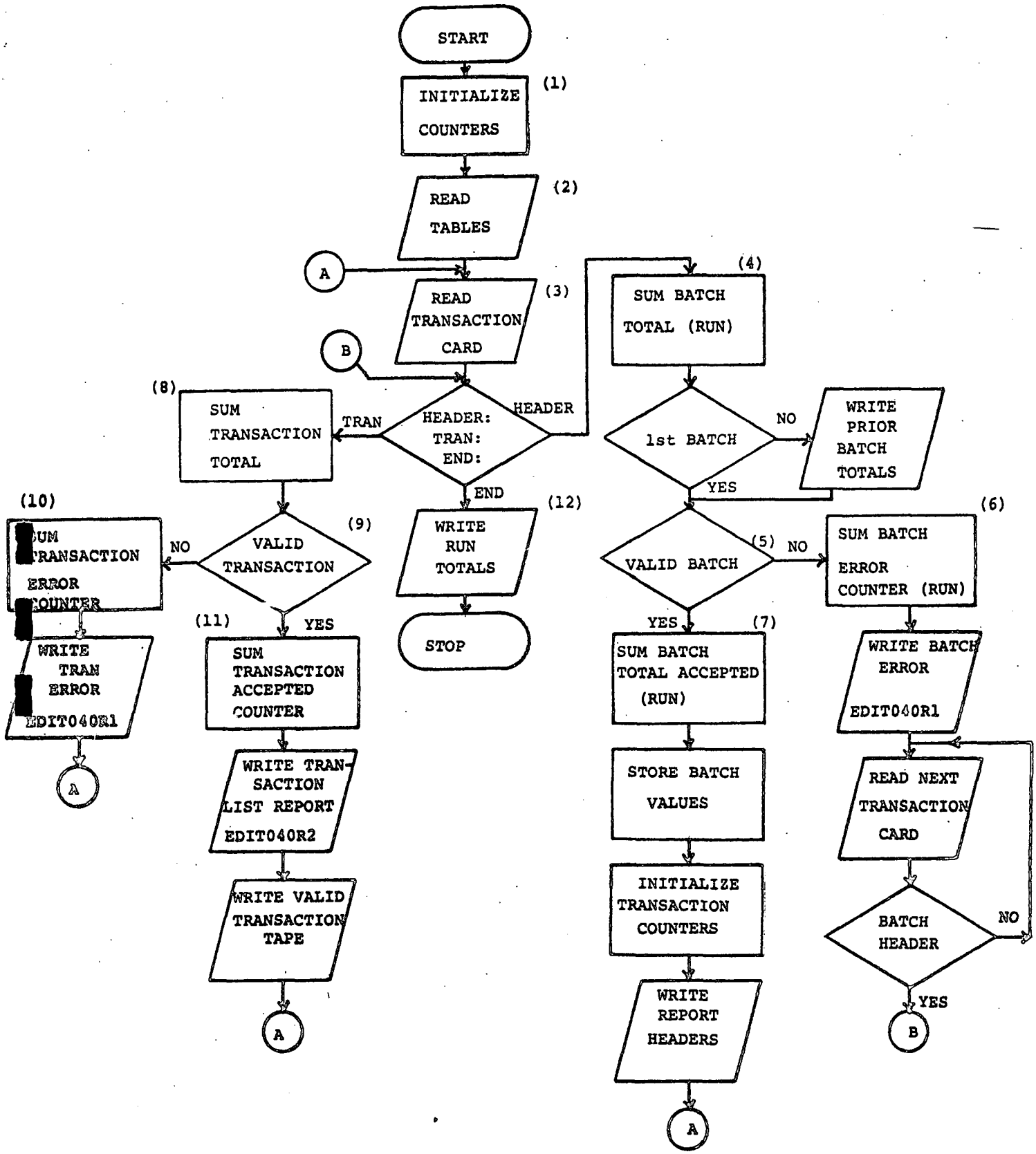
Number of transactions accepted - per batch

Number of transactions rejected - per batch

5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD-ERROR, is used to print error messages on EDIT040R1.

## 6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read and store tables.

(3) Read a record from the transaction file.

(4) Increment batch counters for batch header. If not first batch write prior batch totals as indicated on EDIT040R1. Print the out of balance message if the transactions per batch accumulator does not equal the transaction count from the batch header.

(5) Validate batch header:

Tran code must be "BS", if not, perform step (6), using error message 001.

Check state code:

- If 0-10, use as the region number and set state code to blank.
- If not 0-10, match to State Table. Use corresponding region number from State Table as the region.
- If no match to table, perform step (6), using error message 002.

(6) For an invalid batch, increment batch rejected counter, write error message as indicated on EDIT040R1 layout and read to next batch header.

(7) For a valid batch, increment batch accepted counter, store header values for balancing and initialize transaction counters.

Write report headers to a new page for both EDIT040R1 and EDIT040R2. Read next transaction record.

(8) Process transactions by incrementing the transaction counter.

(9) Validate data values as described in the Edit Requirements section of the Data Element Description. It is valid to have blanks in any field beyond the key. It is also valid to have an asterisk (*) in the right-most position of any field and the remainder of the field blank. If a

value is in error, perform step 10 using appropriate error message. If record is valid, perform step 11.

(10) For a transaction error, increment transaction rejected counter and write record to EDIT040R1 (as indicated on the report layout). Read next transaction.

(11) For a valid transaction, increment transaction accepted counter.

Write transaction to EDIT040R2 (as indicated on the report layout) using the current value of the transaction counter as the TRAN number.

Write transaction to file ESPVT Edited Summary Violation Transactions File. Read the next transaction.

(12) At end of run, write run totals to EDIT040R1 as indicated on the report layout.

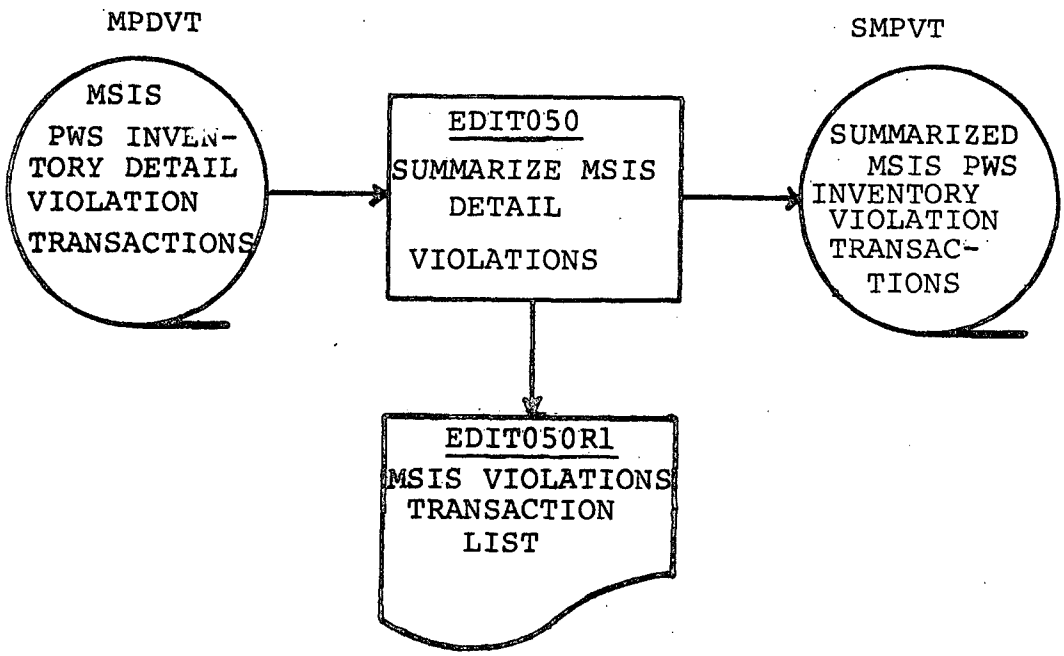
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT050 - Summarize MSIS Detail Violations

SUBSYSTEM: INPUT

DESCRIPTION: This program edits and summarizes the MSIS Detail Violations tape. It produces a summarized violation tape and a control listing EDIT050R1.



1. INTRODUCTION:

Function: This program reads violations detail records. It summarizes violations by region, state, PWS-ID, contaminant identification and violation type.

Transaction Source: Tape input, from the mechanized state processing system, MSIS.

Input Sort Sequence: Region, state, PWS-ID, contaminant identification and violation type.

Report: EDIT050R1 - MSIS Violations Transaction List - lists the summarized transactions and the sequence number assigned by the program.

2. DATA USAGE:

Input File:

- File Name - MSIS Detail Violation Transactions
  File I.D. - MPDVT
  File Layout Reference - VIODT
  Record Names - Violation
  Control Record

Output File:

- File Name - Summarized MSIS Violation Transactions
  File I.D. - SMPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)

Tables:

- Table Name - Contaminant Table
  Table I.D. - CONTAB

- Table Name - Violation Type Table
  Table I.D. - VIOTAB

3. REPORT OUTPUT:

EDIT050R1 - MSIS Violations Transaction List



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4. CONTROL ACCUMULATORS:

Total transactions read by state

Total transactions summarized by state

Total violations by state

Total transactions read by run

Total transactions summarized by run

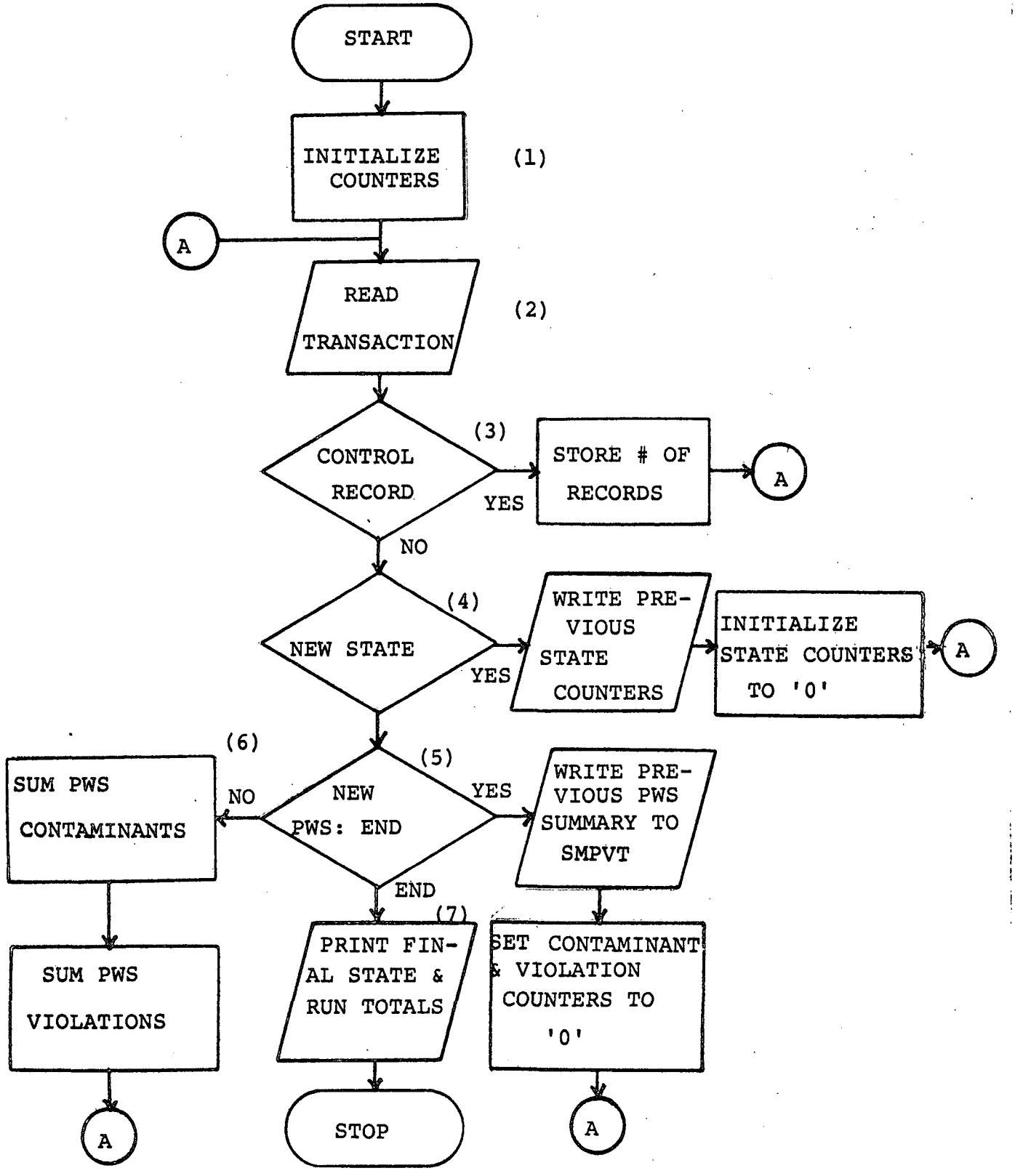
Total violations by run

5. GENERAL PROCESSING NOTES:

Error messages will be written by a common subroutine, STANDARD-ERROR, to EDIT050R1.

One summary output transaction is created for each unique PWS-ID within a state.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read a transaction record.

(3) Compare to see if a control record and store control totals.

(4) If new state, write the prior state totals to the Summarized MSIS Violation Transaction Report EDIT050R1, after matching total violations to control totals. If no match, write error message 06 .

Set all PWS contaminant/violation counters to zero.

Increment new states transactions counter.

(5) Write previous PWS summed record to the SMPVT file and the EDIT050R1 report.

Set all PWS contaminant and violation counters to 0.

(6) Sum contaminant/violations for each corresponding PWS.

(7) At the end of the run, print the run totals.

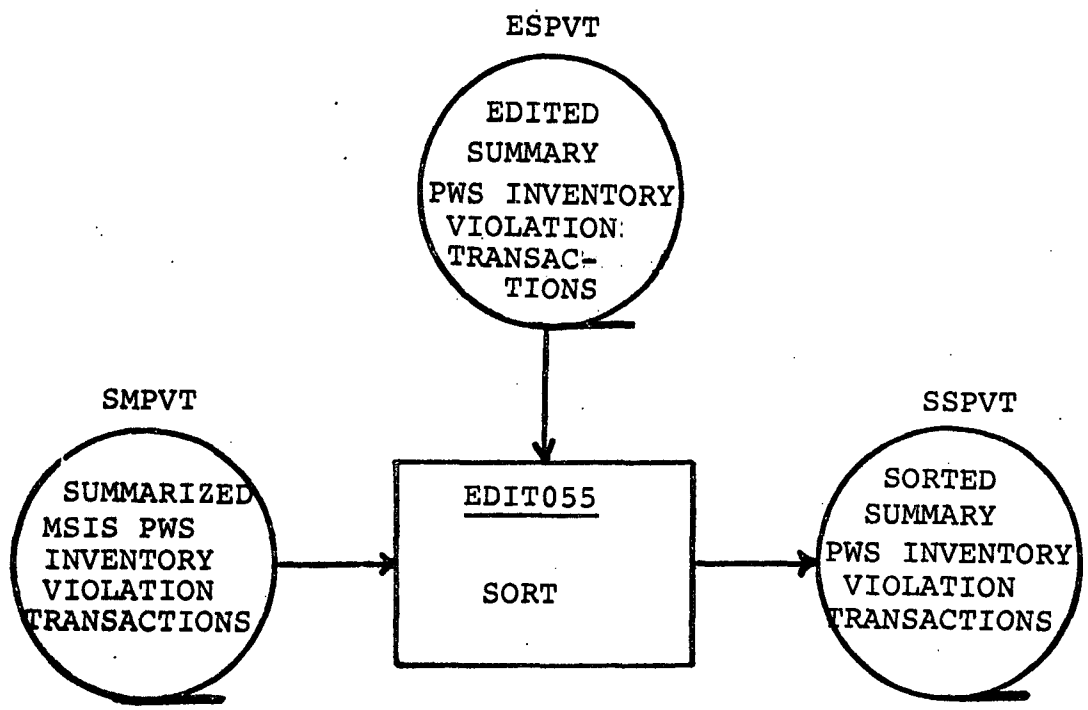
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** EDIT055 - Sort Summary Violation Transactions

**SUBSYSTEM:** INPUT

**DESCRIPTION:** Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |

2. DATA USAGE:

Input Files:

- File Name - Summarized MSIS PWS Inventory Violation Transactions
  File I.D. - SMPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)

- File Name - Edited Summary PWS Inventory Violation Transactions
  File I.D. - ESPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)

Output File:

- File Name - Sorted Summary PWS Inventory Violation Transactions
  File I.D. - SSPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)



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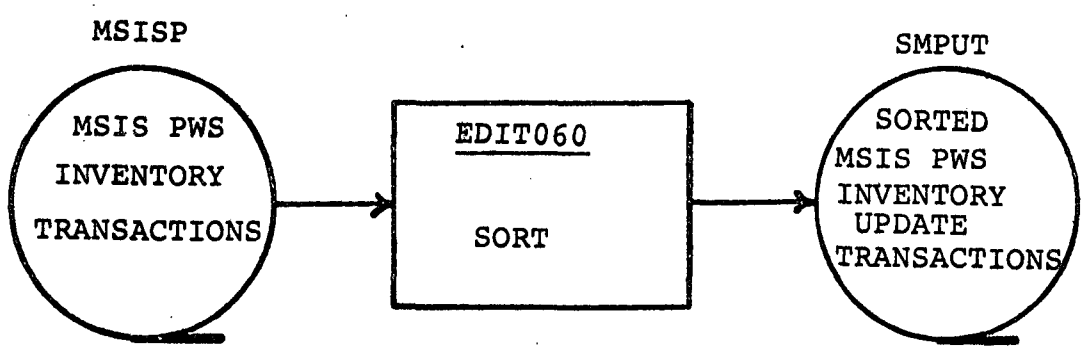
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** EDIT060 - Sort MSIS PWS Inventory Transactions

**SUBSYSTEM:** INPUT

**DESCRIPTION:** Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |

2. DATA USAGE:

Input File:

- File Name - MSIS PWS Inventory Transactions
  File I.D. - MSISP
  File Layout Reference - PWSIF
  Record Names - Inventory
  PWS Control

Output File:

- File Name - Sorted MSIS PWS Inventory Update Trans
  File I.D. - SMPUT
  File Layout Reference - PWSIF
  Record Names - Inventory
  PWS Control

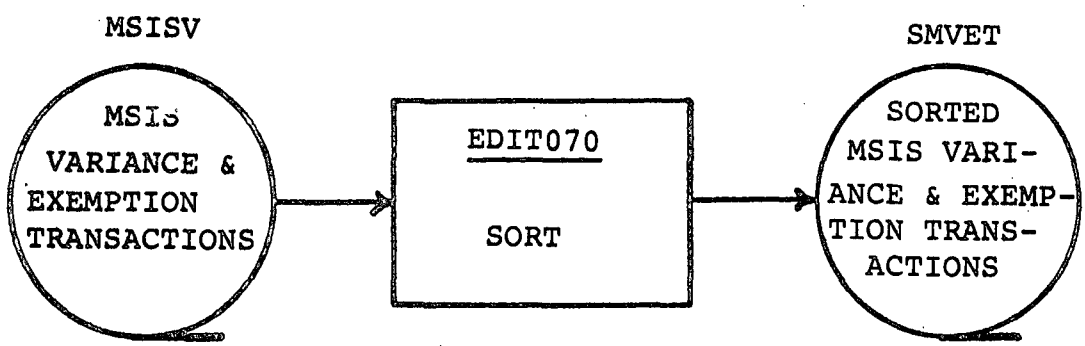
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** EDIT070 - Sort MSIS Variance and Exemption Transactions

**SUBSYSTEM:** INPUT

**DESCRIPTION:** Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| VE-ID | 12 | 5 | character | ascending |

2. DATA USAGE:

Input File:

- File Name - MSIS Variance and Exemption Transactions
  File I.D. - MSISV
  File Layout Reference - VAEXF
  Record Name - V/E Control

Output File:

- File Name - Sorted MSIS Variance and Exemption Transactions
  File I.D. - SMVET
  File Layout Reference - VAEXT
  Record Name - V/E Control

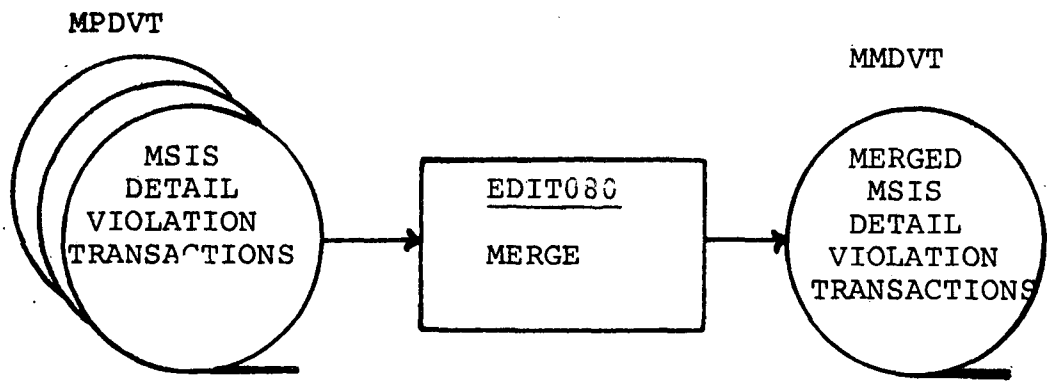
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: EDIT080 - Merge MSIS Detail Violation Transactions

SUBSYSTEM: INPUT

DESCRIPTION: Utility Sort/Merge Program



1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| VIOATION-ID | 12 | 5 | character | ascending |

2. DATA USAGE

Input File:

- File Name - MSIS Detail Violation Transactions
  File I.D. - MPDVT
  File Layout Reference - VIODT
  Record Name - Control Record

Output File:

- File Name - Merged MSIS Detail Violation Transactions
  File I.D. - MMDVT
  File Layout Reference - VIODT
  Record Name - Control Record

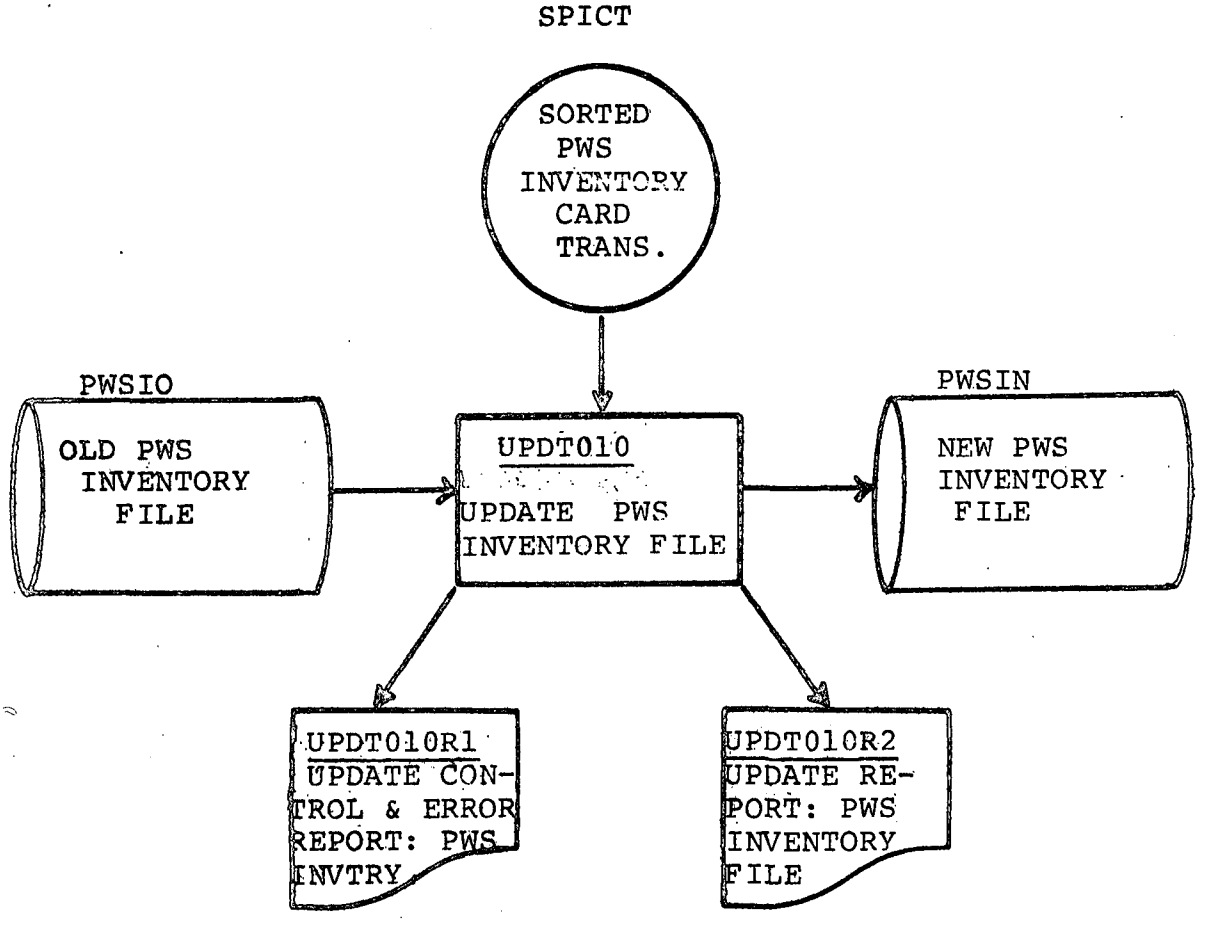
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** UPDT010 - Update PSW Inventory File

**SUBSYSTEM:** UPDATE

**DESCRIPTION:** This program updates the PWS Inventory File with sorted transactions produced by EDIT010. Two output reports are produced also by this program.



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1. INTRODUCTION:

Function: This program processes add, change and delete transactions against the PWS Inventory File.

Transaction Source: Card input as edited by EDIT010

Input Sort Sequence: EPA region, state, PWS identification and transaction code

Reports: UPDT010R1 - Update Control and Error Report: PWS Inventory File-lists rejected transactions and update control messages

UPDT010R2 - Update Report:PWS Inventory File-lists all posted transactions

2. DATA USAGE:

Input Files:

- File Name - Old PWS Inventory File
  File I.D. - PSWIO
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Sorted PWS Inventory Card Transactions
  File I.D. - SPICT
  File Layout Reference - PWSUT
  Record Name - PWS Trans (00/01)-(13)

Output File:

- File Name - New PWS Inventory File
  File I.D. - PWSIN
  File Layout Reference - PWSIF
  Record Name - Inventory

Table:

- Table Name - Error Messages
  Table I.D. - ERRMSG

3. REPORT OUTPUT:

UPDT010R1 - Update Control and Error Report: PWS Inventory

UPDT010R2 - Update Report: PWS Inventory File



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4. CONTROL ACCUMULATORS:

Number of SPICT transactions posted per state

Number of SPICT transactions rejected per state

Number of SPICT transactions posted for the run

Number of SPICT transactions rejected for the run

5. GENERAL PROCESSING NOTES:

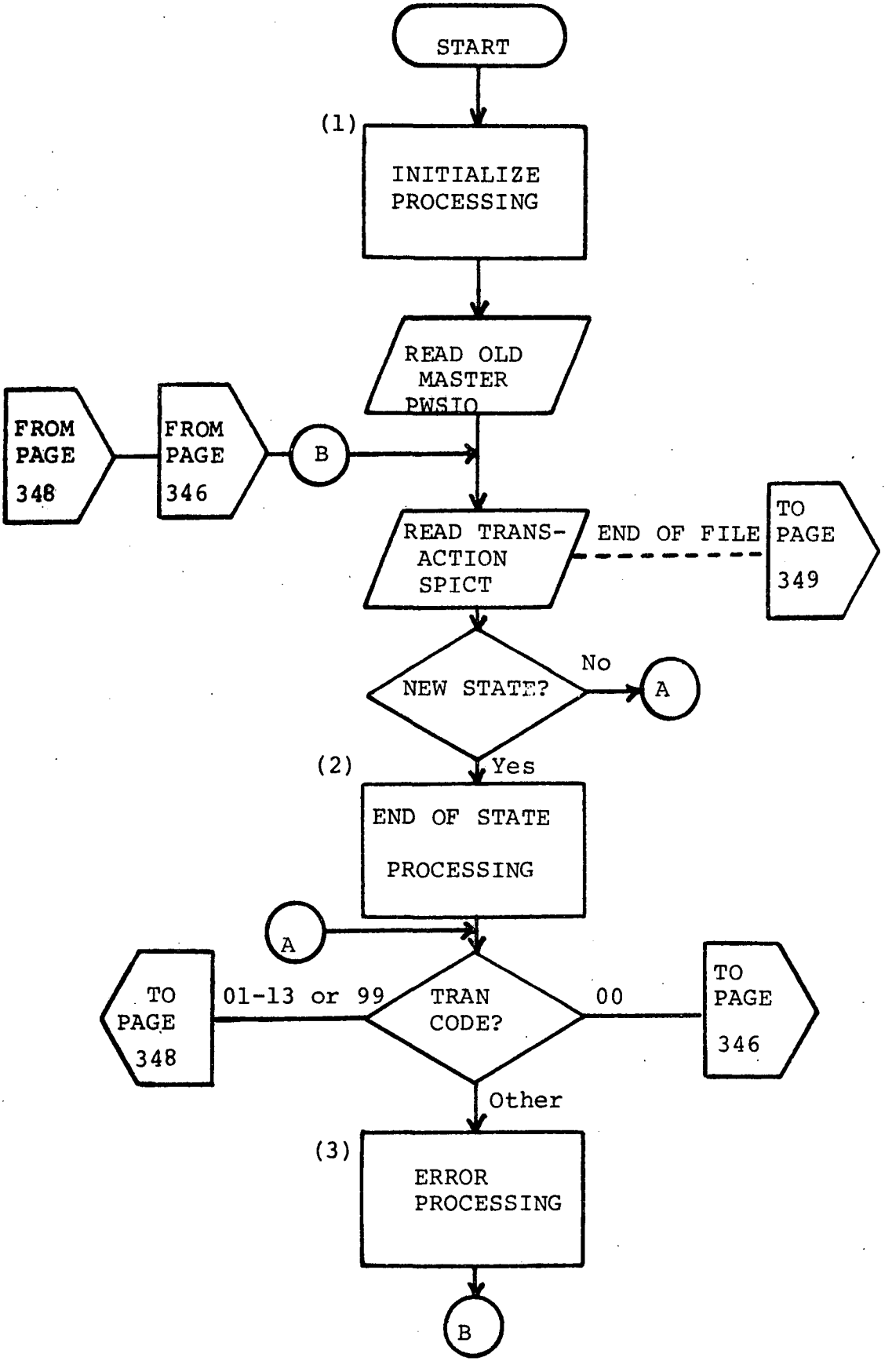
The transaction file, SPICT, contains three types of transactions, as follows:

- Transaction code 00 - used to add a new record. All fields beyond record identification fields will be blank (positions 20 - 85).
- Transaction codes 01 - 13 - used to change fields on an existing PWS Inventory record or one being added by transaction 00.
- Transaction code 99 - used to mark for deletion a record which is to be removed from the PWS Inventory File.

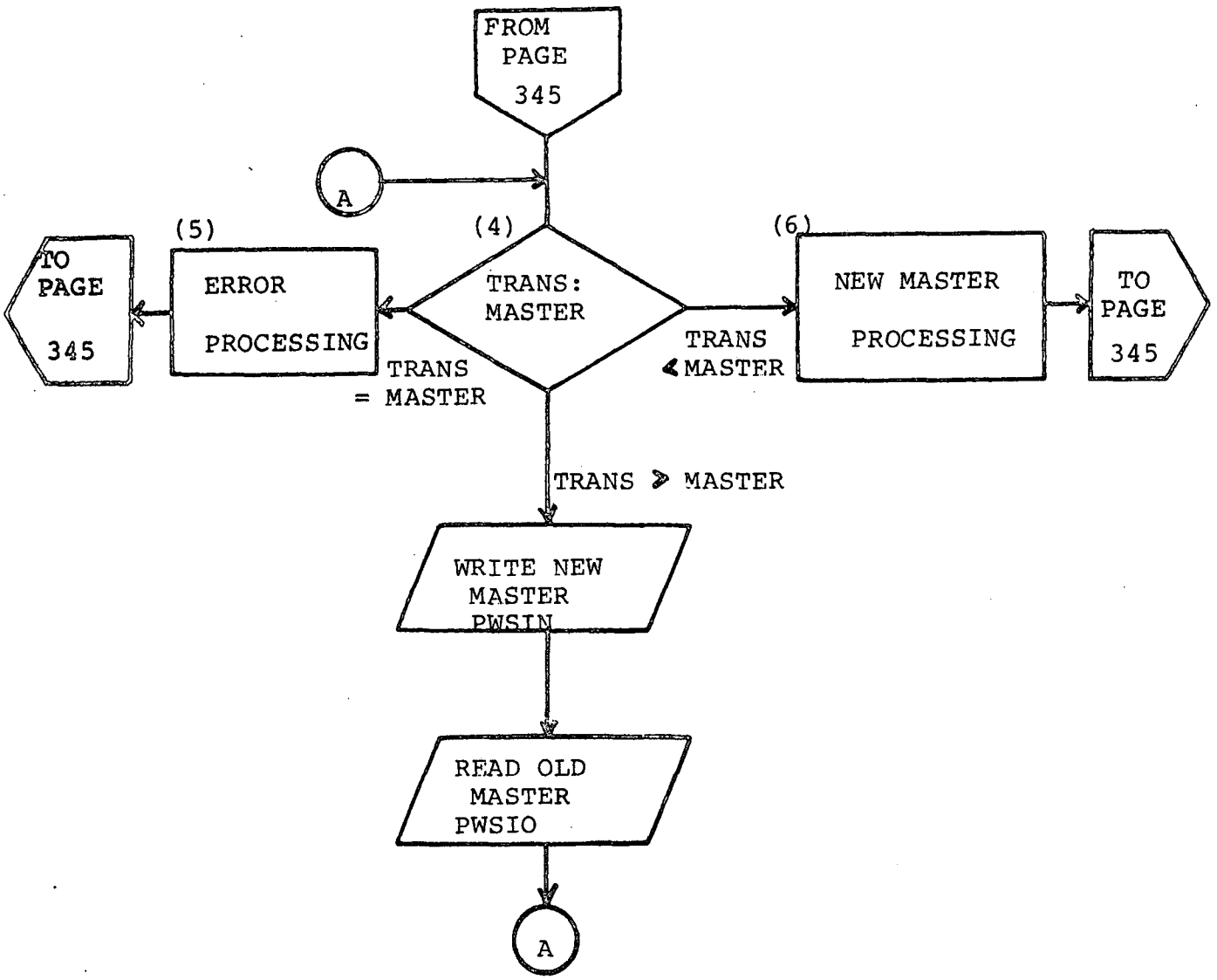
The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. The PWS Inventory File is updated sequentially so that each record is read and written to the new master file.

A common subroutine, STANDARD-ERROR, is used to print reject messages on UPDT010R1.

6. LOGIC CHART: (Numbers Reference PROCESSING STEPS, Section 7)



TRAN CODE 00


FROM PAGE 345
A
(5)
(4)
(6)
TO PAGE 345
ERROR PROCESSING
TRANS: MASTER
NEW MASTER PROCESSING
TO PAGE 345
TRANS = MASTER
TRANS < MASTER
TRANS > MASTER
WRITE NEW MASTER PWSIN
READ OLD MASTER PWSIO
A

7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) Print the state totals as shown on UPDT010R1. Skip to a new page on both reports. Add the state accumulators to the run accumulators and zero out the state accumulators.

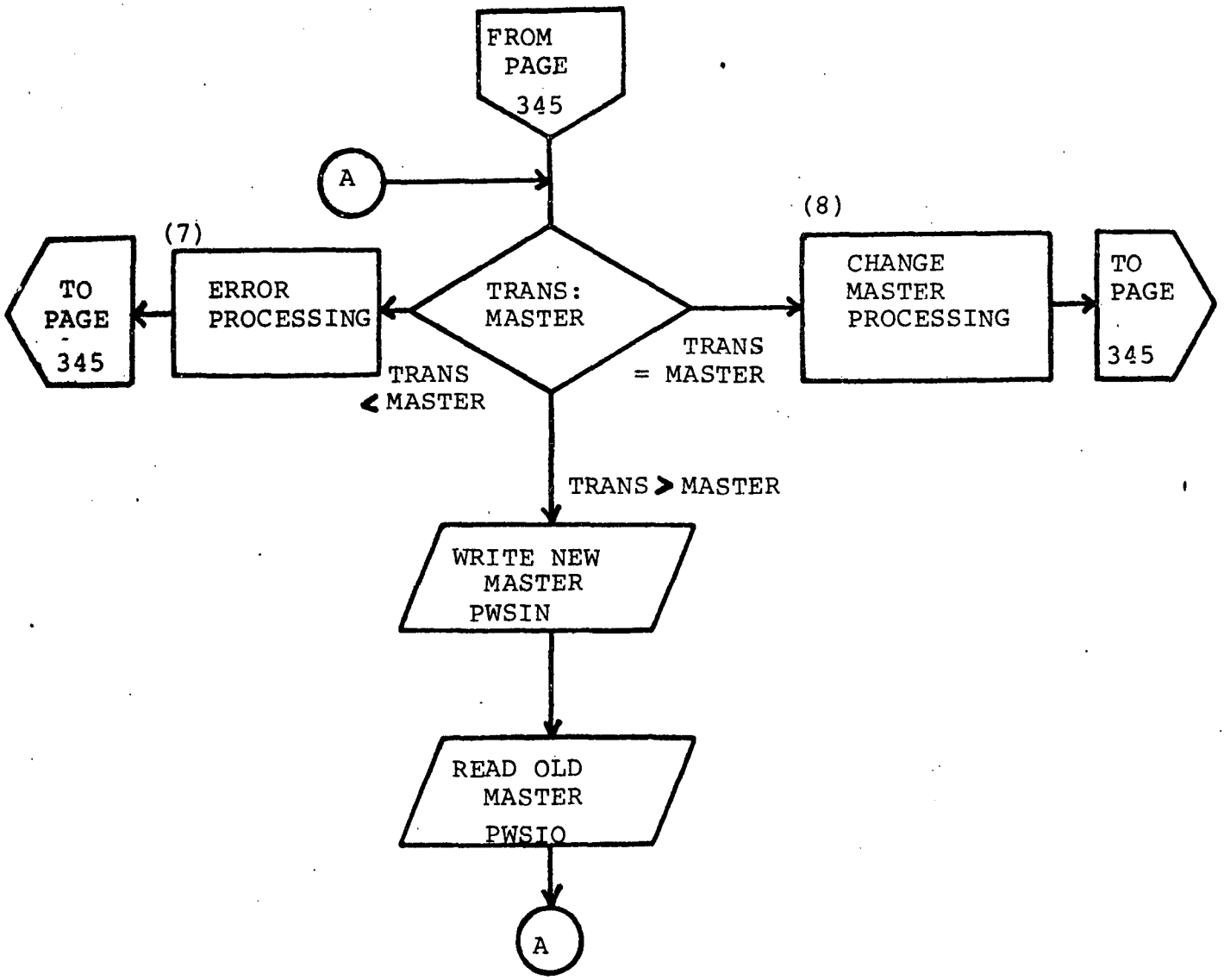
(3) If TRAN-CODE is not equal to 00, 01-13 or 99 call STANDARD-ERROR to print reject message 015 on UPDT050R1.

(4) Compare on REGION, STATE and PWS-ID.

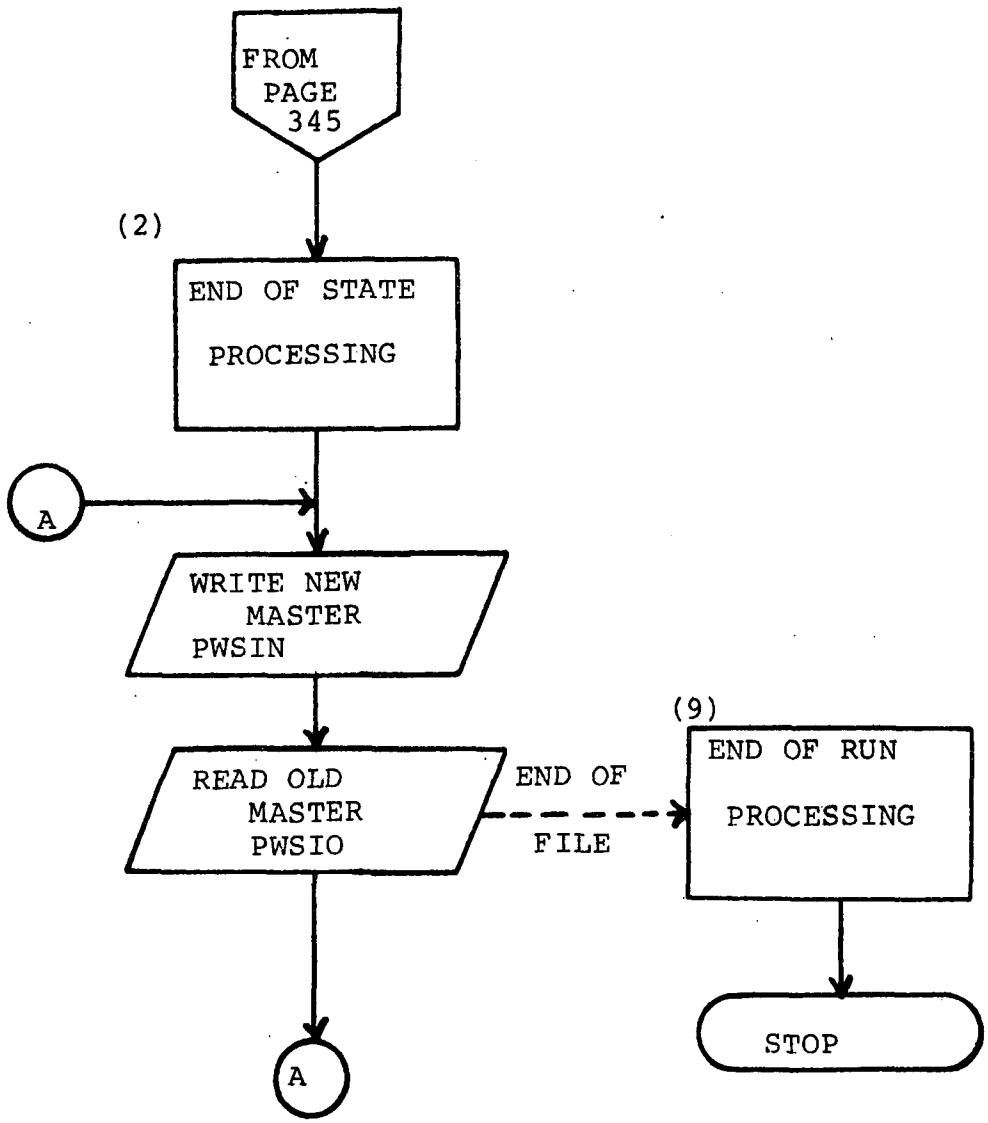
(5) Call STANDARD-ERROR to print reject message 016 on UPDT050R1.

(6) Create a new PWSIN record in core with all blank fields except REGION, STATE and PWS-ID. Print the transaction on UPDT010R2 but in the data element field print 'NEW RECORD'. Leave old value and new value blank.

TRAN CODE 01-13 or 99



END OF FILE PROCESSING



(7) Call STANDARD-ERROR to print reject message 017 on UPDT050R1.

(8) For TRAN-CODE 99, set DEACT-REASON to D and post today's date to LAST-UPDATE and DEACT-DATE.

For TRAN-CODE 01 through 12, for each non-blank field, proceed as follows:

- Replace the corresponding field on the master with the field from the transaction
- Print a line on UPDT010R2 showing the data element name and the old and new values
- Post today's date to LAST-UPDATE

For the SERVICE-AREA field on transaction 04 and the LAB-CONTROL field on transaction 08, treat each individual byte as a separate field to be checked for changes. Report any changes, however, for the data element as a whole on UPDT010R2.

Transaction 13 contains changes to a particular source within the PWS Inventory record. SOURCES-NUM indicates the number of sources on the PWS Inventory record, up to a maximum of 15. For each TRAN-CODE 13 proceed as follows:

- If SOURCE-ID-NUM is less than or equal to SOURCES-NUM then make the changes as indicated to the corresponding source fields on the PWS Inventory record
- If SOURCE-ID-NUM is greater than SOURCES-NUM then add the space necessary for another entire source, process each field change as for TRAN-CODE 01 through 12 and update SOURCES-NUM to indicate the new number of sources.

For all transactions, 01 through 13, if any field on the input transaction has an asterisk (*) in the rightmost position, set the corresponding master file field equal to blanks and print on the report the same as any other change.

(9) Print the run totals as shown on UPDT050R1, close files and end job.

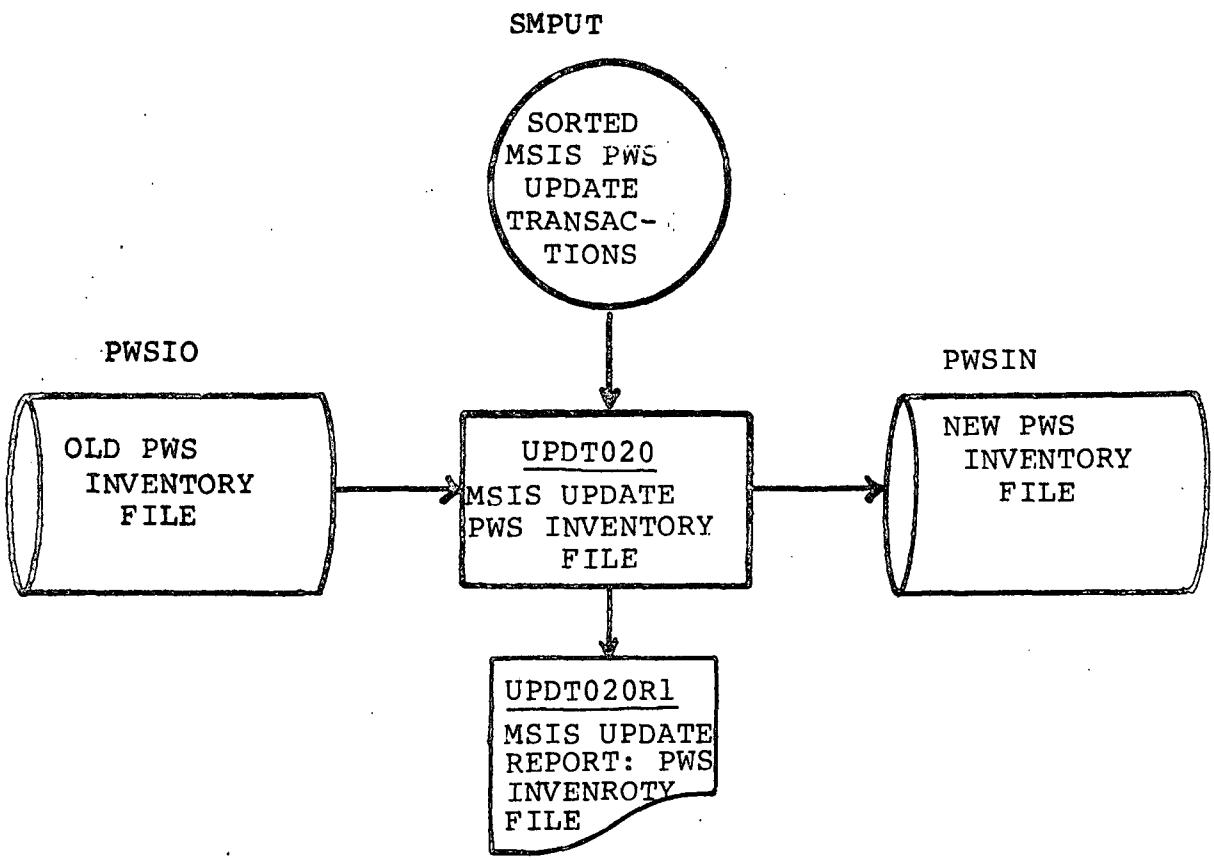
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** UPDT020 - MSIS Update PWS Inventory File

**SUBSYSTEM:** UPDATE

**DESCRIPTION:** This program updates the PWS Inventory File with sorted transactions from the mechanized state processing system MSIS. An update report is produced also by this program.



1. INTRODUCTION:

Function: This program processes change transactions against the PWS Inventory File.

Transaction Source: Created by the mechanized state processing systems, MSIS

Input Sort Sequence: EPA region, state and PWS identification

Report: UPDT020R1 - MSIS Update Report: PWS Inventory File - a listing of all records which were changed and the processing control totals

2. DATA USAGE:

Input Files:

- File Name - Old PWS Inventory File
  File I.D. - PWSIO
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Sorted MSIS PWS Update Transactions
  File I.D. - SMPUT
  File Layout Reference - PWSIF
  Record Names - Inventory
  PWS Control

Output File:

- File Name - New PWS Inventory File
  File I.D. - PWSIN
  File Layout Reference - PWSIF
  Record Name - Inventory

3. REPORT OUTPUT:

UPDT020R1 - MSIS Update Report: PWS Inventory File

4. CONTROL ACCUMULATORS:

Number of records added to PWS Inventory File per state

Number of records replaced on PWS Inventory File per state

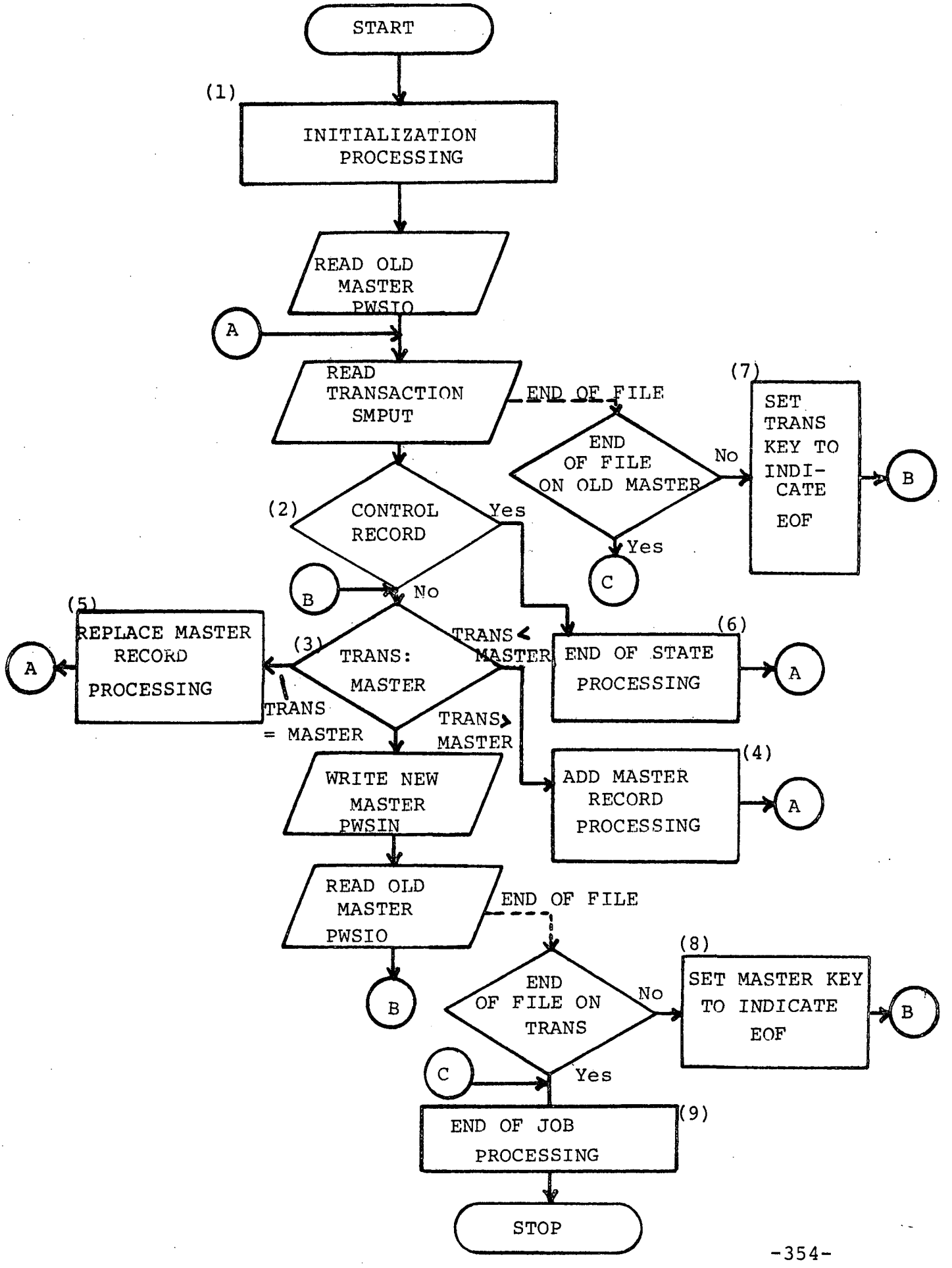
Number of records added to PWS Inventory File for the entire run

Number of records replaced on PWS Inventory File for the entire run

5. GENERAL PROCESSING NOTE:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. This update run operates in a sequential fashion, reading each record on the entire data set.

6. LOGIC CHART (Numbers Reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers refer to LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) A control record is recognized by having hexadecimal F's in PWS-ID.

(3) Compare on REGION, STATE and PWS-ID.

(4) Print a line as indicated on UPDT020R1 with an action taken message 'NEW RECORD ADDED'. Create a new PWS Inventory record in core and post today's date to LAST-UPDATE.

(5) Print a line as indicated on UPDT020R1 with an action taken message 'EXISTING RECORD REPLACED'. Replace the existing record in core with the transaction record and post today's date to LAST-UPDATE.

(6) Print the state totals as indicated on UPDT020R1. The 'TOTAL INPUT' figure is TOTAL-INPUT from the control record. If TOTAL-INPUT does not equal the sum of accumulators for the number of records added and the number of records replaced, then print the out of balance message as indicated. Add the state accumulators to the run accumulators and zero out the state accumulators.

(7) Store hexadecimal F's in the comparison key of the transaction file to permit processing the remainder of the PWS Inventory File.

(8) Store hexadecimal F's in the comparison key of the PWS Inventory File to permit processing the remainder of the transactions.

(9) Print run totals on UPDT020R1, close files and end job.

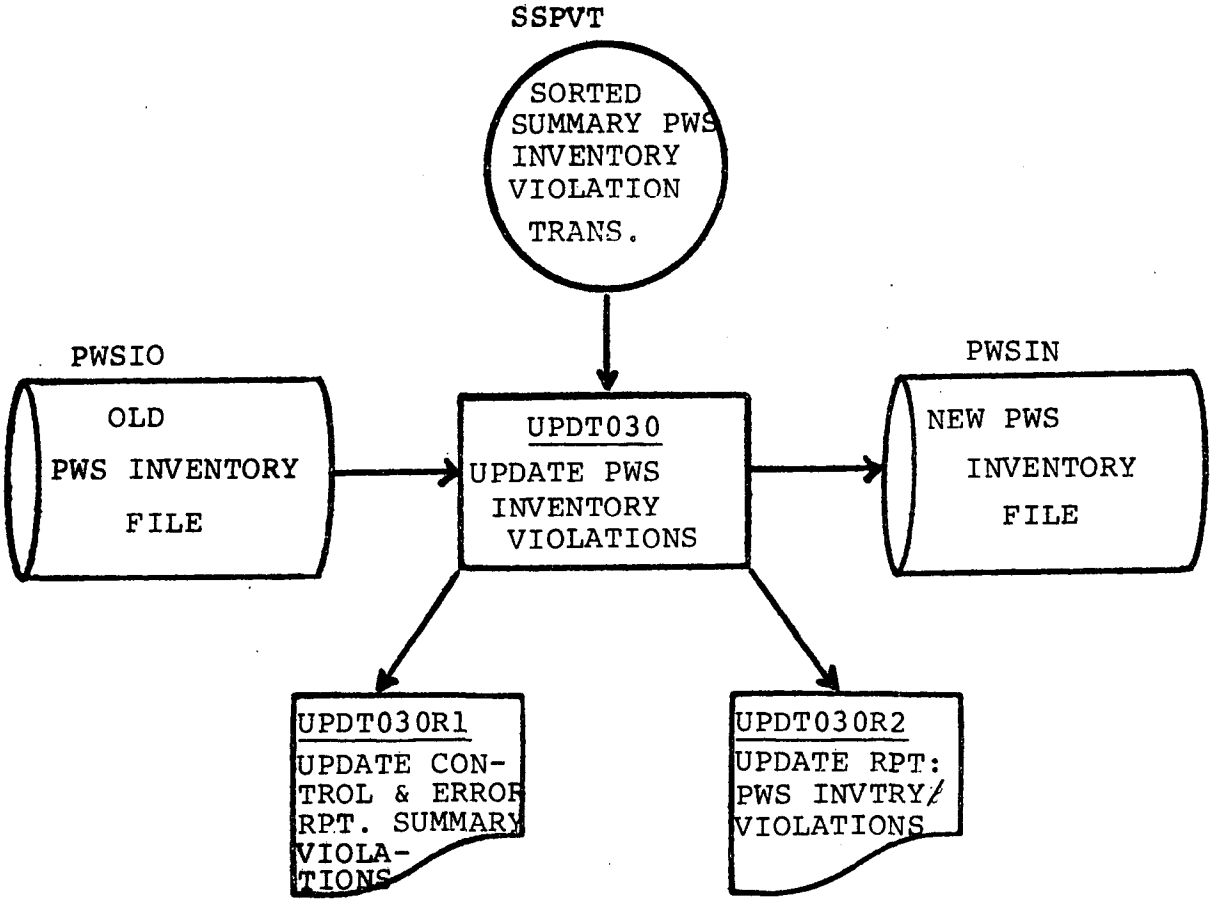
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** UPDT030 - Update PWS Inventory Violations

**SUBSYSTEM:** UPDATE

**DESCRIPTION:** This program updates the PWS Inventory File with sorted summary violation transactions originating from the merged output of EDIT040 and EDIT050. An update report and an error report are produced also by this program.



1. INTRODUCTION:

Function: This program processes summary violation transactions against the PWS Inventory File.

Transaction Source: Summarized from detail transactions created by the mechanized state processing system, MSIS, and from card input edited by EDIT040

Input Sort Sequence: EPA region, state and PWS identification

Reports: UPDT030R1 - Update Control and Error Report: Summary Violations - lists control messages and all rejected transactions

UPDT030R2 - Update Report: PWS Inventory/ Violations - lists each field change which was posted

2. DATA USAGE

Input Files:

- File Name - Old PWS Inventory File
  File I.D. - PWSI0
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Sorted Summary PWS Inventory Violation Transactions
  File I.D. - SSPVT
  File Layout Reference - VIOST
  Record Name - Violation Trans (01)

Output Files:

- File Name - New PWS Inventory File
  File I.D. - PWSIN
  File Layout Reference - PWSIF
  Record Name - Inventory

Table:

- Table Name - Error Messages
  Table I.D. - ERRMSG



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3. REPORT OUTPUT

UPDT030R1 - Update Control and Error Report: Summary Violations

UPDT030R2 - Update Report: PWS Inventory/Violations

4. CONTROL ACCUMULATORS:

Number of SSPVT transaction records posted per state

Number of SSPVT transaction records rejected per state

Number of SSPVT transaction records posted for the run

Number of SSPVT transaction records rejected for the run

Number of SSPVT violations posted per state

Number of SSPVT violations rejected per state

Number of SSPVT violations posted for the run

Number of SSPVT violations rejected for the run

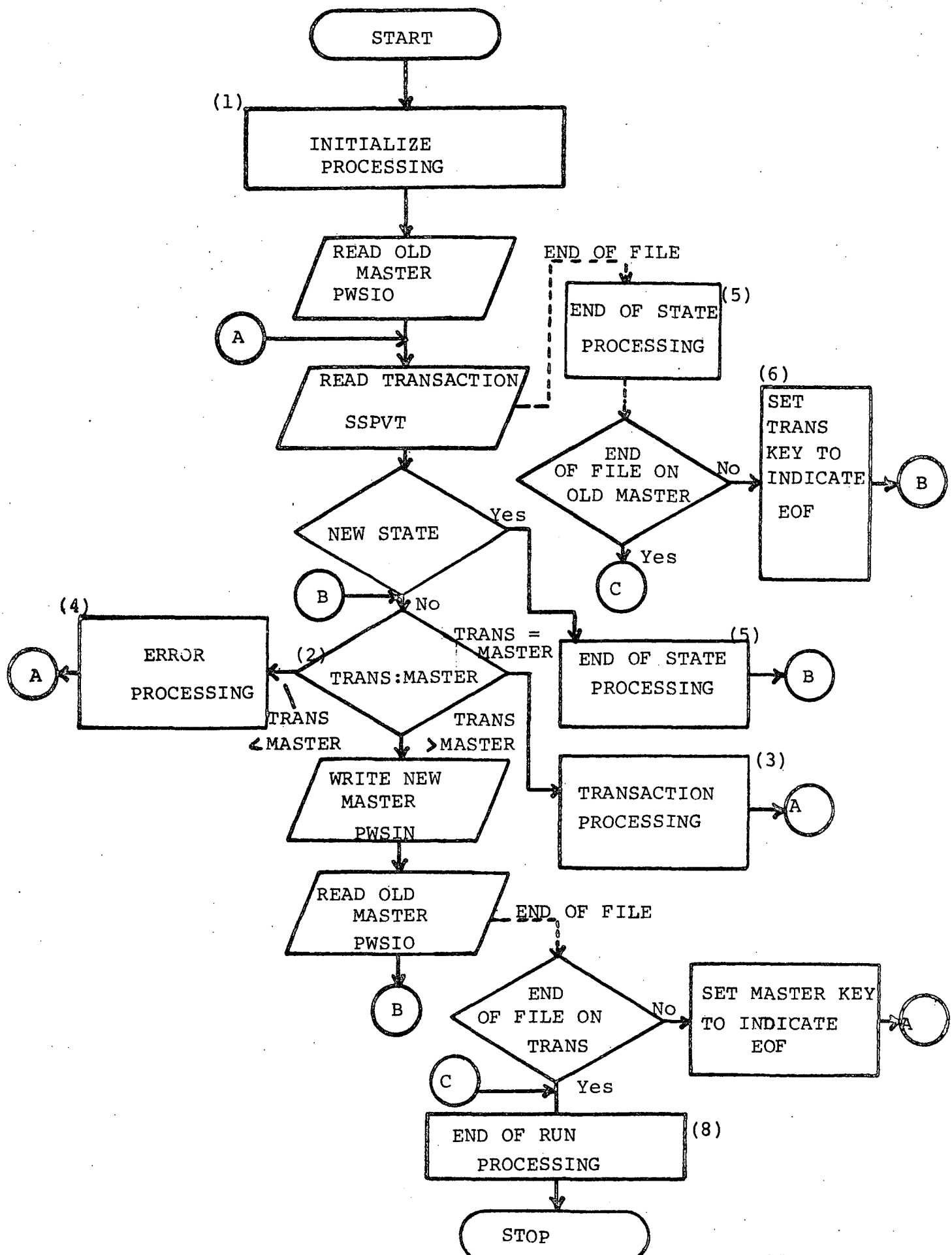
5. GENERAL PROCESSING NOTES:

The input transaction file, SSPVT, is a merged file containing records originating from MSIS and records originating from card input.

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. This update run operates in a sequential fashion, reading each record on the entire data set.

A common subroutine, STANDARD-ERROR, is used to print reject messages on UPDT030R1.

6. LOGIC CHART: (Numbers Reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) Compare on REGION, STATE and PWS-ID.

(3) The VIOLATIONS ACCUMULATORS occur six times on the transaction record corresponding to the six occurrances on the master file. For each non-zero field on the transaction, proceed as follows:

- Add the transaction amount to the master file corresponding year to date accumulator.
- Add the transaction amount to the master file corresponding total accumulator.
- If any field has an asterisk (*) in the right-most position, re-initialize the corresponding master file field to zero.
- Print a line on UPDT030R2 showing the old and new values of the year to date accumulator only. In the data element column, append the following four-position designators to the data element name to distinguish which accumulator is being updated:

  PHYS - physical
  INOR - inorganic chemicals
  PSOR - pesticides and organic chemicals
  MICB - microbiological
  RADI - radioactive
  TREA - treatment

Post today's date to LAST-UPDATE.

(4) Call STANDARD-ERROR to print reject message 017 on UPDT030R1.

(5) Print the state totals as shown on UPDT030R1. Skip to a new page on both reports. Add the state accumulators to the run accumulators and zero out the state accumulators.

(6) Store hexadecimal F's in the comparison key of the transaction file to permit processing the remainder of the PWS Inventory File.

(7) Store hexadecimal F's in the comparison key of the PWS Inventory File to permit processing the remainder of the transactions.

(8) Print run totals as indicated on UPDT030R1 and close files.

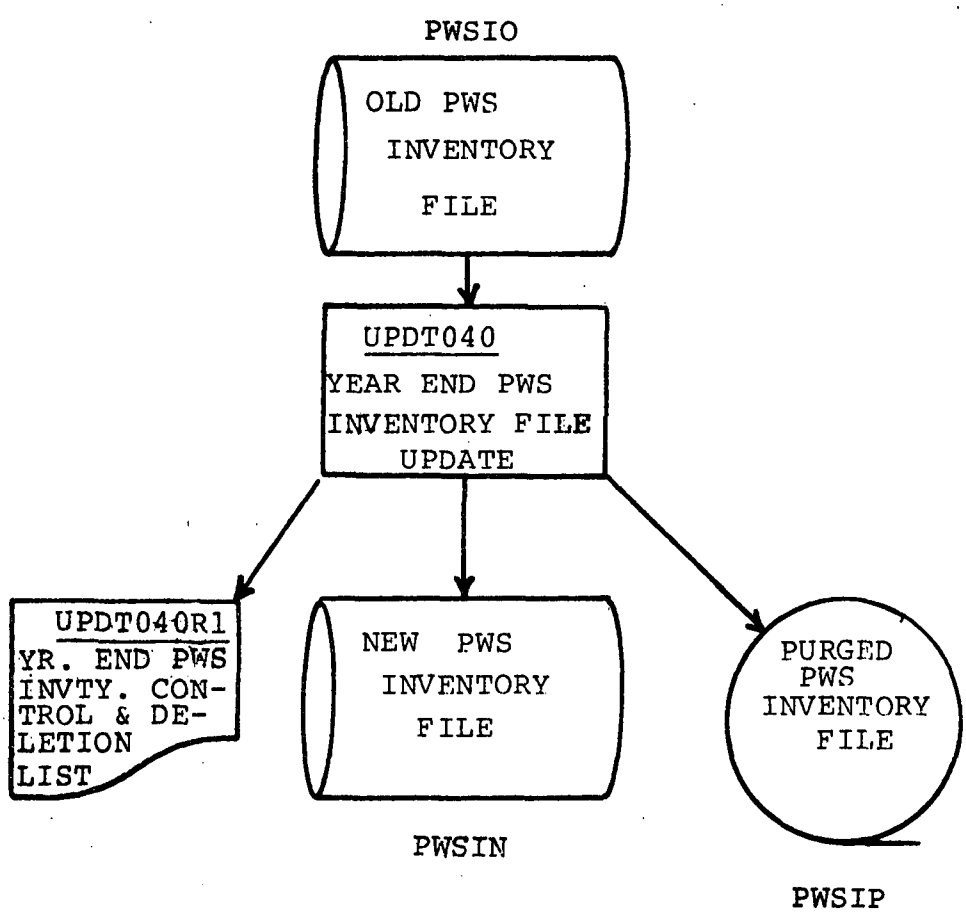
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: UPDT040 - Year End PWS Inventory File Update

SUBSYSTEM: UPDATE

DESCRIPTION: This program updates the PWS Inventory File by zeroing out all the year-to-date violation accumulators. An output report and a tape file of purged records are also created.



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1. INTRODUCTION

Function: This program clears the year-to-date violation accumulators on the PWS Inventory File and purges all records which have been deactivated for more than one year.

Report: UPDT040R1 - Year End PWS Inventory Control and Deletion List - lists records being purged from the file.

2. DATA USAGE:

Input File:

- File Name - Old PWS Inventory File
  File I.D. - PWSIO
  File Layout Reference - PWSIF
  Record Name - Inventory

Output Files:

- File Name - New PWS Inventory File
  File I.D. - PWSIN
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Purged PWS Inventory File
  File I.D. - PWSIP
  File Layout Reference - PWSIF
  Record Name - Inventory

3. REPORT OUTPUT:

UPDT040R1 - Year End PWS Inventory Control and Deletion List

4. CONTROL ACCUMULATORS:

Number of records read from PWSIO per state

Number of records written to PWSIN per state

Number of records deleted and written to PWSIP per state

Number of records read from PWSIO for the run

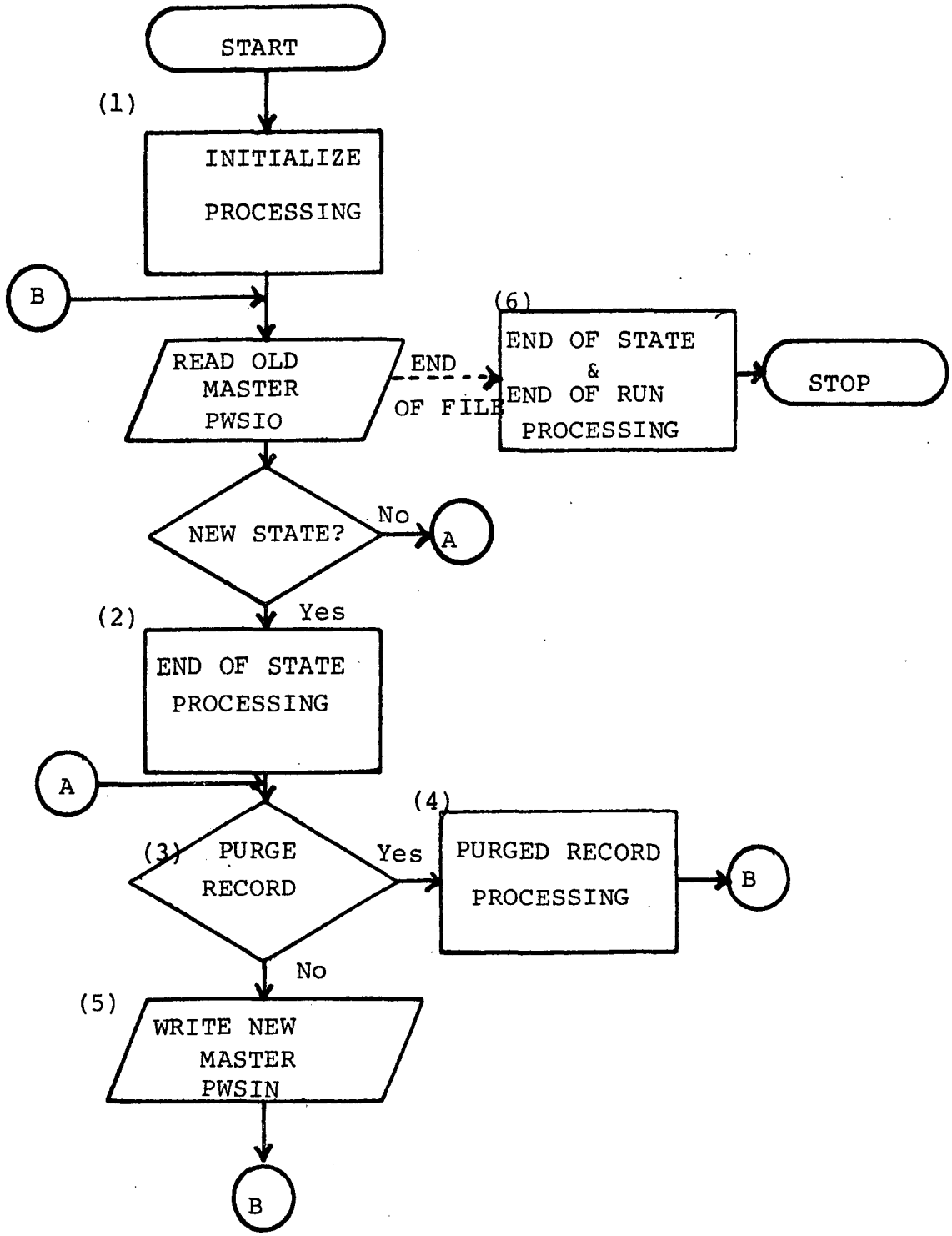
Number of records written to PWSIN for the run

Number of records deleted and written to PWSIP for the run

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. This update run operates in a sequential fashion, reading each record on the data set.

6. LOGIC CHART: (Numbers Reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) Print the state totals as shown on UPDT040R1. Add the state accumulators to the run accumulators and zero out the state accumulators.

(3) Purge the record if DEACT-DATE is more than one year prior to the current date.

(4) Write a line on UPDT040R1. See the Deactivation Reason Table for the descriptions to be printed for each DEACT-REASON.

(5) Zero out the following fields before writing each record to the output file:

VIO-CONTAM-YTD
VIO-SAMP-YTD
VIO-OTHER-YTD

(Each field occurs six times.)

(6) Perform the end of state processing as in step (2). Print the run totals as shown on UPDT040R1 , close files and end job.

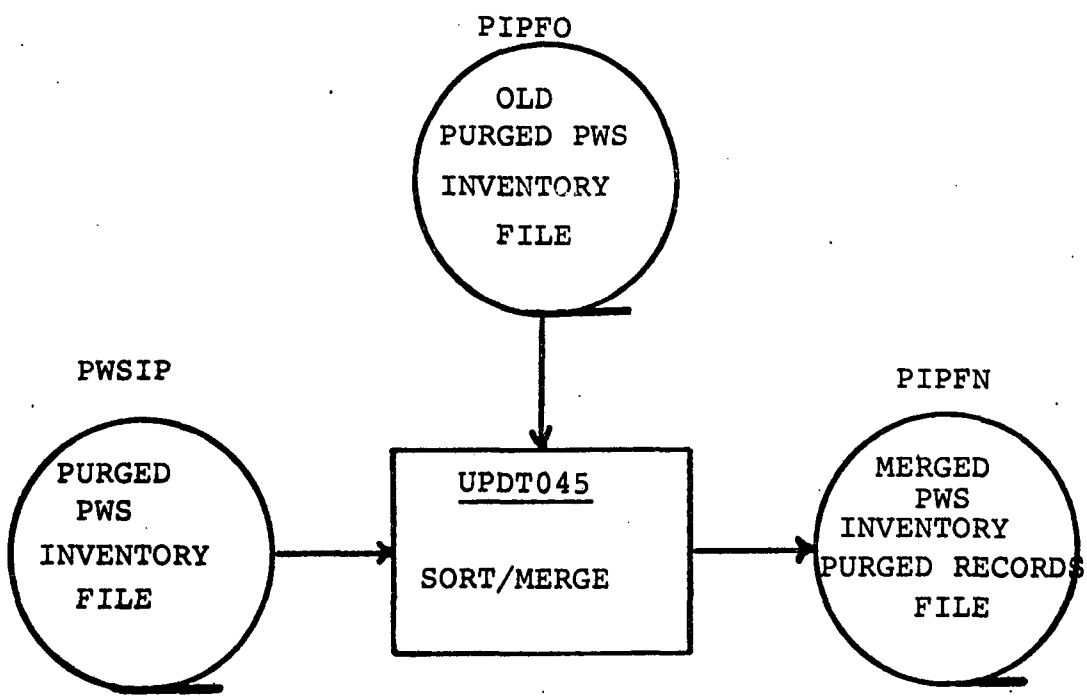
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: UPDT045 - Merge PWS Inventory Purged Records

SUBSYSTEM: UPDATE

DESCRIPTION: Utility Sort/Merge Program



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1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |

2. DATA USAGE:

Input File:

- File Name - Purged PWS Inventory File
  File I.D. - PWSIP
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Old Purged PWS Inventory File
  File I.D. - PIPFO
  File Layout Reference - PWSIF
  Record Name - Inventory

Output File:

- File Name - Merged PWS Inventory Purged Records File
  File I.D. - PIPFN
  File Layout Reference - PWSIF
  Record Name - Inventory



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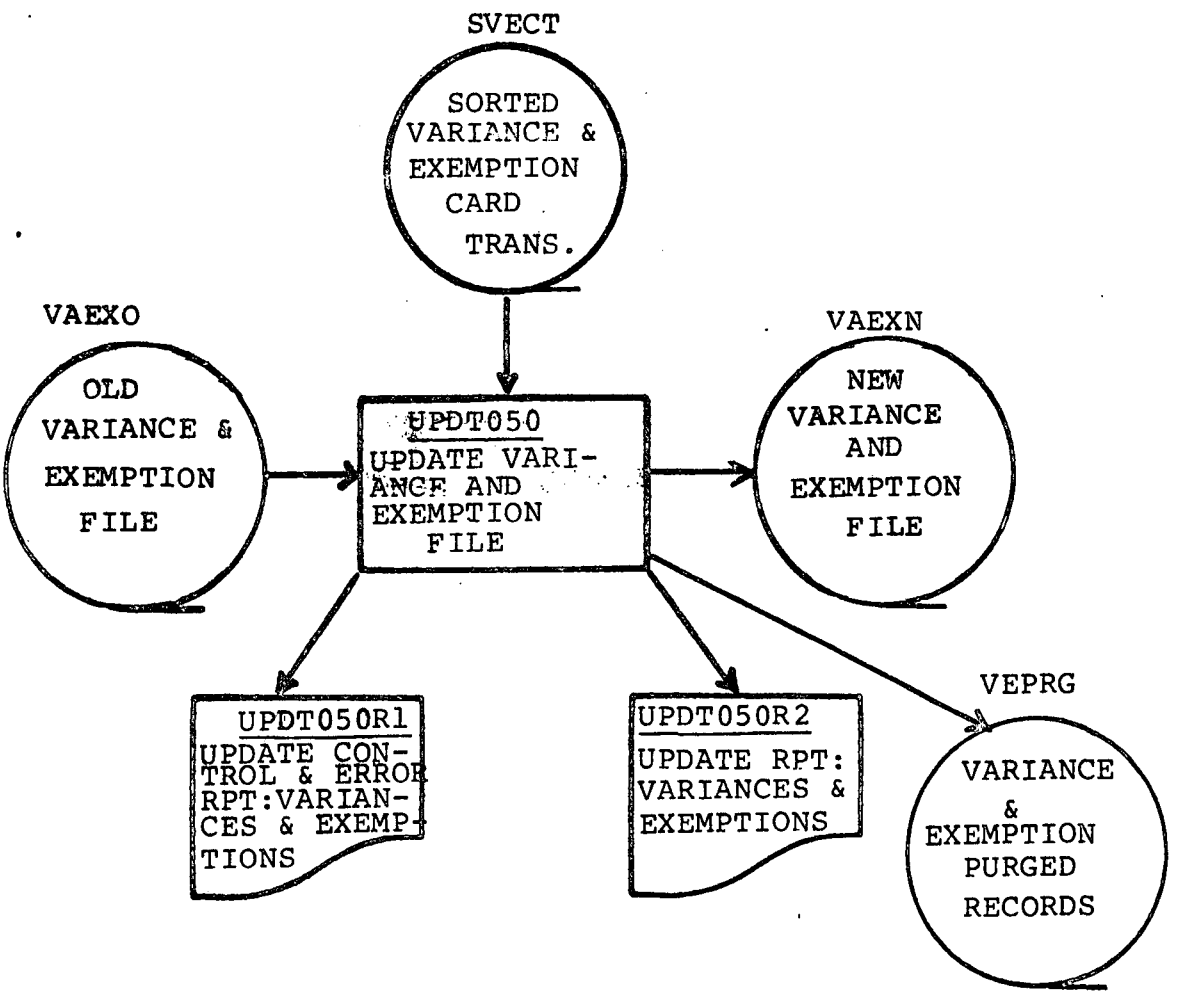
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** UPDT050 - Update Variance and Exemption File

**SUBSYSTEM:** UPDATE

**DESCRIPTION:** This program updates the Variance and Exemption file with sorted transactions produced by EDIT030. Two reports and an output tape of purged variance and exemption records are produced also.



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1. INTRODUCTION:

Function: This program processes add, change and delete transactions against the Variance and Exemption File. Records meeting the criteria for purging are written to a Variance and Exemption Purged Records tape.

Transaction Source: Card input as edited by EDIT030

Sort Sequence: EPA region, state, PWS identification, variance/exemption identification and transaction code

Reports: UPDT050R1 - Update Control and Error Report Variances and Exemptions - lists rejected transactions and update control messages

UPDT050R2 - Update Report Variances and Exemptions - lists all posted transactions

2. DATA USAGE:

Input Files:

- File Name - Variance and Exemption File
  File I.D. - VAEXO
  File Layout Reference: VAEXF
  Record Name - Variance/Exemption

- File Name - Sorted Variance and Exemption Card Transactions
  File I.D. - SVECT
  File Layout Reference: VAEXT
  Record Name - V & E Trans (00/01)

Output Files:

- File Name - Variance and Exemption File
  File I.D. - VAEXN
  File Layout Reference: VAEXT
  Record Name - Variance/Exemption

- File Name - Variance and Exemption Purged Records
  File I.D. - VEPRG
  File Layout Reference: VAEXF
  Record Name - Variance/Exemption



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Table: . Table Name - Error Messages
Table I.D. - ERRMSG

3. REPORT OUTPUT:

UPDT050R1 - Update Control and Error Report: Variances and Exemptions

UPDT050R2 - Update Report: Variances and Exemptions

4. CONTROL ACCUMULATORS:

Number of SVECT transactions posted per state

Number of SVECT transactions rejected per state

Number of SVECT transactions posted for the run

Number of SVECT transactions rejected for the run

5. GENERAL PROCESSING NOTES:

The transaction file, SVECT, contains three types of transactions, as follows:

- Transaction code 00 - used to add a new record. All fields beyond record identification fields will be blank (positions 25 - 65)
- Transaction code 01 - used to change fields on an existing variance and exemption record or one being added by transaction 00
- Transaction code 99 - used to mark for deletion a record which is to be removed from the variance and exemption file

The Variance and Exemption Master File, VAEXO, is processed in a sequential manner and a new master file, VAEXN, is created during each run.

A common subroutine STANDARD-ERROR is used to print reject messages on UPDT050R1.



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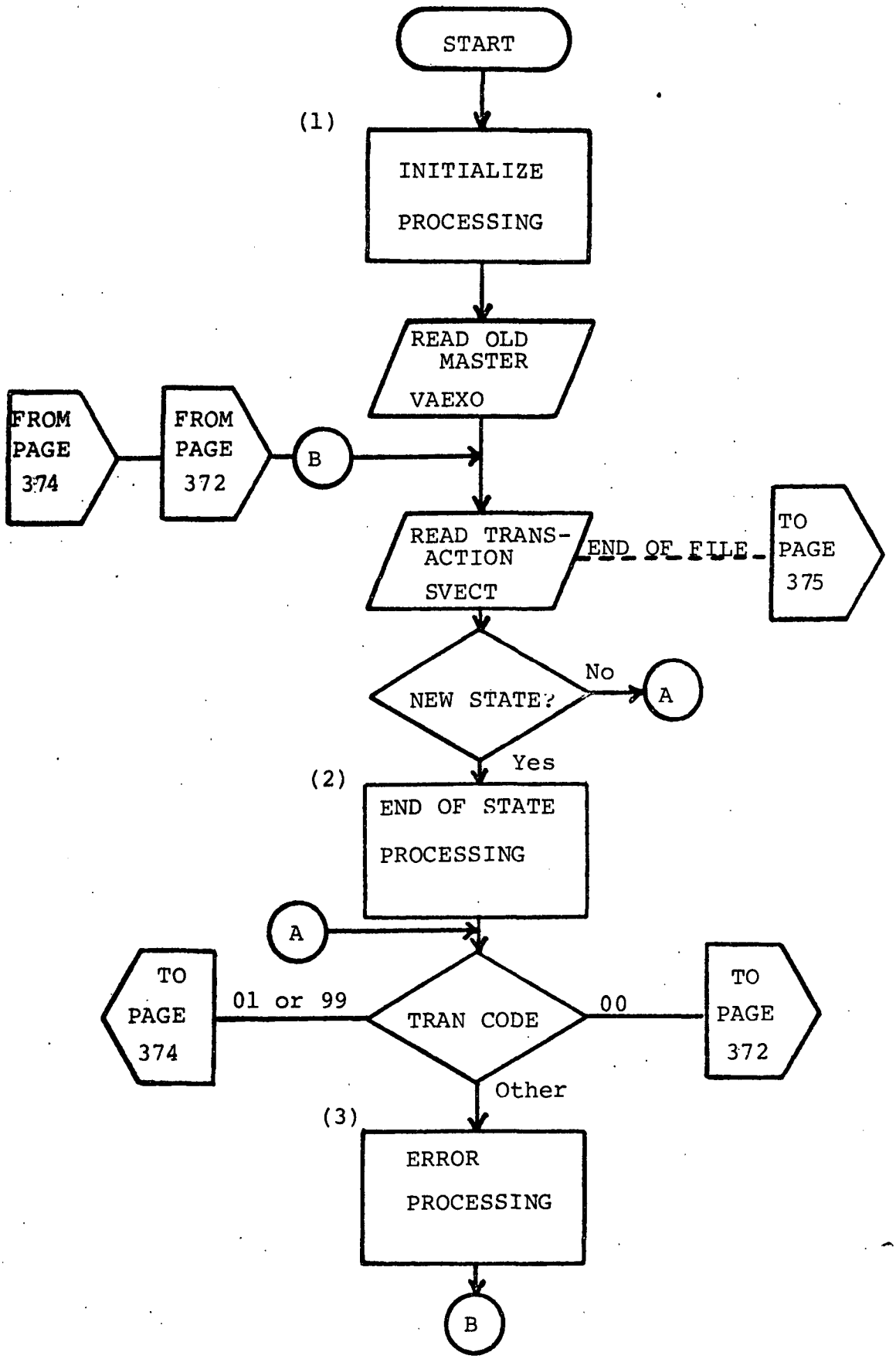
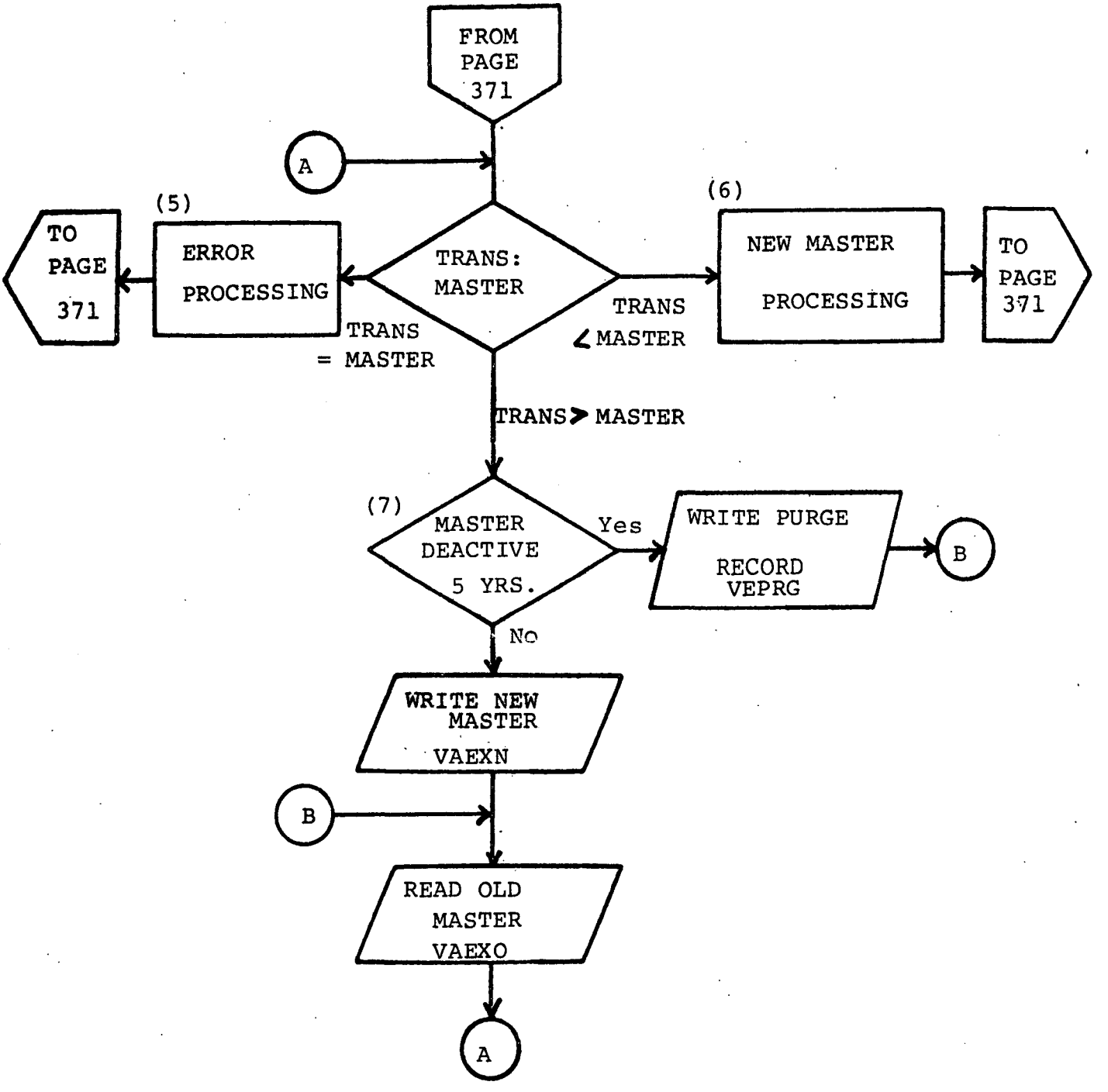
6. LOGIC CHART: (Numbers Reference PROCESSING STEPS, Section 7)



TRAN CODE 00


FROM PAGE 371
A
(5)
TO PAGE 371
ERROR PROCESSING
TRANS: MASTER
TRANS = MASTER
(6)
NEW MASTER PROCESSING
TO PAGE 371
TRANS < MASTER
TRANS > MASTER
(7)
MASTER DEACTIVE 5 YRS.
Yes
WRITE PURGE RECORD VEPRG
B
No
WRITE NEW MASTER VAEXN
B
READ OLD MASTER VAEXO
A

7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) Print the state totals as shown on UPDT050R1. Skip to a new page on both reports. Add the state accumulators to the run accumulators and zero out the state accumulators.

(3) If TRAN-CODE is not equal to 00, 01 or 99 call STANDARD-ERROR to print reject message 015 on UPDT050R1.

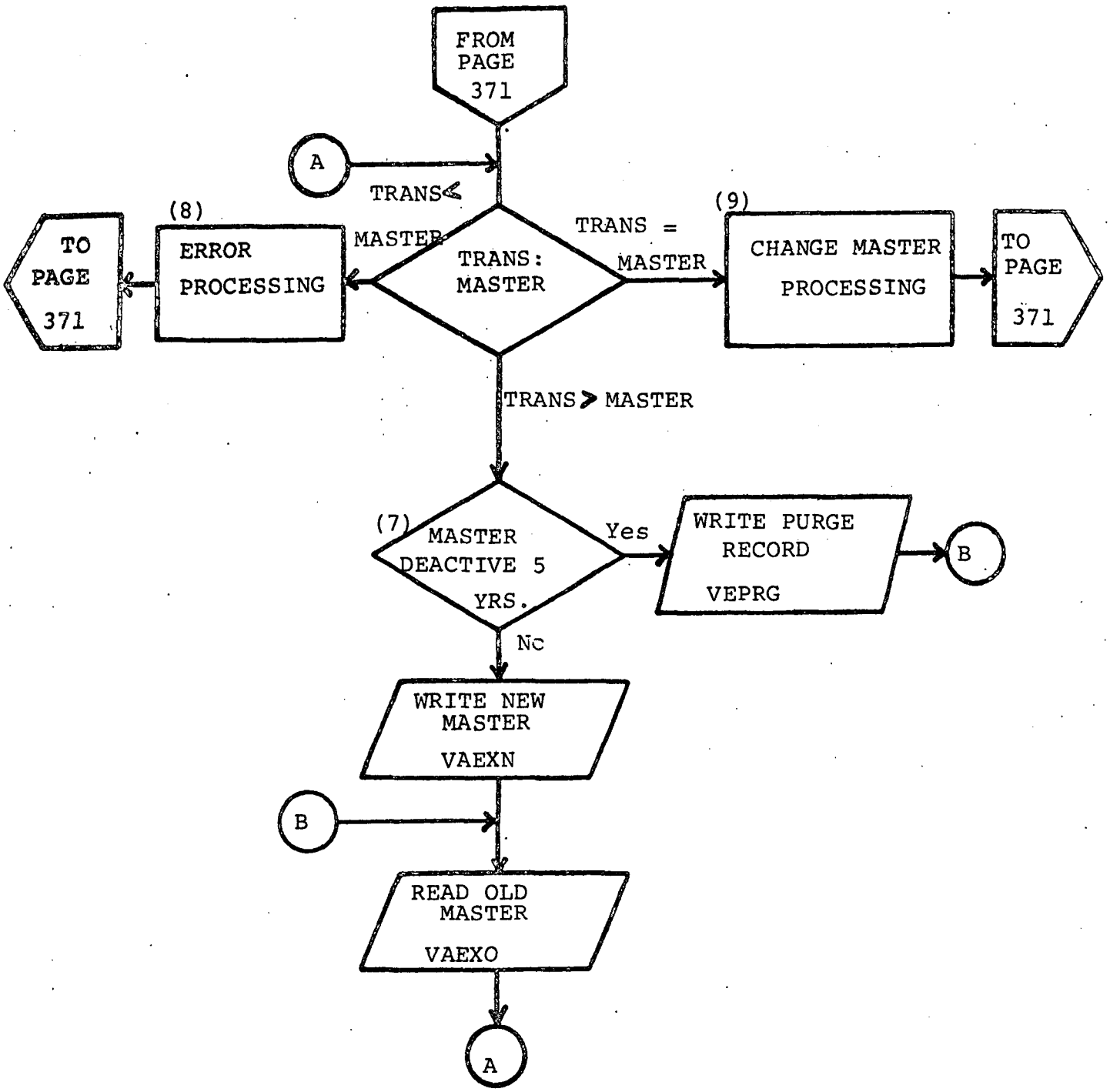
(4) Compare on REGION, STATE, PSW-ID and VE-ID.

(5) Call STANDARD-ERROR to print reject message 016 on UPDT050R1.

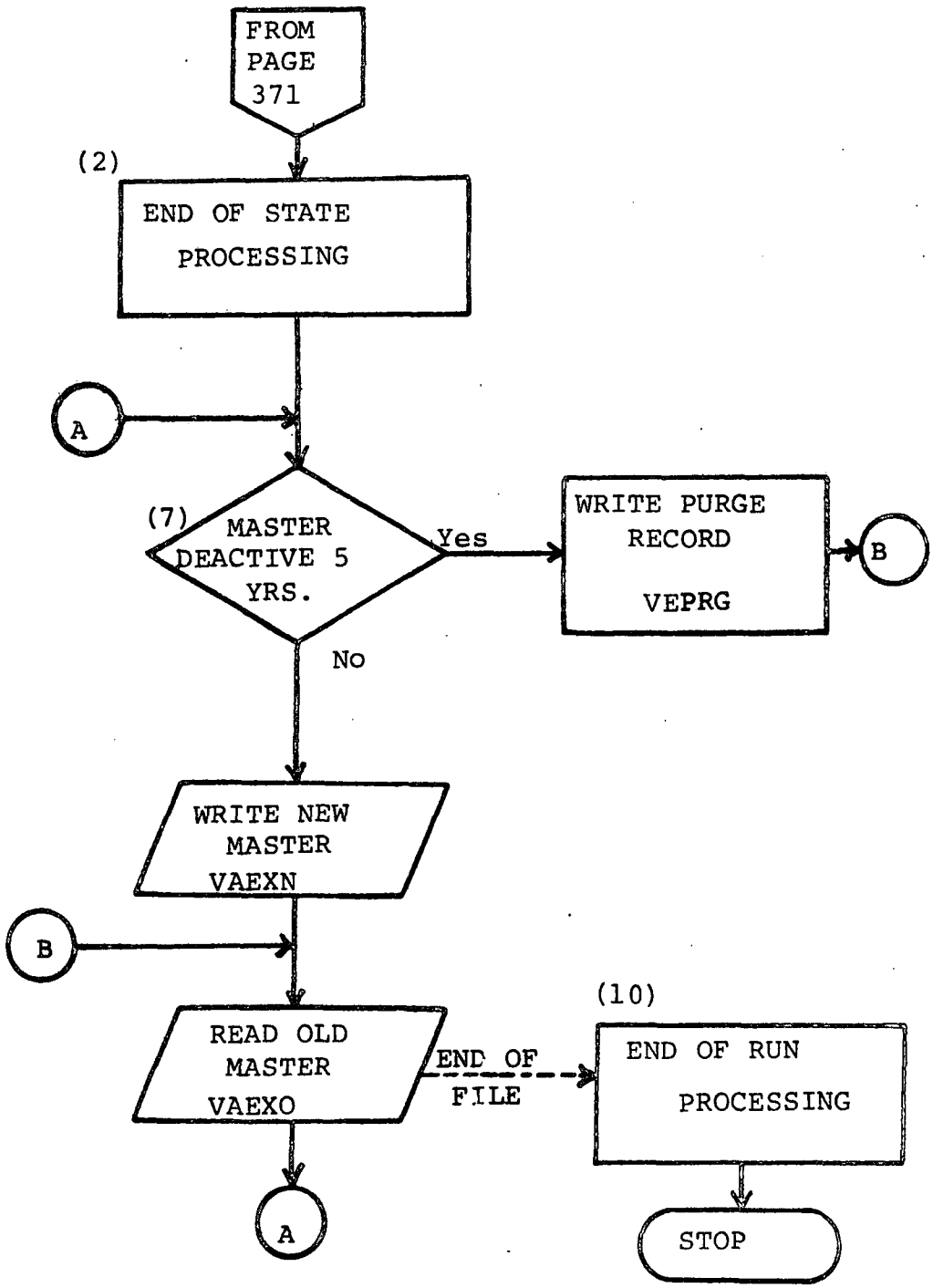
(6) Create a new VAEXN record in core with all blank fields except REGION, STATE, PWS-ID and VE-ID. Print the transaction on UPDT050R2 but in the data element field print 'NEW RECORD". Leave old value and new value blank.

(7) If VE-STATUS is D and LAST-UPDATE is more than 5 years before the current date then the master record is to be purged.

TRAN CODE 01 or 99



END OF FILE PROCESSING



( 8) Call STANDARD-ERROR to print reject message 017 on UPDT050R1.

( 9) For TRAN-CODE 99, set VE-STATUS to D and post today's date to LAST-UPDATE.

For TRAN-CODE 01, check each field on the transaction beginning with VE-STATUS. For each non-blank field, replace the corresponding field on the master. Also print a line on UPDT050R2 showing the data element name and old and new values. Also post today's date to LAST-UPDATE.

If any field on the input transaction has an asterisk (*) in the right-most position, set the corresponding master file field equal to blanks and print on UPDT050R2 the same as any other change.

(10) Print the run totals as shown on UPDT050R1. close files and end the job

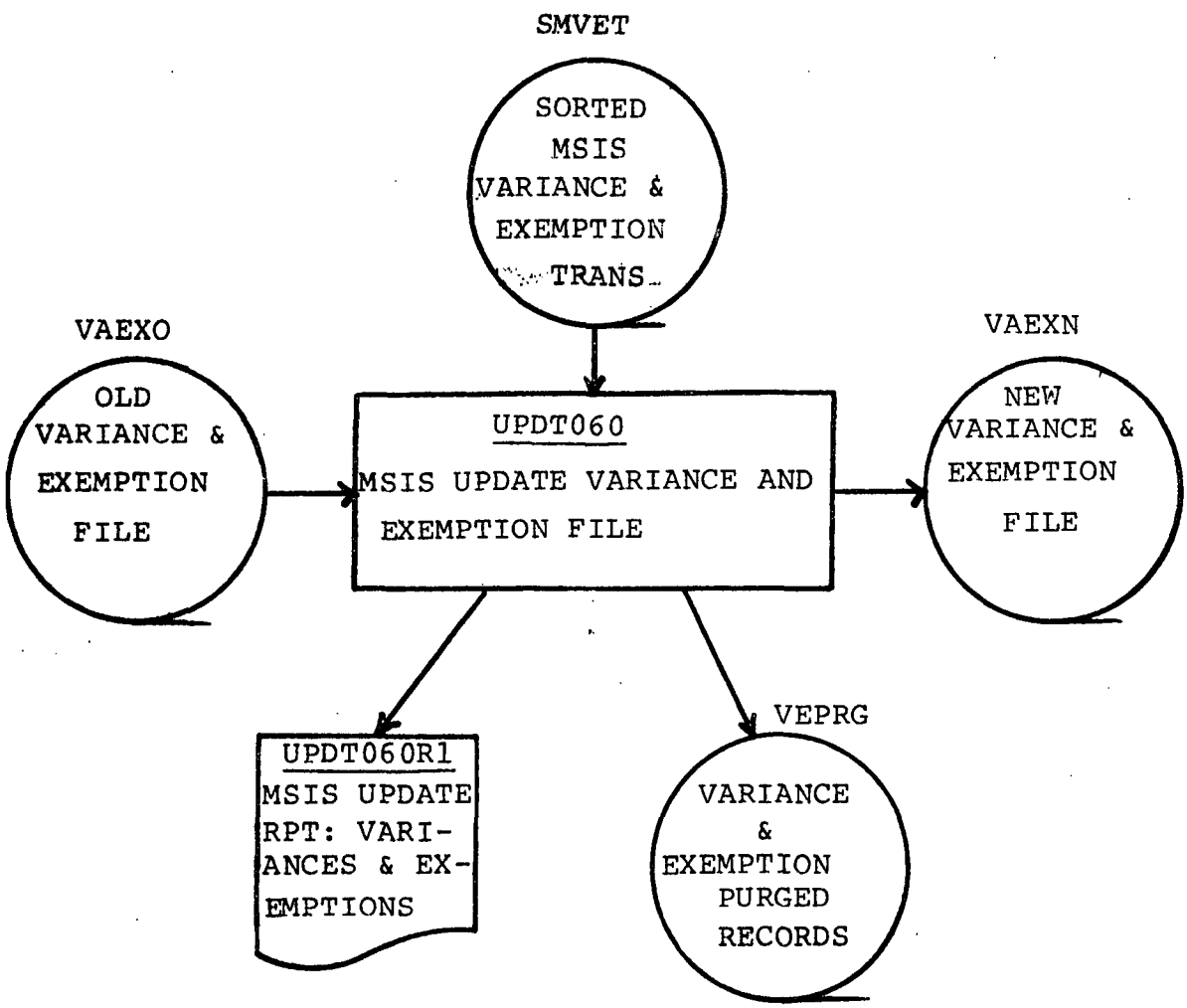
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: UPDT060 - MSIS Update Variance and Exemption File

SUBSYSTEM: UPDATE

DESCRIPTION: This program updates the Variance and Exemption File with sorted transactions from the mechanized state processing system, MSIS. An update report is produced also by this program.



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1. INTRODUCTION:

Function: This program processes change transactions against the Variance and Exemption File.

Transaction Source: Created by the mechanized state processing system, MSIS

Input Sort Sequence: EPA region, state, PWS identification and variance/exemption identification

Report: UPDT060R1 - MSIS Update Report: Variances and Exemptions - a listing of all records which were changed and the processing control totals

2. DATA USAGE

Input Files:

- File Name - Old Variance and Exemption File
  File I.D. - VAEXO
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

- File Name - Sorted MSIS Variance and Exemption Transactions
  File I.D. - SMVET
  File Layout Reference - VAEXF
  Record Names - Variance/Exemption
  V/E Control

Output Files:

- File Name - New Variance and Exemption File
  File I.D. - VAEXN
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

- File Name - Variance and Exemption Purged Records
  File I.D. - VEPRG
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

3. REPORT OUTPUT:

UPDT060R1 - MSIS Update Report: Variance and Exemptions

4. CONTROL ACCUMULATORS:

Number of records added to Variance and Exemption File per state

Number of records replaced on Variance and Exemption File per state

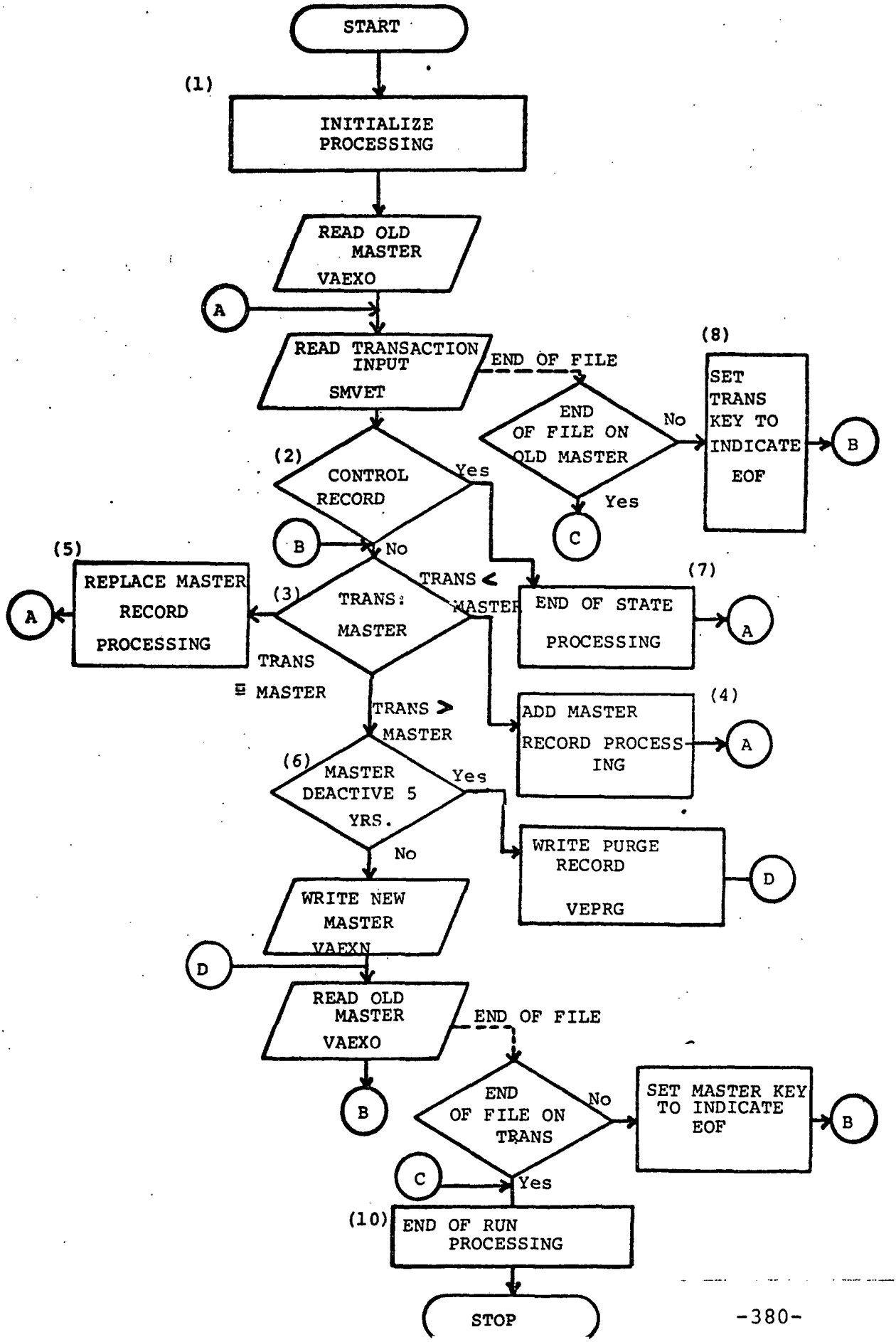
Number of records added to the Variance and Exemption File for the run

Number of records replaced on Variance and Exemption File for the run

5. GENERAL PROCESSING NOTES:

The Variance and Exemption Master File, VAEXO, is processed in a sequential manner and a new master file, VAEXN, is created during each run.

6. LOGIC CHART: (Numbers Reference PROCESSING STEPS, Section 7)



7. PROCESSING NOTES: Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control accumulators to zero and open files.

(2) A control record is recognized by having hexadecimal F's in PWS-ID and VE-ID.

(3) Compare on REGION, STATE, PWS-ID and VE-ID.

(4) Print a line as indicated on UPDT060R1 with an action taken message 'NEW RECORD ADDED'. Create a new Variance and Exemption record in core and post today's date to LAST-UPDATE.

(5) Print a line as indicated on UPDT060R1 with an action taken message 'EXISTING RECORD REPLACED'. Replace the current master record in core with the transaction and post today's date to LAST-UPDATE.

(6) If VE-STATUS is D and LAST-UPDATE is more than 5 years before the current date then the master record is to be purged.

(7) Print the state totals as indicated on UPDT060R1. The 'TOTAL INPUT' figure is TOTAL-INPUT from the control record. If TOTAL-INPUT does not equal the sum of the accumulators of number of records added and number of records replaced on Variance and Exemption File, then print the out of balance message as indicated. Add the state accumulators to the run accumulators and zero out the state accumulators.

(8) Store hexadecimal F's in the comparison key of the transaction file to permit processing the remainder of the PWS Inventory File.

(9) Store hexadecimal F's in the comparison key of the PWS Inventory File to permit processing the remainder of the transactions.

(10) Print run totals as indicated on UPDT060R1 and close files.

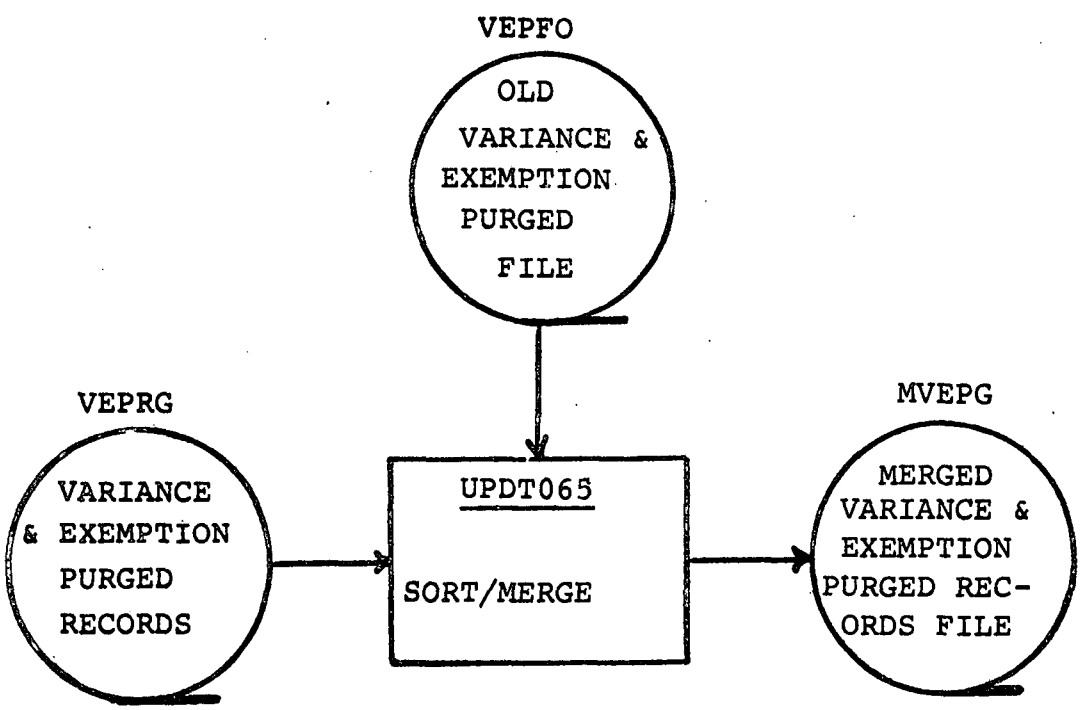
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: UPDT065 - Merge Variance and Exemption Purged Records

SUBSYSTEM: UPDATE

DESCRIPTION: Utility Sort/Merge Program



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1. SORT SEQUENCE:

| Data Element | Offset | Length | Data Type | Ascending/ Descending |
|---|---|---|---|---|
| REGION | 1 | 2 | character | ascending |
| STATE | 3 | 2 | character | ascending |
| PWS-ID | 5 | 7 | character | ascending |
| VE-ID | 12 | 5 | character | ascending |

2. DATA USAGE:

Input Files:

- File Name - Variance and Exemption Purged Records
  File I.D. - VEPRG
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

- File Name - Old Variance and Exemption Purged File
  File I.D. - VEPFO
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

Output File:

- File Name - Merged Variance and Exemption Purged Records File
  File I.D. - MVEPG
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption



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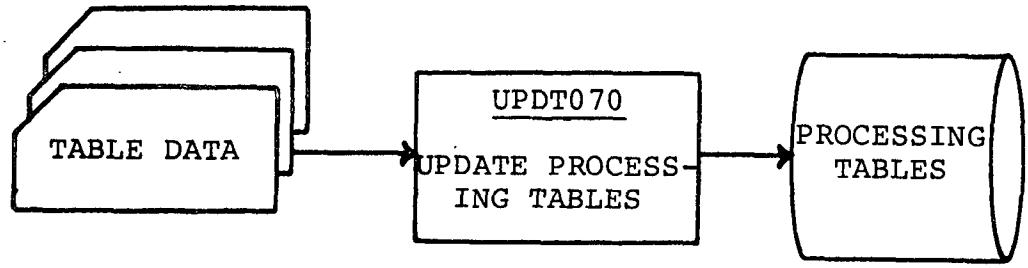
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** UPDT070 - Update Processing Tables

**SUBSYSTEM:** UPDATE

**DESCRIPTION:** This program creates any necessary processing tables on disk from card input.



INTRODUCTION:

Many of the programs utilize common data tables such as the State Table, STATAB. For this reason, these tables should be maintained on a disk or tape file so they can be easily accessed by many programs.

Card formats are needed to create the data tables. The purpose of this program is to read the cards, validate them and create the tables.

This program cannot be specified in detail until the remainder of the processing tables are defined by state EPA personnel for MSIS.

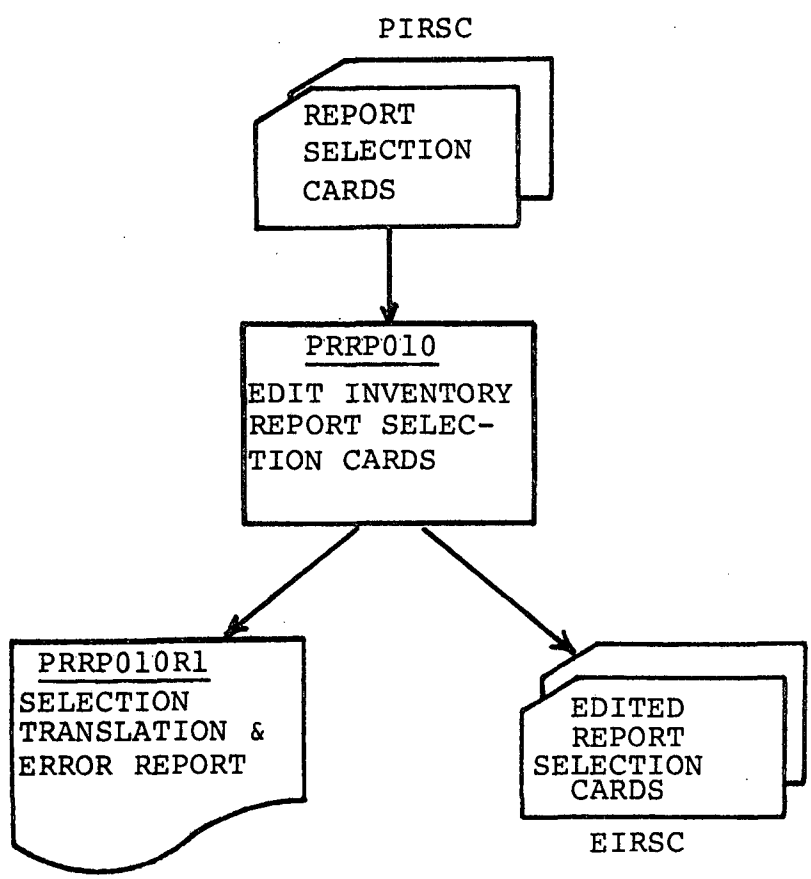
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** PRRP010 - Edit Inventory Report Selection Cards

**SUBSYSTEM:** PERIODIC REPORTING

**DESCRIPTION:** This program edits selection control cards for selecting PWS Inventory reports. It produces a deck of edited selection cards, and a selection Translation and Error Report PRRP010R1.



1. INTRODUCTION:

Function: This program edits selection control cards for selecting PWS Inventory reports.

Input Source: Card input keypunched from input forms.

Input Sort Sequence: All "AND" operaters must come first.

Reports: PRRP010R1 - Selection Translation and Error Report: PWS Inventory

2. DATA USAGE:

Input Files:

- File Name - Report Selection Cards
  File I.D. - PIRSC
  File Layout Reference - PRRSC
  Record Names - Header Card
  Selection Card

Output File:

- File Name - Edited Report Selection Cards
  File I.D. - EIRSC
  File Layout Reference - EPRSC
  Record Names - Edited Header Card
  Edited Selection Card

Tables:

- Table Name - State Table
  Table I.D. - STATAB

- Table Name - Inventory Selection Table
  Table I.D. - ISLTAB

3. REPORT OUTPUT:

PRRP010R1 - Selection Translation and Error Report: PWS Inventory

4. CONTROL ACCUMULATORS:

Number of selection cards read and passed

Number of selection cards punched



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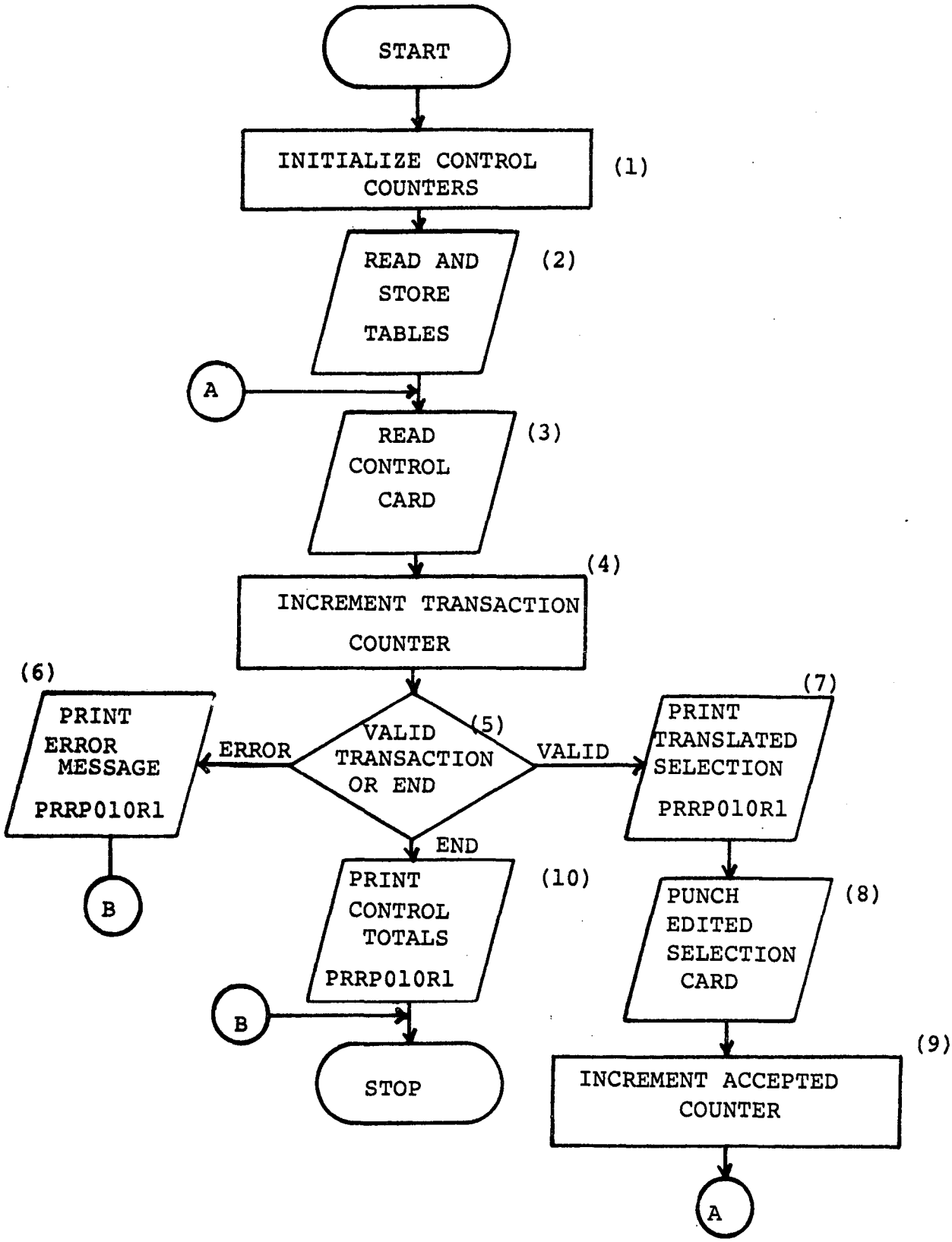
5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD-ERROR, is used to print error messages on PRRP010R1.

Any data element can become a selection criteria if it is included in the Selection Table.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control counters to zero.

(2) Read and store State Table and Selection Table.

(3) Read a selection control card.

(4) Increment transaction counter.

(5) Validate transaction

The selection control card must have 1 - 7 in column 1 and 0 or 1 in column 2. If not write error message 009.

For each selection card, validate according to the edit requirements in the Data Element Descriptions.

The sort code, if it exists, should not be identical to any other sort code. If it does exist, a sort table should be prepared, and punched at the end of the run.

Write an error message to PRRP010R1 for any errors which are found.

(6) If any errors occur, print the appropriate error message and do not punch any further cards. Continue editing transactions.

(7) If all of the fields are valid, punch output cards.

If the mnemonic is "SOURCE" a series of 15 control cards will be punched, each with the same value, but with the different offsets and lengths as found in the Selection Tables.

If not "SOURCE" one control card will be punched, using the offset and length as found in the Selection Table.

(8) A "translated" selection will be printed on PRRP010R1 for each punched control card, as shown on the report layout, using the current transaction counter as the card number.

(9) The control card acceptance counter is incremented.

(10) At the end of the run control totals are printed and a sort control table is punched from those records whose sort sequence is indicated.

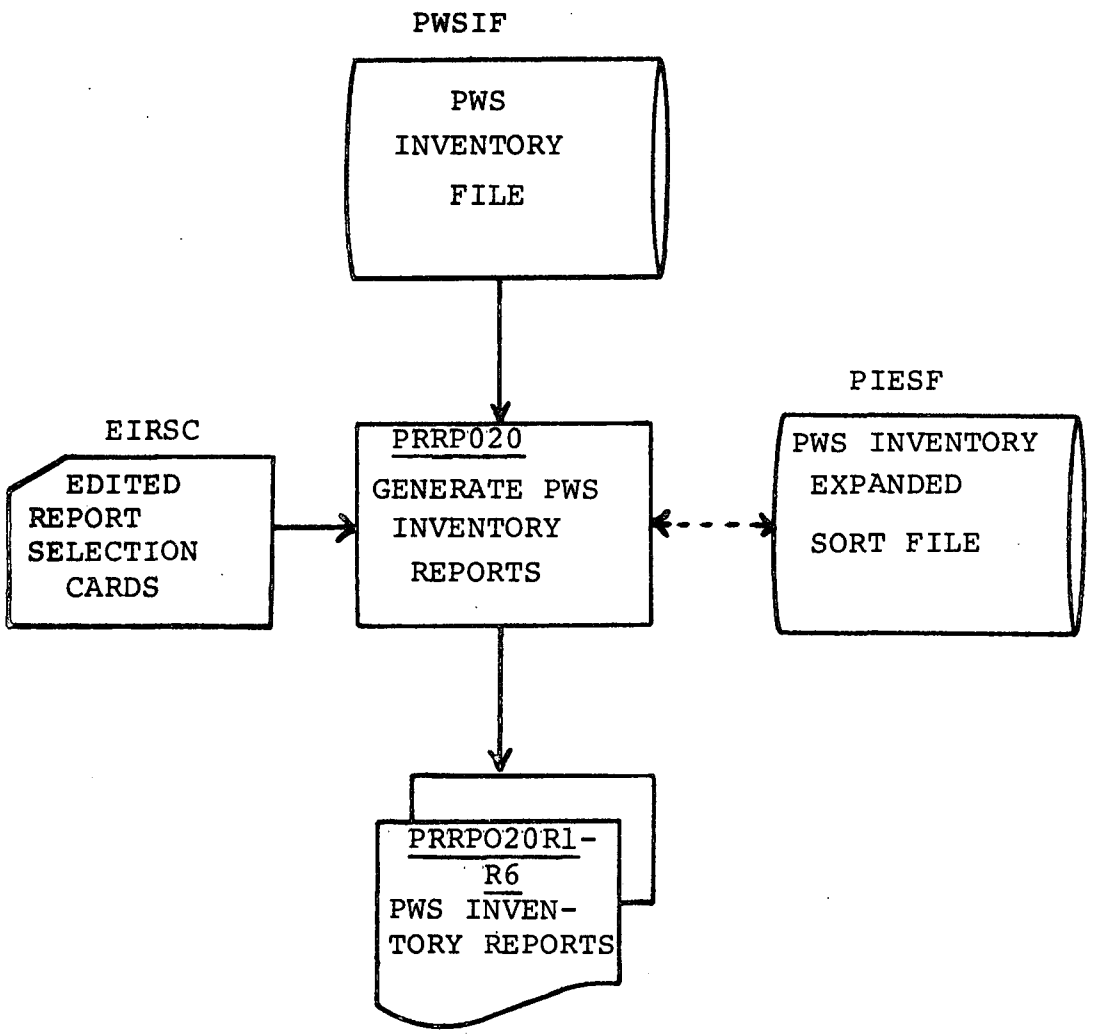
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: PRRP020 - Generate PWS Inventory Reports

SUBSYSTEM: PERIODIC REPORTING

DESCRIPTION: This program generates six PWS Inventory Reports according to specifications which are entered on cards.



1. INTRODUCTION:

Function: This program generates six PWS Inventory Reports based on report selection cards produced by PRRP010.

Reports: PRRP020R1 - Public Water Systems Comprehensive List - a comprehensive list of public water systems, one per page.

PRRP020R2 - Public Water Systems Detailed Listing - a detailed listing of public water systems, two per page.

PRRP020R3 - Public Water Systems Address, Capacity and Source Data - a listing of PWS name and address and source data, twelve per page.

PRRP020R4 - Public Water Systems State Discretionary Data - a report showing name and state discretionary data, two lines per PWS.

PRRP020R5 - Public Water Systems Service Area and Source Data - a listing of PWS location and source data, one line per PWS.

PRRP020R6 - Public Water Systems Codes and Miscellaneous Data - a report of codes, dates and other miscellaneous data, one line per PWS.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PSWIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Edited Report Selection Cards
  File I.D. - EIRSC
  File Layout Reference - EPRSC
  Record Names - Edited Header Card
  Edited Selection Card

Intermediate Sort File:

- File Name - PWS Inventory Expanded Sort File
  File I.D. - PIESF
  File Layout Reference - PWSIF
  Record Name - Expanded Inventory



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Tables:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

PRRP020R1 - R6 - PWS Inventory Reports

4. CONTROL ACCUMULATORS:

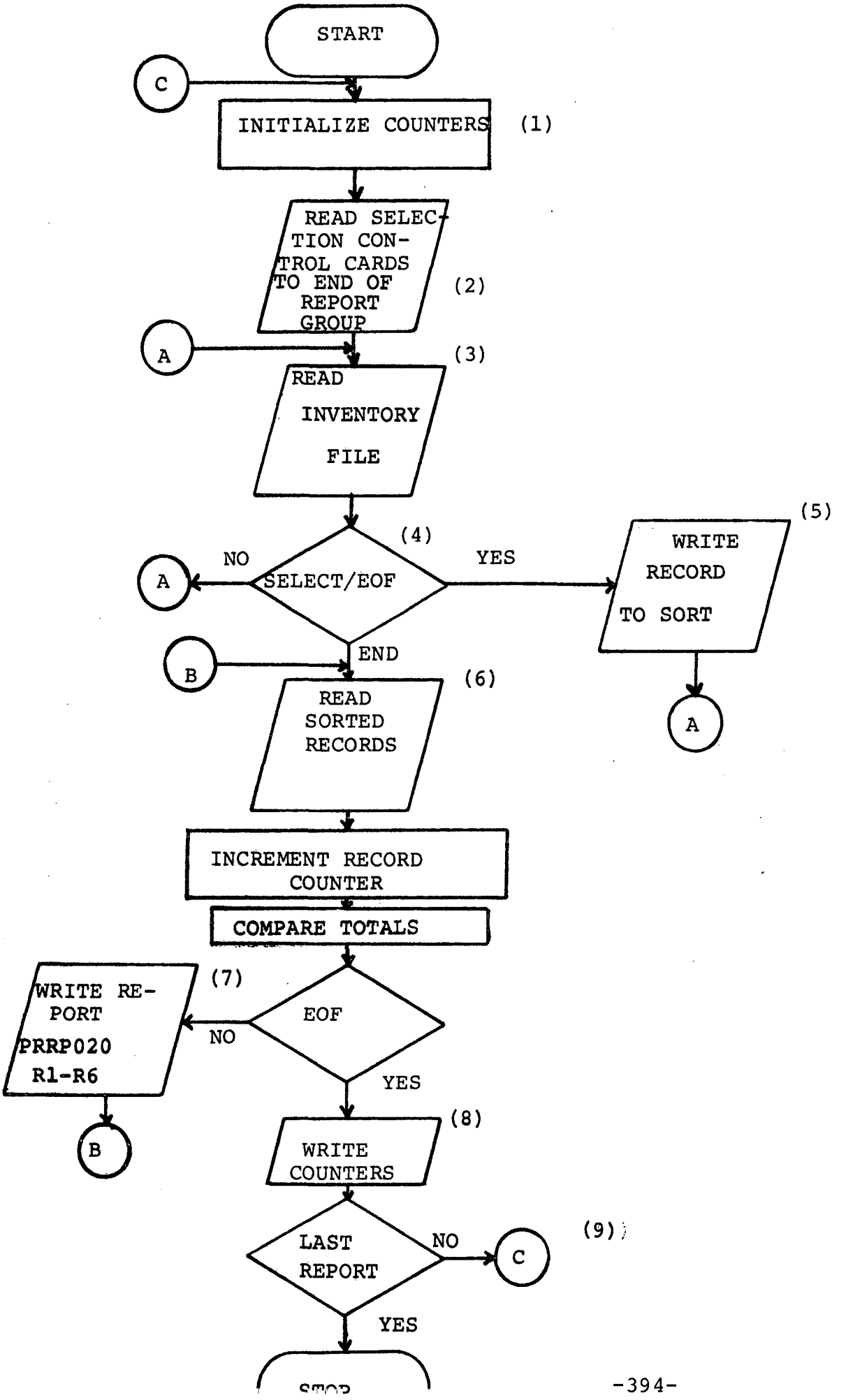
Total inventory records printed per report.

5. GENERAL PROCESSING NOTES:

The program will sort and select records for report generation, based on the selection criteria being entered on cards.

A subroutine is used to compare PWS Inventory records to a group of parameters defined by the selection control card (punched by PRRP010).

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read all of the selection control cards for a report type. Store the report indicator (column 1 of header card).

Store the address indicator (0 = mailing address, 1 = plant address)from the header card.

Store the sort sequence number, starting position and length of each selection element identified as a sort parameter.

Define a group of parameters to be passed to a selection subroutine. The parameters should contain the variable position in the record, the relation, the value and a switch to indicate if a failure to meet the parameter rejects the record (all "AND" operators) or if the next comparison is used ("OR"operators).

(3) Read an Inventory record and pass the record to the selection routine.

(4) The selection routine should return a 0 for select, or 1 for fail. If the record is a fail the program should read the next Inventory record.

(5) Write the record (using the appropriate address) to a sort routine to be sorted by the stored sequence. This record should contain all of the information as indicated on the selected report layout.

(6) After all records are read and processed, read the sorted file. Compute totals according to sort levels.

(7) Write the Selected Inventory Report as indicated on the corresponding report layout and increment the record counter for each record printed.

(8) After all sorted records are processed, print the total records written.

(9) If another set of report selections exist, go to step one (1) and produce the next report.

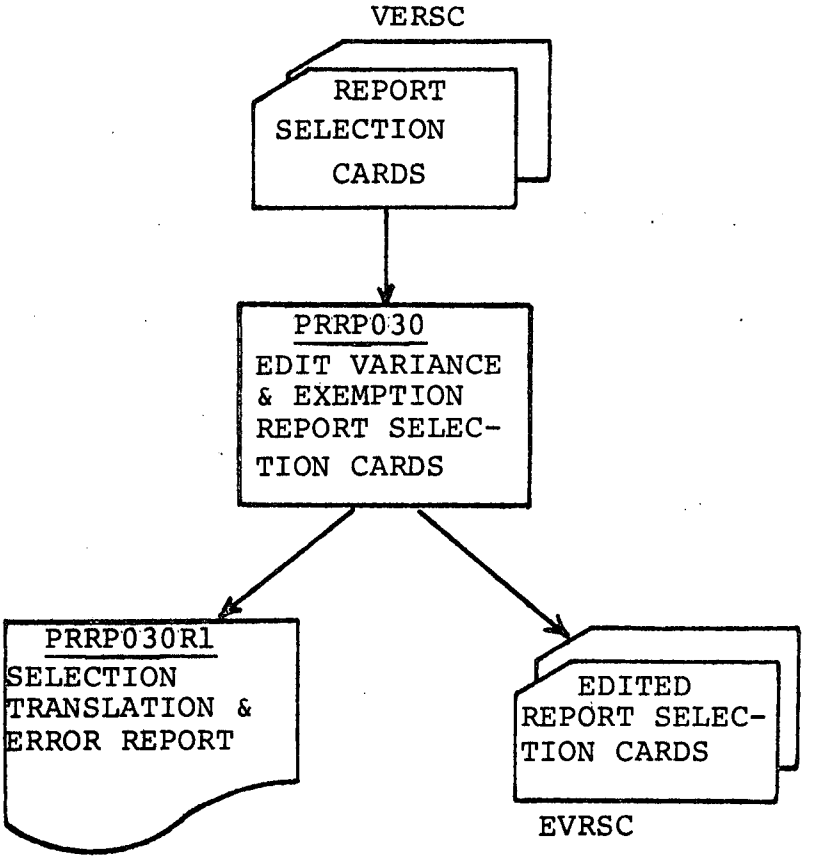
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: PRRP030 - Edit Variance and Exemption Report Selection Cards

SUBSYSTEM: PERIODIC REPORTING

DESCRIPTION: This program edits selection control cards for selecting the parameters of the Variance and Exemption Review List. It produces a deck of edited selection cards, and a selection Translation and Error Report PRRP030R1.



1. INTRODUCTION:

Function: This program edits selection control cards for selecting parameters of the Variance and Exemption Review List.

Input Source: Card input keypunched from input forms.

Input Sort Sequence: All "AND" operators must come first.

Reports: PRRP030R1 - Selection Translation and Error Report: Variance and Exemption

2. DATA USAGE:

Input Files:

- File Name - Report Selection Cards
  File I.D. - VERSC
  File Layout Reference - PRRSC
  Record Names - Header Card
  Selection Card

Output File:

- File Name - Edited Report Selection Cards
  File I.D. - EVRSC
  File Layout Reference - EPRSC
  Record Names - Edited Header Card
  Edited Selection Card

Tables:

- Table Name - State Table
  Table I.D. - STATAB

- Table Name - Variance and Exemption Selection Table
  Table I.D. - VESTAB

3. REPORT OUTPUT:

PRRP030R1 - Selection Translation and Error Reports: Variance and Exemptions

4. CONTROL ACCUMULATORS:

Number of selection cards read and passed

Number of selection cards punched.



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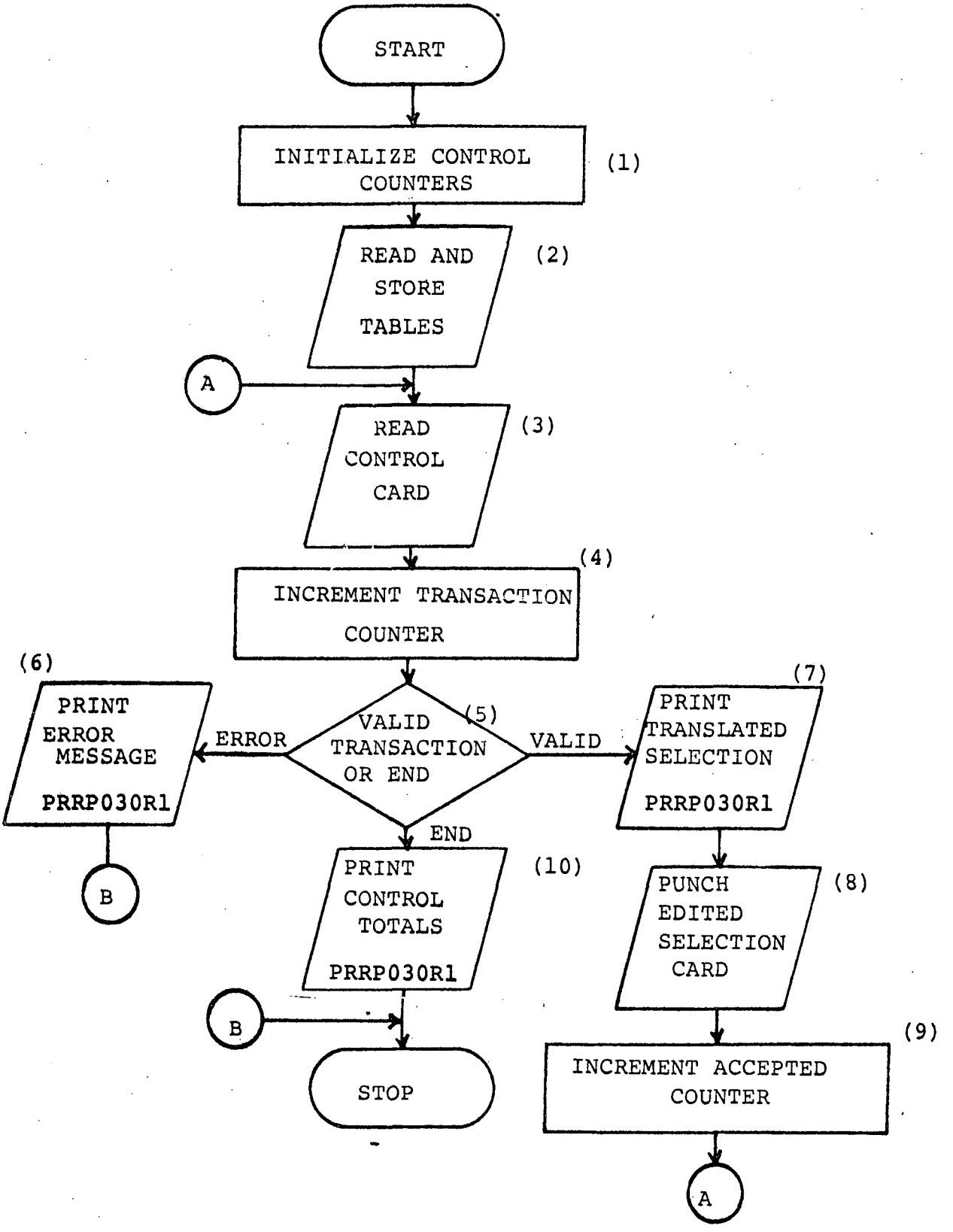
5. GENERAL PROCESSING NOTES:

A common subroutine, STANDARD-ERROR, is used to print error messages on PRRP030R1.

Any data element can become a selection criteria if it is included in the Selection Table.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all control counters to zero.

(2) Read and store State Table and Selection Table.

(3) Read a selection control card.

(4) Increment transaction counter.

(5) Validate transaction

The selection control card must have 0 or 1 in column 1. If not write error message 009.

For each selection card, validate according to the edit requirements in the Data Element Descriptions.

The sort code, if it exists, should not be identical to any other sort code. If it does exist, a sort table should be prepared, and punched at the end of the run.

Write an error message to PRRP030R1 for any errors which are found.

(6) If any errors occur, print the appropriate error message and do not punch any further cards. Continue editing transactions.

(7) If all of the fields are valid, punch output cards.

If the mnemonic is "SOURCE" a series of 15 control cards will be punched, each with the same value, but with the different offsets and lengths as found in the Selection Table.

If not "SOURCE" one control card will be punched, using the offset and length as found in the Selection Table.

(8) A "translated" selection will be printed on PRRP030R1 for each punched control card, as shown on the report layout, using the current transaction counter as the card number.

(9) The control card acceptance counter is incremented.

(10) At the end of the run control totals are printed and a sort control table is punched from those records whose sort sequence is indicated.

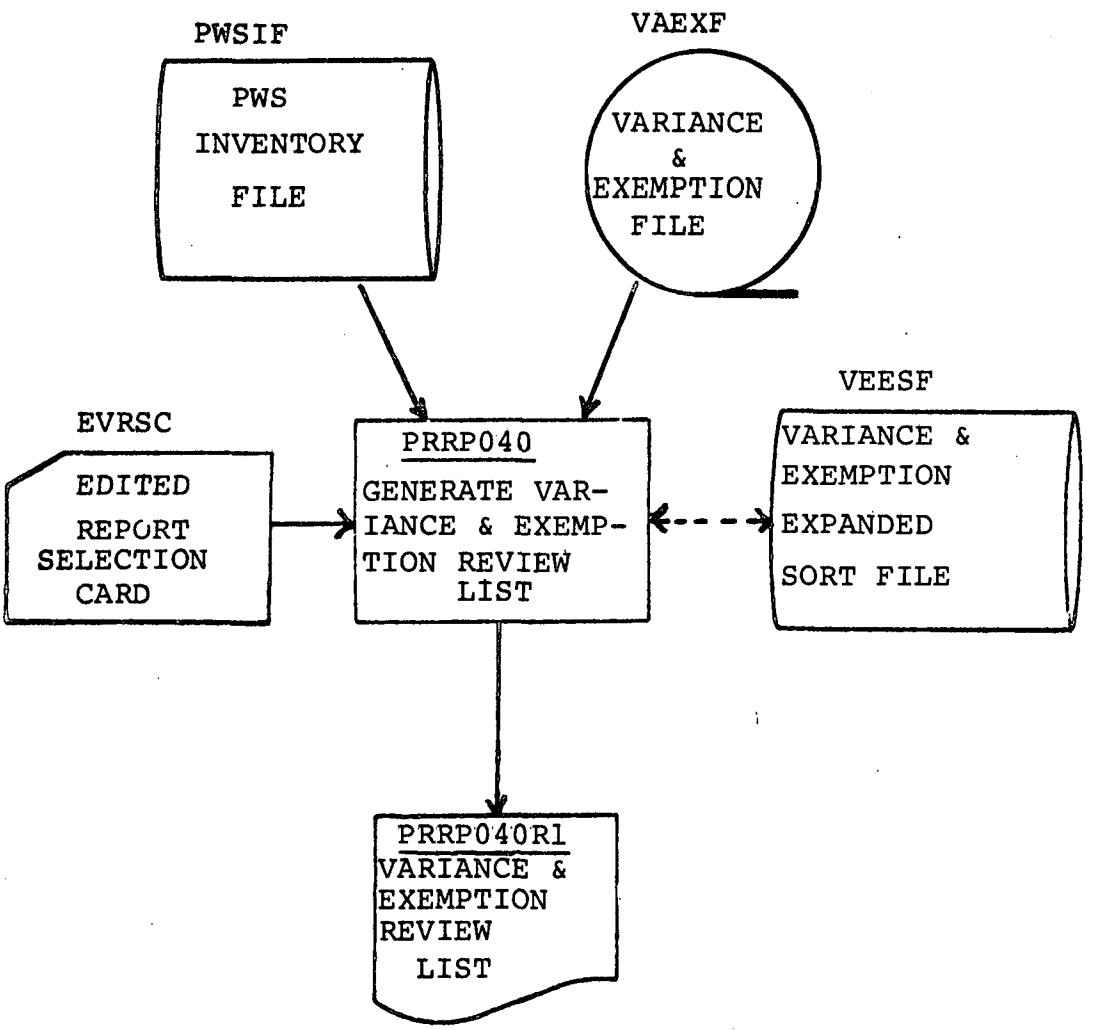
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** PRRP040 - Generate Variance and Exemption Review List

**SUBSYSTEM:** PERIODIC REPORTING

**DESCRIPTION:** This program generates the Variance and Exemption Review List according to specifications which are entered on cards.



1. INTRODUCTION:

Function: This program generates the Variance and Exemption Review List based on report selection cards produced by PRRP030.

Reports: PRRP040R1 - Variance and Exemption Review List - lists variances and exemptions meeting the criteria specified on selection cards.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PSWIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Variance and Exemption File
  File I.D. - VAEXF
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

- File Name - Edited Report Selection Cards
  File I.D. - EVRSC
  File Layout Reference - EPRSC
  Record Names - Edited Header Card
  Edited Selection Card

Intermediate Sort File:

- File Name - Variance and Exemption Expanded Sort File
  File I.D. - VEESF
  File Layout Reference - VEESF
  Record Name - Expanded Variance/Exemption Record

Tables:

- Table Name - State Table
  Table I.D. - STATAB

- Table Name - Treatment Table
  Table I.D. - TRETAB

- Table Name - Contaminant Table
  Table I.D. - CONTAB



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3. REPORT OUTPUT:

PRRP040R1 - Variance and Exemption Review List

4. CONTROL ACCUMULATORS:

Total variances and exemptions printed.

5. GENERAL PROCESSING NOTES:

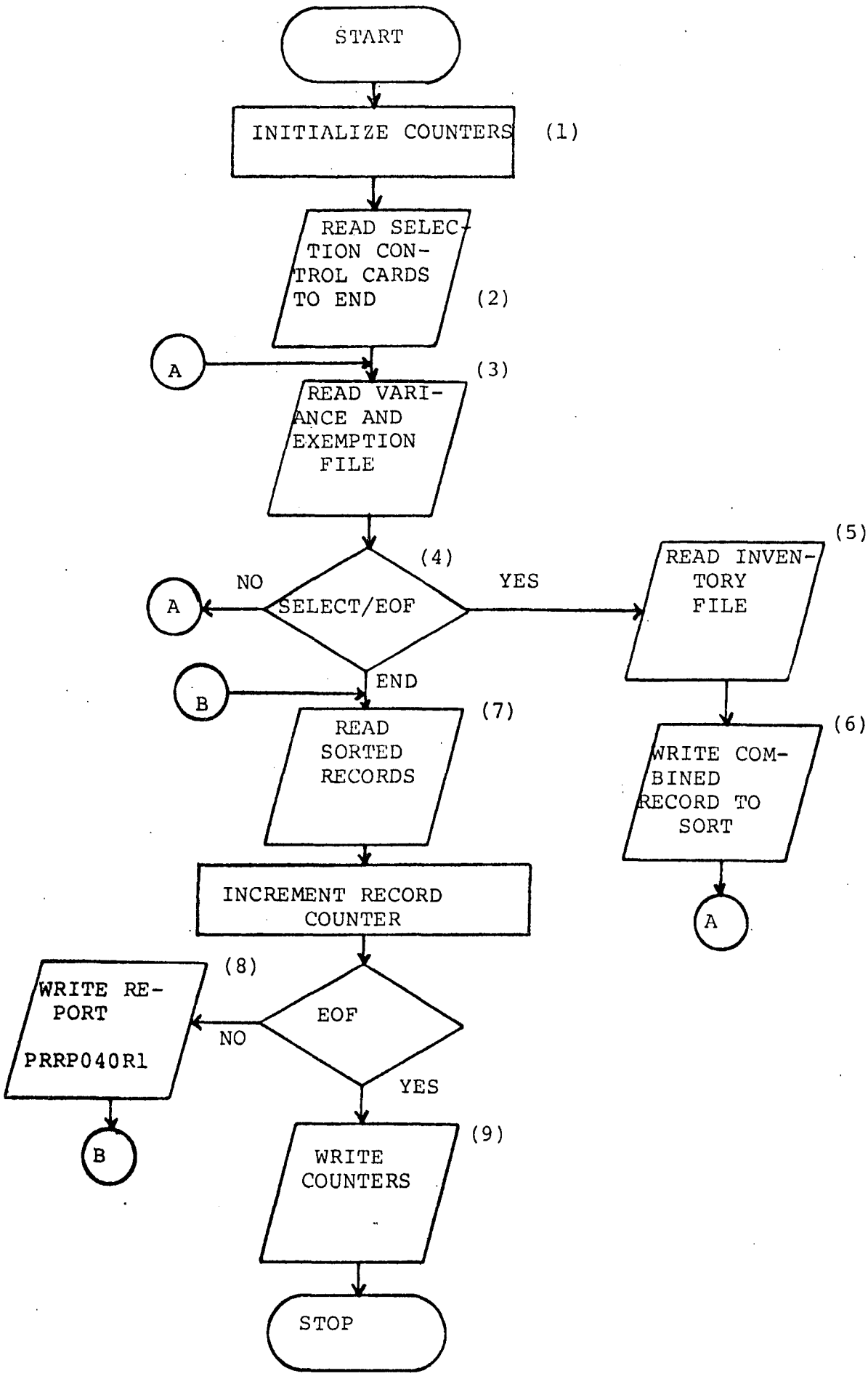
The program will sort and select records for report generation, based on the selection criteria being entered on cards.

A subroutine is used to compare Variance and Exemption records to a group of parameters defined by the selection control card (punched by PRRP030).

The following variables should be matched to internally-coded tables, and the table values printed:

| Variable | Table |
|---|---|
| Status | Status Table |
| Milestone | Milestone Table |
| Reason | Reason Table |

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize counters.

(2) Read all of the selection control cards.

Store the address indicator (0 = mailing address, 1 = plant address) from the header card and the sample percentage.

Store the sort sequence number, starting position and length of each selection element identified as a sort paramter.

Define a group of parameters to be passed to a selection subroutine. The parameters should contain the variable position in the record, the relation , the value and a switch to indicate if a failure to meet the parameter rejects the record (all "AND" operators) or if the next comparison is used ("OR" operators).

(3) Read a Variance and Exemption record and pass the record to the selection routine.

(4) The selection routine should return a 0 for select, or 1 for fail. If the record is a fail the program should read the next Variance and Exemption record.

(5) Match the PWS-ID to the Inventory File PWS-ID. If no match put "NO INVENTORY RECORD" in name and address field.

(6) Write a combined record (using the appropriate address) to a sort routine to be sorted by the stored sequence. This record should contain all of the information as indicated on the PRRP040R1 report layout. Note that the address, region, district, population, community and type of source are obtained from the PWS Inventory File.

(7) After all Variance and Exemption records are read and processed, read the sorted file.

(8) Write the Variance and Exemption Review List PRRP040R1, as indicated on the report layout and increment the record counter for each record printed.

(9) After all sorted records are processed, print the total records written.

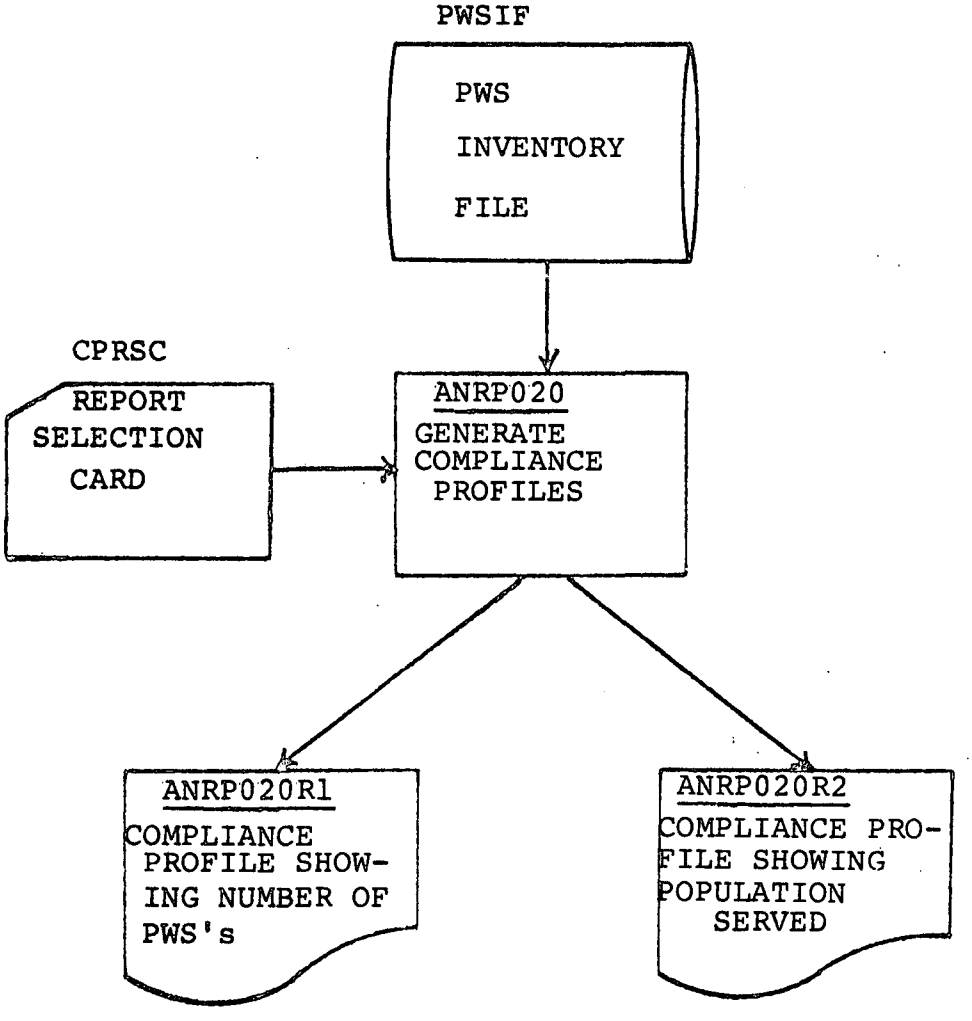
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP020 - Generate Compliance Profiles

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two compliance summary summary reports reflecting violation occurrances. Various criteria are specified by the user on card input.



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1. INTRODUCTION:

Function: This program creates two summary level reports based on card input specifications.

Reports: ANRP020R1 - Compliance Profile Showing Number of Public Water Systems - shows number of water systems within categories based on number of violations and population served

ANRP020R2 - Compliance Profile Showing Population Served - shows population served by water systems within categories based on number of violations and population served.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - CPRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP020R1 - Compliance Profile Showing Number of Public Water Systems
ANRP020R2 - Compliance Profile Showing Population Served

4. TOTALING LEVELS:

Not applicable

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. If the reports are to be printed for only one region, then only that portion of the data set need be accessed.



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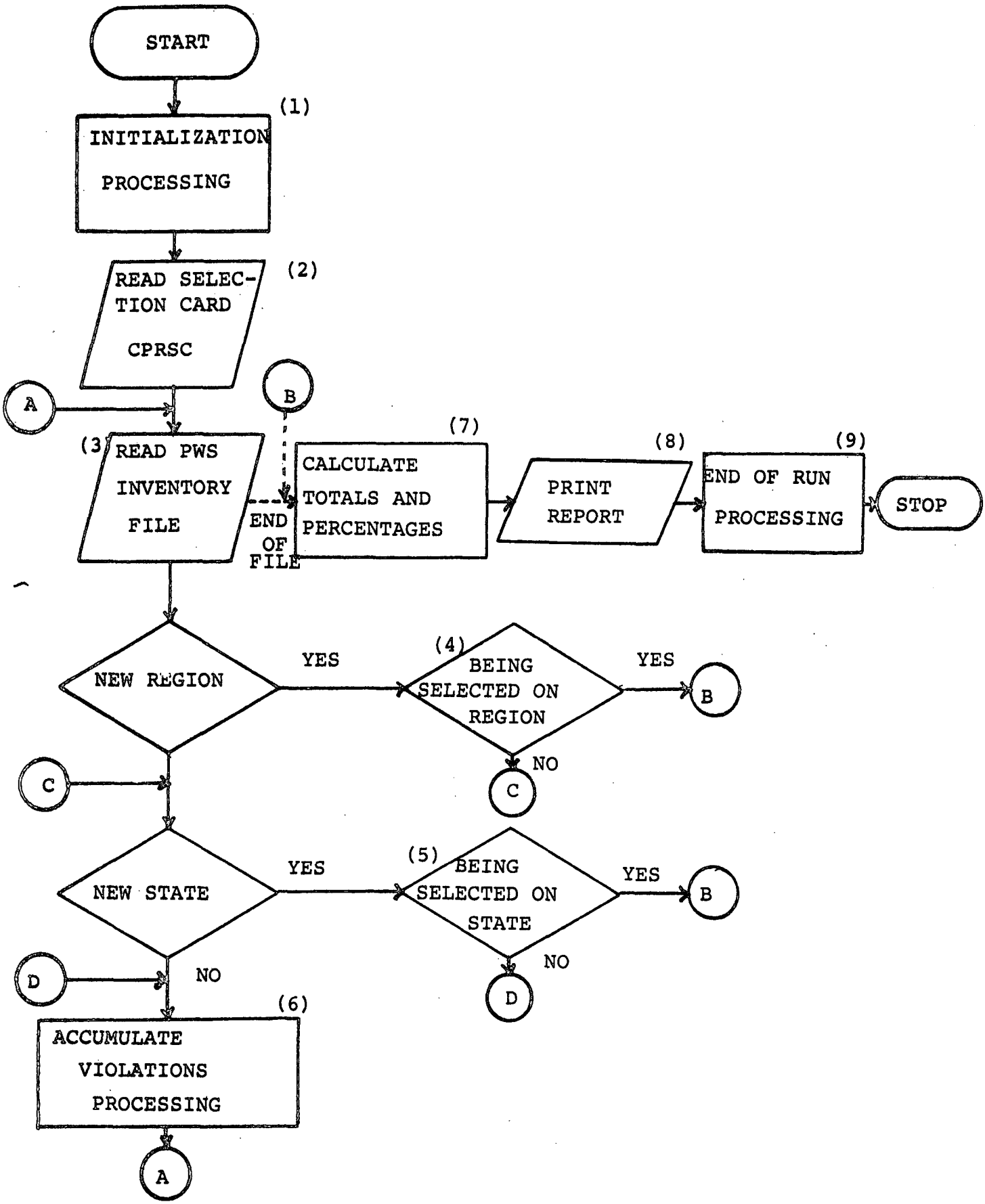
The violation accumulators to be accessed for these reports are the year-to-date figures, data elements 062, 063 and 064, and the total figures, data elements 065, 066 and 067. These six accumulators occur six times on each PWS Inventory record, representing the six contaminant categories.

Each report is contained on only one page. Accumulators are used to "build" the entire report in core. It is then printed at the end of the program.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Zero out all accumulators and open files. Read in State Table.

(2) The selection card indicates the specifications to be used in generating the report. Validate each field in the card according to the edit rules specified in the Data Element Descriptions. If the card is invalid, abort the run and print 'REPORT SELECTION INVALID' on ANRP020R1.

(3) Read either the individual region as specified on the input card, CPRSC, or read sequentially through the entire data set.

(4) Region selection is determined by input card, CPRSC.

(5) State selection is determined by input card, CPRSC.

(6) For both reports, check each inventory record to see whether or not it meets the specifications of the selection card, as follows:

- Check TYPE-OF-PWS-SEL against PSW-TYPE. If A is specified, select all types.

- Check REGION-SEL against REGION. If A is specified, select all regions.

- Check STATE-SEL against STATE. If A is specified, select all states.

- Check SOURCE-TYPE-SEL against each SOURCE-CODE. The number of SOURCE-CODE fields to be checked is indicated in SOURCE-NUM. If any match is found, select the inventory record for inclusion on the report. If A is specified, select all source types.

- CONTAM-CTG-SEL indicates which set of six accumulators on the inventory file should be used. If A is specified, add together corresponding accumulators for the six contaminant categories.

- ACCUM-TYPE-SEL indicates whether the year-to-date or total-to-date accumulators should be used.

- VIO-TYPE-SEL specifies which of the three accumulators should be used. If A is specified, add the contaminant, sampling and other accumulators together.

For each report, define a matrix of 152 accumulators representing the eight violation categories and the nineteen population categories.

- Analyze the POP-SERVED field in conjunction with VIOLATIONS ACCUMULATORS and determine which matrix accumulator should be incremented for each inventory record.

- For ANRP020R1, add 1 to the matrix accumulator selected.

- For ANRP020R2, add POP-SERVED to the matrix accumulator selected.

(7) Calculate the totals and percentages in the following manner:

- Sum the eight accumulators for each of the nineteen population categories to arrive at the right-most total column.

- Sum the nineteen accumulators for each of the eight violation categories to arrive at the bottom total row.

- Use the grand total figure (right-most column, bottom row) to calculate the percentages. Divide each of the 152 accumulators as well as the nineteen figures in the total column and the eight figures in the total row by the grand total figure. Each result will be a percentage (multiply by 100 before printing).

(8) For ANRP020R2, divide all population figures by 1000 before printing.

Print the report requested as shown on the report layouts.

- On line 3, under the heading print one of the following descriptions corresponding to TYPE-OF-PWS-SEL on the input card:

  COMMUNITY SYSTEMS
  NON-COMMUNITY SYSTEMS
  ALL PUBLIC WATER SYSTEMS

- On line 5, print REGION-SEL for region. If REGION-SEL equals A, leave blank. Print the state name corresponding to STATE-SEL by using the table STATAB. If STATE-SEL equals A, leave blank.

- On line 6, print whichever of the following descriptions corresponding to CONTAM-CTG-SEL:

  PHYSICAL
  INORGANIC CHEMICALS
  PESTICIDES AND ORGANIC CHEMICALS
  MICROBIOLOGICAL
  RADIOACTIVE
  TREATMENT
  ALL (if A is specified)

- Line 7 should contain whichever of the following corresponds to VIO-TYPE-SEL:

  CONTAMINANT
  SAMPLING
  OTHER
  ALL (if A is specified)

- On line 8 print whichever of the following corresponds to SOURCE-TYPE-SEL:

  SURFACE
  GROUND
  PURCHASED
  ALL (if A is specified)

- On line 9 print YEAR-TO-DATE or TOTAL-TO-DATE according to ACCUM-TYPE-SEL.

(9) Close files and end the job.

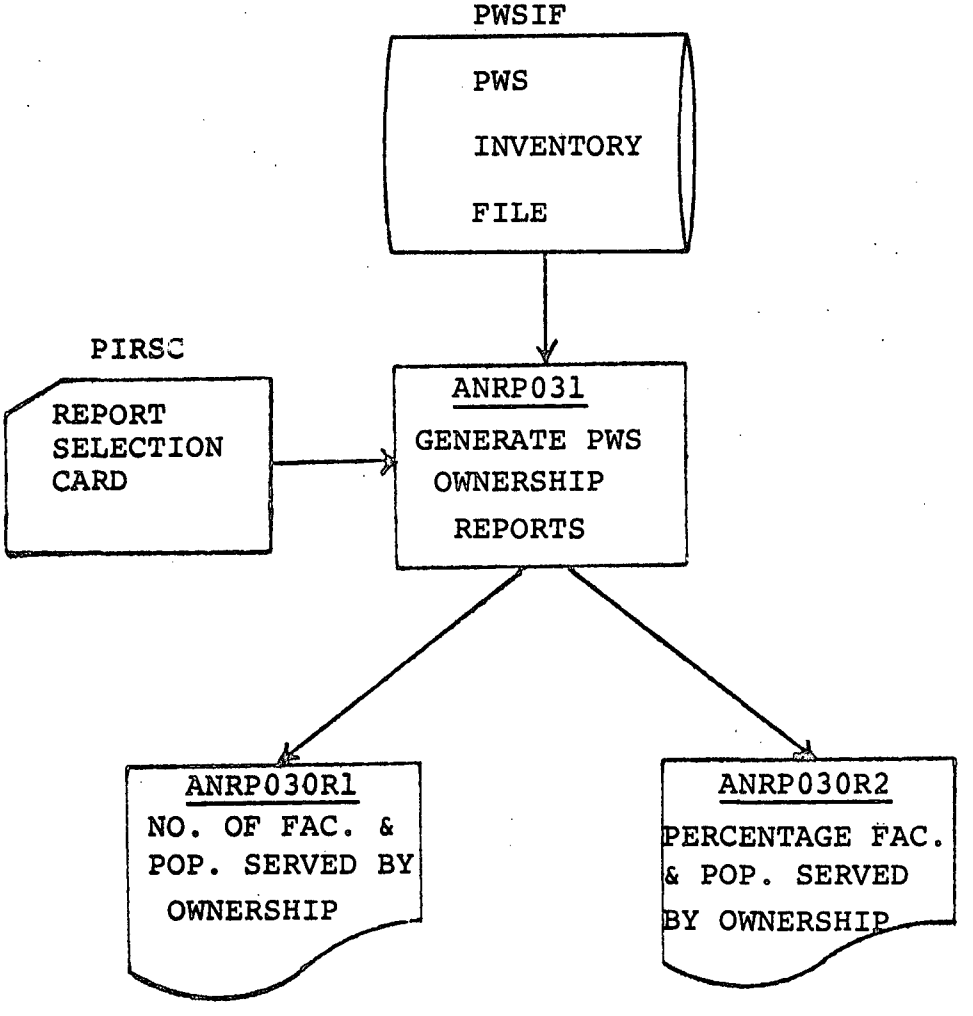
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP031 - Generate PWS Inventory Reports by Ownership

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two reports which analyze the PWS Inventory records according to type of ownership.



1. INTRODUCTION:

Function: This program produces two reports.

Reports: ANRP030R1 - Number of Facilities and Population Served by Type of Ownership - shows the number of facilities and population served for each type of PWS ownership summarized by population category and state.

ANRP030R2 - Percentage of Facilities and Population Served by Type of Ownership - shows the percentage of facilities and percentage of population served for each type of ownership summarized by population category and state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R1 - Number of Facilities and Population Served by Type of Ownership

ANRP030R2 - Percentage of Facilities and Population Served by Type of Ownership

4. TOTALING LEVELS:

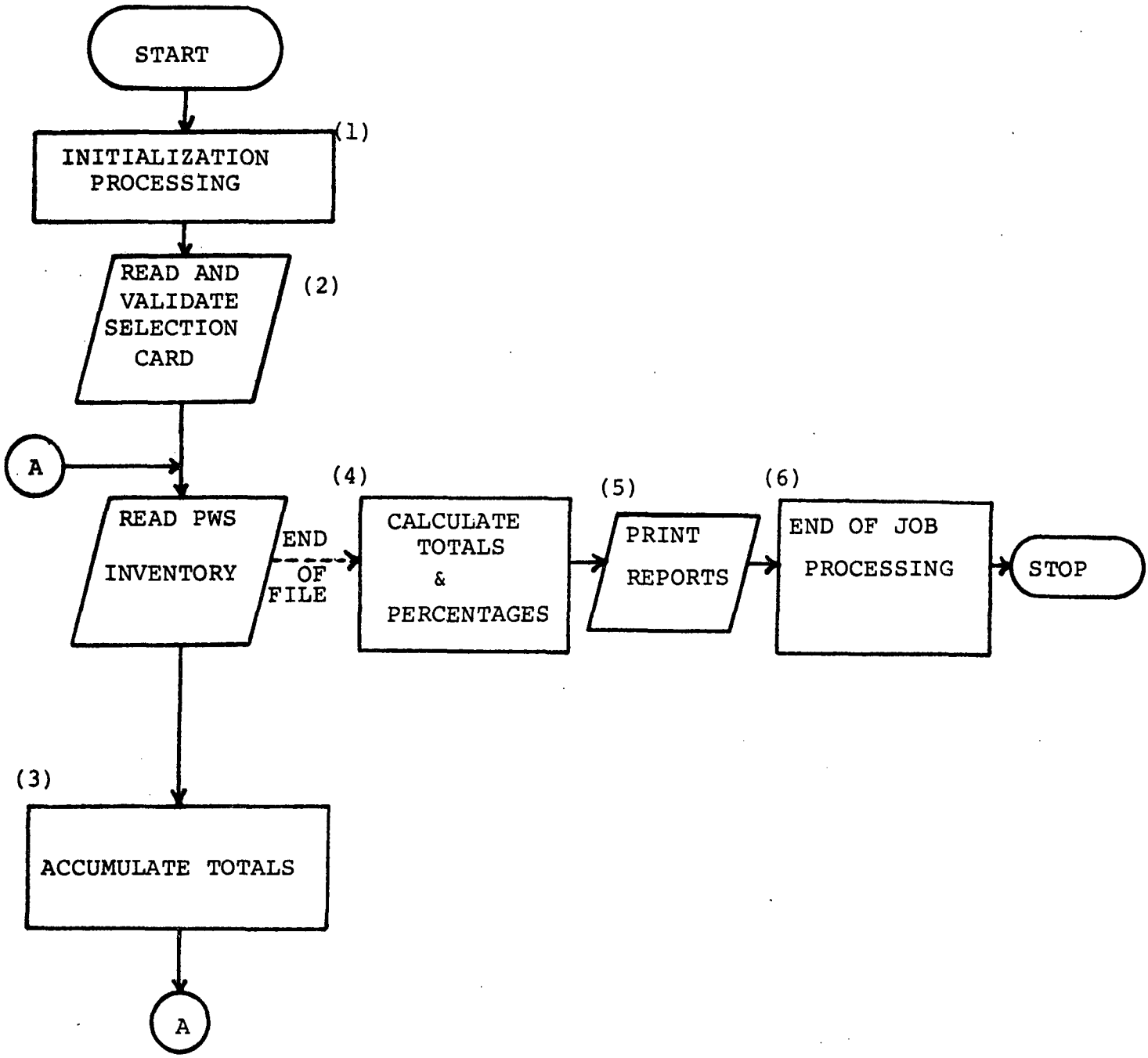
Entire report (total of all states)

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the reports are to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R1.

(3) Define a matrix of accumulators having ten accumulators for each of the nineteen population categories and ten for each of the fifty-six states and territories. Analyze PWS-OWNER-TYPE and POP-SERVED on each PWS Inventory record and add to the appropriate facility and population accumulators based on POP-SERVED (if POP-SERVED is blank, add to the 'UNKNOWN' accumulators). In a similar manner add to the appropriate facility and population accumulators based on the STATE field.

(4) Calculate the total line by adding up the fifty-six state and territory accumulators. Calculate all the percentage fields for ANRP030R2 in the following manner:

- For each line, add up the five facility accumulators for ANRP030R1 and the five population accumulators.
- Find each percentage by dividing each individual accumulator by the corresponding line total (facility or population).

(5) On ANRP030R1 divide each population figure by 1000 before printing.

For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.

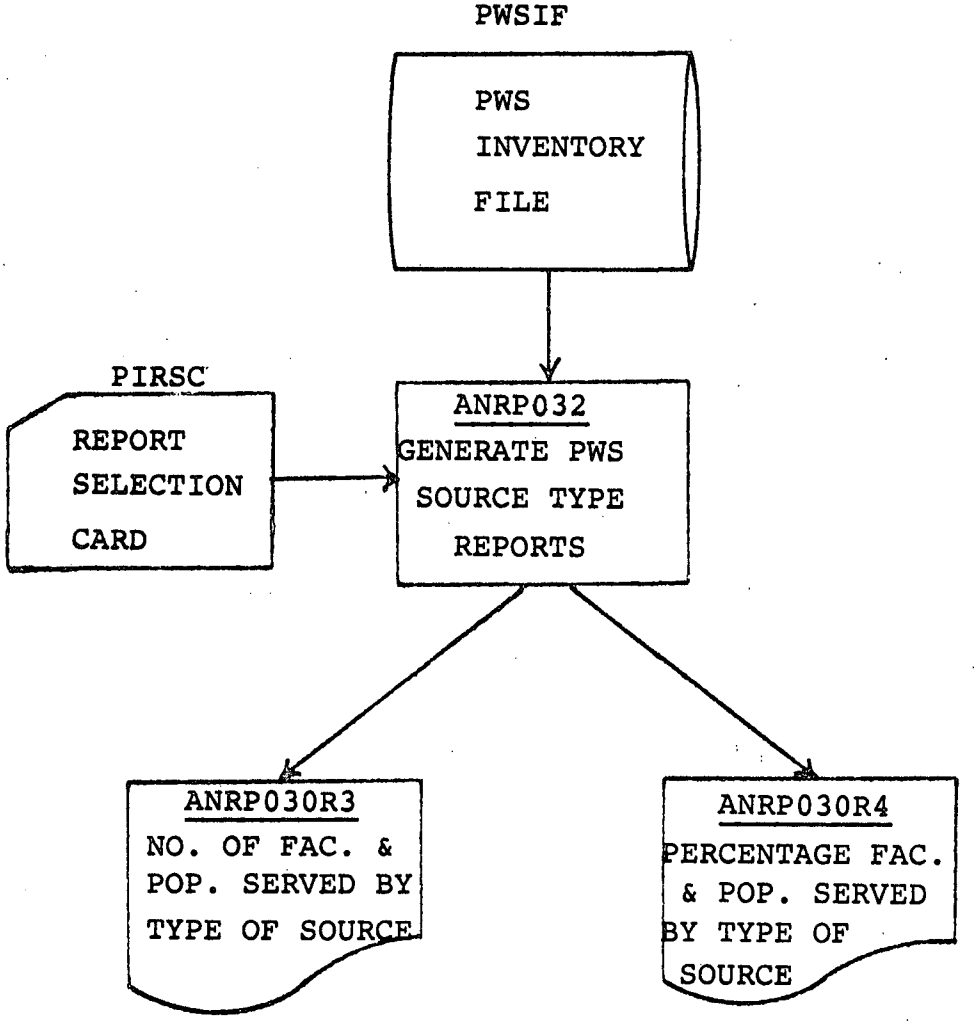
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP032 - Generate PWS Inventory Reports by Type of Water Source

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two reports which analyze the PWS Inventory records according to type of water source.



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1. INTRODUCTION:

Function: This program produces two reports.

Reports: ANRP030R3 - Number of Facilities and Population Served by Type of Water Supply Source - shows the number of facilities and population served for each type of water supply source summarized by population category and state.

ANRP030R4 - Percentage of Facilities and Population Served by Type of Water Supply Source - shows the percentage of facilities and percentage of population served for each type of water supply source summarized by population category and state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT

ANRP030R3 - Number of Facilities and Population Served by Type of Water Supply Source

ANRP030R4 - Percentage of Facilities and Population Served by Type of Water Supply Source

4. TOTALING LEVELS:

Entire report (total of all states).



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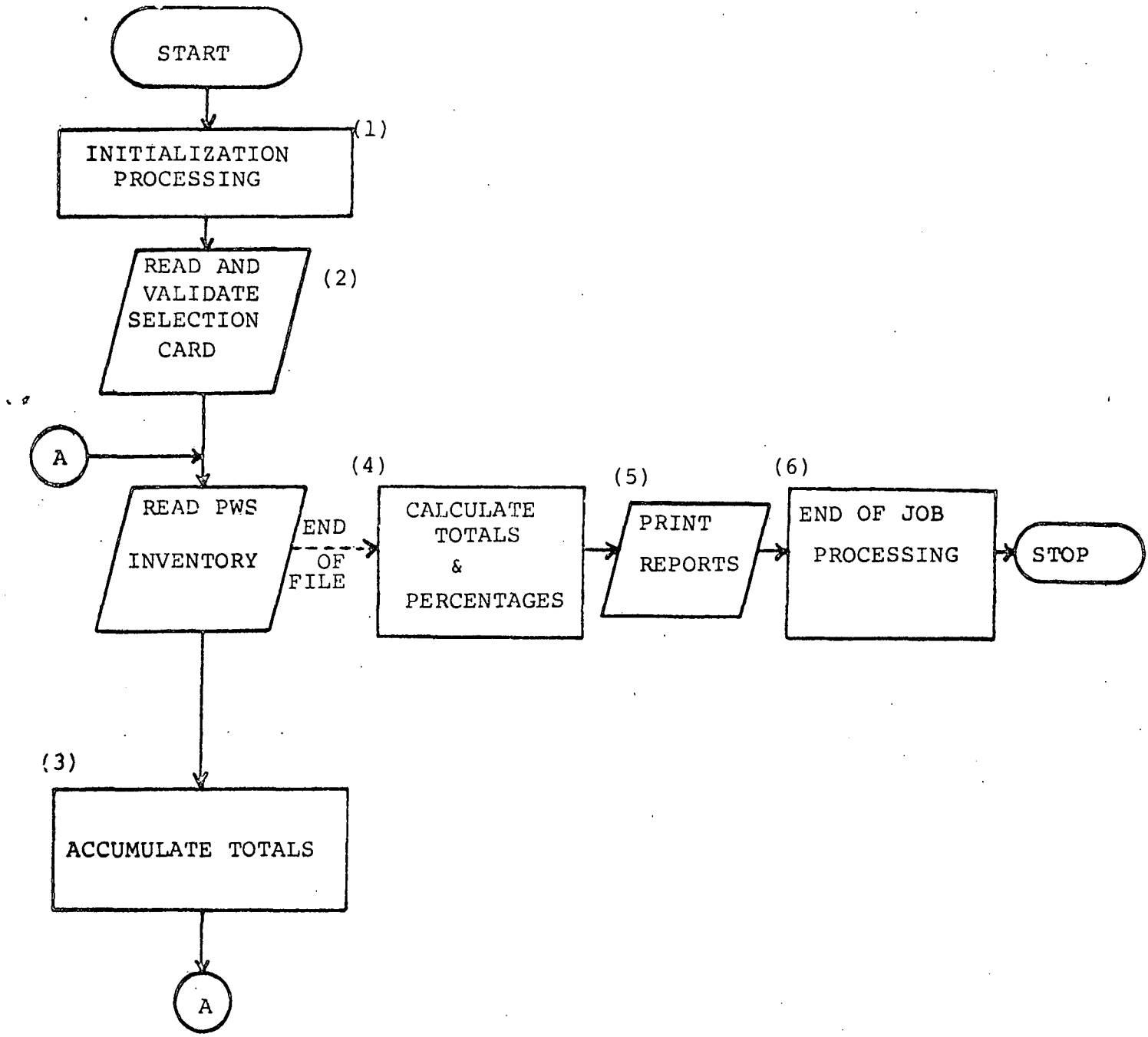
5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the reports are to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R3.

(3) Define a matrix of accumulators having eight accumulators for each of the nineteen population categories and eight for each of the fifty-six states and territories. Check the SOURCE-CODE field for each source on the PWS inventory record (use SOURCES-NUM to indicate the number of sources to be checked).

- If all are S, categorize as surface.
- If all are G, categorize as ground.
- If any is P, categorize as purchased.
- If some are S and some are G, categorize as surface and ground.

Based on this analysis, add to the appropriate facility and population accumulators based on POP-SERVED (if blank add to UNKNOWN). In a similar manner add to the appropriate facility and population accumulators based on the STATE field.

(4) Calculate the total line by adding up the fifty-six state and territory accumulators. Calculate all the percentage fields for ANRP030R4 in the following manner:

- For each line, add up the five facility accumulators for ANRP030R3 and the five population accumulators. (These will be printed in the TOTAL columns.)

- Find each percentage by dividing each individual accumulator by the corresponding line total (facility or population).

(5) On ANRP030R3 divide each population figure by 1000 before printing.

For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

Corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.



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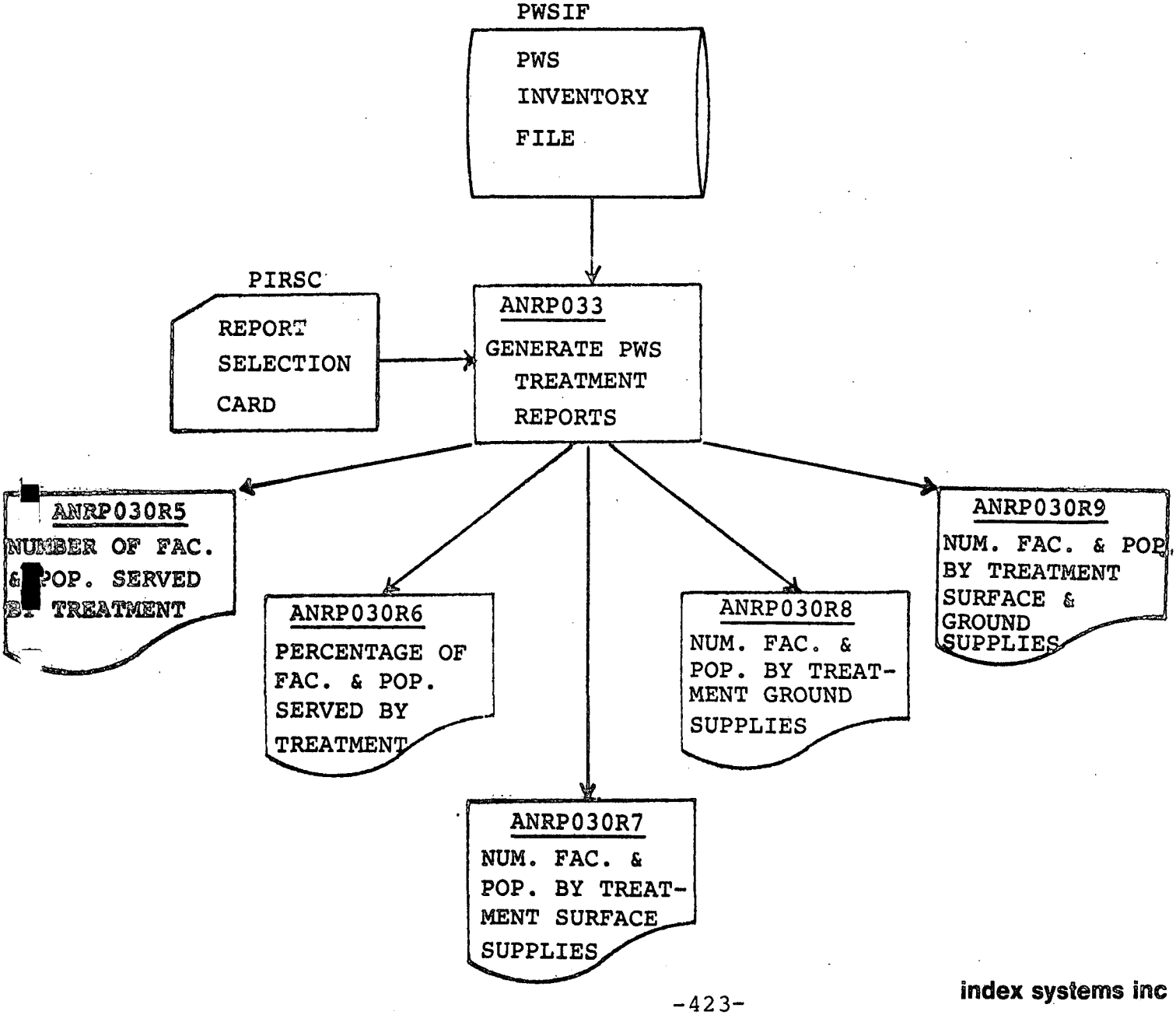
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP033 - Generate PWS Inventory Reports by Treatment

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates five reports which analyze the PWS Inventory records according to whether or not the water source is treated.



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1. INTRODUCTION:

Function: This program produces five reports.

Reports: ANRP030R5 - Number of Facilities and Population Served by Treatment - shows the number of facilities and population served by treated and untreated water summarized by population category and state.

ANRP030R6 - Percentage of Facilities and Population Served by Treatment - shows the percentage of facilities and percentage of population served by treated and untreated water summarized by population category and state.

ANRP030R7 - Number of Facilities and Population Served by Treatment for Surface Only Supplies - same as ANRP030R5 but for surface supplies only.

ANRP030R8 - Number of Facilities and Population Served by Treatment for Ground Only Supplies - same as ANRP030R5 but for ground supplies only.

ANRP030R9 - Number of Facilities and Population Served by Treatment for Surface and Ground Supplies - same as ANRP030R5 for surface and ground supplies.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R5 - Number of Facilities and Population Served by Treatment

ANRP030R6 - Percentage of Facilities and Population Served by Treatment

ANRP030R7 - Number of Facilities and Population Served by Treatment for Surface Only Supplies

ANRP030R8 - Number of Facilities and Population Served by Treatment for Ground Only Supplies

ANRP030R9 - Number of Facilities and Population Served by Treatment for Surface and Ground Supplies

4. TOTALING LEVELS:

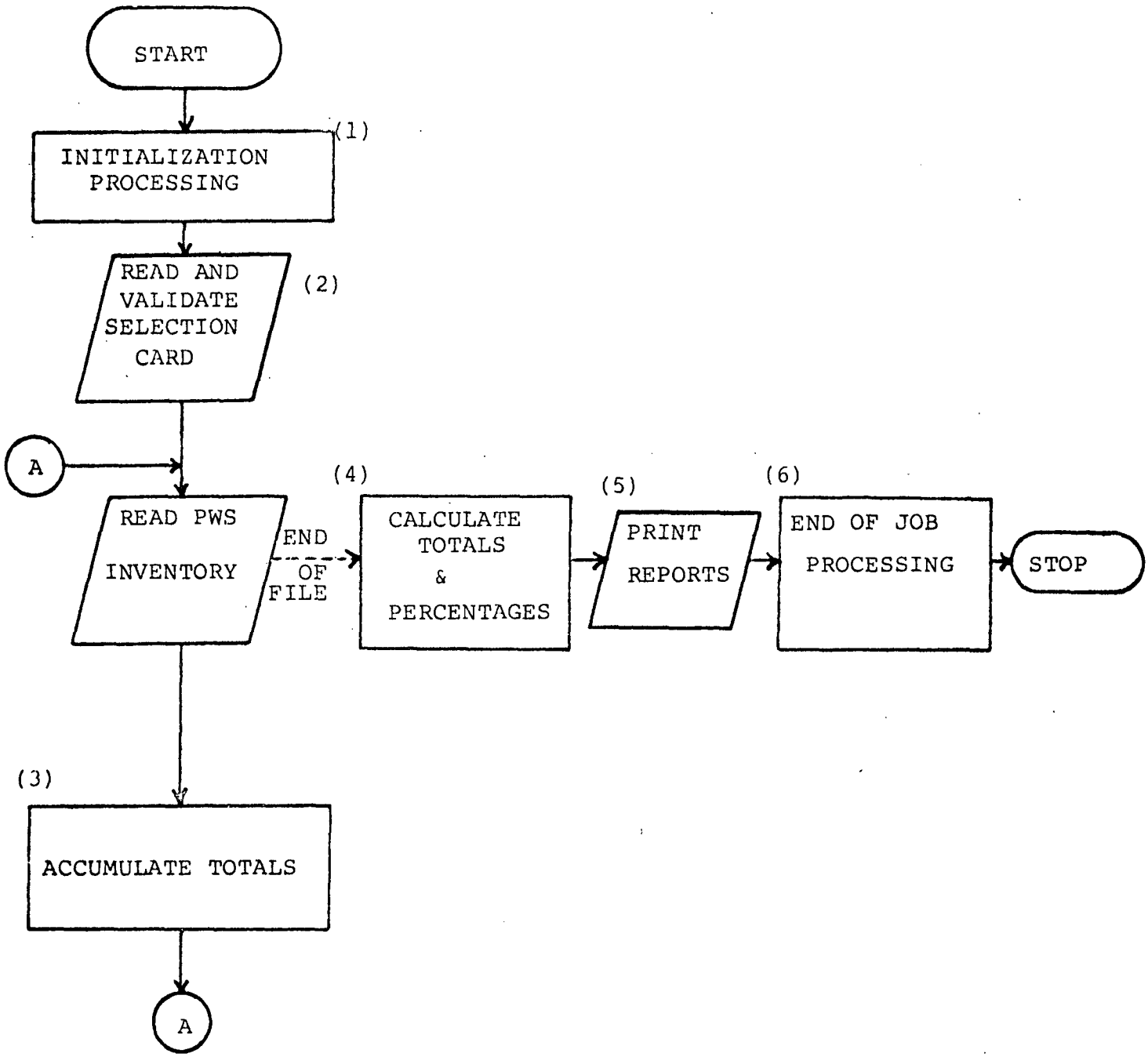
Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the reports are to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART,Section 6)

(1) Initialize all accumulators to zero and open files.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R5.

(3) For each report ANRP030R5, ANRP030R7, ANRP030R8, and ANRP030R9, define a matrix of accumulators having eight accumulators for each of the nineteen population categories and eight for each of the fifty-six states and territories. On each PWS Inventory record check each water source for as many as are indicated by SOURCES-NUM, as follows:

- If all sources have at least one TREATMENT indicated, add to the appropriate accumulators for 'TREATED ONLY' for ANRP030R5.
- If all sources have no TREATMENT indicators, add to the appropriate accumulators for 'UNTREATED ONLY' for ANRP030R5.
- If only some sources have TREATMENT indicators and some do not, add to the appropriate accumulators for 'BOTH' for ANRP030R5.
- Use POP-SERVED and STATE to determine the appropriate accumulators.

In a similar manner, add to the accumulators for ANRP030R7 if all SOURCE-CODE indicators are 'S'.

Add similarly to the ANRP030R8 accumulators if all SOURCE-CODE indicators are 'G'.

Add similarly to the ANRP030R9 accumulators if some SOURCE-CODE indicators are 'S' and some are 'G'.

(4) Calculate the two total columns on each report by adding up the three facility columns and the three population columns.

Calculate the total line for each report by adding up the fifty-six state and territory accumulators. Calculate all the percentage fields for ANRP030R6 by dividing each individual accumulator for report ANRP030R5 by the corresponding facility or population line total.



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(5) On ANRP030R5, ANRP030R7, ANRP030R8 and ANRP030R9 divide each population figure by 1000 before printing.

For each report, centered under the heading, print one of the following

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.

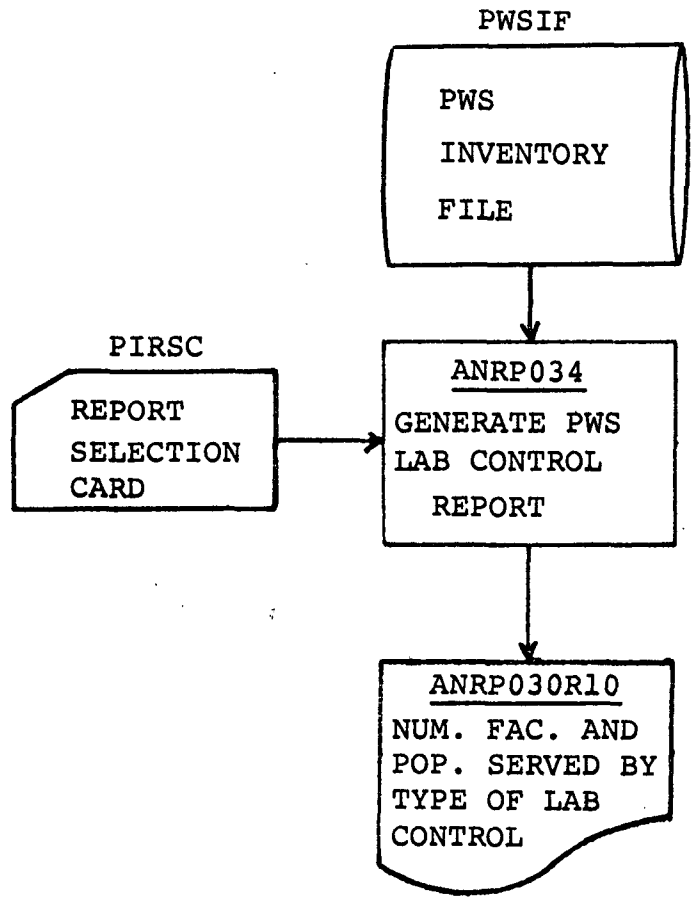
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP034 - Generate PWS Inventory Report by Lab Control

SYBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates a report which analyzes the PWS Inventory records according to laboratory control



1. INTRODUCTION:

Function: This program produces two reports.

Reports: ANRP030R10 - Number of Facilities and Population Served by Type of Lab Control - shows the number of facilities and population served by plants having each of four types of lab control.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R10 - Number of Facilities and Population Served by Type of Lab Control

4. TOTALING LEVELS:

Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.



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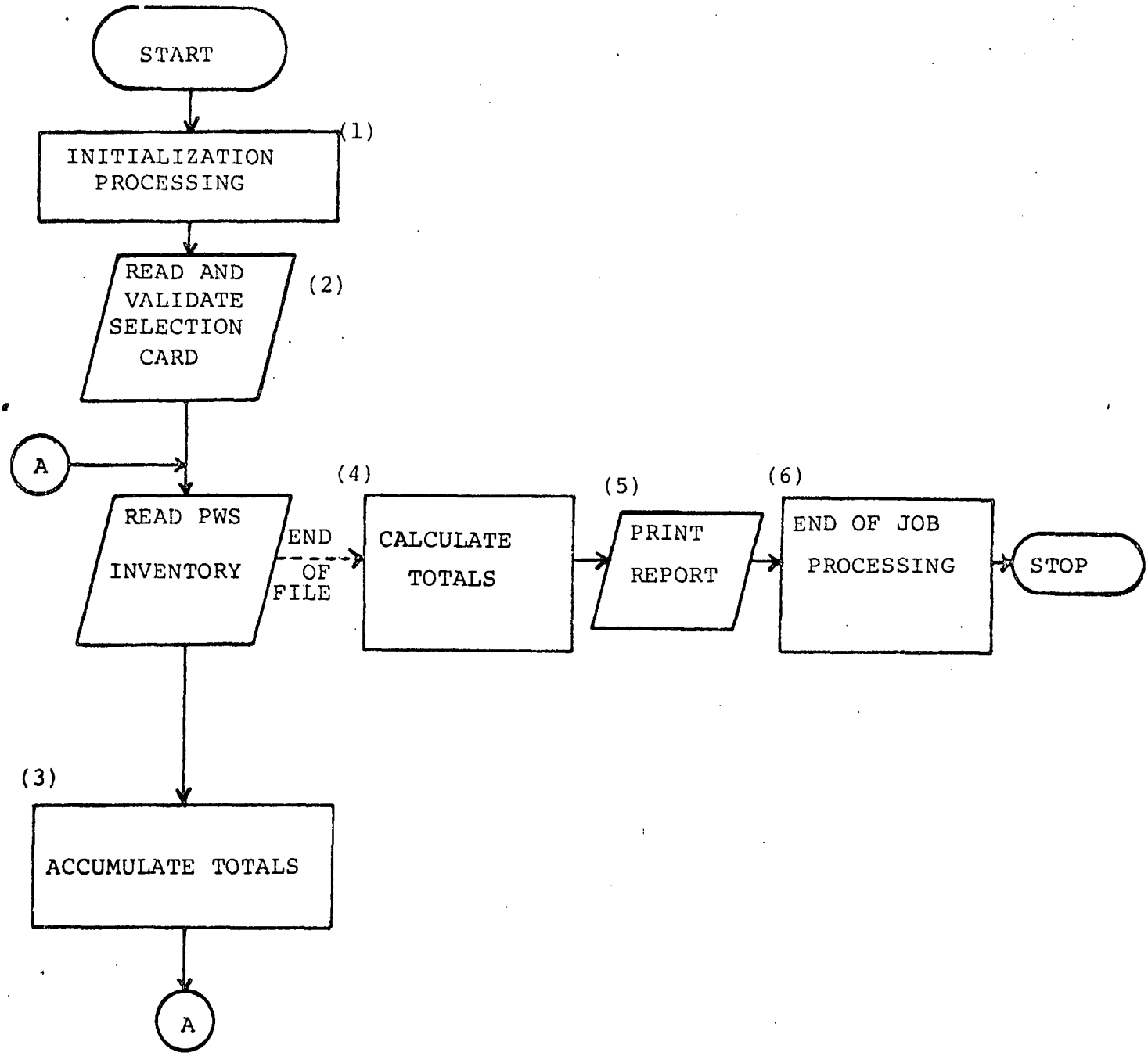
6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R10.

(3) Define a matrix having eight accumulators for each of the nineteen population categories and eight for each of the fifty-six states and territories. Analyze POP-SERVED and LAB-CONTROL on each PWS Inventory record and add to the appropriate facility and population. Accumulators based on POP-SERVED (if POP-SERVED is blank, add to the 'UNKNOWN' accumulators). In a similar manner add to the appropriate facility and population accumulators based on the STATE field.

(4) Calculate the total line by adding up the fifty-six state and territory accumulators in each of the eight columns.

(5) Divide each population figure by 1000 before printing.

For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.



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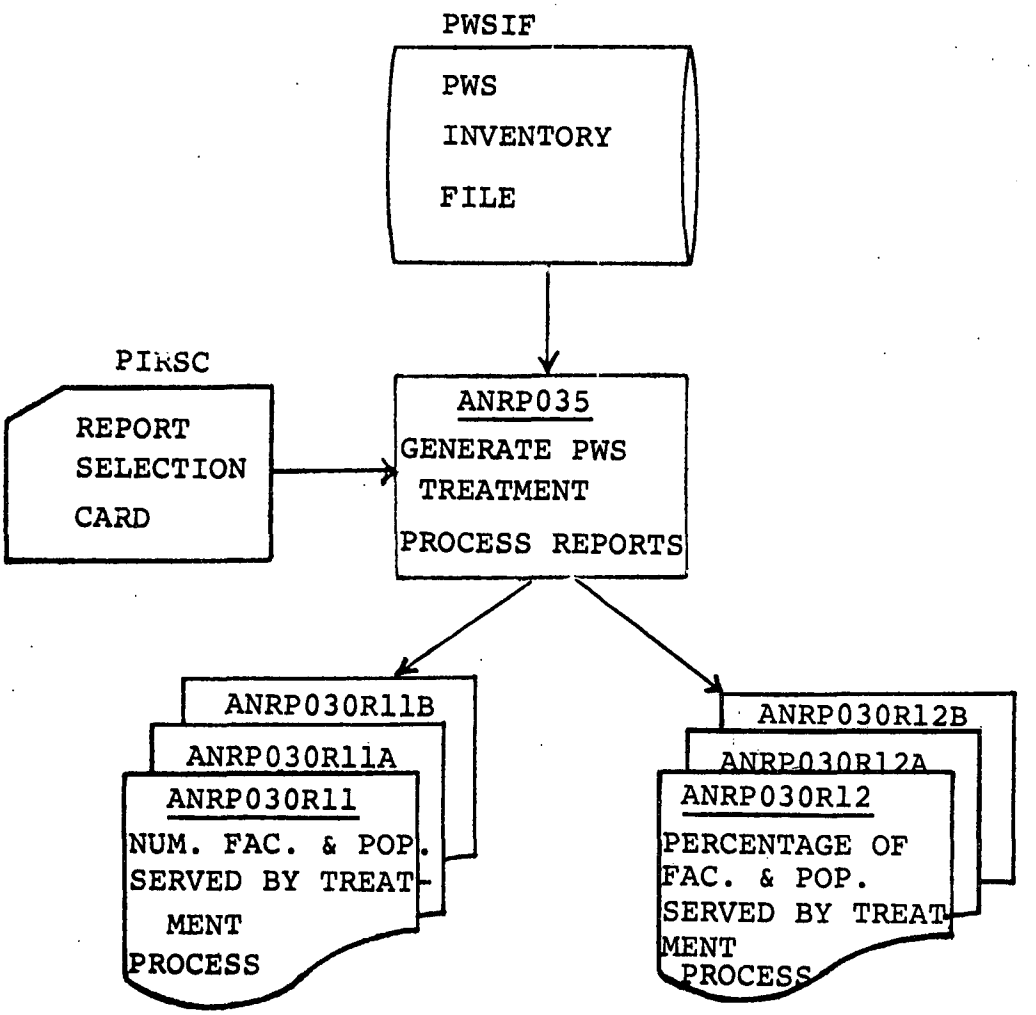
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP035 - Generate PWS Inventory Reports by Treatment Process

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates six reports which analyze the PWS Inventory records according to type of treatment process.



1. INTRODUCTION:

Function: This program produces six reports.

Reports: ANRP030R11, R11A, R11B - Number of Facilities and Population Served by Treatment Process - shows the number of facilities and population served by each treatment process summarized by population category and state.

ANRP030R12, R12A, R12B - Percentage of Facilities and Population Served by Treatment Process - shows the percentage of facilities and percentage of population served by each treatment process summarized by population category and state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R11, R11A, R11B - Number of Facilities and Population Served by Treatment Process

ANRP030R12, R12A, R12B - Percentage of Facilities and Population Served by Treatment Process

4. TOTALING LEVELS:

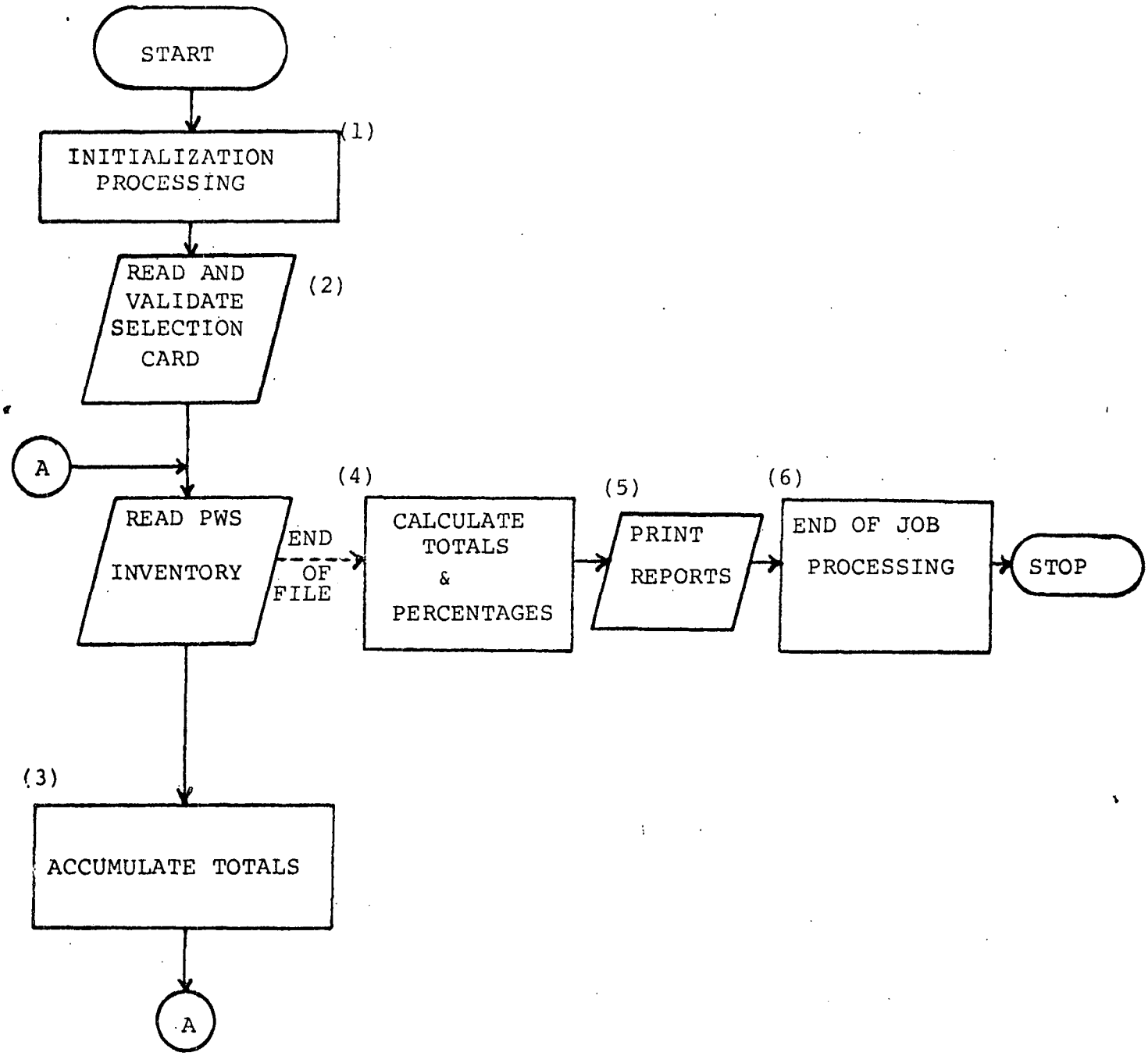
Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6 )

(1) Initialize all accumulators to zero and open files.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R11.

(3) Define a matrix of accumulators having 28 accumulators (2 for each treatment process and 2 for totals) for each of the nineteen population categories and 28 for each of the fifty-six states and territories. Analyze POP-SERVED and STATE on each PWS Inventory record to determine which accumulators to increment for each record. If POP-SERVED is blank, add to the 'UNKNOWN' accumulators. On each Inventory record, check each water source for as many as are indicated by SOURCES-NUM, as follows:

- Check each TREATMENT code and add to the corresponding accumulators if the treatment code is on. The purification indication is defined as having the following TREATMENT indicators all on:
  - disinfection, coagulation, sedimentation and filtration, OR
  - disinfection, coagulation, and filtration.
- Each record may be added to multiple accumulators.

Add each PWS Inventory record to the line total accumulators based on POP-SERVED and STATE.

(4) Calculate the total line by adding up the fifty-six state and territory accumulators.

Calculate all the percentage fields for ANRP030R12, R12A and R12B by dividing each individual accumulator by the corresponding line total accumulator (facility or population).

(5) On ANRP030R11, R11A, and R11B divide each population figure by 1000 before printing.

For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.



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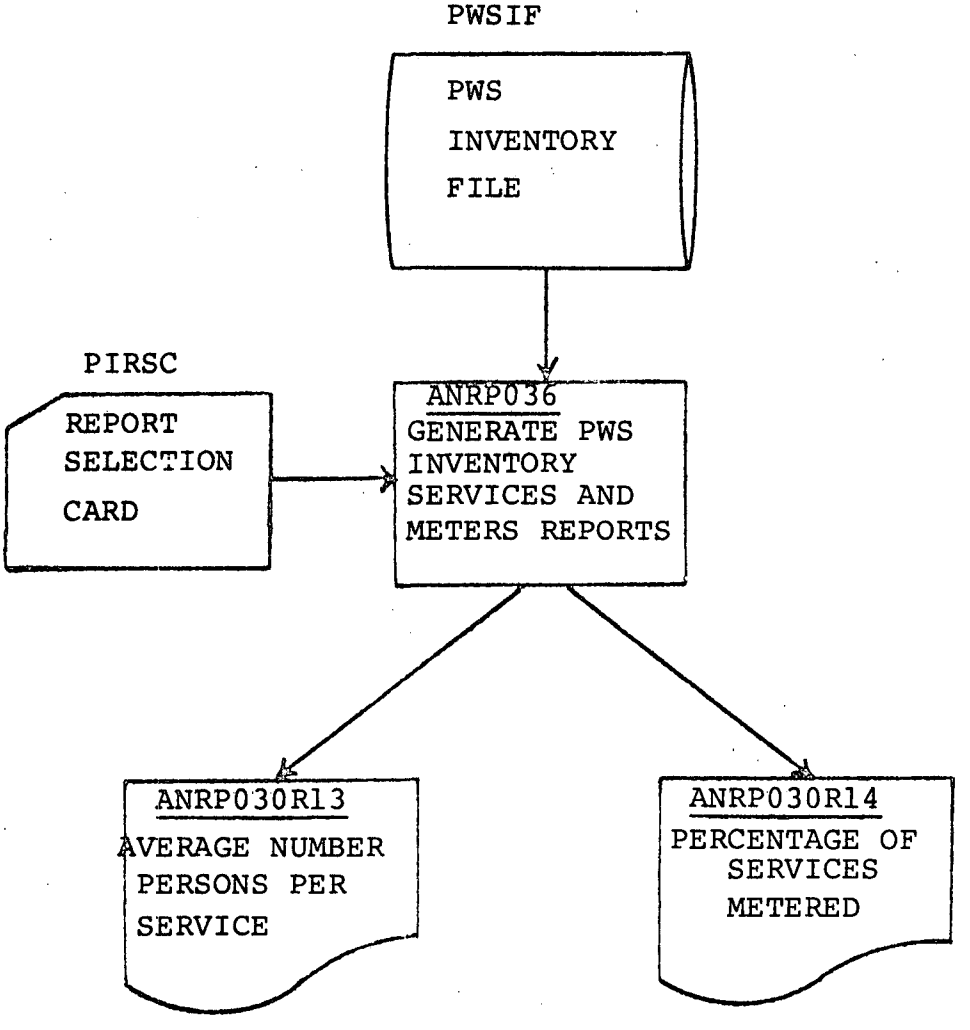
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP036 - Generate PWS Inventory Reports Analyzing Services

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION This program generates two reports which analyze the PWS Inventory records according to population, services and meters.



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1. INTRODUCTION:

Function: This program produces two reports.

Reports: ANRP030R13 - Average Number of Persons Per Service - shows the number of persons per service according to population categories and overall per state.

ANRP030R14 - Percentage of Services Metered - shows the percentage of services metered according to population categories and overall per state.

2. DATA USAGE:

Input Files:

. File Name - PWS Inventory File
File I.D. - PWSIF
File Layout Reference - PWSIF
Record Name - Inventory

File Name - Report Selection Card
File I.D. - PIRSC
File Layout Reference - ANRSC
Record Name - Selection Card

Table:

. Table Name - State Table
Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R13 - Average Number of Persons Per Service

ANRP030R14 - Percentage of Services Metered

4. TOTALING LEVELS:

Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program, the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.



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7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R13.

(3) Define a matrix of accumulators for each of the three fields POP-SERVED, SERVICES-NUM and METERS-NUM. Each matrix must have thirteen accumulators (for the population categories) for each of the fifty-six states and territories. Analyze STATE and POP-SERVED on each PWS Inventory record and add to the appropriate accumulators. If any of the three fields POP-SERVED, SERVICES-NUM or METERS-NUM is blank, skip the record.

(4) Calculate the total line by first adding up the fifty-six state and territory accumulators. Calculate the fields on ANRP030R13 by dividing each POP-SERVED accumulator by the corresponding SERVICES-NUM accumulator. Calculate the fields on ANRP030R14 by dividing each METERS-NUM accumulator by the corresponding SERVICES-NUM accumulator. Calculate the state average columns by adding the line accumulators across and then dividing.

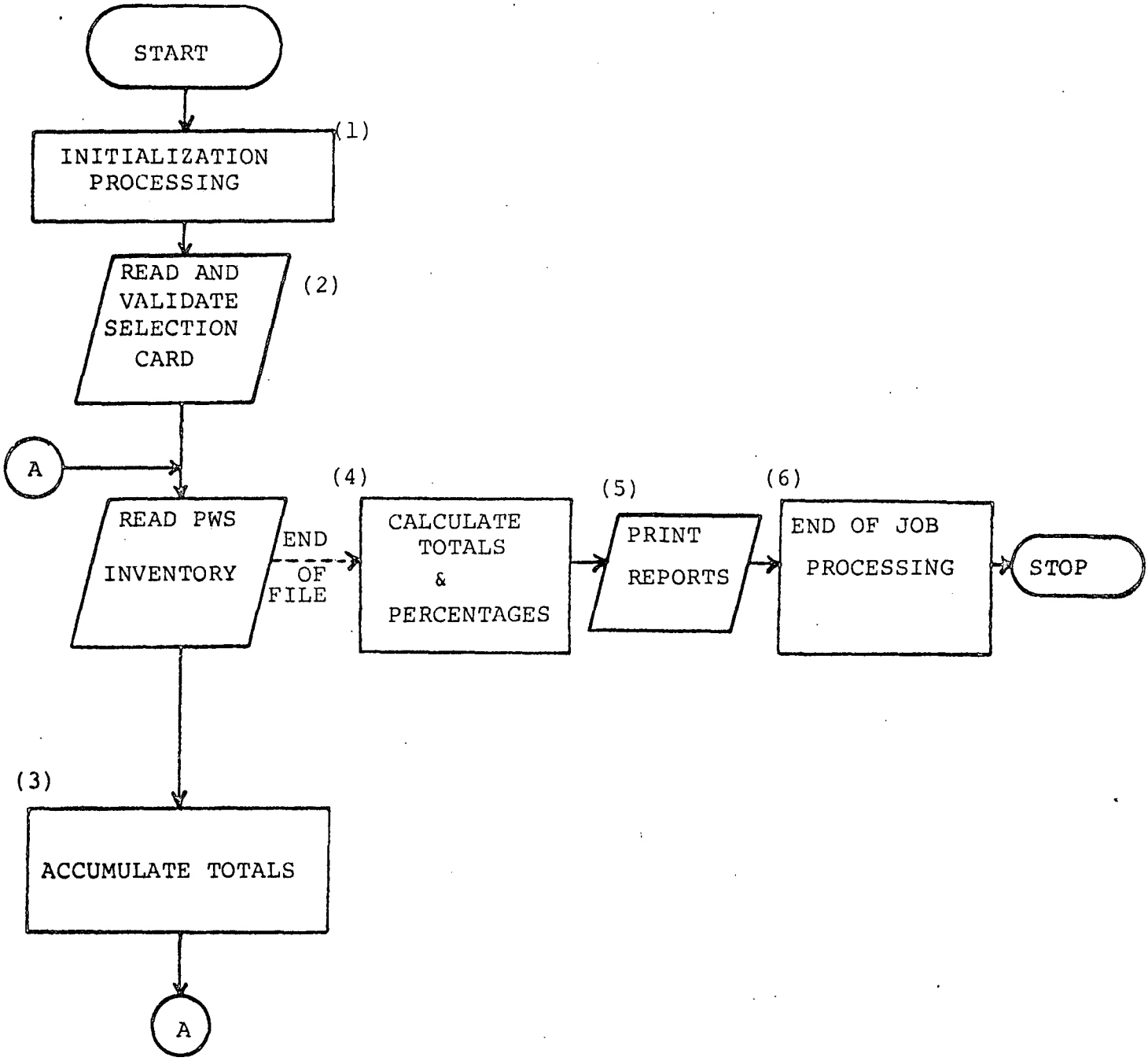
(5) For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



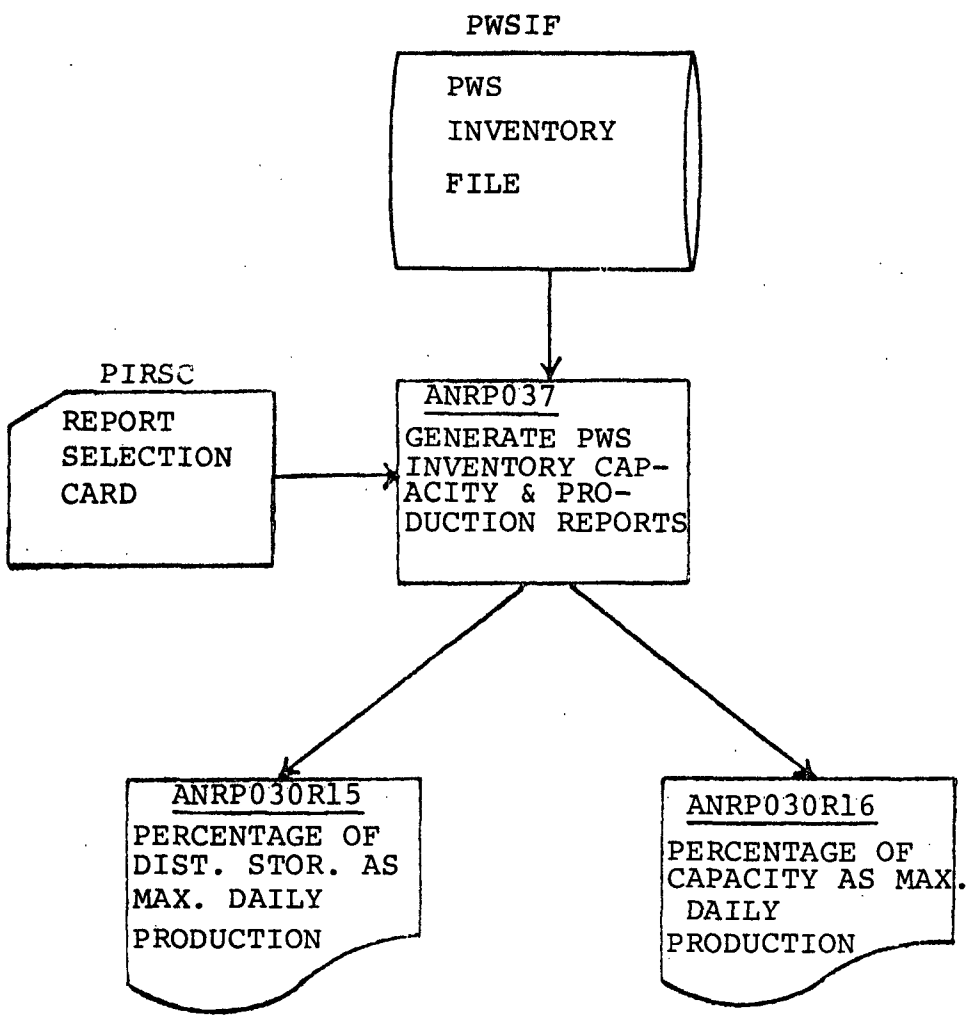
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** ANRP037 - Generate PWS Inventory Reports of Capacity and Production

**SUBSYSTEM:** ANNUAL REPORTING

**DESCRIPTION:** This program generates two reports which analyze the PWS Inventory records according to production and capacity.



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1. INTRODUCTION:

Function: This program produces two reports.

Reports: ANRP030R15 - Percentage of Distribution Storage as Maximum Daily Production - shows this percentage by population group and overall for each state.

ANRP030R16 - Percent of Capacity as Maximum Daily Production - shows the number of systems falling within various percentages by population group and overall for each state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R15 - Percentage of Distribution Storage as Maximum Daily Production

ANRP030R16 - Percent of Capacity as Maximum Daily Production

4. TOTALING LEVELS:

Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must



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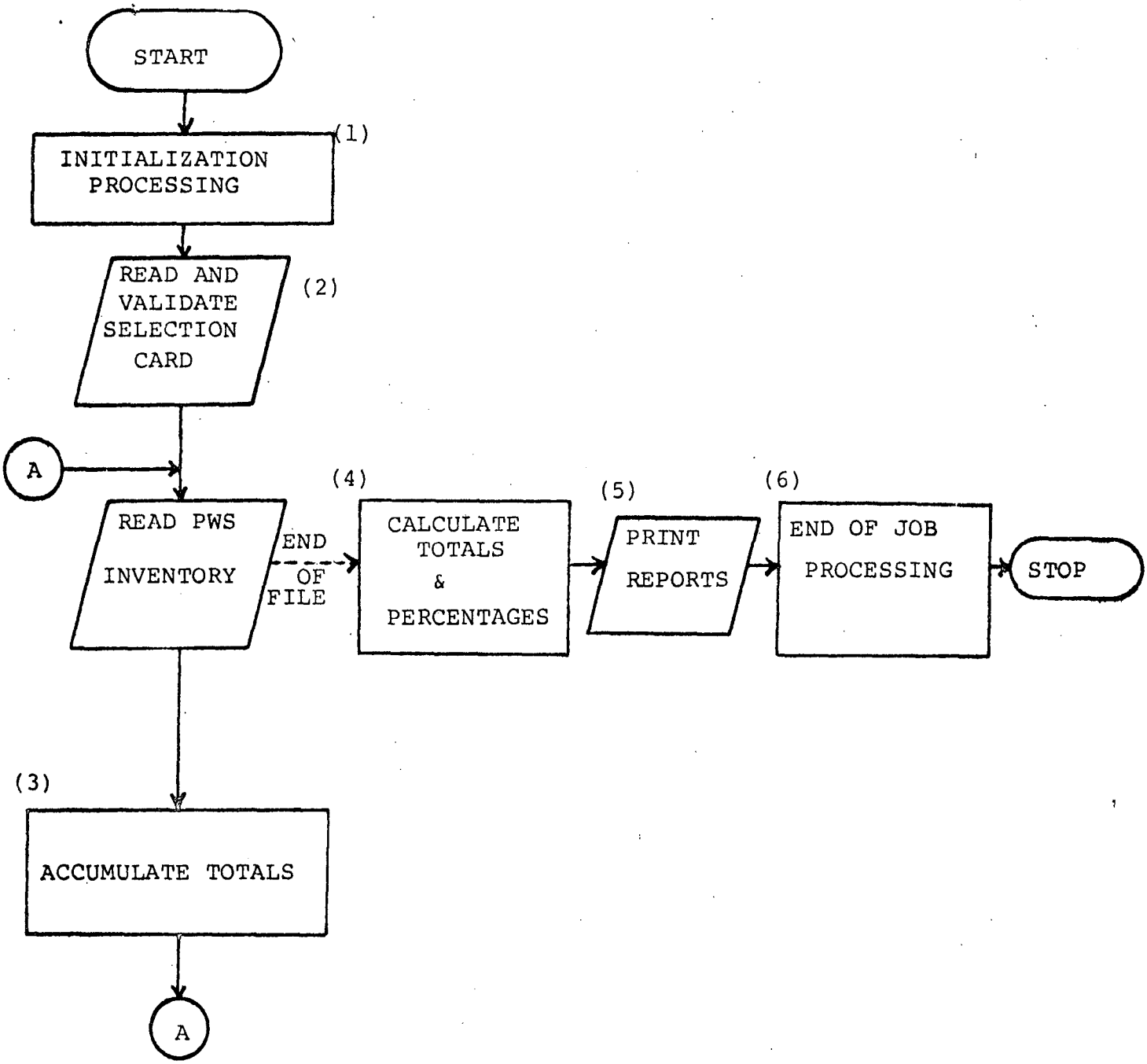
therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R15.

(3) For ANRP030R15, define a matrix of thirteen accumulators for each state for MAX-PRODUCTION and STORAGE-CAPACITY. For each PWS Inventory record add to these accumulators based on STATE and POP-SERVED. If POP-SERVED, MAX-PRODUCTION or STORAGE-CAPACITY is blank, skip the record.

For ANRP030R16, define a matrix of thirteen accumulators for each of the percentage categories shown on the report for each state. For each PWS Inventory record, divide MAX-PRODUCTION by NORMAL-CAPACITY and add 1 to the appropriate accumulator based on the result and the STATE and POP-SERVED fields. If POP-SERVED, NORMAL-CAPACITY or MAX-PRODUCTION are blank, skip the record.

(4) For ANRP030R15, calculate the total line by adding up the fifty-six state and territory accumulators. Calculate the state average by first adding across the accumulators for each row. Then calculate each percentage figure (detail or total) by dividing each MAX-PRODUCTION accumulator by the corresponding STORAGE-CAPACITY accumulator.

For ANRP030R16, calculate the state total section each row across. Then calculate the report totals by adding up all the corresponding accumulators for the fifty-six states and territories

(5) For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.



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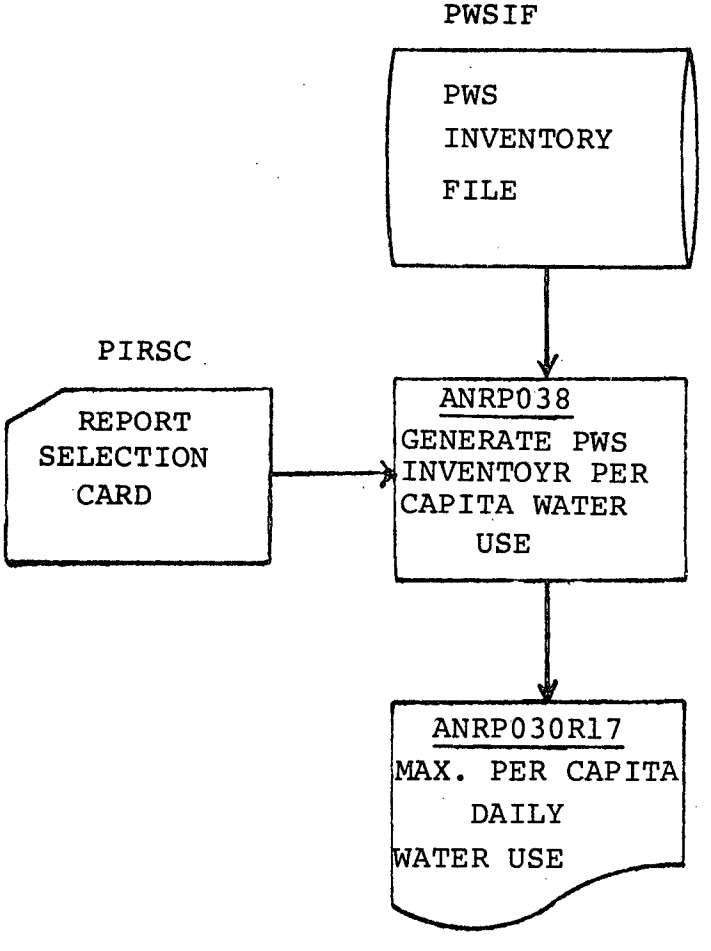
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

**PROGRAM:** ANRP038 - Generate PWS Inventory Report of Per Capita Water Use

**SUBSYSTEM:** ANNUAL REPORTING

**DESCRIPTION:** This program generates one report which analyzes the PWS Inventory records according to maximum per capita daily water use.



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1. INTRODUCTION:

Function: This program produces one report.

Reports: ANRP030R17 - Maximum Per Capita Daily Water Use - shows the population and maximum per capita water use by state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R17 - Maximum Per Capita Daily Water Use

4. TOTALING LEVELS:

Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

1. INTRODUCTION:

Function: This program produces one report.

Reports: ANRP030R17 - Maximum Per Capita Daily Water Use - shows the population and maximum per capita water use by state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R17 - Maximum Per Capita Daily Water Use

4. TOTALING LEVELS:

Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

1. INTRODUCTION:

Function: This program produces one report.

Reports: ANRP030R17 - Maximum Per Capita Daily Water Use - shows the population and maximum per capita water use by state.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - PIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP030R17 - Maximum Per Capita Daily Water Use

4. TOTALING LEVELS:

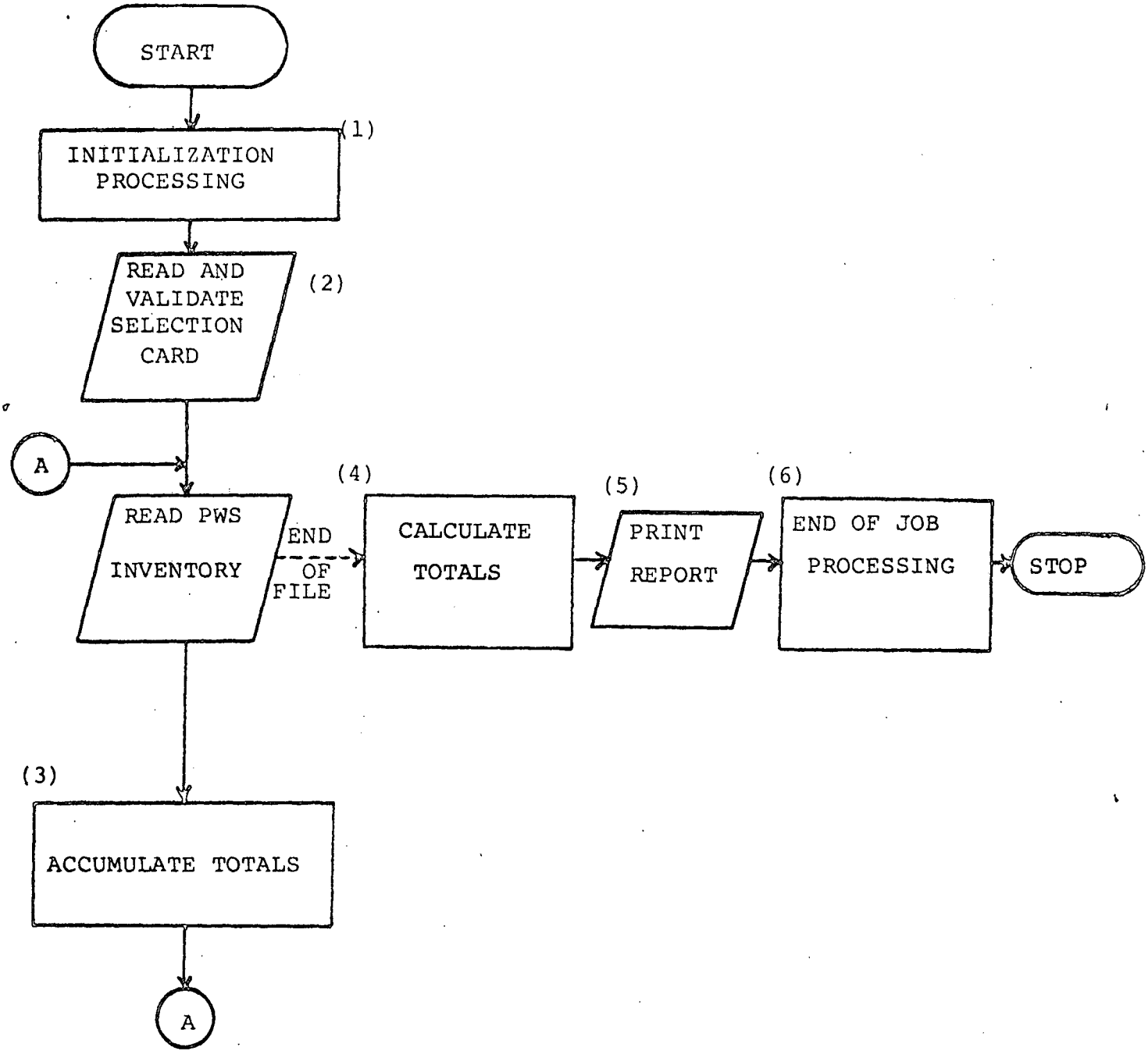
Entire report (total of all states).

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file. For this program the entire data set is read sequentially.

The report selection card indicates whether the report is to be printed for community, non-community or all PWS's. Check PWS-TYPE in each record to see if it should be included.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Initialize all accumulators to zero and open files. Read in State Table.

(2) Check PWS-TYPE-SEL for a C, N or A. If other than one of these values, abort the run and print 'INVALID SELECTION CARD' on ANRP030R17.

(3) Define an array of accumulators for MAX-PRODUCTION and POP-SERVED for each of the fifty-six states and territories. Analyze each PWS Inventory record according to STATE and add to the appropriate accumulators. If either MAX-PRODUCTION or POP-SERVED is blank, skip the record.

(4) Calculate the total line by adding up the fifty-six state and territory accumulators.

(5) For each report, centered under the heading, print one of the following descriptions:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

corresponding to PWS-TYPE-SEL on the report selection card.

(6) Close files and end job.

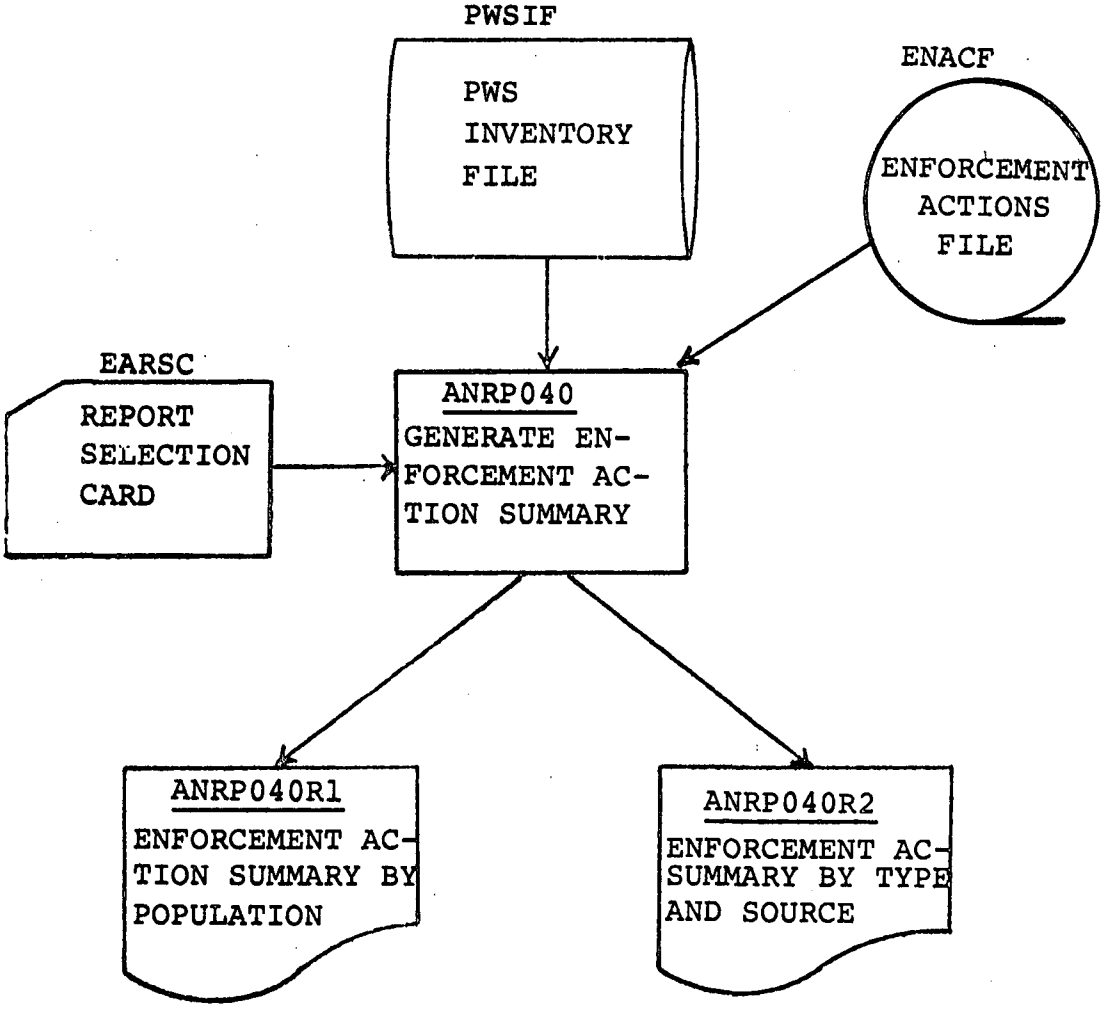
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP040 - Generate Enforcement Action Summary

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two enforcement action summary reports, each reflecting enforcement actions taken for community, non-community or all public water systems.



1. INTRODUCTION:

Function: This program creates two summary level reports.

Reports: ANRP040R1 - Enforcement Action Summary by Population - lists the number of enforcement actions undertaken by population grouping, action type and state.

ANRP040R2 - Enforcement Action Summary by Type and Source - lists the number of enforcement actions taken for each state categorized by type of water source and type of action.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Enforcement Action
  File I.D. - ENACF
  File Layout Reference - ENACF
  Record Name - Enforcement

- File Name - Report Selection Card
  File I.D. - EARSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP040R1 - Enforcement Action Summary by Population
ANRP040R2 - Enforcement Action Summary by Type and Source

4. TOTALING LEVELS:

Accumulate totals by state, EPA region and for the entire nation as indicated on the report layouts.



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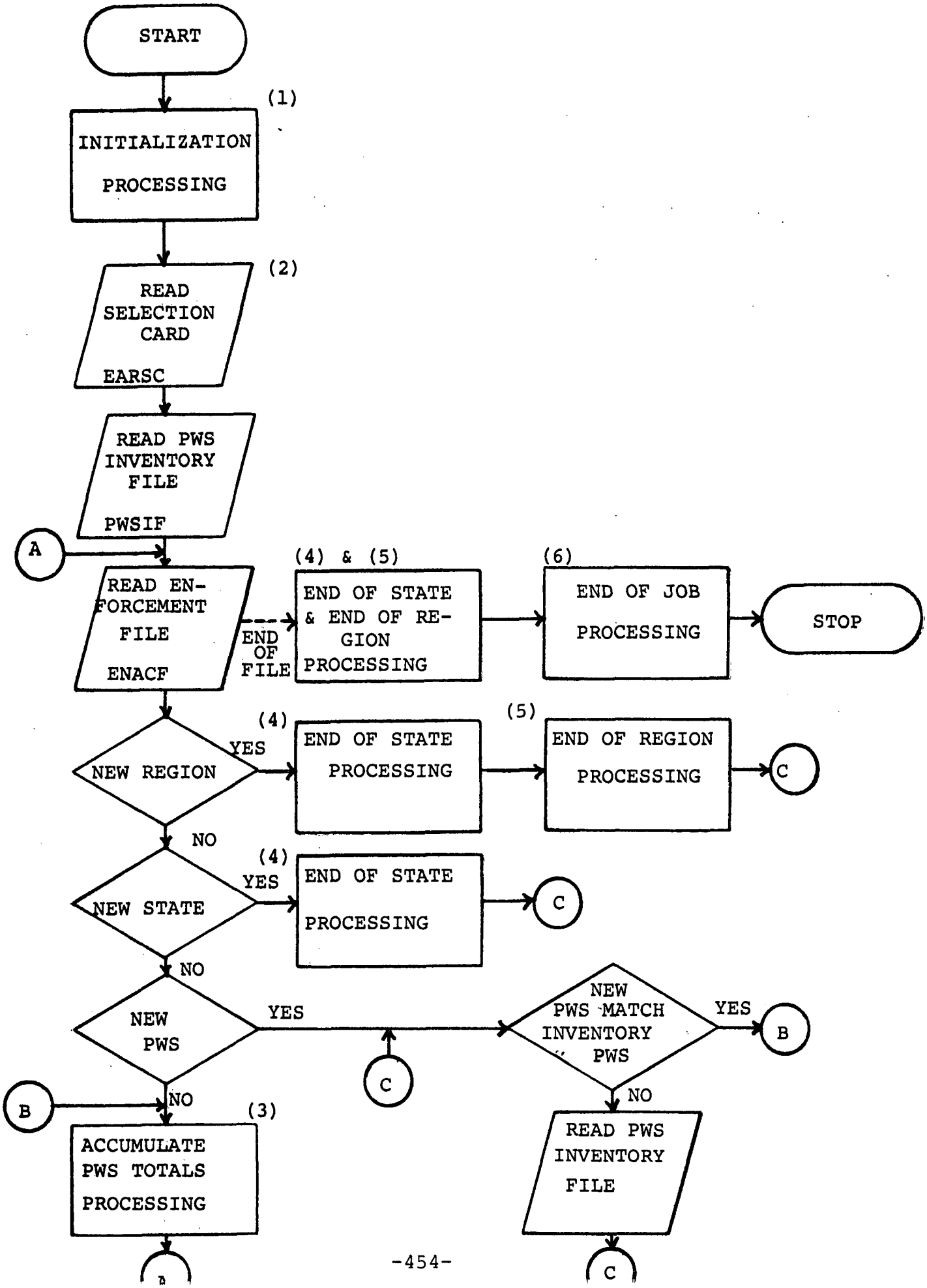
5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file.

6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Zero all accumulators and open files. Read in State Table.

(2) The selection card indicates which report is to be printed and whether community, non-community or all PWS's are to be included. The community/non-community designation is PWS-TYPE, data element 020.

On the second line of the report heading print one of the following descriptions to indicate what was present on the selection card:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

(3) To be valid, the input card must indicate report ANRPO40R1 or ANRPO40R2 and selection criterion C, N or A. If the card is invalid, abort the run and print 'REPORT SELECTION INVALID' on ANRPO40R1.

For each enforcement action record, analyze the MILESTONES array. NUM-MILESTONES indicates how many milestones are present. Each one represents one enforcement action with the MILESTONE-CODE indicating the type of action. Therefore each record may be added to several accumulators depending on the number of milestones.

For ANRPO40R1:

- Define an array of 77 accumulators for the eleven population groups (not including TOTAL) and the seven action types.
- Add to the accumulators as indicated by the MILESTONE-CODE fields on the Enforcement Action File and the POP-SERVED field on the PWS Inventory file.

For ANRPO40R2:

- Define an array of eleven accumulators representing the seven action types, the three water source types and one total accumulator representing the total of the seven action type accumulators.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- Add to the action type accumulators based on the MILESTONE-CODE fields on the Enforcement Action File.

- For each Enforcement Action record, add to the type of source accumulators based on SOURCE-CODE, data element 071 on the PWS Inventory File.

    - Check as many SOURCE-CODE fields as are indicated in SOURCES-NUM

    - If any are surface, consider the water supply surface only. Otherwise add to whatever accumulators apply based on SOURCE-CODE (thus each enforcement action may be added to both the ground and purchased accumulators).

(4) For ANRPO40R1:

- Print a line for each action type which has any non-zero accumulators. Also print the one-line state total as shown on the layout.

For ANRPO40R2:

- Print one line for each state as shown.

Print the state name on the first line printed for each state. Use STATAB table to retrieve the name. If the state code is blank on one or more records, print the state name as 'INDIAN RESERVATION'.

Add the state accumulators to region accumulators and zero out the state accumulators.

(5) Print the region total line as shown on the report layouts. Add the region accumulators to grand total accumulators and zero out the region accumulators. Skip to a new page on the report (unless at end of file).

(6) Print the grand totals as indicated as NATIONAL TOTALS on the report layouts. Close all files and end job.

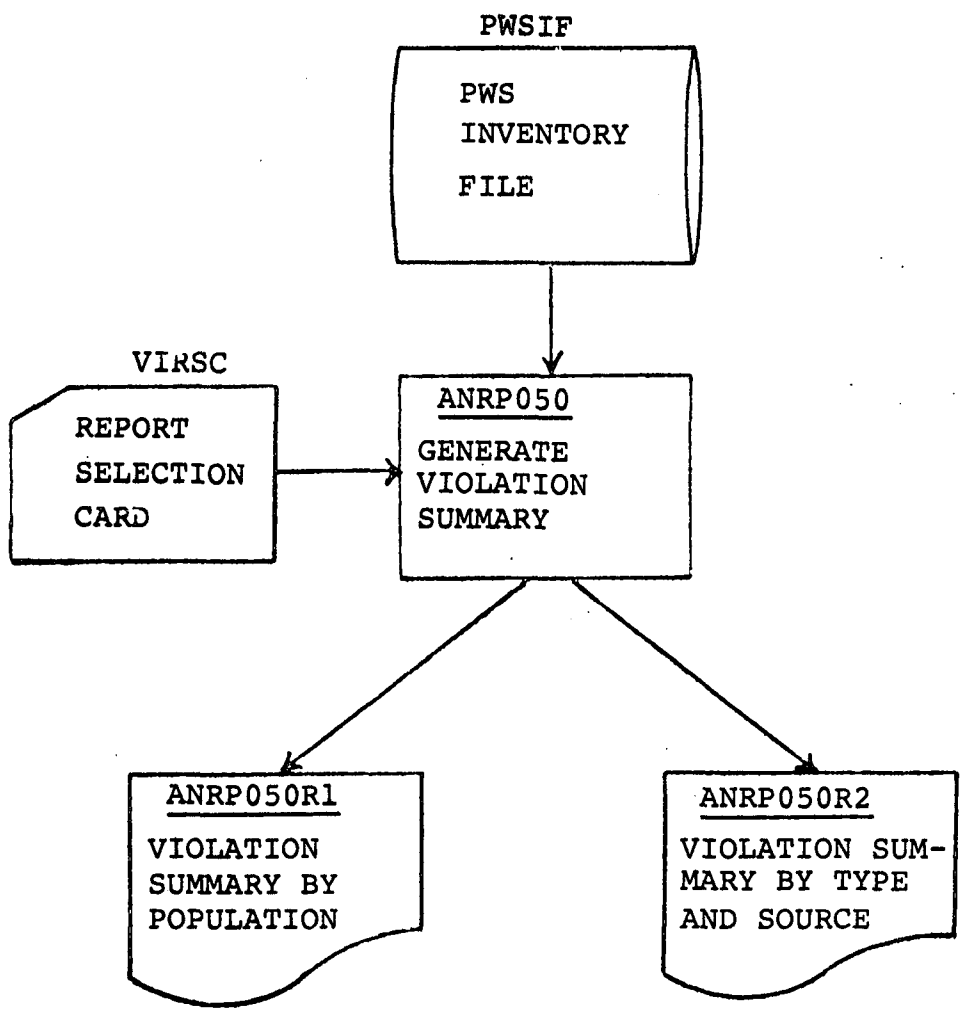
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATIONS

PROGRAM: ANRP050 - Generate Violation Summary

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two violation summary reports, each reflecting violation occurrances for community, non-community or all public water systems.



1. INTRODUCTION:

Function: This program creates two summary level reports.

Reports: ANRP050R1 - Violation Summary by Population - lists the number of violations occurring by population group for each contaminant category and state.

ANRP050R2 - Violation Summary by Type and Source - lists the number of violations occurring by type of violation and type of source for each contaminant category and state

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record Name - Inventory

- File Name - Report Selection Card
  File I.D. - VIRSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Table:

- Table Name - State Table
  Table I.D. - STATAB

3. REPORT OUTPUT:

ANRP050R1 - Violation Summary by Population
ANRP050R2 - Violation Summary by Type and Source

4. TOTALING LEVELS:

Accumulate totals by state, EPA region and for the entire nation as indicated on the report layouts.

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file.

The violation accumulators to be printed are those for the year-to-date figures, data elements 062, 063 and 064. These three occur six times on each PWS Inventory record, representing the six contaminant categories which should be printed with the following descriptions:

PHYSICAL
INORGANIC CHEMICALS
PEST & ORGANIC CHEMS
MICROBIOLOGICAL
RADIOACTIVE
TREATMENT

For each report, accumulate all records for an entire state before printing anything.



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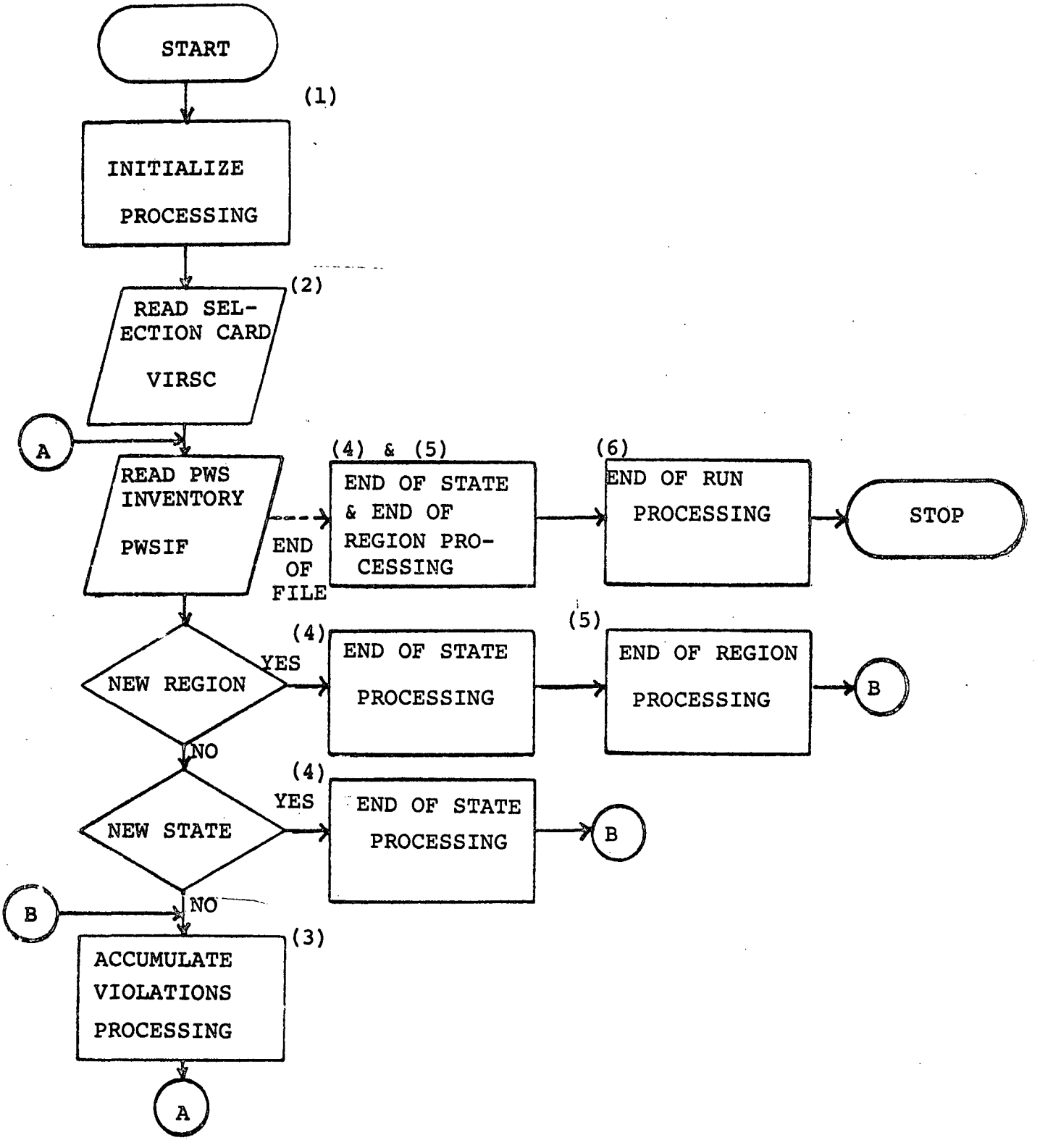
6. LOGIC CHART: (Numbers reference PROCESSING STEPS, Section 7)



7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Zero all accumulators and open files. Read in State Table.

(2) The selection card indicates which report is to be printed and whether community, non-community or all PWS's are to be included. The community/non-community designation is PWS-TYPE, data element 020.

Print the state name on the first line printed for each state. Use STATAB table to retrieve the name. If the state code is blank on one or more records, print the state name as 'INDIAN RESERVATION'.

(3) For ANRP050R1:

- Define an array of 66 accumulators for the eleven population groups (not including TOTAL) and the six contaminant categories
- For each PWS Inventory record, add to the population accumulators based on POP-SERVED, data element 035
- All three year to date accumulators should be added together for each contaminant group

For ANRP050R2:

- Define an array of 36 accumulators for the three violation types, the three water source types and the six contaminant categories
- For each PWS Inventory record, add to the violation type accumulators from the record accumulators (the MCL accumulator is VIO-CONTAM-YTD)
- For each PWS Inventory record, add to the type of source accumulators based on SOURCE-CODE, data element 071
  - Check as many SOURCE-CODE fields as are indicated in SOURCES-NUM
  - If any are surface, consider the water supply surface only. Otherwise add to whatever accumulators apply based on SOURCE-CODE (thus the accumulators may be added to both the ground and purchased accumulators)

(4) Print a line for each contaminant category which has any non-zero accumulators. For ANRP050R1, the TOTAL field is the totals of the eleven population categories. For ANRP050R2, the TOTAL field is the total of the three types of violation categories.

Also print the one line state total as shown on the report layouts. Add the state accumulators to region accumulators and zero out the state accumulators.

On the second line of the report heading print one of the following descriptions to indicate what was present on the selection card:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

To be valid, the input card must indicate report ANRP050R1 or ANRP050R2 and selection criterion C, N or A. If the card is invalid, abort the run and print 'REPORT SELECTION CARD INVALID' on ANRP050R1.

(5) Print the region total line as shown on the report layouts. Add the region accumulators to grand total accumulators and zero out the region accumulators. Skip to a new page on the report (unless at end of file).

(6) Print the grand totals as indicated as NATIONAL TOTALS on the report layouts. Close all files and end job.



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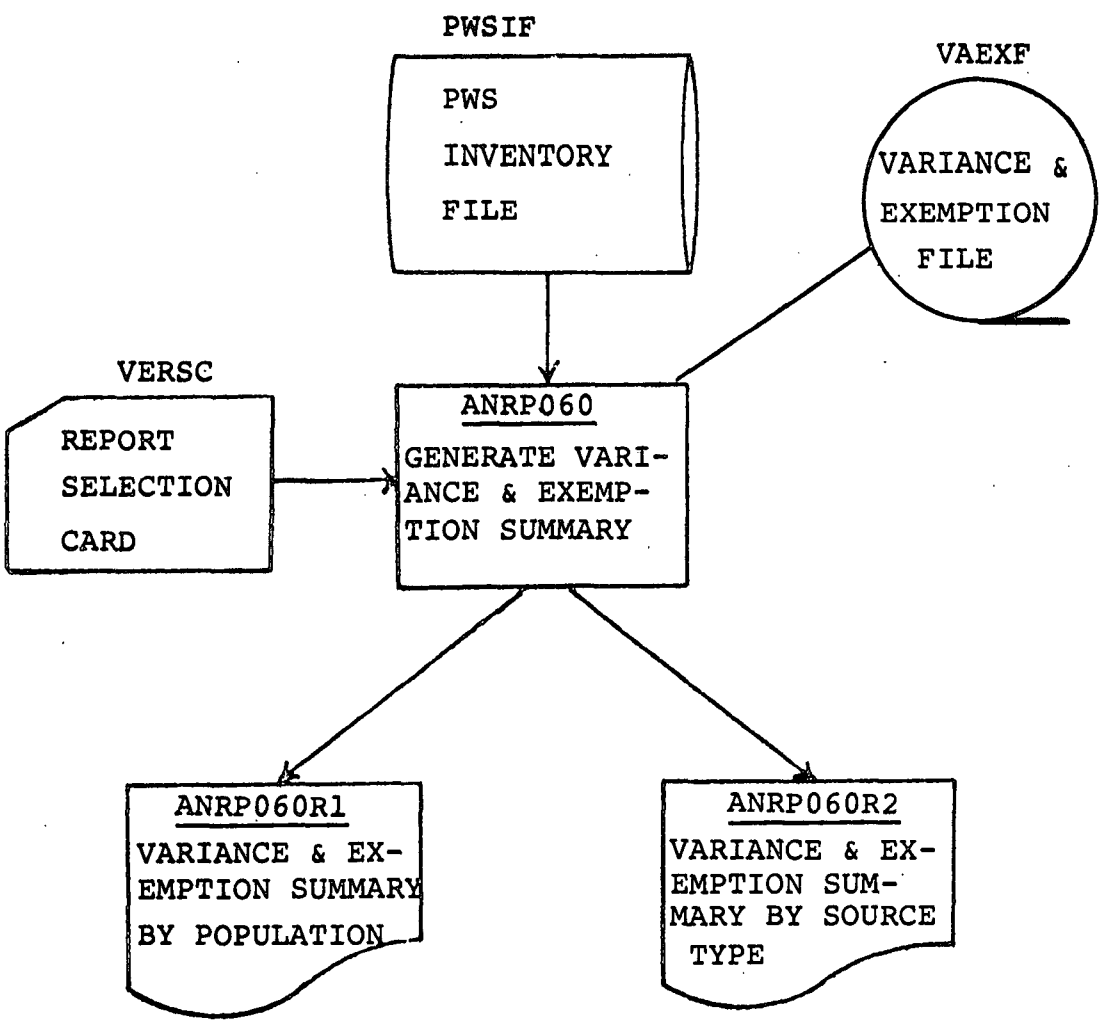
EPA WATER SUPPLY DATA SYSTEM

PROGRAM SPECIFICATION

PROGRAM: ANRP060 - Generate Variance and Exemption Summary

SUBSYSTEM: ANNUAL REPORTING

DESCRIPTION: This program generates two variance and exemption summary reports each reflecting variances and exemptions granted to community, non-community or all public water systems.



1. INTRODUCTION:

Function: This program creates two summary level reports.

Reports: ANRP060R1 - Variance and Exemption Summary by Population - lists the number of variances and exemptions by population grouping, contaminant or treatment type and state

ANRP060R2 - Variance and Exemption Summary by Source Type - lists the number of variances and exemptions for each state categorized by type of water source and contaminant or treatment type.

2. DATA USAGE:

Input Files:

- File Name - PWS Inventory File
  File I.D. - PWSIF
  File Layout Reference - PWSIF
  Record name - Inventory

- File Name - Variance and Exemption File
  File I.D. - VAEXF
  File Layout Reference - VAEXF
  Record Name - Variance/Exemption

- File Name - Report Selection Card
  File I.D. - VERSC
  File Layout Reference - ANRSC
  Record Name - Selection Card

Tables:

- Table Name - State Table
  Table I.D. - STATAB

- Table Name - Contaminant Table
  Table I.D. - CONTAB

- Table Name - Treatment Table
  Table I.D. - TRETAB

3. REPORT OUTPUT:

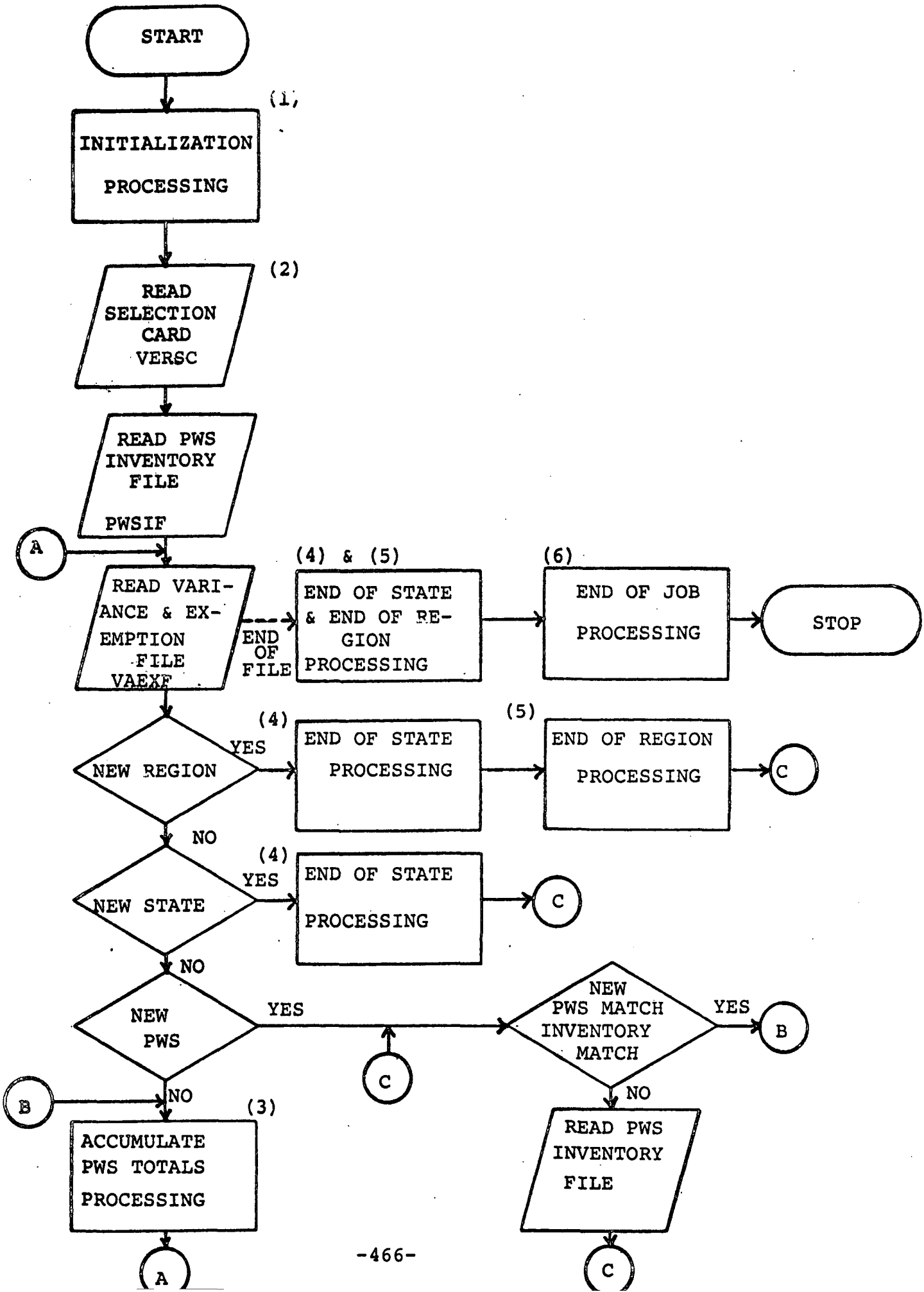
ANRP060R1 - Variance and Exemption Summary by Population
ANRP060R2 - Variance and Exemption Summary by Source Type

4. TOTALING LEVELS:

Accumulate totals by state, EPA region and for the entire nation as indicated on the report layouts.

5. GENERAL PROCESSING NOTES:

The PWS Inventory File is organized as a partitioned data set with one partition for each EPA region. Each region must therefore be accessed as a separate file.


START
(1)
INITIALIZATION PROCESSING
(2)
READ SELECTION CARD VERSC
READ PWS INVENTORY FILE PWSIF
A
READ VARIANCE & EXEMPTION FILE VAEXF
END OF FILE
(4) & (5)
END OF STATE & END OF REGION PROCESSING
(6)
END OF JOB PROCESSING
STOP
NEW REGION
YES
(4)
END OF STATE PROCESSING
(5)
END OF REGION PROCESSING
C
NO
NEW STATE
YES
(4)
END OF STATE PROCESSING
C
NO
NEW PWS
YES
C
NEW PWS MATCH INVENTORY MATCH
YES
B
NO
B
NO
(3)
ACCUMULATE PWS TOTALS PROCESSING
READ PWS INVENTORY FILE
A
C

7. PROCESSING STEPS: (Numbers reference LOGIC CHART, Section 6)

(1) Zero all accumulators and open files. Read in tables.

(2) The selection card indicates which report is to be printed and whether community, non-community or all PWS's are to be included. The community/non-community designation is PWS-TYPE, data element 020.

On the second line of the report heading print one of the following descriptions to indicate what was present on the selection card:

COMMUNITY SYSTEMS
NON-COMMUNITY SYSTEMS
ALL PUBLIC WATER SYSTEMS

To be valid, the input card must indicate report ANPR060R1 or ANRP060R2 and selection criteria C, N or A. If the card is invalid, abort the run and print 'REPORT SELECTION CARD INVALID' on ANRP060R1.

(3) Each Variance/Exemption record represents one variance or exemption. VE-TYPE indicates V for variance and E for exemption. Each record will have either a CONTAMINANT-ID, or, if this field is blank, the TREATMENT field will be filled.

For ANRP060R1:

- Define two arrays of eleven accumulators each (one for variances and one for exemptions) for each unique CONTAMINANT-ID or TREATMENT which is found on the Variance and Exemption File.

- Add to the accumulators for each variance and exemption record read by checking the POP-SERVED field on the PWS Inventory File to determine the population category.

For ANRP060R2:

- Define an array of eight accumulators for each unique CONTAMINANT-ID or TREATMENT which is found on the Variance and Exemption file. These represent the three water source types and the total for variances and for exemptions.

- For each Variance and Exemption record, add to the type of source accumulators based on SOURCE-CODE, data element 071 on the PWS Inventory File.

    - Check as many SOURCE-CODE fields as are indicated in SOURCES-NUM.

    - If any are surface, consider the water supply surface only. Otherwise add to whatever accumulators apply based on SOURCE-CODE (thus each variance or exemption may be added to both the ground and purchased accumulators).

    - Add to the "total" accumulators only once for each variance or exemption based on VE-TYPE. Each total may therefore be less than the arithmetical total of the three source categories.

(4) For ANRP060R1:

- Print three lines for each contaminant or treatment which has any non-zero accumulators; one for variances, one for exemptions and one for the total. Use CONTAB and TRETAB to retrieve the descriptions to be printed in the contaminant/treatment field. Also print the one line state total as shown on the layout.

For ANRP060R2:

- Print one line for each contaminant or treatment which has any non-zero accumulators. Use CONTAB and TRETAB to retrieve the descriptions to be printed in the contaminant/treatment field. Also print the one line state total as shown on the layout.

Print the state name on the first line printed for each state. Use STATAB table to retrieve the name. If the state code is blank on one or more records, print the state name as 'INDIAN RESERVATION'.

Add the state accumulators to region accumulators and zero out the state accumulators.



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(5) Print the region total line as shown on the report layouts. Add the region accumulators to grand total accumulators and zero out the region accumulators. Skip to a new page on the report (unless at end of file).

(6) Print the grand totals as indicated as NATIONAL TOTALS on the report layouts. Close all files and end job.