Water-Use Analysis Program for the Neshaminy Creek Basin, Bucks and Montgomery Counties, Pennsylvania

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 96–4127

Prepared in cooperation with the
DELAWARE RIVER BASIN COMMISSION

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By CURTIS L. SCHREFFLER

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Lemoyne, Pennsylvania
1996

U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Gordon P. Eaton, Director

For additional information write to:

District Chief
U.S. Geological Survey
840 Market Street
Lemoyne, Pennsylvania 17043-1586

Copies of this report can be purchased from:

U.S. Geological Survey
Branch of Information Services
Box 25286
Denver, CO 80225-0286

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CONVERSION FACTORS

Multiply	By	To obtain
Area		
square mile (mi^2)	2.590	square kilometer
Volume		
gallon (gal)	3.785	liter
Flow		
gallon per day (gal/d)	0.003785	cubic meter per day
gallon per year (gal/yr)	1.038×10^{-5}	cubic meter per day
million gallons per year (Mgal/yr)	10.3699	cubic meter per day
million gallons per day per square mile [(Mgal/d)/mi^2]	1,461	cubic meter per day per square kilometer

Water-Use Analysis Program for the Neshaminy Creek Basin, Bucks and Montgomery Counties, Pennsylvania

By Curtis L. Schreffler

Abstract

A water-use analysis computer program was developed for the Neshaminy Creek Basin to assist in managing and allocating water resources in the basin. The program was developed for IBM-compatible personal computers. Basin analysis and the methodologies developed for the Neshaminy Creek Basin can be transferred to other watersheds. The development and structure of the water-use analysis program is documented in this report. The report also serves as a user's guide. The program uses common relational database-management software that allows for water-use data input, editing, updating, and output and can be used to generate a watershed water-use analysis report. The watershed-analysis report lists summations of public-supply well withdrawals; a combination of industrial, commercial, institutional, and ground-water irrigation well withdrawals; spray irrigation systems; a combination of public, industrial, and private surface-water withdrawals; wastewater-treatment-facility discharges; estimates of aggregate domestic ground-water withdrawals on an areal basin or subbasin basis; imports and exports of wastewater across basin or subbasin divides; imports and exports of public water supplies across basin or subbasin divides; estimates of evaporative loss and consumptive loss from product incorporation; industrial septic-system discharges to ground water; and ground-water well-permit allocations.

INTRODUCTION

The 232 mi^2 Neshaminy Creek Basin is in a heavily populated area of southeastern Pennsylvania (fig. 1). The demand for water in the Neshaminy Creek Basin has increased greatly over recent years and is expected to increase even more in the future as the population increases. The population of Montgomery Township in Montgomery County is projected to increase by 41 percent by the year 2000 (Montgomery County Planning Commission, 1993). The population of New Britain and Northampton Townships in Bucks County are projected to increase by 29 and 24 percent, respectively, by the year 2000 (Bucks County Planning Commission, 1993). Ground-water withdrawals for public supply and industrial uses in the Neshaminy Creek Basin totaled 4,250 Mgal for the year 1992. Increased pumping of ground water for public, industrial, and commercial uses may cause declining water levels, substantial reductions in local and regional ground-water availability, and streamflow reductions (Sloto and Davis, 1983, p. 26).

Data on ground-water contributions to base flow, quantities and locations of withdrawals, wastewater discharges, and imports and exports across basin or subbasin divides should be current and easily accessible to effectively manage and allocate water resources in the basin. Currently, these data are collected and stored in many places, in assorted formats, and by many different agencies.

The Delaware River Basin Commission (DRBC) manages, protects, and allocates water resources in the Neshaminy Creek Basin. The DRBC was formed by a Federal compact as a water-resources management agency of Delaware, New Jersey, New York, Pennsylvania, and the Federal Government.

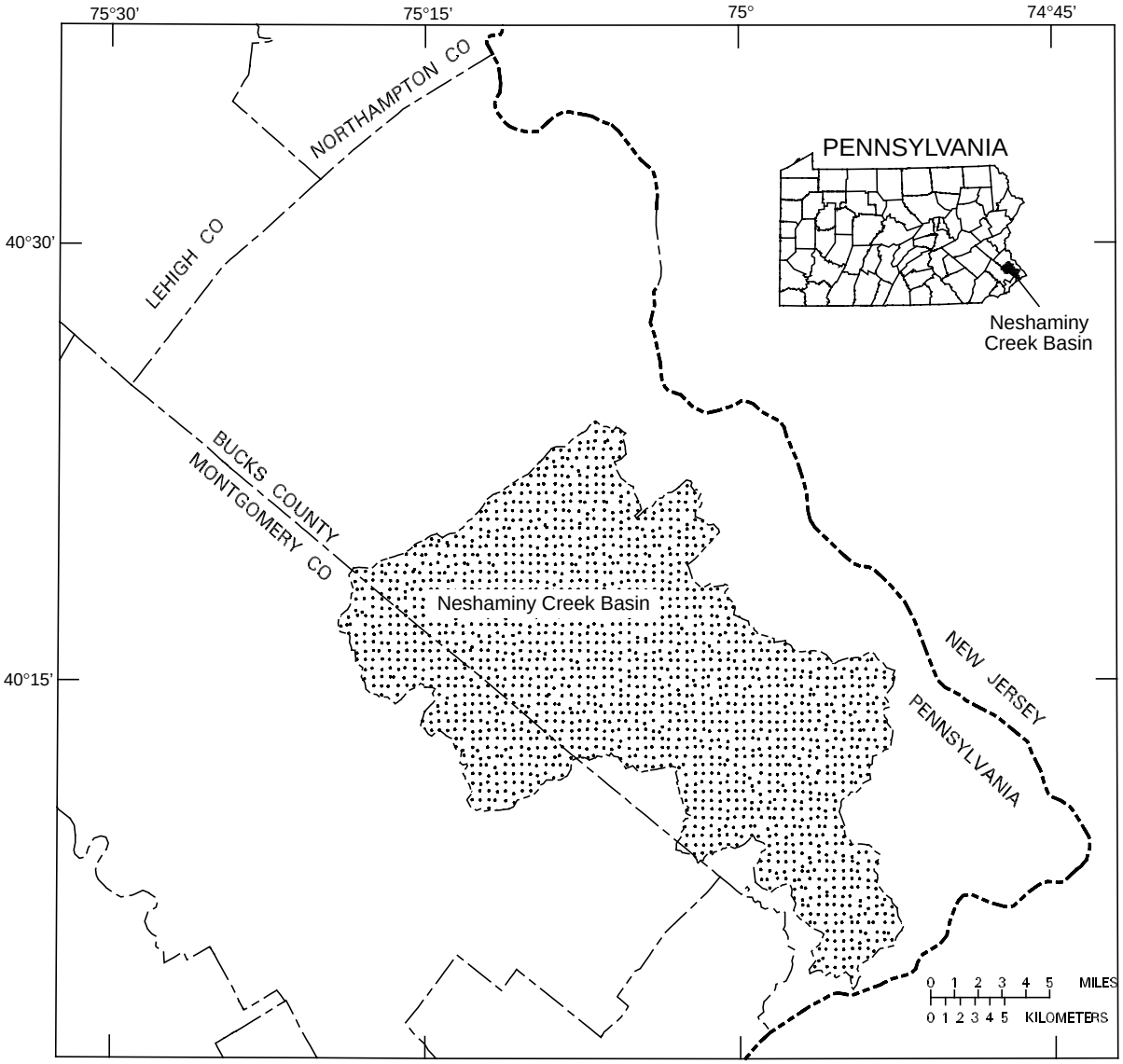

Figure 1. Location of the Neshaminy Creek Basin, Pennsylvania.

Programs include water-quality protection, water-supply allocation, regulatory review, water conservation, drought management, and flood-loss reduction within the Delaware River Basin. Under provisions of its compact, the DRBC has designated a section of southeastern Pennsylvania as a Ground-Water Protected Area. Most of the Neshaminy Creek Basin lies within this area. Within the protected area, all new or expanded ground-water withdrawals of 10,000 gal/d or more must be reviewed and approved by the DRBC. In accordance with DRBC Resolution 93-2, ground-water allocations are given for a maximum 10-year period, after which owners must apply for permit renewal.

Data on ground-water contributions to base flow and quantities and locations of water withdrawals, discharges, imports, and exports in Neshaminy Creek Basin were combined into a relational database that can be used to manage and organize the data and to construct a water-use analysis report to summarize and list all available water-use data. This study was done by the U.S. Geological Survey (USGS) in cooperation with the DRBC.

Purpose and Scope

This report documents the development and structure of the personal computer-based water-use analysis program for the Neshaminy Creek Basin. Data table design and relations between the data tables are discussed. The report describes the menu system and how to input, edit, and retrieve data from the program and generate a basin or subbasin watershed water-use analysis report. Limitations of the water-use analysis program also are discussed.

Acknowledgments

The Water Supply and Community Health Section of the Pennsylvania Department of Environmental Protection (PaDEP), the Bucks County Planning Commission, the Bucks County Health Department, and the Montgomery County Planning Commission were very helpful in supplying data. Also, many water and sewer system operators and industrial site managers cooperated by providing additional data.

STUDY METHODS

Data collection, data table design, subbasin delineation, and determination of ground-water contributions to base flow were the primary components in developing the Neshaminy Creek Basin water-use analysis program.

The term “purveyor” in this report refers to owners of water-use facilities, not just providers of water services. Water-use activities are defined as purveyor withdrawals, returns, importations, or exportations of water. Type of use refers to any water-use activity, not actual water usage by individuals or industries.

Data Collection

The DRBC staff collected all water-use data for the program using the following conventions. All water-use activities listed in the PaDEP’s State Water-Use Data System (SWUDS) were included in the data tables. Additional water-use activities were included on the basis of DRBC records of surface-water use. For water purveyors with total water use less than 1,000 gal/d, only information contained in the SWUDS annual records for the most recent year available were entered into the data tables and no additional inquiries to the water purveyor were made. For water purveyors with total water use between 1,000 and 10,000 gal/d, the most recent water-use data from SWUDS were entered into the data tables including monthly usage totals with an estimate for annual water use. Inquiries were made to water purveyors with total water use greater than 10,000 gal/d or greater than 2.5 Mgal/yr to update the total water-use monthly data through 1992.

Data Table Design

Three common key fields are included in each data table, PURV_CODE, PURV_NAME, and PURV_ID. These key fields must be coded in each data table because the tables are indexed and related by these fields. The PURV_CODE field contains a unique six-character identification code assigned by the DRBC to each purveyor. The PURV_NAME field contains a 40-character name assigned by DRBC to each record. The PURV_ID field contains a unique

eight-character identifier assigned by DRBC for each water-use activity for each record.

Userfile Data Table

The userfile data table contains data describing the physical location of a purveyor's withdrawal, return, importation, or exportation of water, which includes the source and destination basin, or subbasin, of the activity. The data type, field width, if the field is mandatory, and a definition for each field name are listed in table 1. Included in this data table is a field for type of use (TYPE_USE), which identifies the withdrawals, returns, importations, or exportations. The codes and definitions for each type of use are listed in table 2.

Water-Use Data Table

The water-use data table contains water-use totals for each purveyor. Annual and monthly usage totals are stored along with the year for that use. The table also includes the type of use field (table 2). The data type, field width, if the field is mandatory, and a definition for each field name are listed in table 3.

Allocation Data Table

The allocation data table contains the DRBC-assigned allocation for a particular withdrawal. Joint allocation fields are used for allocations that are issued to a well field in which more than one well shares an allocation. A maximum of 10-joint allocation fields are available. The 10-joint allocation fields contain well identification names and numbers. A field for a purveyor's total system allocation also is included. The data type, field width, if the field is mandatory, and a definition for each field name are listed in table 4.

Subbasin Delineation

A Geographic Information System (GIS) was used to create areal coverages of drainage basin divides, bedrock geology, and political boundaries for the Neshaminy Creek Basin. Drainage basin divides were digitized from USGS 1:24,000-scale 7 1⁄2-minute topographic quadrangle maps. The Neshaminy Creek Basin, excluding the mainstem lower section, was divided into 13 basins or subbasins so that the basin or subbasin areas were not greater than 25 mi^2. The mainstem Neshaminy Creek, lower section subbasin (area 14), has a drainage area of 41.7 mi^2 (fig. 2). The drainage basin coverages were used in determining ground-water contributions to base flow for the basins or subbasins on the basis of geology. Assigned codes, basin and subbasin names, and drainage areas are listed in table 5. A basin code of '00' was added to the program to track water-use activities that either originate or terminate outside of the Neshaminy Creek Basin.

Bedrock geologic contact lines were transferred to USGS 1:24,000-scale 7 1⁄2-minute topographic quadrangle maps from the 1:250,000-scale geologic map of Lyttle and Epstein (1987) and the 1:62,500-scale geologic map of Longwill and Wood (1965) and were digitized. The geology coverage was used to calculate the percentage of each geologic unit in each subbasin. The geologic units were grouped into four geologic categories that were used in determining ground-water contributions to base flow for the basins or subbasins. The geologic groups are the Brunswick Group and Lockatong Formation, the Stockton Formation, carbonate rocks, and crystalline rocks (fig. 3).

Political boundaries for Bucks County were digitized from mylar USGS 1:50,000-scale county topographic maps. Political boundaries for Montgomery County were digitized from USGS 1:24,000-scale 7 1⁄2-minute topographic quadrangle maps. Political boundary coverages were used in estimating aggregate annual domestic water use in a basin or subbasin (fig. 4).

Determination of Ground-Water Contributions to Base Flow

Estimates of annual base flow for four streamflow-measurement stations in southeastern Pennsylvania were used to estimate the ground-water contribution to base flow of the four geologic units or groups in the Neshaminy Creek Basin (R.E. Wright Associates, Inc. [n.d.], p. 6–31; Delaware River Basin Commission, written commun., 1995) (fig. 5). The hydrograph-separation computer program of Sloto (1991) was used to separate the surface-runoff and base-flow or ground-water-discharge components of streamflow. The local-minimum method was used. A normal frequency distribution was used to determine

Table 1. Description of fields in userfile data table

[Y, field is mandatory; N, field is not mandatory; UTM, Universal Transverse Mercator map projection; USGS, U.S. Geological Survey; DRBC, Delaware River Basin Commission; PaDEP, Pennsylvania Department of Environmental Protection]

Field name	Data type	Field width	Mandatory field	Definition
PURV_NAME	Character	40	Y	Name of public-water purveyor, well owner, municipal authority, or sewage-treatment-plant operator.
PURV_CODE	Character	6	Y	Unique user identification code assigned to each purveyor by DRBC.
PURV_ID	Character	8	Y	Unique identifier assigned by DRBC for each water-use activity.
USGS_LOCAL	Character	8	N	USGS (Pennsylvania district) local well-identification number.
TYPE_USE	Character	3	Y	Type of use (see table 2).
LOC_LAT	Character	6	Y	Latitude location of withdrawal, return, importation, or exportation point (degrees, minutes, seconds).
LOC_LONG	Character	7	Y	Longitude location of withdrawal, return, importation, or exportation point (degrees, minutes, seconds).
UTM18_X	Character	6	N	UTM X-coordinate of withdrawal, return, importation, or exportation point, in meters.
UTM18_Y	Character	7	N	UTM Y-coordinate of withdrawal, return, importation, or exportation point, in meters.
GUNIT_CODE	Character	8	N	USGS geologic unit code of the aquifer.
BASIN_SOR	Character	2	Y	Basin or subbasin location code for point of withdrawal or exportation (see table 5).
SSTM_CODE	Character	6	N	PaDEP stream code for point of surface-water withdrawal.
SRV_MILE	Numeric	6	N	River mile for point of surface-water withdrawal.
BASIN_DEST	Character	2	Y	Basin or subbasin location code for point of return (see table 5).
DSTM_CODE	Character	6	N	PaDEP stream code for point of return to surface water.
DRV_MILE	Numeric	6	N	River mile at point of return to surface water.
DRBC_DOC	Character	15	N	DRBC docket number.

Table 2. Description of codes for types of water use

Type of use code	Definition
PSW	Public-supply ground-water withdrawal.
SWW	Surface-water withdrawal for purposes of public supply, processing water, fire fighting, etc.
INW	Industrial, commercial, or institutional ground-water withdrawal.
STP	Sewage-treatment-plant discharge.
TID	Treated industrial, commercial, or institutional discharge to surface water.
GWI	Ground-water withdrawals for purposes of irrigation.
SWI	Surface-water withdrawals for purposes of irrigation.
WSI	Water-supply import.
WSE	Water-supply export.
DIM	Effluent discharge import.
DEX	Effluent discharge export.
SEP	Septic tank discharge.
PRO	Consumptive losses due to product incorporation.
EVP	Estimates of evaporative losses.
RCG	Ground-water recharge (discharge to ground water).
SPR	Spray irrigation (effluent discharge to ground water).

Table 3. Description of fields in water-use data table

[Y, field is mandatory; N, field is not mandatory; DRBC, Delaware River Basin Commission]

Field name	Data type	Field width	Mandatory fields	Definition
PURV_NAME	Character	40	Y	Name of public-water purveyor, well owner, municipal authority, or sewage-treatment-plant operator.
PURV_CODE	Character	6	Y	Unique user identification code assigned to each purveyor by DRBC.
PURV_ID	Character	8	Y	Unique identifier assigned by DRBC for each water-use activity.
TYPE_USE	Character	3	Y	Type of use (see table 2).
ANN_YEAR	Character	2	Y	Year of reported data.
ANNUAL_TOT	Numeric	10	Y	Total annual usage for the year, in million gallons.
JAN_TOTAL	Numeric	10	N	Total monthly usage for January, in million gallons.
FEB_TOTAL	Numeric	10	N	Total monthly usage for February, in million gallons.
MAR_TOTAL	Numeric	10	N	Total monthly usage for March, in million gallons.
APR_TOTAL	Numeric	10	N	Total monthly usage for April, in million gallons.
MAY_TOTAL	Numeric	10	N	Total monthly usage for May, in million gallons.
JUN_TOTAL	Numeric	10	N	Total monthly usage for June, in million gallons.
JUL_TOTAL	Numeric	10	N	Total monthly usage for July, in million gallons.
AUG_TOTAL	Numeric	10	N	Total monthly usage for August, in million gallons.
SEP_TOTAL	Numeric	10	N	Total monthly usage for September, in million gallons.
OCT_TOTAL	Numeric	10	N	Total monthly usage for October, in million gallons.
NOV_TOTAL	Numeric	10	N	Total monthly usage for November, in million gallons.
DEC_TOTAL	Numeric	10	N	Total monthly usage for December, in million gallons.

Table 4. Description of fields in allocation data table

[Y, field is mandatory; N, field is not mandatory; DRBC, Delaware River Basin Commission]

Field name	Data type	Field width	Mandatory field	Definition
PURV_NAME	Character	40	Y	Name of public-water purveyor, well owner, municipal authority, or sewage-treatment-plant operator.
PURV_CODE	Character	6	Y	Unique user identification code assigned to each purveyor by DRBC.
PURV_ID	Character	8	Y	Unique identifier assigned by DRBC for each water-use activity.
ALLOCATION	Numeric	10	N	Individual allocation for the withdrawal, in million gallons for a 30-day period.
JT_ALLOC	Numeric	10	N	Joint allocation, in million gallons for a 30-day period.
JT_ID1	Character	40	N	Individual well identification names and numbers that are included in the joint allocation.
JT_ID2	Character	40	N	Do.
JT_ID3	Character	40	N	Do.
JT_ID4	Character	40	N	Do.
JT_ID5	Character	40	N	Do.
JT_ID6	Character	40	N	Do.
JT_ID7	Character	40	N	Do.
JT_ID8	Character	40	N	Do.
JT_ID9	Character	40	N	Do.
JT_ID10	Character	40	N	Do.
SYS_ALLOC	Numeric	10	N	Total system allocation, in million gallons for a 30-day period.

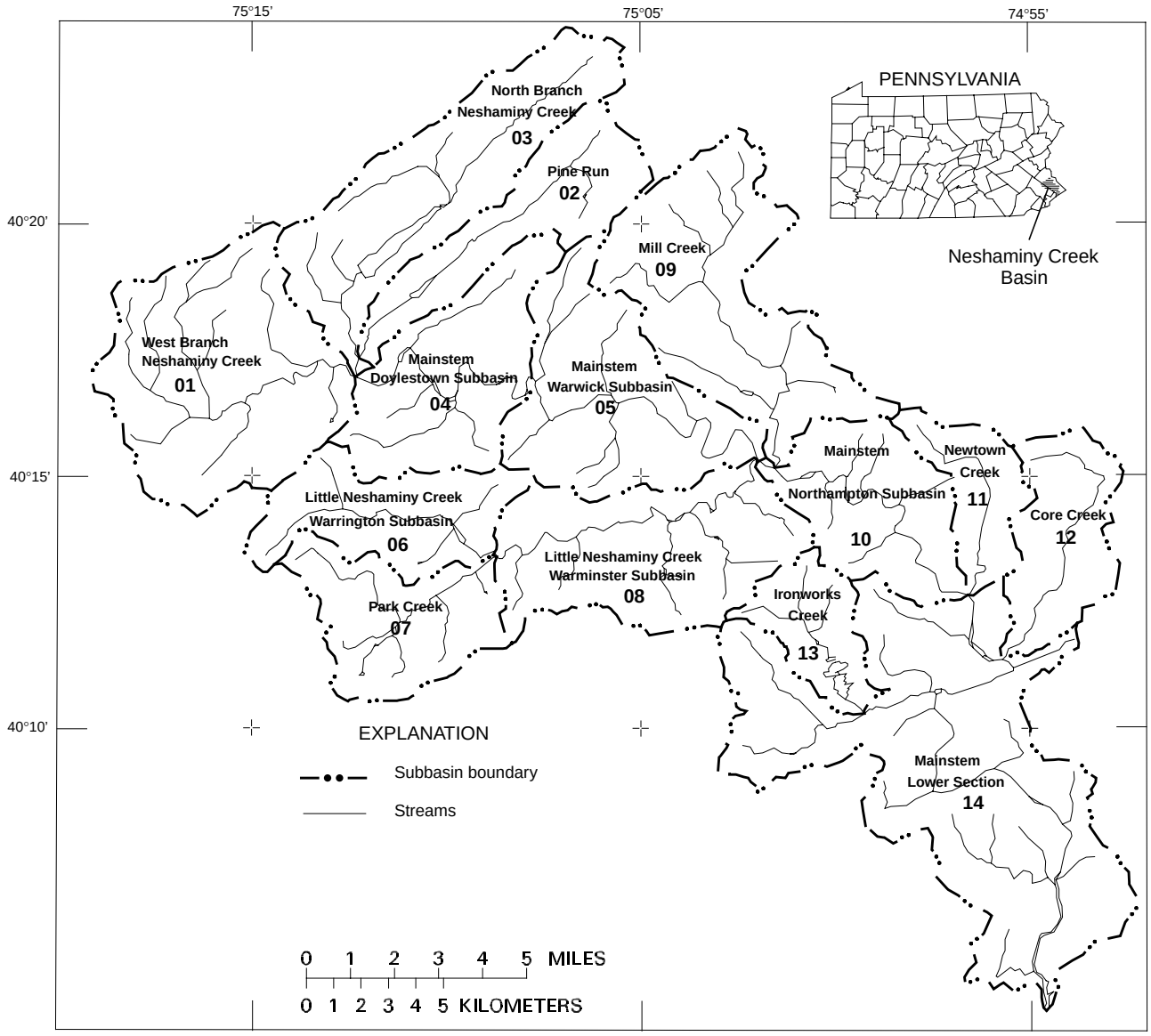

Figure 2. Neshaminy Creek Basin and subbasin locations, names, and U.S. Geological Survey assigned basin codes.

Table 5. U.S. Geological Survey assigned codes, basin and subbasin names, and drainage areas

[--, not applicable]

Code	Basin or Subbasin	Drainage area (square miles)
00	Basins outside Neshaminy Creek Basin	--
01	West Branch Neshaminy Creek Basin	25.0
02	Pine Run Basin	11.6
03	North Branch Neshaminy Creek Basin	20.0
04	Mainstem Neshaminy Creek, Doylestown Subbasin	15.4
05	Mainstem Neshaminy Creek, Warwick Subbasin	18.8
06	Little Neshaminy Creek, Warrington Subbasin	11.5
07	Park Creek Basin	11.8
08	Little Neshaminy Creek, Warminster Subbasin	19.7
09	Mill Creek Basin	21.9
10	Mainstem Neshaminy Creek, Northampton Subbasin	12.6
11	Newtown Creek Basin	6.3
12	Core Creek Basin	9.8
13	Ironworks Creek Basin	6.3
14	Mainstem Neshaminy Creek, Lower Subbasin	41.7

annual base flow for the 2-, 5-, 10-, 25-, and 50-year recurrence intervals at the four streamflow-measurement stations. Base-flow recurrence intervals for water years 1961–93 for the West Branch of Brandywine Creek near Honeybrook, Pa., which drains nearly 100 percent crystalline rocks, were used to estimate yields for the crystalline rocks in the Neshaminy Creek Basin (R.E. Wright Associates, Inc. [n.d.], p. 6–31; Delaware River Basin Commission, written commun., 1995). Base-flow recurrence intervals for water years 1967–93 for Skippack Creek near Collegeville, Pa., were used to estimate yields for the Brunswick Group and Lockatong Formation. The period of record for these two stations was not of sufficient length to calculate the 50-year recurrence base-flow values. Therefore, the 50-year base-flow values were determined by plotting the 2-, 5-, 10-, and 25-year base flows on semilogarithmic paper and extrapolating the curves.

Base-flow recurrence intervals for 1946–93 for Little Lehigh Creek near Allentown, Pa., were used to estimate yields for the carbonate rocks. For the Little Lehigh Creek base-flow frequency determination, the drainage area above the streamflow-measurement station was adjusted by reducing the area by 7.8 mi^2. Wood and others (1972, p. 17) state that the ground-water basin contributing most of the streamflow passing the streamflow-gaging station is smaller than the surface-water basin. A combination of underflow and direct diversions accounted for the differing ground- and surface-water divides. Wood and others (1972, p. 20) state that 7.8 mi^2 of the ground-water basin drains to Shantz Spring and Cedar Creek. Sloto and others (1991, p. 24) show that the drainage divide between the Little Lehigh Creek and Shantz Spring was nearly at the same location in 1984 as the divide on the 1968 water-table map of Wood and others (1972, pls. 1 and 4A).

R.E. Wright Associates, Inc. [n.d.] (p. 6–31) identified the Pennypack Creek Basin to be representative of the Stockton Formation base-flow contributions to the Neshaminy Creek Basin. However, hydrograph separation for the period of record for Pennypack Creek at Pine Road, Philadelphia, Pa., yielded very high estimates of the Stockton Formation base-flow contributions for each recurrence interval. The method (R.E. Wright Associates, Inc. [n.d.], p. 6–31) for estimating base-flow contributions of the Stockton Formation was not used in this investigation. The following method was used to determine base-flow contributions of the Stockton Formation in the Neshaminy Creek Basin. The 2-, 5-, 10-, 25-, and 50-year base-flow recurrence intervals for a common period of record (water years 1966–92) were

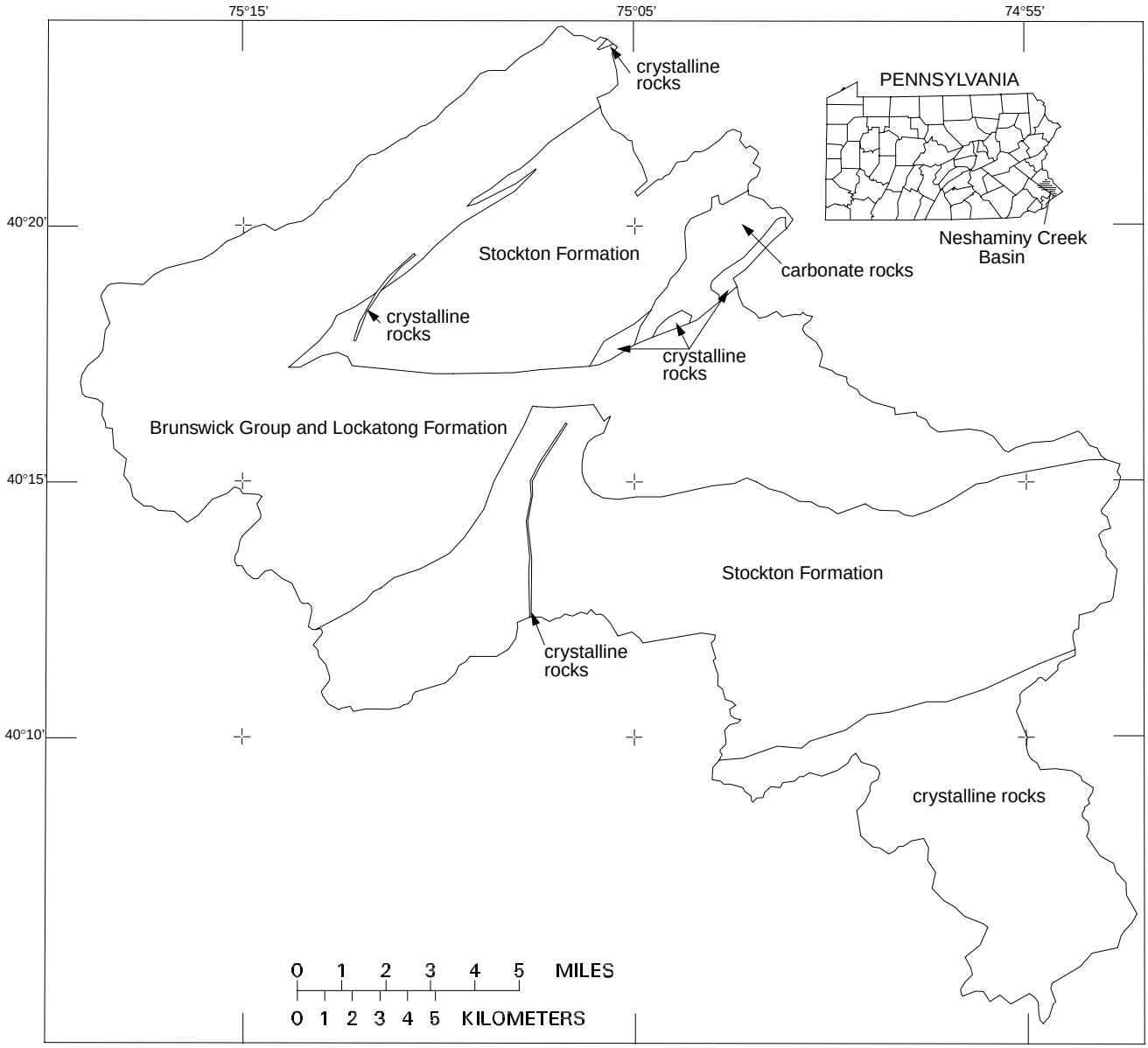

Figure 3. Generalized geology of the Neshaminy Creek Basin, Pennsylvania.

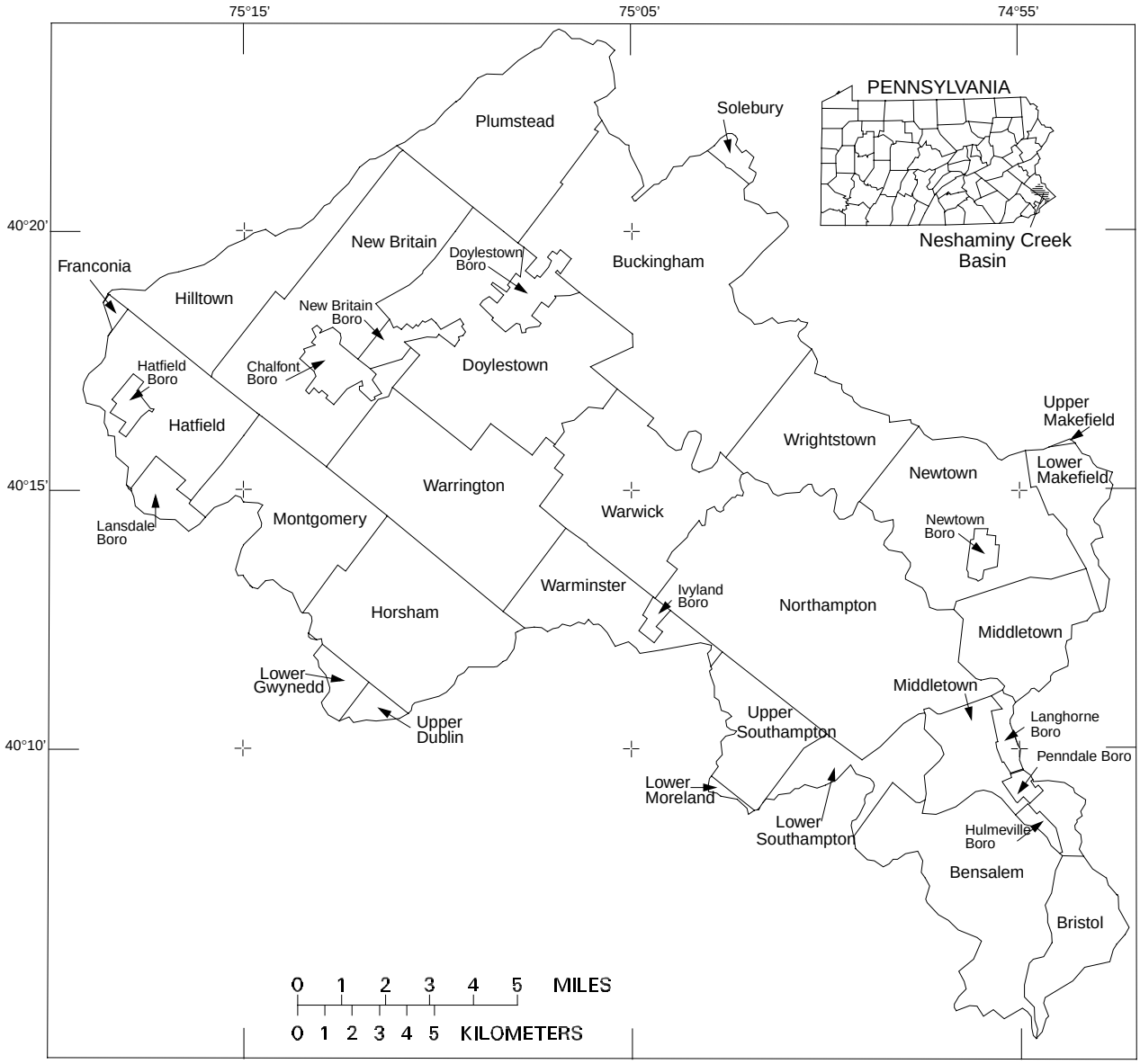

Figure 4. Political boundaries in the Neshaminy Creek Basin, Pennsylvania.

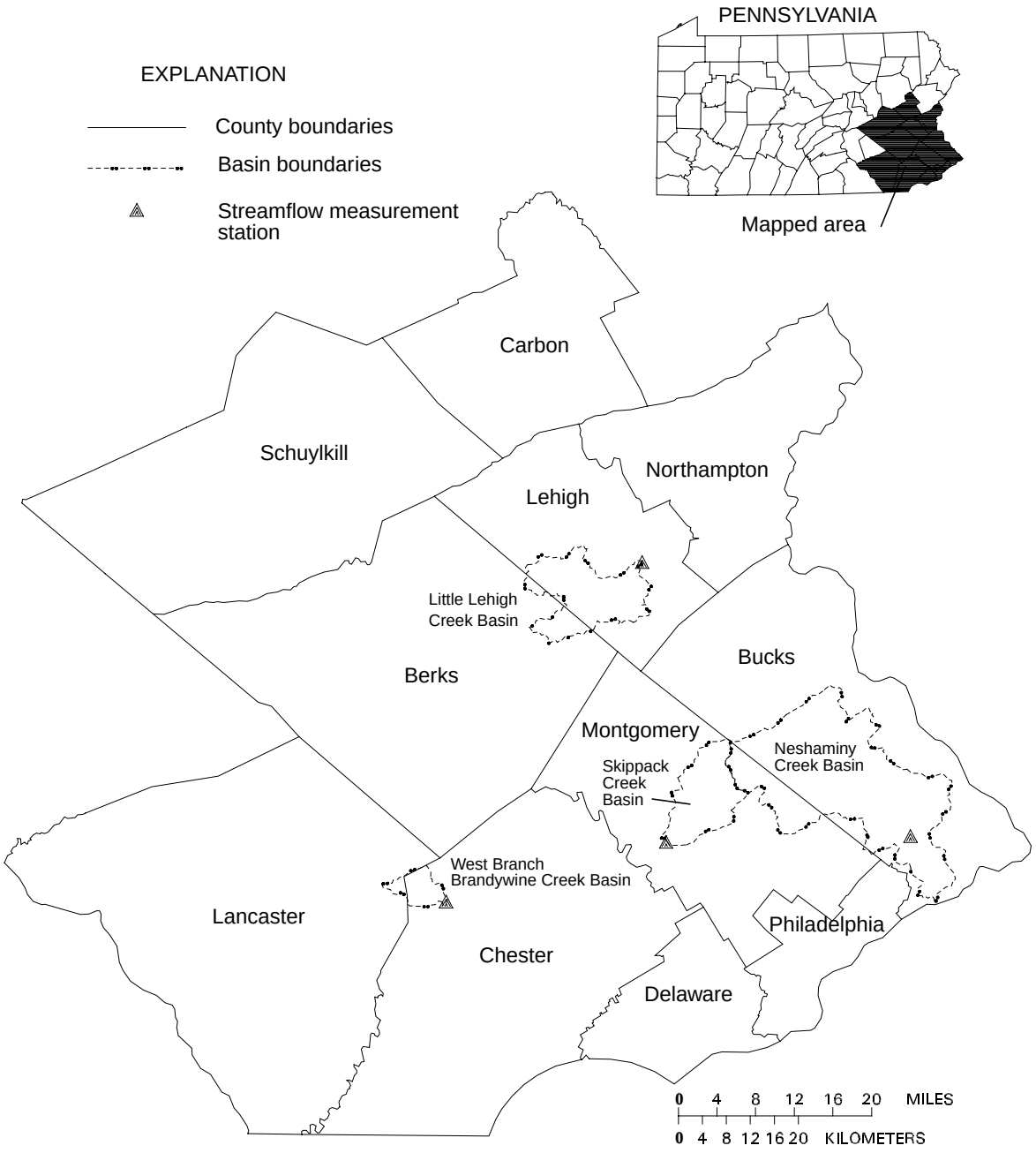

Figure 5. Location of drainage basins and the four streamflow-measurement stations used in determining base-flow contributions, southeastern Pennsylvania.

recalculated for the West Branch of Brandywine Creek near Honeybrook, Pa., Skippack Creek, Little Lehigh Creek, and Neshaminy Creek near Langhorne, Pa. The areal percentages of different geologic units above the streamflow-measurement station on Neshaminy Creek at Langhorne were determined from the GIS. The known base-flow values for each recurrence interval were substituted into equation 1 to solve for the base-flow contribution from the Stockton Formation.

$$Q_{Neshaminy} = (Q_{W.\ Br.\ Brandywine})(\text{Percent Area}_{crystalline\ rocks}) + (Q_{Skippack})(\text{Percent Area}_{Brunswick/Lockatong}) + (Q_{Little\ Lehigh})(\text{Percent Area}_{Carbonate\ rock}) + (Q_{Stockton})(\text{Percent Area}_{Stockton}) \quad (1)$$

The 2-, 5-, 10-, 25-, and 50-year recurrence intervals for base flow determined in this investigation from each geologic unit or group in million gallons per day per square mile are listed in table 6. The percentages of each geologic unit or group in each basin or subbasin was determined from the GIS (table 7) and then multiplied by the respective recurrence-interval value (table 6) and summed to determine the basin or subbasin ground-water contribution to base flow in million gallons per day per square mile.

Because of the lack of data for base-flow contributions of the unconsolidated deposits in the Neshaminy Creek lower section, the ground-water contribution to base flow of these deposits was not included in the estimates for this subbasin. For the area underlain by unconsolidated deposits, base-flow values for the crystalline rocks were used in determining ground-water contributions to base flow in the Neshaminy Creek lower section.

A hydrograph separation was performed for water years 1935–93 for Neshaminy Creek near Langhorne by use of the hydrograph-separation program of Sloto (1991). The local minimum technique was used. The 2-, 5-, 10-, 25-, and 50-year recurrence intervals for base flow for the period of record for the streamflow-measurement station Neshaminy Creek near Langhorne, Pa., are listed in table 8.

WATER-USE ANALYSIS PROGRAM

The Neshaminy Creek water-use analysis program was developed using dBASE IV version 2.0 relational database software. The water-use program was written for IBM or IBM-compatible personal computers with a minimum of 2 megabytes (MB) of random-access-memory (RAM). The minimum hard disk space required is 10 MB. Additional hard disk memory may be required as more data is entered into the data tables.

Program Structure

The master control program (masterpr.prg) for the water-use analysis program is the main controlling program. The main menu and submenus are activated and defined in the master control program. All other programs, known as procedures, are called from the master control program. The procedure library (proclib.prg) is a file that includes all the procedures

Table 6. Base-flow recurrence intervals for geologic units or groups in the Neshaminy Creek Basin, Pennsylvania

[(Mgal/d)/mi^2, million gallons per day per square mile]

Geologic unit or group	Base-flow recurrence interval				
	2-year	5-year	10-year	25-year	50-year
	Discharge [(Mgal/d)/mi^2]				
Brunswick Group and Lockatong Formation	0.314	0.241	0.189	0.154	0.144
Stockton Formation	.627	.401	.343	.189	.158
Carbonate rocks	.706	.481	.408	.289	.278
Crystalline rocks	.524	.381	.302	.299	.206

Table 7. Areal percentages of each geologic unit or group in each basin or subbasin of the Neshaminy Creek Basin, Pennsylvania

[--, not applicable]

Subbasin and code number	Geologic unit or group						
	Pleistocene	Diabase	Brunswick Group	Lockatong Formation	Stockton Formation	Carbonate rocks	Crystalline rocks
West Branch Neshaminy Creek Basin — 01	--	--	62.4	37.0	0.6	--	--
Pine Run Basin — 02	--	1.0	--	8.0	91.0	--	--
North Branch Neshaminy Creek — 03	--	.2	.4	95.4	4.0	--	--
Doylestown Subbasin Neshaminy Creek — 04	--	--	6.5	51.2	42.3	--	--
Warwick Subbasin Neshaminy Creek — 05	--	.4	--	55.8	41.6	--	2.2
Warrington Subbasin Little Neshaminy Creek — 06	--	--	--	85.0	15.0	--	--
Park Creek Basin — 07	--	--	--	23.6	76.4	--	--
Warminster Subbasin Little Neshaminy Creek — 08	--	.6	--	2.3	97.1	--	--
Mill Creek Basin — 09	--	--	34.7	11.1	31.6	18.3	4.3
Northampton Subbasin Neshaminy Creek — 10	--	--	2.1	45.6	52.3	--	--
Newtown Creek — 11	--	--	5.5	39.5	55.0	--	--
Core Creek Basin — 12	--	--	--	11.3	88.7	--	--
Ironworks Creek Basin — 13	--	--	--	--	100.0	--	--
Lower Section Subbasin Neshaminy Creek — 14	27.4	--	--	--	30.9	--	[1]41.7

[1]Chickies quartzite - 2.8; Wissahickon schist - 16.7; gneiss - 22.2 percent.

Table 8. Base-flow recurrence intervals for Neshaminy Creek near Langhorne, Pennsylvania, streamflow-measurement station, water years 1935–93

[(Mgal/d)/mi^2, million gallons per day per square mile]

Base-flow recurrence interval				
2-year	5-year	10-year	25-year	50-year
Discharge [(Mgal/d)/mi^2]				
0.411	0.299	0.248	0.195	0.179

used by the program. The watershed water-use analysis program is stored in the file analysis.prg. Appendix 1 lists the code for the master control program. Appendix 2 lists the code for the procedure library. Appendix 3 lists the code for the watershed water-use analysis. A flow chart of the program structure is shown in figure 6.

Master Control Program

The master control program declares and initializes all public memory variables, which are memory variables that are used by more than one program, and initializes all environment variables. The initial data table indexes are defined in the program. The program contains a series of menus, procedures, and decision constructs in which all subsequent procedures used in the program are called. Decision constructs are structured program commands that select only one course of action from a set of alternatives.

Procedure Library

The procedure library, which contains 22 procedures, was created to save compiling time. The procedure is compiled at run time, and the compiled file is stored in the user's current directory. When a program is called, the procedure library is searched and the called procedure is executed.

The procedure library contains all screen definition forms for input and editing of data. The file contains menu and submenu definitions and subsequent decision constructs for the output destination menu, ground-water availability menu, and the printer retry menu. The procedure PrntRtry (Appendix 2) displays an error message when the operator requests printed output and the printing device is not ready. The library also contains all procedures that create indexes or temporary data tables.

Water-Use Analysis Program

The water-use analysis program file contains the code to generate the watershed water-use analysis report. It is called from a procedure in the procedure library. All memory variables are initialized, and a temporary data table is created from the water-use data table, which is sorted on fields PURV_CODE, PURV_ID, and ANN_YEAR. The fields PURV_CODE and PURV_ID are sorted in ascending order; the ANN_YEAR field is sorted in descending order. The temporary table is then indexed on PURV_ID with the condition that the ANN_YEAR field is equal to or less than the user-specified year.

The other two data tables, userfile and aloc (the allocation table), are indexed on PURV_ID and related to the temporary table by PURV_ID. A filter is used to extract records with a source or destination basin code that matches the user-specified basin code. All listings, totals, and comparisons are determined from the temporary data table.

To generate the water-use analysis report, a combination of procedures are called by the program (for example, gwyield.prg, gw_comp.prg, and output reports that reside in the subdirectory \reports\). The output includes listings and summations of yearly usage totals for the user-specified year or the most recently available data. The output report lists and totals annual totals for the following water-use activities: public-supply well withdrawals; a combination of industrial, commercial, institutional, and ground-water-irrigation well withdrawals; spray irrigation systems; surface-water withdrawals; wastewater-treatment-facility discharges to surface water; estimates of areally distributed aggregate domestic ground-water withdrawals in a basin or subbasin; interbasin imports and exports of wastewater; interbasin imports and exports of public-supply water; estimates of evaporative losses and consumptive use from product incorporation; industrial septic-system discharges; and individual DRBC-assigned well allocation amounts for the selected basin or subbasin. At the end of the report, comparisons are given among the estimates of ground-water contributions to base flow, total ground-water withdrawals, and annual total allocations. Appendix 4 contains a watershed water-use analysis report for the Little Neshaminy Creek, Warminster Subbasin.

The annual total of areally distributed ground-water withdrawals by domestic users was determined by first calculating the areal percentage of each township or borough in a basin or subbasin (tables 9 and 10). The DRBC provided data on the population not served by a public-water system in each township or borough, which was used to represent domestic users (Delaware River Basin Commission, written commun., 1993). Assuming an even areal distribution of domestic users in each township or borough, the domestic-use population for each subbasin was calculated. This population was multiplied by the

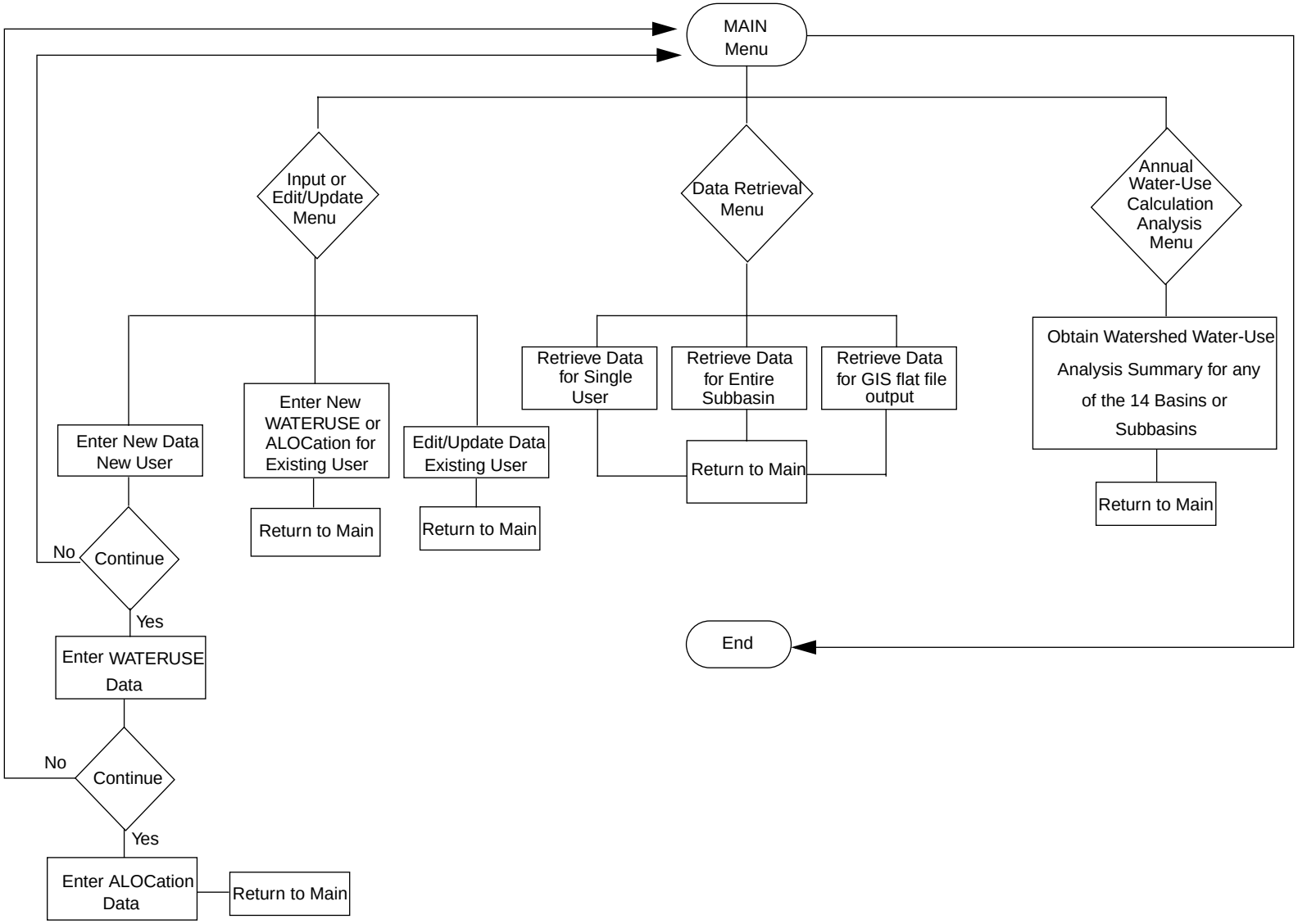

Figure 6. Flowchart of the water-use analysis program.

Table 9. Areal percentages of townships and boroughs in West Branch Neshaminy Creek, Pine Run, North Branch Neshaminy Creek, Doylestown Subbasin Neshaminy Creek, Warwick Subbasin Neshaminy Creek, Warrington Subbasin Little Neshaminy Creek, and Park Creek Basins

[--, not in subbasin]

Municipality	Subbasin and code number						
	West Branch Neshaminy Creek Basin	Pine Run Basin	North Branch Neshaminy Creek Basin	Doylestown Subbasin Neshaminy Creek	Warwick Subbasin Neshaminy Creek	Warrington Subbasin Little Neshaminy Creek	Park Creek Basin
	01	02	03	04	05	06	07
Buckingham Township	--	11.5	--	1.1	11.3	--	--
Chalfont Borough	40.1	8.5	40.1	11.3	--	--	--
Doylestown Borough	--	2.0	--	52.2	45.9	--	--
Doylestown Township	--	20.3	0.3	42.7	36.5	--	--
Franconia Township	1.5	--	--	--	--	--	--
Hatfield Borough	97.7	--	--	--	--	--	--
Hatfield Township	79.0	--	--	--	--	--	--
Hilltown Township	21.4	--	9.4	--	--	--	--
Horsham Township	--	--	--	--	--	13.1	49.7
Lansdale Borough	46.9	--	--	--	--	--	--
Lower Gwynedd Township	--	--	--	--	--	--	10.7
Montgomery Township	27.1	--	--	.6	--	45.3	10.8
New Britian Borough	--	32.1	--	68.0	--	--	--
New Britian Township	34.3	6.7	51.3	7.4	--	.3	--
Plumstead Township	--	11.2	32.5	--	--	--	--
Upper Dublin Township	--	--	--	--	--	--	5.3
Warrington Township	--	--	--	37.1	11.5	31.3	1.0
Warwick Township	--	--	--	--	58.8	--	--
Wrightstown Township	--	--	--	--	3.9	--	--

assumed per capita yearly water use of 21,900 gal/yr, or 60 gal/d per person, to estimate total annual areally distributed domestic ground-water usage for each subbasin (Delaware River Basin Commission, written commun., 1993).

The output report includes a list of imports and exports of wastewater from basin to basin. Imports with a use code of wastewater discharge (DIM) are listed and summed. If exports have a use code of wastewater discharge (DEX), have a source basin (BASIN_SOR) code of outside the user-selected subbasin, and have the destination basin (BASIN_DEST) code of the user-selected subbasin, the exports also are listed as wastewater-discharge imports in the report. For example, if the user-specified basin is Newtown Creek Basin (basin code 11) and a wastewater-discharge export (DEX) has a source basin (BASIN_SOR) code of outside Newtown Creek Basin (BASIN_SOR not equal to 11) and the wastewater discharge has a destination basin (BASIN_DEST) code equal to Newtown Creek, the wastewater export is listed as an import of wastewater discharge in the report. Exports with use codes of wastewater discharge (DEX) are listed and summed for the selected basin. A 10-percent annual average consumptive loss was assumed for all imports and exports of wastewater unless reported data were available (Delaware River Basin Commission, written commun., 1994).

The output report includes a list of imports and exports of water supply from basin to basin. Imports with a use code of water supply (WSI) are listed and summed. If exports have a use code of water supply (WSE), have a source basin (BASIN_SOR) code of

Table 10. Areal percentages of townships and boroughs in Warminster Subbasin Little Neshaminy Creek, Mill Creek, Northampton Subbasin Neshaminy Creek, Newtown Creek, Core Creek, Ironworks Creek, and Lower Section Subbasin Neshaminy Creek

[--, not in subbasin]

Municipality	Subbasin and code number						
	Warminster Subbasin Little Neshaminy Creek	Mill Creek Basin	Northampton Subbasin Neshaminy Creek	Newtown Creek	Core Creek Basin	Ironworks Creek Basin	Lower Section Subbasin Neshaminy Creek
	08	09	10	11	12	13	14
Bensalem Township	--	--	--	--	--	--	58.6
Bristol Township	--	--	--	--	--	--	25.1
Buckingham Township	--	53.7	--	--	--	--	--
Doylestown Township	--	.1	--	--	--	--	--
Horsham Township	2.8	--	--	--	--	--	--
Hulmeville Borough	--	--	--	--	--	--	100.0
Ivyland Borough	100.0	--	--	--	--	--	--
Langhorne Borough	--	--	--	--	--	--	63.5
Lower Makefield Township	--	--	--	--	17.7	--	--
Lower Moreland Township	--	--	--	--	--	--	2.4
Lower Southampton Township	--	--	--	--	--	--	55.0
Middletown Township	--	--	--	1.0	19.2	--	25.0
Newtown Borough	--	--	--	100.0	--	--	--
Newtown Township	--	--	30.4	43.5	23.3	--	--
Northampton Township	23.9	--	21.4	--	--	24.1	26.9
Penndale Borough	--	--	--	--	--	--	84.8
Solebury Township	--	2.1	--	--	--	--	--
Upper Makefield Township	--	--	--	--	.1	--	--
Upper Southampton Township	--	--	--	--	--	--	71.0
Warminster Township	53.4	--	--	--	--	--	.6
Warrington Township	19.0	--	--	--	--	--	--
Warwick Township	41.2	--	--	--	--	--	--
Wrightstown Township	--	34.9	34.1	3.4	--	--	--

outside the selected subbasin, and have the destination basin (BASIN_DEST) code of the selected subbasin, the exports also are listed as water-supply imports in the report. For example, if the user-specified basin is Core Creek Basin (basin code 12) and the water-supply export (WSE) has a source basin (BASIN_SOR) code of outside Core Creek Basin (BASIN_SOR not equal to 12) and the water supply has a destination basin (BASIN_DEST) code equal to Core Creek, the water-supply export is listed as an import of water supply in the report. Exports with use codes of water supply (WSE) are listed and summed for the selected basin.

The output report includes estimates of evaporative loss and consumptive use from product incorporation. The average annual evaporative losses were estimated to be 10 percent of a purveyor's total withdrawal (Delaware River Basin Commission, written commun., 1994). The consumptive uses from product incorporation were reported by the manufacturers.

The output report includes a list of industrial septic-system discharges to ground water. A 10-percent average annual loss of the purveyor's total septic-system discharge was assumed and subtracted from the reported total septic-system discharge. The adjusted total septic-system discharge was entered into

the data tables (Delaware River Basin Commission, written commun., 1994).

The output report includes a list of individual well allocations assigned by the DRBC. The DRBC individual well allocations are based on a 30-day period. The total of the individual allocations for a subbasin was normalized to an annual basis by multiplying by 12.167.

Program Options

The water-management program is started from the dBASE IV dot prompt with the command DO MASTERPR. A banner is displayed, and the user is prompted to press the enter key. The main menu is displayed, and the user may select one of the following options by highlighting the selection with the arrow keys and pressing enter:

Input or Edit/Update Data Programs
Data Retrieval Programs
Annual Water-Use Calculation Program
Quit and Return to DOS

If the program displays an error message during execution, type:

CLEAR ALL <ENTER>
DO MASTERPR <ENTER>

These commands will restart the program.

Input and Edit or Update Data

This option is selected for inputting, editing, or updating data in the three data tables. When this option is chosen, the input and edit/update data submenu is displayed, and the user may select one of the following options by highlighting the selection with the arrow keys and pressing enter:

Enter Data for a New Purveyor

Edit/Update Data for Existing User
- USERFILE Data
- WATERUSE Data
- ALOCation Data

Enter New Data for Existing Purveyors
- WATERUSE Data
- ALOCation Data

Exit and Return to MAIN MENU

Entering Data for a New Purveyor

When the user selects this option, an input form is displayed that enables the user to enter a new purveyor into the USERFILE data table. Mandatory fields PURV_NAME, PURV_CODE, PURV_ID, and TYPE_USE must be entered. Data table integrity will be compromised and improper relational operations will result in program errors if these fields are empty. A message displayed at the bottom of the screen indicates the mandatory fields.

After the USERFILE data are entered, the user is prompted to select the first letter from the following options:

*C*ontinue to enter WATERUSE information for the new purveyor
*M*odify the current record just entered
*D*elete the current record just entered and return to the main menu
*S*ave the record and return to the main menu

When the *C*ontinue option is chosen, an input form is displayed to enter new WATERUSE data. The mandatory fields associated with the new purveyor are automatically inserted into the input form, and reentering these fields is not required. The user then inputs the year and annual and monthly water-use totals to the WATERUSE data table.

After the WATERUSE data are entered, the user is prompted to select the first letter from the following options:

*C*ontinue to enter Allocation data
*A*dd another year of data
*M*odify the record just entered
*D*elete the record just entered and return to the main menu
*S*ave the record and return to the main menu

When the *C*ontinue option is chosen, an input form is displayed to enter allocation data for the WATERUSE record just entered. The mandatory fields are automatically inserted into the input form. The user adds the individual allocation, the joint

allocation, and the system allocation data for the WATERUSE record.

After the allocation data are entered, the user is prompted to select the first letter from the following options:

*M*odify the record just entered
*D*elete the record just entered and return to the main menu
*S*ave the record and return to the main menu

Editing and Updating Data for an Existing Purveyor

Three submenu options allow the user to edit any one of the three data tables, USERFILE, WATERUSE, and ALOCation. Once the desired option is selected, the user is prompted for the purveyor's six-digit code number, which must be supplied. If the entered code does not exist, an error message window is displayed, prompting the user to re-enter the code.

The program scans and lists certain fields for all records associated with the entered purveyor code. If the USERFILE data table is being edited, the PURV_ID, TYPE_USE, LOC_LAT, LOC_LONG, and DRBC_DOC fields are listed on the screen. If the WATERUSE data table is being edited, the PURV_ID, TYPE_USE, ANN_YEAR, and ANNUAL_TOT fields are listed on the screen. If the ALOC data table is being edited, the PURV_ID, ALLOCATION, JT_ALLOC, and SYS_ALLOC fields are listed on the screen. If more than 20 records are available for a particular purveyor, the listing stops after each 20 records, and the user is required to press any key to continue. The records on the each screen should be carefully examined for the desired data because the program does not include a screen-scrolling function.

The user is prompted to enter the PURV_ID of the record to be edited or updated. The entered PURV_ID must be in upper case or the error message "Please Turn the CAPS Lock ON" will be displayed. If the entered PURV_ID does not exist, an error message window is displayed, prompting the user to re-enter the id. When the correct PURV_ID is entered, an editing form is displayed with the data in the proper fields. The user may either press the <ENTER> key or the <TAB> key to skip a field. The user types over the existing data to change the data. Unnecessary characters are erased from the data field by spacing over them. On completion of editing, the main menu is displayed.

Entering New Data for an Existing Purveyor

Two submenu options allow the user to enter new data into the WATERUSE or ALOCation data table. The user may add records to the WATERUSE data table, such as new wells, or may add records to the ALOCation data table, such as recently permitted allocations for wells. If the selection is made to add records to the WATERUSE data table, the user is prompted to enter the purveyor's six-digit code number. If the entered code does not exist, an error message window is displayed, prompting the user to re-enter the code. After a valid purveyor code is entered, an input screen is displayed to enter data into the WATERUSE data table. The PURV_CODE is the only field supplied to the user; all other mandatory fields must be entered.

After the WATERUSE data are entered, the user is prompted to select the first letter from the following options:

*C*ontinue to enter Allocation data
*A*dd another year of data for the same purveyor id
*M*odify the record just entered
*D*elete the record just entered and return to the main menu
*S*ave the record and return to the main menu

When the *C*ontinue option is chosen, an input form is displayed to enter allocation data for the WATERUSE record just entered. The mandatory fields are automatically inserted into the input form. The user adds the individual allocation, the joint allocation, and the system allocation data to the WATERUSE record.

If the selection is made to add records to the allocation data table, the user is prompted to enter a purveyor code. If the entered code does not exist, an error message window is displayed, prompting the user to re-enter the code. The program scans and lists certain fields for all records associated with the entered purveyor code. The fields listed are PURV_ID, TYPE_USE, ANN_YEAR, and ANNUAL_TOT. If more than 20 records are available for a particular purveyor, the listing stops after each 20 records, and the user is required to press any key to

continue. The records on each screen should be carefully examined for the desired data because the program does not include a screen-scrolling function.

The user is prompted to enter the PURV_ID for which allocation data are to be added. The entered PURV_ID must be in upper case or the error message "Please Turn the CAPS Lock ON" will be displayed. If the entered PURV_ID does not exist, an error message window is displayed, prompting the user to re-enter the id. After the correct PURV_ID is entered, an input form is displayed for entering the new allocation data. The mandatory fields are automatically inserted into the input form. After the allocation data are entered, the user is prompted to select the first letter from the following options:

*M*odify the record just entered
*D*elete the record just entered and return to the main menu
*S*ave the record and return to the main menu

Data Retrieval Programs

This option is selected for retrieving data from all three data tables in user-specified formats. After choosing this option, the Data Retrieval submenu is displayed, and the user may select one of the following options by highlighting the selection with the arrow keys and pressing enter:

Retrieve all Data for a Purveyor
Retrieve all Data for a Basin or Subbasin
Retrieve GIS Mapping Output
Exit and Return to MAIN MENU

Retrieve All Data for a Purveyor

When the user selects this option, the user is prompted for an output destination, either a file, a line printer, or a laser printer. The user is then prompted for the purveyor's six-digit code number. If the entered code does not exist, an error message window is displayed, prompting the user to re-enter the code. After a valid code is entered, all data from the three data tables for the selected purveyor are written to the selected output destination in the format as shown in table 11. After execution of the program, the user is returned to the main menu.

Retrieve All Data for a Basin or Subbasin

When the user selects this retrieval option, the user is prompted to select an output destination, either a file, a line printer, or a laser printer. The user is then prompted for a two-digit basin code, in which, the leading zero must be included (table 5). The output for the selected basin or subbasin of purveyor code, purveyor name, purveyor identifier, type of use, year of data, and annual usage or discharge amount in million gallons per year are written to the selected destination as shown in table 12. After execution of the program, the user is returned to the main menu.

Retrieve Data for GIS Coverage Creation

When the user selects the "retrieve GIS mapping output" option, the user is prompted for a type of use category (table 2). The entered type of use must be in upper case or the error message "Please Turn the CAPS Lock ON" will be displayed. The user is then prompted for a filename (eight characters or less), which will be assigned a .TXT extension. The selected type of use data are retrieved for the entire Neshaminy Creek Basin. The output file is an ASCII format file that contains these fields in the following order: LOC_LONG, LOC_LAT, PURV_ID, TYPE_USE, ANN_YEAR, and ANNUAL_TOT as shown in table 13. This file can be used to generate point coverages in a GIS. After execution of the program, the user is returned to the data retrieval submenu.

Annual Water-Use Calculation Program

This option produces an annual water-use analysis report for a user-specified basin or subbasin. Water-use activities listed and totaled are public supply; a combination of industrial, commercial, institutional, irrigation-supplied ground-water withdrawals; spray irrigation systems; surface-water withdrawals; sewage-treatment-plant discharges; imports and exports of wastewater across basin or subbasin divides; imports and exports of water supply across basin or subbasin divides; estimated evaporative loss and consumptive use from product incorporation; industrial septic system discharges; and individual, joint, and system allocations. The totals are for a user-specified year. If no data for the specified year are available, the program retrieves the most recent data available for the analysis. The

Table 11. Output template for the retrieval of all data for a purveyor option

[#, represents numeric data; @, represents character data]

User code -- ######	**Neshaminy Creek water-use analysis program** **Purveyor identification field** **ID**		**User name -- USER NAME**
Type of use @@@	Latitude ######	Longitude #######	Zone 18 UTM-X UTM-Y ####### ########
Geologic Unit Code (if applicable) ###@@@@			USGS Local Well Number (if applicable) @@-####
Source Basin ##	Source Stream Code #####		Source River Mile #.##
Destination Basin ##	Destination Stream Code #####		Destination River Mile #.##
	Delaware River Basin Commission Docket Number: D##-###@@		
Year of Data --> ##			ANNUAL TOTAL --> #.####
	ALLOCATIONS		
Individual Allocation --> #.####			Joint Allocation --> #.####
	System Allocation --> #.####		

program also makes comparisons between withdrawals, ground-water contributions to base flow, and allocations. Ground-water contributions to base flow are determined for the user-specified base-flow recurrence interval and compared to the total ground-water withdrawals from public supply, industrial, commercial, institutional, irrigation wells, and spray irrigation systems. Ground-water contributions to base flow and ground-water withdrawals also are compared to the basin annual total allocations. A complete water-use analysis report for Little Neshaminy Creek, Warminster Subbasin is included in Appendix 4.

When the user selects the annual water-use calculation option, a submenu is displayed and the user may select one of the following basin or subbasin options by highlighting the selection with the arrow keys and pressing enter:

Neshaminy Creek Mainstem Subbasins
- Doylestown Subbasin
- Warwick Subbasin
- Northampton Subbasin
- Lower Neshaminy Subbasin

Neshaminy Creek Tributary Basins
- West Branch
- North Branch
- Pine Run
- Mill Creek
- Newtown Creek
- Core Creek
- Ironworks Creek

Little Neshaminy Creek Subbasins and Tributary
- Warrington Subbasin
- Warminster Subbasin
- Park Creek

Quit and Return to MAIN MENU

After a basin or subbasin is selected, the recurrence interval comparison submenu is displayed, and the user may select one of the following by

Table 12. Example of retrieval of all data for a basin or subbasin

[Mgal/yr, million gallons per year]

Neshaminy Creek Water-Use Analysis Program
BASIN CODE -- 01

Neshaminy Creek Water-Use Analysis Program
BASIN SUMMARY
01/12/95

BASIN CODE -- 01

CODE	Name	Purv_ID	Type of use	Year	Total (Mgal/yr)
011567	EASTERN PRESTRESSED CONCR - PROD CONS	EPRESPCN	PRO	88	0.0141
011567	EASTERN PRESTRESSED CONCRET	EPRESUFT	TID	88	.0939
011567	EASTERN PRESTRESSED CONCR - WITH WELL	EPRESW01	INW	88	.1082
011569	PORTER CHEMICAL PROCESS CO - EVAP LOSS	PORTCEVL	EVP	88	.0640
011569	PORTER CHEMICAL PROCESS - 2 WELLS	PORTCW01	INW	88	.6400
011571	PENN COLOR INC-EVAP LOSS	PCOLOEVL	EVP	83	.6190
011571	PENN COLOR INC-WELL #1	PCOLOW01	INW	87	7.4525
011571	PENN COLOR INC-WELL #2	PCOLOW02	INW	87	.0000
011577	BROOKS INSTRUMENT - EVAP LOSS	BROOKEVL	EVP	88	.8112
011577	BROOKS INSTRUMENT - NESHAMINY DISCHRG	BROOKSWD	TID	88	15.0020
011577	BROOKS INSTRUMENT - WELL	BROOKW01	INW	88	15.8080
011590	M H ZEIGLER & SONS INC - EVAP LOSS	MZEIGPCN	PRO	88	.1500
011590	M H ZEIGLER & SONS INC - WITH WELL	MZEIGW01	INW	88	.0000
011598	AMERICAN OLEAN TILE - EVAP LOSS	OLEANEVL	EVP	88	16.6340
011598	AMERICAN OLEAN TILE - INSTREAM DISCHR	OLEANSWD	TID	88	17.2900
011598	AMERICAN OLEAN TILE - WELL #2	OLEANW02	INW	82	5.4210
011598	AMERICAN OLEAN TILE - WELL #3	OLEANW03	INW	92	2.7050
011598	AMERICAN OLEAN TILE - WELL #4	OLEANW04	INW	92	10.2520
011598	AMERICAN OLEAN TILE - WELL #5	OLEANW05	INW	92	9.0590
011600	CUSTOM POOL COPING - PROD CONS	CPOOLPCN	PRO	88	.0022

highlighting the selection with the arrow keys and pressing enter:

2-Year Recurrence Interval Contribution
5-Year Recurrence Interval Contribution
10-Year Recurrence Interval Contribution
25-Year Recurrence Interval Contribution
50-Year Recurrence Interval Contribution
EXIT and return to main menu

After the user selects a recurrence interval, the user is prompted for an output destination, either a file, line printer, or laser printer. The user is then prompted with “Do you wish to continue (Y/N)”. If “Y” is entered, the user must enter the year for the annual water-use analysis in two-digit format, for example, 95 for 1995. The program executes, and the user is returned to the Main Menu. If “N” is entered, the user is returned to the Annual Water-Use Calculation Submenu.

Limitations of Program

The reliability and accuracy of the program, particularly the watershed water-use analysis program, is dependent on data integrity. Erroneous or incomplete data entered into the data tables will compromise program results. It is also important to enter the data accurately and to maintain a current database.

Table 13. Example output for retrieval of Geographic Information System mapping option using a type of use code of Public Supply Well (PSW)

[Mgal/yr, million gallons per year]

Longitude	Latitude	Purv_ID	USGS local number	Type of use	Year	Total (Mgal/yr)
745626	401203	BCWSAW04		PSW	92	3.3470
750159	401805	BSVILW01		PSW	91	1.2903
750204	401813	BSVILW02		PSW	91	2.1137
750354	401935	BUCKTWB1	BK-2289	PSW	92	0.6900
750355	401935	BUCKTWB2	BK-2290	PSW	92	0.6900
750612	401945	BUCKTWF1		PSW	92	2.7850
750612	401945	BUCKTWF2		PSW	92	2.7850
750534	402103	BUCKTWF3		PSW	92	6.0220
750619	402040	BUCWCW01	BK-1289	PSW	92	5.1800
750627	402058	BUCWCW02	BK-1290	PSW	92	0.0000
750629	402024	BUCWCW03		PSW	92	0.0000
750038	401748	BVNURW01		PSW	92	0.9290
750036	401750	BVNURW02		PSW	92	0.9290
750035	401750	BVNURW03		PSW	91	0.9290
750619	402123	CANTBW01		PSW	91	1.0950
750614	402119	CANTBW02		PSW	92	0.0000
750807	402015	CGATEW01		PSW	93	0.0000
751149	401734	CHALBW08		PSW	90	77.2830
751248	401739	CHALBW09	BK-1177	PSW	93	0.0000
751235	401747	CHALBW11	BK-965	PSW	93	58.4490

For the comparisons of public-water supplies, industrial, commercial, and institutional supplies to ground-water contributions to base flow, the ground-water contributions were based strictly on hydrologic factors and did not take into account any environmental or economic factors.

A variable that has an effect on a basinwide water-use analysis is infiltration of ground water into public sewer systems. Infiltration was not incorporated into the watershed analysis for this study and was not included in this program. Further investigation of infiltration in the Neshaminy Creek Basin would have to be done to reliably estimate this variable. Sloto and Davis (1983) found in Warminster Township that large quantities of ground water infiltrated into the public sewer system. They calculated that 830 Mgal of ground water infiltrated into the Warminster municipal sewage treatment system in 1979, a wet year, and 250 Mgal infiltrated in 1980, a dry year.

SUMMARY

The Neshaminy Creek Basin is in a heavily populated area of southeastern Pennsylvania. The demand for water has increased greatly over recent years and will probably increase even more in the future. The Delaware River Basin Commission (DRBC) manages, protects, and allocates water resources in the Neshaminy Creek Basin. A water-use analysis program was developed for the Neshaminy Creek Basin to assist the DRBC in managing and allocating basin water resources. In order to effectively manage and allocate water resources in the basin, data on quantities and locations of withdrawals, discharges, and imports and exports must be current, accurate, and easily accessible. Using a common relational database-management software, the quantities and locations of withdrawals, discharges, imports, and exports were combined and stored in three data tables—a USERFILE table, a WATERUSE table, and an ALOCation table. The program allows a user to interactively input, edit, update, or retrieve data from

these data tables and provides a watershed water-use analysis report.

The watershed water-use analysis is done geographically for a user-specified subbasin. The Neshaminy Creek Basin was divided into 14 subbasins. The water-use analysis report lists summations of public-supply well withdrawals; a combination of industrial, commercial, institutional, irrigation well withdrawals, and spray irrigation systems; surface-water withdrawals; wastewater-treatment-facility discharges; estimates of domestic ground-water withdrawals; imports and exports of wastewater; imports and exports of water supplies; evaporative loss and consumptive use from product incorporation; industrial septic-system discharges; and individual well allocations assigned by the Delaware River Basin Commission.

Ground-water contributions to base flow of each subbasin were estimated from annual base flow at the 2-, 5-, 10-, 25-, and 50-year recurrence intervals. The report lists a comparison of a user-specified base-flow recurrence-interval estimate to total ground-water withdrawals and annual total DRBC-permitted ground-water allocations.

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APPENDIXES

APPENDIX 1. Master Control Program

(filename masterpr.prg)

```
*-----------------------------------------------------------------
* Program.....: MASTERPR.PRG
* Author.....: This is an APPLICATION OBJECT.
* Date.....: 1-25-94
* Revised.....: 3-9-94 by CLSCHREFFLER for Neshaminy Modeling Project
* Notice.....: This program was generated using the Applications Generator.
*            The file was copied from the Chester County Water Use Model
*            workspace and edited for use in the Neshaminy Water Use Model.
* Generated by.: dBASE IV version 1.5
* Description..: Main routine for menu system
*-----------------------------------------------------------------
****  Setting up initial environment

 SET BELL ON
 SET CARRY OFF
 SET CENTURY OFF
 SET CLOCK OFF
 SET CONFIRM OFF
 SET DELIMITERS TO ""
 SET DELIMITERS OFF
 SET DEVICE TO SCREEN
 SET ESCAPE ON
 SET EXCLUSIVE ON
 SET LOCK ON
 SET MESSAGE TO ""
 SET PRINT OFF
 SET REPROCESS TO 4
 SET SAFETY ON
 SET TALK OFF
 SET SCOREBOARD OFF

 *-- Initialize global variables
 gl_batch=.F.      && is a batch operation in progress
 gn_error=0        && 0 if no error, otherwise an error occurred
 gn_scrsize=21     && number of lines on screen
 gn_send=0         && return value from popup of position menus
 gn_trace=1        && sets trace level, however you need to change template
 gc_brdr='1'       && border to use when drawing boxes
 gc_dev='CON'      && Device to use for printing - See Proc. PrintSet
 gl_leave=.f.      && leave the application
 gc_prognum=' '    && internal program counter to handle nested menus
 gc_quit=' '       && memvar for return to caller
 gc_scope=''       && scope, for and while of position at runtime
 listval='NO_FIELD'  && Pick List value

 *-- Blank the screen
 CLEAR
 SET SCOREBOARD OFF
 SET STATUS OFF

*-----------------------------------------------------------------
* Setting the Procedure Library
 SET PROCEDURE TO proclib          &&  Procedure Library Program Name
* -----------------------------------------------------------------

*-----------------------------------------------
*     Setting up the database Indexes and Areas and Declares Public Memory Variables

                                   USE USERFILE IN 1 ORDER PURV_CODE
                                   USE WATERUSE IN 3 ORDER WATMDX
                                   *-- WATMDX is the complex index tag name
                                   USE ALOC IN 2 ORDER PURV_CODE

                                   PUBLIC mvar2, mvar5, mvar10, mvar25, mvar50, mvar_recur, mrecur
                                   PUBLIC mtitle, mavail, num, M->flag, mvar_yr, mvar_domuse, mvar_domdep
                                   PUBLIC M->file_nam, mvar_basin
```

```
*-- Initialize the PUBLIC Variables
                                        mvar2 = 0.0
                                        mvar5 = 0.0
                                        mvar10 = 0.0
                                        mvar25 = 0.0
                                        mvar50 = 0.0
                                        mvar_recur = 0.0
                                        mavail = 0.0
                                        mvar_domuse = 0.0
                                        mvar_domdep = 0.0
                                        mrecur = " "
                                        M->file_nam = " "
                                        mtitle = " "
                                        num = 0
                                        M->flag = .T.
                                        mvar_basin = " "
                                        mvar_yr = 0
  *-------------------------------------------------------------------
*-- Starts the Main Menu Procedure
  *-------------------------------------------------------------------
 DO main_prg

  *-------------------------------------------------------------------


RETURN
*-- EOP: MASTERPR


PROCEDURE main_prg
*-------------------------------------------------------------------
* Program.....: main_prg
* Author.....: This is an APPLICATION OBJECT.
* Date.....: 1-25-94
* Revised.....: 3-9-94 by CLSCHREFFLER for use in Neshaminy Modeling Project
* Notice.....: Type information here or greetings to your users.
* Generated by.: dBASE IV version 1.5
* Description..: Contains the Main Menu Definition
*-------------------------------------------------------------------

 *-- Sign-on banner
 SET BORDER TO
 @ 5,9 TO 8,70 DOUBLE COLOR RG+ / GB
 @ 6,10 SAY "      Welcome to the Delaware River Basin Commission"
 @ 7,10 SAY " Neshaminy Creek Basin Water Use Database Management System"
 @ 6,10 FILL TO 7,69 COLOR R+ / N
 @ 24,30 SAY " Press "+CHR(17)+CHR(196)+CHR(217)+" to continue. "
 SET CONSOLE OFF
 WAIT
 SET CONSOLE ON
 CLEAR

 *-- Prevents clearing of menus from commands:

 DEFINE WINDOW FullScr FROM 0,0 TO 24,79 NONE
 *-- Position at runtime and batch process
 DEFINE WINDOW Savescr FROM 0,0 TO 21,79 NONE
  *-- Pause message box
  DEFINE WINDOW Pause FROM 15,00 TO 19,79 DOUBLE
 ACTIVATE WINDOW FullScr
 @ 24,00
 @ 20,00 SAY "Loading..."
 CLEAR
 SET BORDER TO DOUBLE


DO main_men
  ACTIVATE POPUP main_men


*-------------------------------------------------------------------
PROCEDURE main_men
```

```
 DEFINE POPUP main_men FROM 5,19 TO 14,61 ;
 MESSAGE "Press first letter, or highlight choice and Press <Enter>"
  DEFINE BAR 1 OF main_men PROMPT "**********MAIN MENU**********" SKIP
  DEFINE BAR 2 OF main_men PROMPT ""              SKIP
  DEFINE BAR 3 OF main_men PROMPT "  Input or Edit / Update Data Programs"
  DEFINE BAR 4 OF main_men PROMPT "  Data Retrieval Programs"
  DEFINE BAR 5 OF main_men PROMPT "  Annual Water-use Calculation Program"
  DEFINE BAR 6 OF main_men PROMPT "  Quit and Return to DOS"
 ON SELECTION POPUP main_men DO main

 SET BORDER TO DOUBLE
 SET COLOR OF HIGHLIGHT TO R+
 RETURN

*-------------------------------------------------------------
 PROCEDURE main
   *----------------------------------------------------------
 DO CASE

  *-- INPUT
  CASE BAR() = 3
   lc_new='Y'
   CLEAR
   DO inup_mnu

  *-- RETRIEVAL
  CASE BAR() = 4
   lc_new='Y'
   CLEAR
   DO output_mnu

  *-- WATER CALCULATIONS
  CASE BAR() = 5
   lc_new='Y'
   CLEAR
   DO wat_mnu

  *-- QUIT
  CASE BAR() = 6
   *-- Quit dBASE
   CLOSE DATABASES
   QUIT
 ENDCASE

RETURN
*-- EOP: main - Menu main_men

*-------------------------------------------------------------
PROCEDURE inup_mnu
   *----------------------------------------------------------
 *-- Defining the Input Popup Submenu
   *----------------------------------------------------------
 DEFINE POPUP inup_mnu FROM 3,16 TO 19,62 ;
 MESSAGE "Highlight menu choice and Press <Enter>"
  DEFINE BAR 1 OF inup_mnu PROMPT "****Input or Edit / Update Data SUBMENU****"  SKIP
  DEFINE BAR 2 OF inup_mnu PROMPT " "  SKIP
  DEFINE BAR 3 OF inup_mnu PROMPT "  Enter Data for New Purveyor"
  DEFINE BAR 4 OF inup_mnu PROMPT " "  SKIP
  DEFINE BAR 5 OF inup_mnu PROMPT "  Edit / Update Data for Existing Purveyors"  SKIP
  DEFINE BAR 6 OF inup_mnu PROMPT "      USERFILE Data"
  DEFINE BAR 7 OF inup_mnu PROMPT "      WATERUSE Data"
  DEFINE BAR 8 OF inup_mnu PROMPT "      ALOCation Data"
  DEFINE BAR 9 OF inup_mnu PROMPT " "  SKIP
  DEFINE BAR 10 OF inup_mnu PROMPT "  Enter New Data for Existing Purveyors" SKIP
  DEFINE BAR 11 OF inup_mnu PROMPT "         WATERUSE Data"
  DEFINE BAR 12 OF inup_mnu PROMPT "         ALOCation Data"
  DEFINE BAR 13 OF inup_mnu PROMPT " " SKIP
  DEFINE BAR 14 OF inup_mnu PROMPT "  Exit and Return to MAIN MENU"
 ON SELECTION POPUP inup_mnu DO ACT02
 ?? "."
 SET BORDER TO DOUBLE
```

```
 ACTIVATE POPUP inup_mnu

 SET TALK OFF
 SET ESCAPE OFF
 SET STATUS OFF
 SET SCOREBOARD OFF

RETURN
*** eof: inup_mnu
*-------------------------------------------------------------------
PROCEDURE ACT02
                                        *-------------------------------------------------------
************  All the Programs of the DO CASE construct are in the proclib.prg


  DO CASE

  *--  INPUT data for new User
  CASE BAR() = 3
    SET MESSAGE TO
    DO NEW_USR

  *--  EDIT / UPDATE  Userfile data for an existing User
  CASE BAR() = 6
    SET MESSAGE TO
    DO USER_EX

  *--  EDIT / UPDATE WaterUse data for an existing User
  CASE BAR() = 7
    SET MESSAGE TO
    DO WAT_EX

  *--  EDIT / UPDATE Allocation data for an existing User
  CASE BAR() = 8
    SET MESSAGE TO
    DO AL_EX

  *--  INPUT data for new User
  CASE BAR() = 11
    SET MESSAGE TO
    DO ADD_WAT

  *--  INPUT data for new User
  CASE BAR() = 12
    SET MESSAGE TO
    DO ADD_ALOC

  *--  QUIT this program return to Main Menu
  CASE BAR() = 14
                                    DEACTIVATE POPUP && inup_mnu
                                    REINDEX
                                    CLOSE DATABASES
                                    CLEAR

 ENDCASE

RETURN TO ACT02
*-- EOP: ACT02 - Menu inup_mnu
*********************************************************************
*********************************************************************
*-------------------------------------------------------------------
PROCEDURE output_mnu
M->Flag = .T.
    *-----------------------------------------------------------
 DEFINE POPUP output_mnu FROM 6,18 TO 13,61 ;
 MESSAGE "Highlight menu choice and Press <Enter>"
   DEFINE BAR 1 OF output_mnu PROMPT "        Data Retrieval SUBMENU        "  SKIP
   DEFINE BAR 2 OF output_mnu PROMPT " "  SKIP
   DEFINE BAR 3 OF output_mnu PROMPT " Retrieve all Data for a Purveyor"
   DEFINE BAR 4 OF output_mnu PROMPT " Retrieve all Data for a Basin or Subbasin"
   DEFINE BAR 5 OF output_mnu PROMPT " Retrieve GIS Mapping Output"
   DEFINE BAR 6 OF output_mnu PROMPT " Exit and Return to MAIN MENU"
 ON SELECTION POPUP output_mnu DO ACT04
```

```
 ?? "."
 SET BORDER TO DOUBLE
 ACTIVATE POPUP output_mnu

 SET TALK OFF
 SET ESCAPE OFF
 SET STATUS OFF
 SET SCOREBOARD OFF

RETURN
*** eof: output_mnu
*-------------------------------------------------------------

PROCEDURE ACT04
    *-------------------------
 DO CASE  &&  Programs of the DO CASE construct are in the Proclib.prg

                                    CASE BAR() = 3   && Retrieval of all Data for a User
                                    DO set_prin
                                    IF M->flag = .F.
                                    CLEAR MEMORY
                                    RETURN TO output_mnu
                                    ENDIF
                                    DO user_out
                                    CLEAR

                                    CASE BAR() = 4   && Retrieval of all Data for a particular Basin
                                    DO set_prin
                                    IF M->flag = .F.
                                    CLEAR MEMORY
                                    RETURN TO output_mnu
                                    ENDIF
                                    DO basinout
                                    CLEAR

                                    CASE BAR() = 5  && Retrieval of Files for Importing to a GIS
                                    DO GIS_USEDUMP
                                    CLEAR

                                    CASE BAR() = 6
                                    DEACTIVATE POPUP && output_mnu
                                    REINDEX
                                    CLOSE DATABASES
                                    CLEAR
 ENDCASE

RETURN TO ACT04
*-- EOP: ACT04 -
*-------------------------------------------------------------
PROCEDURE wat_mnu

 *-- Defining the Water Calculation Popup Submenu
    *-------------------------------------------------------------
 DEFINE POPUP wat_mnu FROM 0,16 TO 24,65 ;
 MESSAGE "Highlight Selection "
  DEFINE BAR 1 OF wat_mnu PROMPT "       Annual Water Calculation SUBMENU"   SKIP
  DEFINE BAR 2 OF wat_mnu PROMPT " "   SKIP
  DEFINE BAR 3 OF wat_mnu PROMPT " Neshaminy Creek Main Stem Subbasins"  SKIP
  DEFINE BAR 4 OF wat_mnu PROMPT "   Doylestown Subbasin"
  DEFINE BAR 5 OF wat_mnu PROMPT "   Warwick Subbasin"
  DEFINE BAR 6 OF wat_mnu PROMPT "   Northampton Subbasin"
  DEFINE BAR 7 OF wat_mnu PROMPT "   Lower Neshaminy Subbasin"
  DEFINE BAR 8 OF wat_mnu PROMPT " " SKIP
  DEFINE BAR 9 OF wat_mnu PROMPT " Neshaminy Creek Tributary Basins" SKIP
  DEFINE BAR 10 OF wat_mnu PROMPT "  West Branch"
  DEFINE BAR 11 OF wat_mnu PROMPT "  North Branch"
  DEFINE BAR 12 OF wat_mnu PROMPT "  Pine Run"
  DEFINE BAR 13 OF wat_mnu PROMPT "  Mill Creek"
  DEFINE BAR 14 OF wat_mnu PROMPT "  Newtown Creek"
  DEFINE BAR 15 OF wat_mnu PROMPT "  Core Creek"
  DEFINE BAR 16 OF wat_mnu PROMPT "  Ironworks Creek"
  DEFINE BAR 17 OF wat_mnu PROMPT " " SKIP
  DEFINE BAR 18 OF wat_mnu PROMPT " Little Neshaminy Creek Subbasins and Tributary" SKIP
```

```
   DEFINE BAR 19 OF wat_mnu PROMPT "  Warrington Subbasin"
   DEFINE BAR 20 OF wat_mnu PROMPT "  Warminster Subbasin"
   DEFINE BAR 21 OF wat_mnu PROMPT "  Park Creek"
   DEFINE BAR 22 OF wat_mnu PROMPT " " SKIP
   DEFINE BAR 23 OF wat_mnu PROMPT " Quit and Return to MAIN MENU"
ON SELECTION POPUP wat_mnu DO ACT05
 ?? "."
SET BORDER TO DOUBLE
ACTIVATE POPUP wat_mnu

SET TALK OFF
SET ESCAPE OFF
SET STATUS OFF
SET SCOREBOARD OFF

RETURN
*-- EOP: wat_mnu
*-----------------------------------------------------------

PROCEDURE ACT05

STORE .T. TO M->Flag
   *-------------------------
 DO CASE  &&  Programs of the DO CASE construct are in the Proclib.prg

                                CASE BAR() = 04   && Doylestown Subbasin Neshaminy Creek
                                STORE " Doylestown Subbasin Neshaminy Creek " to mtitle   && Storing Watershed
                                 &&  name to variable mtitle
                                mvar_basin = '04'      && Setting Memory variable for the selected basin
                                mvar2 = 6.865175 * 365     && Setting Memory variables for Basin
                                mvar5 = 4.745055 * 365    &&  yields at the different recurrence
                                mvar10 = 3.903016 * 365   &&  intervals.
                                mvar25 = 2.592581 * 365
                                mvar50 = 2.304972 * 365
                                mvar_domuse = .410893 * 365
                                mvar_domdep = mvar_domuse * 0.2
                                DO freq_mnu
                                IF M->flag = .F.
                                CLEAR MEMORY
                                RETURN TO ACT05
                                ENDIF
                                DO set_prin
                                IF M->flag = .F.
                                CLEAR MEMORY
                                RETURN TO ACT05
                                ENDIF

                                DO continue

                                CASE BAR() = 05   && Warwick Subbasin Neshaminy Creek
                                STORE " Warwick Subbasin Neshaminy Creek " to mtitle   && Storing Watershed
                                   &&  name to variable mtitle
                                mvar_basin = '05'      && Setting Memory variable for the selected basin
                                mvar2 = 8.483111 * 365     && Setting Memory variables for Basin
                                mvar5 = 5.867056 * 365    &&  yields at the different recurrence
                                mvar10 = 4.822718 * 365   &&  intervals.
                                mvar25 = 3.246350 * 365
                                mvar50 = 2.854616 * 365
                                mvar_domuse = .431550 * 365
                                mvar_domdep = mvar_domuse * 0.2
                                DO freq_mnu
                                IF M->flag = .F.
                                CLEAR MEMORY
                                RETURN TO ACT05
                                ENDIF
                                DO set_prin
                                IF M->flag = .F.
                                CLEAR MEMORY
                                RETURN TO ACT05
                                ENDIF
                                DO continue
```

```
CASE BAR() = 06   && Northampton Subbasin Neshaminy Creek
STORE " Northampton Subbasin Neshaminy Creek " to mtitle   && Storing Watershed
  &&  name to variable mtitle
mvar_basin = '10'      && Setting Memory variable for the selected basin
mvar2 = 6.039993 * 365     && Setting Memory variables for Basin
mvar5 = 4.103842 * 365    &&  yields at the different recurrence
mvar10 = 3.404402 * 365   &&  intervals.
mvar25 = 2.17547 * 365
mvar50 = 1.912946 * 365
mvar_domuse = .237189 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 07   && Lower Neshaminy Subbasin Neshaminy Creek
STORE " Lower Neshaminy Subbasin Neshaminy Creek " to mtitle   && Storing Watershed
    &&  name to variable mtitle
mvar_basin = '14'      && Setting Memory variable for the selected basin
mvar2 = 17.18292 * 365     && Setting Memory variables for Basin
mvar5 = 11.78435 * 365    &&  yields at the different recurrence
mvar10 = 9.669911* 365   &&  intervals.
mvar25 = 7.631331 * 365
mvar50 = 5.618718 * 365
mvar_domuse = .363868 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 10   && West Branch Neshaminy Creek
STORE " West Branch Neshaminy Creek " to mtitle   && Storing Watershed
  &&  name to variable mtitle
mvar_basin = '01'      && Setting Memory variable for the selected basin
mvar2 = 7.895241 * 365     && Setting Memory variables for Basin
mvar5 = 6.039354 * 365    &&  yields at the different recurrence
mvar10 = 4.730874 * 365   &&  intervals.
mvar25 = 3.848417 * 365
mvar50 = 3.595602 * 365
mvar_domuse = .387406 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 11   && North Branch Neshaminy Creek
STORE " North Branch Neshaminy Creek " to mtitle   && Storing Watershed
  &&  name to variable mtitle
```

```
mvar_basin = '03'      && Setting Memory variable for the selected basin
mvar2 = 6.550316 * 365     && Setting Memory variables for Basin
mvar5 = 4.955902 * 365     &&  yields at the different recurrence
mvar10 = 3.902078 * 365    &&  intervals.
mvar25 = 3.115002 * 365
mvar50 = 2.894404 * 365
mvar_domuse = .262716 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 12    && Pine Run
STORE "   Pine Run   " to mtitle    && Storing Watershed
  &&   name to variable mtitle
mvar_basin = '02'      && Setting Memory variable for the selected basin
mvar2 = 7.005507 * 365     && Setting Memory variables for Basin
mvar5 = 4.522851 * 365     &&  yields at the different recurrence
mvar10 = 3.849622 * 365    &&  intervals.
mvar25 = 2.178814 * 365
mvar50 = 1.834216 * 365
mvar_domuse = .218333 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 13    && Mill Creek
STORE "   Mill Creek   " to mtitle    && Storing Watershed
    &&   name to variable mtitle
mvar_basin = '09'      && Setting Memory variable for the selected basin
mvar2 = 10.80850 * 365     && Setting Memory variables for Basin
mvar5 = 7.473873 * 365     &&  yields at the different recurrence
mvar10 = 6.179041 * 365    &&  intervals.
mvar25 = 4.286847 * 365
mvar50 = 3.843190 * 365
mvar_domuse = .265808 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 14    && Newtown Creek
STORE "   Newtown Creek   " to mtitle    && Storing Watershed
&&   name to variable mtitle
mvar_basin = '11'      && Setting Memory variable for the selected basin
mvar2 = 3.056035 * 365     && Setting Memory variables for Basin
mvar5 = 2.067407 * 365     &&  yields at the different recurrence
```

```
mvar10 = 1.718769 * 365   && intervals.
mvar25 = 1.087314 * 365
mvar50 = 0.953280 * 365
mvar_domuse = .128517 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 15   && Core Creek
STORE " Core Creek " to mtitle   && Storing Watershed
   &&  name to variable mtitle
mvar_basin = '12'     && Setting Memory variable for the selected basin
mvar2 = 5.774406 * 365     && Setting Memory variables for Basin
mvar5 = 3.736958 * 365    &&  yields at the different recurrence
mvar10 = 3.177154 * 365   &&  intervals.
mvar25 = 1.802299 * 365
mvar50 = 1.526364 * 365
mvar_domuse = .067710 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 16   && Ironworks Creek
STORE " Ironworks Creek " to mtitle   && Storing Watershed
 &&  name to variable mtitle
mvar_basin = '13'     && Setting Memory variable for the selected basin
mvar2 = 3.951251 * 365     && Setting Memory variables for Basin
mvar5 = 2.527082 * 365    &&  yields at the different recurrence
mvar10 = 2.161545 * 365   &&  intervals.
mvar25 = 1.188668 * 365
mvar50 = 0.995764 * 365
mvar_domuse = .126501 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 19   && Warrington Subbasin
STORE " Warrington Subbasin Little Neshaminy " to mtitle   && Storing Watershed
  &&  name to variable mtitle
mvar_basin = '06'     && Setting Memory variable for the selected basin
mvar2 = 4.180603 * 365     && Setting Memory variables for Basin
mvar5 = 3.066695 * 365    &&  yields at the different recurrence
mvar10 = 2.450466 * 365   &&  intervals.
mvar25 = 1.842477 * 365
mvar50 = 1.691048 * 365
```

```
mvar_domuse = .167471 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 20   && Warminster Subbasin
STORE " Warminster Subbasin Little Neshaminy " to mtitle   && Storing Watershed
  &&  name to variable mtitle
mvar_basin = '08'      && Setting Memory variable for the selected basin
mvar2 = 12.19580 * 365     && Setting Memory variables for Basin
mvar5 = 7.823052 * 365    &&  yields at the different recurrence
mvar10 = 6.680966 * 365   &&  intervals.
mvar25 = 3.711067 * 365
mvar50 = 3.110878 * 365
mvar_domuse = .262633 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 21   && Park Creek
STORE "  Park Creek  " to mtitle   && Storing Watershed
   &&  name to variable mtitle
mvar_basin = '07'      && Setting Memory variable for the selected basin
mvar2 = 6.516091 * 365     && Setting Memory variables for Basin
mvar5 = 4.278338 * 365    &&  yields at the different recurrence
mvar10 = 3.610776 * 365   &&  intervals.
mvar25 = 2.125177 * 365
mvar50 = 1.822018 * 365
mvar_domuse = .025578 * 365
mvar_domdep = mvar_domuse * 0.2
DO freq_mnu
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO set_prin
IF M->flag = .F.
CLEAR MEMORY
RETURN TO ACT05
ENDIF
DO continue

CASE BAR() = 23   && Quit and Return to MAIN MENU
DEACTIVATE POPUP
CLEAR
REINDEX
CLOSE DATABASES

ENDCASE

RETURN TO ACT05
```

APPENDIX 2. Procedure Library

(filename proclib.prg)

```
* This is the Process Library for all the Procedures used in the MASTERPR
*   Program.  The PrntRtry was created in the Applications
*   Generator and copied to this Library.
*-------------------------------------------------------------------------

*PROGRAM:  GWYIELD.PRG
*DATE   :  NOVEMBER 13, 1987. MODIFIED JUNE 7, 1988.
*NOTES  :  PROGRAM CALLED FROM ANALYSIS.PRG.
*          COMPARES GW WITHDRAWAL TOTALS WITH
*          GW YIELD OF WATERSHED.
*AUTHOR :  KAREN VOGEL
*
PROCEDURE GWYIELD
DO WHILE .T.
  mavail = mvar_recur - gwtotal

SET PRINT ON
?
? SPACE(8) + REPLICATE("_",66)
? SPACE(8) + "Comparison of Ground Water Withdrawals"
? SPACE(8) + "with " + mtitle + " Watershed Ground-Water"
? SPACE(8) + "contribution to base-flow for the " + mrecur
? SPACE(8) + REPLICATE ("-",66)
? SPACE(8) + "Basin Contribution (mgal)     Total GW Withdrawals (mgal / yr)    Difference (mgal)"
? SPACE(13) + STR(mvar_recur,10,3) + SPACE(17) + STR(gwtotal,10,3) + SPACE(16) + STR(mavail,10,3)
?
EJECT
SET PRINT OFF
RETURN
ENDDO
***EOF:  GWYIELD.PRG
**************************************************
*PROGRAM:  GW_COMP.PRG
*DATE   :  MAY 31, 1994.
*NOTES  :  PROGRAM CALLED FROM ANALYSIS.PRG.
*          COMPARES ALLOCATION TOTALS WITH GW WITHDRAWAL TOTALS AND
*          GW YIELD OF WATERSHED.
*AUTHOR :  CURTIS L. SCHREFFLER
*
PROCEDURE GW_COMP
DO WHILE .T.

  malloc = mvar_recur - alloc_yr

SET PRINT ON
?
? SPACE(8) + REPLICATE("_",66)
? SPACE(8) + "Comparison of Allocations with Ground Water Base-flow Contribution"
? SPACE(8) + "with " + mtitle + " Watershed Ground Water "
? SPACE(8) + "Contribution to Base Flow for the " + mrecur
? SPACE(8) + REPLICATE ("-",66)
? SPACE(8) + "Basin Contribution (mgal)     Total Allocation (mgal)    Difference (mgal)"
? SPACE(13) + STR(mvar_recur,10,3) + SPACE(17) + STR(alloc_yr,10,3) + SPACE(16) + STR(malloc,10,3)

SET PRINT OFF

  malloc = 0.000

   mwith = gwtotal + swtotal

    malloc = mwith - alloc_yr


SET PRINT ON
?
? SPACE(8) + REPLICATE("_",66)
? SPACE(8) + "Comparison of Allocations with Total Ground Water / Surface Water"
? SPACE(8) + "Withdrawals for " + mtitle + " Watershed"
```

```
? SPACE(8) + REPLICATE ("-",66)
? SPACE(8) + "Total Withdrawals (mgal)    Total Allocation (mgal)    Difference (mgal)"
? SPACE(13) + STR(mwith,10,3) + SPACE(17) + STR(alloc_yr,10,3) + SPACE(16) + STR(malloc,10,3)



SET PRINT OFF
RETURN
ENDDO
*** EOF:  GW_COMP.PRG

************************************************
**  The next 3 Procedure are Executed from the "inup_mnu" Option of
**  adding data for a NEW user
************************************************
***  NEW_USR  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  MARCH 21, 1994
*NOTES :  CALLED BY POPUP MENU inup_mnu.  THIS PROCEDURE PULLS UP SCREEN FOR
*       ENTERING DATA INTO THE USERFILE DATABASE FOR A NEW USER.  THE
*       OPERATOR MAY ALSO ENTER DATA FOR THE NEW USER IN THE WATERUSE AND
*       ALOC DATABASES IF THEY DESIRE.

PROCEDURE NEW_USR
DO WHILE .T.
CLEAR
SELECT 1        && The USERFILE.DBF database is in Area 1.

APPEND BLANK

   *--This form was created in the forms generator and copied into this
*          program.
DO WHILE .T.
CLEAR
@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,29 SAY "User Input Description" COLOR gr+ / bg
@ 8,36 SAY "NEW USER" COLOR r+ / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ" COLOR
w+ / b
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 11,0 SAY "PURVEYOR NAME" COLOR w+ / b
@ 11,15 GET Purv_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Enter the Purveyor Name (MANDATORY Field)"
@ 11,57 SAY "PURVEYOR CODE  "
@ 11,72 GET Purv_code PICTURE "XXXXXX" ;
  MESSAGE "Enter the Purveyor Code (MANDATORY Field)"
@ 13,0 SAY "PURVEYOR LOCAL ID"
@ 13,19 GET Purv_id PICTURE "XXXXXXXX" ;
  MESSAGE "Enter the Purveyor's Local Identifier (MANDATORY Field)"
@ 13,32 SAY "USGS LOCAL ID  "
@ 13,47 GET Usgs_local PICTURE "XXXXXXXX" ;
  MESSAGE "Enter the USGS Local Identifier (if applicable)"
@ 13,63 SAY "TYPE OF USE"
@ 13,75 GET Type_use PICTURE "XXX" ;
  MESSAGE "Enter the Type of Use Code (MANDATORY Field)"
@ 14,27 SAY "GEOLOGIC UNIT CODE  "
@ 14,47 GET Gunit_code PICTURE "XXXXXXXX" ;
  MESSAGE "Enter the Geologic Unit Code (if applicable)"
@ 16,2 SAY "----------------------------------------------------------------------------"
@ 17,24 SAY "Physical Location of Water User" COLOR w+ / n
@ 18,0 SAY "LATITUDE"
@ 18,10 GET Loc_lat PICTURE "XXXXXX" ;
  MESSAGE "Enter Latitude"
@ 18,19 SAY "LONGITUDE"
@ 18,30 GET Loc_long PICTURE "XXXXXXX" ;
  MESSAGE "Enter Longitude"
@ 18,39 SAY "UTM X COOR. "
```

```
@ 18,51 GET Utm18_x PICTURE “XXXXXX” ;
  MESSAGE “Enter the UTM Zone_18 X_Coordinate”
@ 18,60 SAY “UTM Y COOR. “
@ 18,72 GET Utm18_y PICTURE “XXXXXXX” ;
  MESSAGE “Enter the UTM Zone_18 Y_Coordinate”
@ 20,2 SAY “----------”
@ 21,7 SAY “Basin and Stream Coding Information for the Source and Destination” COLOR w+ / n
@ 22,0 SAY “SOURCE BASIN CODE “
@ 22,18 GET Basin_sor PICTURE “XX” ;
  MESSAGE “Enter the Source Basin”
@ 22,23 SAY “SOURCE STREAM CODE “
@ 22,42 GET Sstm_code PICTURE “XXXXXX” ;
  MESSAGE “Enter the Pennsylvania Stream Code for the Source (if applicable)”
@ 22,51 SAY “SOURCE RIVER MILE “
@ 22,69 GET Srv_mile PICTURE “999.99” ;
  MESSAGE “Enter the River Mile for the Source (if applicable)”
READ SAVE
 IF ISBLANK(PURV_NAME) .OR. ISBLANK(PURV_CODE) .OR. ISBLANK(PURV_ID)
     DO NODATA
     LOOP
 ENDIF
CLEAR

*-- Format Page: 2

@ 2,1 SAY “New User Input Design Screen Continued”
@ 3,2 SAY “----------”
@ 4,0 SAY “DESTINATION BASIN CODE “
@ 4,23 GET Basin_dest PICTURE “XX” ;
  MESSAGE “Enter the Destination Basin”
@ 4,26 SAY “DESTINATION STREAM CODE “
@ 4,50 GET Dstm_code PICTURE “XXXXXX” ;
  MESSAGE “Enter the Pennsylvania Stream Code for the Destination (if applicable)”
@ 4,57 SAY “DEST. RIVER MILE “
@ 4,74 GET Drv_mile PICTURE “999.99” ;
  MESSAGE “Enter the River Mile for the Destination (if applicable)”
@ 6,27 SAY “Miscellaneous Information” COLOR w+ / n
@ 7,0 SAY “DRBC DOCKET NUMBER  “
@ 7,20 GET Drbc_doc PICTURE “XXXXXXXXXXXXXXX” ;
  MESSAGE “Enter the DRBC Docket Number (if applicable)”
READ SAVE
    *-- The Menu at the bottom of the User Input Form

@ 9,20 SAY “Press “
@ 9,26 SAY “C” COLOR R+ / N
@ 9,27 SAY “ to continue to input Water Use data”
@ 10,20 SAY “Press “
@ 10,26 SAY “M” COLOR R+ / N
@ 10,27 SAY “ to modify description just entered”
@ 11,20 SAY “Press “
@ 11,26 SAY “D” COLOR R+ / N
@ 11,27 SAY “ to delete current record”
@ 12,20 SAY “Press “
@ 12,26 SAY “R” COLOR R+ / N
@ 12,27 SAY “ to save current record and Return to Main Menu”

*---------- Initialize the global memory variables which may be needed
*          for further data entry

                                        gl_id = PURV_ID
                                        gl_name = PURV_NAME
                                        gl_code = PURV_CODE
                                        gl_use = TYPE_USE
*---------------------------------------------------
                                        DO WHILE .T.
                                        M->Flag = “ “
                                        @ 15,20 SAY “ “
                                        WAIT “PRESS Choice now : “ TO M->Flag
                                        DO CASE
                                        CASE M->Flag = “C” .OR. M->Flag = “c”
                                        DO new_wat  &&  Procedure to Enter New WATERUSE Data
```

```
                              CASE M->Flag = "M" .OR. M->Flag = "m"
                              EXIT

                              CASE M->Flag = "D" .OR. M->Flag = "d"
                              DELETE
                              PACK
                              CLEAR
                              REINDEX
                              RETURN TO inup_mnu

                              CASE M->Flag = "R" .OR. M->Flag = "r"
                              CLEAR
                              REINDEX
                              RETURN

                              OTHERWISE
                              @ 18,15 SAY "PLEASE CHOOSE:  C, R, M, D" COLOR R+ / N
                              LOOP
                              ENDCASE
                              ENDDO
                              LOOP
ENDDO
ENDDO
RETURN
*eof:  NEW_USR
*-----------------------------------------------------------------
*************************************************
*** NEW_WAT ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  MARCH 22, 1994
*NOTES :  CALLED BY THE new_usr AT THE (do case) CONSTRUCT FOR THE "C"
*      SELECTION.  THIS PROCEDURE PULLS UP SCREEN FOR ENTERING DATA IN THE
*      WATERUSE DATABASE FOR A NEW USER.  OPERATOR MAY ALSO CONTINUE
*      ENTERING DATA FOR A NEW USER IN THE ALOC DATABASES IF THEY DESIRE.

PROCEDURE NEW_WAT
DO WHILE .T.
CLEAR
SELECT 3       && The WATERUSE.DBF database is in Area 3.

APPEND BLANK
REPLACE PURV_NAME WITH M->gl_name
REPLACE PURV_CODE WITH M->gl_code
REPLACE PURV_ID WITH M->gl_id
REPLACE TYPE_USE WITH M->gl_use

   *--This form was created in the forms generator and copied into this
*         program.
DO WHILE .T.
CLEAR
@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,23 SAY "Water Use Totals Input Description" COLOR gr+ / bg
@ 8,36 SAY "NEW USER" COLOR r+ / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ"
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 12,0 SAY "PURVEYOR NAME" COLOR w+ / b
@ 12,13 SAY "  "
@ 12,15 GET gl_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Purveyor Name (SKIP) Press <Enter>" ;
  COLOR n+ / bg,n+ / bg
@ 12,57 SAY "PURVEYOR CODE  "
@ 12,72 GET gl_code PICTURE "XXXXXX"  ;
  MESSAGE "Purveyor Code (SKIP) Press <Enter>" ;
  COLOR n+ / bg,n+ / bg
@ 14,0 SAY "PURVEYOR LOCAL ID  "
@ 14,19 GET gl_id PICTURE "XXXXXXXX"  ;
  MESSAGE "Purveyor's Local Identifier (SKIP) Press <Enter>" ;
  COLOR n+ / bg,n+ / bg
@ 14,39 SAY "TYPE OF USE  "
```

```
@ 14,52 GET gl_use PICTURE "XXX" ;
  MESSAGE "Type of Use Code (SKIP) Press <Enter>" ;
  COLOR n+/bg,n+/bg
@ 14,70 SAY "YEAR" COLOR w+/b
@ 14,76 GET Ann_year PICTURE "XX" ;
  MESSAGE "Enter the Year for which the following data apply (MANDATORY)"
@ 16,2 SAY "----------"
@ 18,22 SAY "Annual and Monthly Water Use Totals" COLOR w+/n
@ 20,27 SAY "ANNUAL TOTAL  "
@ 20,41 GET Annual_tot PICTURE "99999.9999" ;
  MESSAGE "Enter the Total annual water use for the year"
@ 22,10 SAY "**********"
@ 23,0 SAY "JAN TOTAL   "
@ 23,12 GET Jan_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for January"
@ 23,29 SAY "FEB TOTAL   "
@ 23,41 GET Feb_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for February"
@ 23,58 SAY "MAR TOTAL   "
@ 23,70 GET Mar_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for March"
READ SAVE
CLEAR

*-- Format Page: 2
@ 2,1 SAY "New Water Use Totals Input Design Screen Continued"
@ 3,2 SAY "----------"
@ 5,0 SAY "APR TOTAL"
@ 5,12 GET Apr_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for April"
@ 5,29 SAY "MAY TOTAL"
@ 5,41 GET May_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for May"
@ 5,58 SAY "JUN TOTAL"
@ 5,70 GET Jun_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for June"
@ 7,0 SAY "JUL TOTAL"
@ 7,12 GET Jul_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for July"
@ 7,29 SAY "AUG TOTAL"
@ 7,41 GET Aug_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for August"
@ 7,58 SAY "SEP TOTAL"
@ 7,70 GET Sep_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for September"
@ 9,0 SAY "OCT TOTAL"
@ 9,12 GET Oct_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for October"
@ 9,29 SAY "NOV TOTAL"
@ 9,41 GET Nov_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for November"
@ 9,58 SAY "DEC TOTAL"
@ 9,70 GET Dec_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for December"
@ 10,10 SAY "**********"
READ SAVE
    *-- The Menu at the bottom of the User Input Form
@ 12,20 SAY "Press "
@ 12,26 SAY "C" COLOR R+/N
@ 12,27 SAY " to continue to input Allocation data"
@ 13,20 SAY "Press "
@ 13,26 SAY "A" COLOR R+/N
@ 13,27 SAY " to Add another Year of data"
@ 14,20 SAY "Press "
@ 14,26 SAY "M" COLOR R+/N
@ 14,27 SAY " to modify description just entered"
@ 15,20 SAY "Press "
@ 15,26 SAY "D" COLOR R+/N
@ 15,27 SAY " to delete current record"
@ 16,20 SAY "Press "
@ 16,26 SAY "R" COLOR R+/N
@ 16,27 SAY " to save current record and Return to Main Menu"
```

```
                                        DO WHILE .T.
                                        M->Flag = " "
                                        @ 18,20 SAY " "
                                        WAIT "PRESS Choice now : " TO M->Flag
                                        DO CASE
                                        CASE M->Flag = "C" .OR. M->Flag = "c"
                                        DO new_al && Program to Enter New ALOCATION Data

                                        CASE M->Flag = "A" .OR. M->Flag = "a"
                                        APPEND BLANK && Adds another Record to the database
                                        REPLACE PURV_NAME WITH gl_name && Must reinitialize
                                        REPLACE PURV_CODE WITH gl_code && global variables
                                        REPLACE PURV_ID WITH gl_id     && before adding
                                        REPLACE TYPE_USE WITH gl_use   && another record.
                                        EXIT

                                        CASE M->Flag = "M" .OR. M->Flag = "m"
                                        EXIT

                                        CASE M->Flag = "D" .OR. M->Flag = "d"
                                        DELETE
                                        PACK
                                        CLEAR
                                        REINDEX
                                        RETURN TO inup_mnu

                                        CASE M->Flag = "R" .OR. M->Flag = "r"
                                        CLEAR
                                        REINDEX
                                        RETURN to inup_mnu

                                        OTHERWISE
                                        @ 18,15 SAY "PLEASE CHOOSE:  C, A, R, M, D" COLOR R+ / N
                                        LOOP
                                        ENDCASE
                                        ENDDO
                                        LOOP
ENDDO
ENDDO
RETURN
*-- EOP: NEW_WAT
*-----------------------------------------------
************************************************
***  NEW_AL  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  MARCH 22, 1994
*NOTES :  CALLED BY THE new_wat AT THE (do case) CONSTRUCT FOR THE "C"
*       SELECTION.  THIS PROCEDURE PULLS UP SCREEN FOR ENTERING DATA IN THE
*       ALLOCATION DATABASE FOR A NEW USER.

PROCEDURE NEW_AL
DO WHILE .T.
CLEAR
SELECT 2      && The ALOC.DBF database is in Area 2.

APPEND BLANK
REPLACE PURV_NAME WITH M->gl_name
REPLACE PURV_CODE WITH M->gl_code
REPLACE PURV_ID WITH M->gl_id

   *--This form was created in the forms generator and copied into this
*         program.
DO WHILE .T.
CLEAR
@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,26 SAY "Allocation Input Description" COLOR gr+ / bg
@ 8,36 SAY "NEW USER" COLOR r+ / n
```

```
@ 9,0 SAY “ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ”
@ 10,29 SAY “Water User Information” COLOR w+ / n
@ 12,0 SAY “PURVEYOR NAME  “
@ 12,15 GET gl_name PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX” ;
  MESSAGE “Purveyor Name (SKIP) Press <Enter>” ;
  COLOR n+ / bg,n+ / bg
@ 12,57 SAY “PURVEYOR CODE  “
@ 12,72 GET gl_code PICTURE “XXXXXX” ;
  MESSAGE “Purveyor Code (SKIP) Press <Enter>” ;
  COLOR n+ / bg,n+ / bg
@ 14,26 SAY “PURVEYOR LOCAL ID  “
@ 14,45 GET gl_id PICTURE “XXXXXXXX” ;
  MESSAGE “Purveyor’s Local Identifier (SKIP) Press <Enter>” ;
  COLOR n+ / bg,n+ / bg
@ 16,2 SAY “----------------------------------------------------------------------”
@ 17,34 SAY “Allocations” COLOR w+ / n
@ 19,0 SAY “PURVEYOR ALLOCATION  “
@ 19,21 GET Allocation PICTURE “99999.9999” ;
  MESSAGE “Enter the Purveyor’s Allocation”
@ 19,50 SAY “SYSTEM ALLOCATION  “
@ 19,69 GET Sys_alloc PICTURE “99999.9999” ;
  MESSAGE “Enter the System Allocation”
@ 21,2 SAY “----------------------------------------------------------------------”
READ SAVE
CLEAR

*-- Format Page: 2

@ 4,31 SAY “Joint Allocations” COLOR w+ / n
@ 5,26 SAY “JOINT ALLOCATION  “
@ 5,44 GET Jt_alloc PICTURE “99999.9999” ;
  MESSAGE “Enter any Joint Allocations”
@ 7,5 SAY “List up to 10 Purveyor Names which are a part of the Joint Allocation”
@ 9,0 SAY “NAME ID1”
@ 9,12 GET Jt_id1 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 10,0 SAY “NAME ID2”
@ 10,12 GET Jt_id2 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 11,0 SAY “NAME ID3”
@ 11,12 GET Jt_id3 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 12,0 SAY “NAME ID4”
@ 12,12 GET Jt_id4 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 13,0 SAY “NAME ID5”
@ 13,12 GET Jt_id5 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 14,0 SAY “NAME ID6”
@ 14,12 GET Jt_id6 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 15,0 SAY “NAME ID7”
@ 15,12 GET Jt_id7 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 16,0 SAY “NAME ID8”
@ 16,12 GET Jt_id8 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 17,0 SAY “NAME ID9”
@ 17,12 GET Jt_id9 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 18,0 SAY “NAME ID10”
@ 18,12 GET Jt_id10 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
READ SAVE
    *-- The Menu at the bottom of the User Input Form

@ 20,20 SAY “Press “
@ 20,26 SAY “M” COLOR R+ / N
@ 20,27 SAY “ to modify description just entered”
@ 21,20 SAY “Press “
@ 21,26 SAY “D” COLOR R+ / N
@ 21,27 SAY “ to delete current record”
@ 22,20 SAY “Press “
@ 22,26 SAY “R” COLOR R+ / N
@ 22,27 SAY “ to save current record and Return to Main Menu”


                                        DO WHILE .T.
                                        M->Flag = “ “
                                        @ 23,20 SAY “ “
                                        WAIT “PRESS Choice now : “ TO M->Flag
                                        DO CASE
```

```
                              CASE M->Flag = "M" .OR. M->Flag = "m"
                              EXIT

                              CASE M->Flag = "D" .OR. M->Flag = "d"
                              DELETE
                              PACK
                              CLEAR
                              REINDEX
                              RETURN TO inup_mnu

                              CASE M->Flag = "R" .OR. M->Flag = "r"
                              CLEAR
                              REINDEX
                              RETURN TO inup_mnu

                              OTHERWISE
                              @ 18,15 SAY "PLEASE CHOOSE:  M, D, R" COLOR R+ / N
                              LOOP
                              ENDCASE
                              ENDDO
                              LOOP
ENDDO
ENDDO
RETURN
*-- EOP: NEW_AL
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
************************************************
***   The next 3 Procedures are for Editing the databases
***   called from the inup_mnu.
*-------------------------------------------------------
***  USER_EX  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  MARCH 23, 1994
*NOTES :  CALLED BY POPUP MENU inup_mnu.  THIS PROCEDURE PULLS UP SCREEN FOR
*         EDITING DATA FOR A USER IN THE USERFILE DATABASE.

PROCEDURE USER_EX
DO WHILE .T.
CLEAR
SELECT 1                  && The USERFILE.DBF database is in Area 1.
SET ORDER TO purv_code

gl_code = "     "
gl_id = "       "
DEFINE WINDOW small FROM 11,15 TO 13,65 COLOR W+ / N
ACTIVATE WINDOW small
@0,5 SAY ' '
ACCEPT "Please Enter the Purveyor Code:  " TO gl_code

                              DO WHILE .T.
                              SEEK (gl_code)
                              IF FOUND()
                              SCAN FOR purv_code = gl_code   &&  Setting up the Scan for the Pick List

                              DEFINE WINDOW pick FROM 1,10 TO 23,70 COLOR W+ / N, ,RG+
                              ACTIVATE WINDOW pick
                              @ 0,2 SAY "This is a list of PURV_IDs for Editing"
                              @ 1,1 SAY "Note which ID you want to Edit for"+" "+ purv_name
                              DISPLAY ALL OFF purv_id, type_use, loc_lat, loc_long, drbc_doc ;
                              FOR purv_code = gl_code
                              WAIT '         Press any key to continue'
                              ENDSCAN
                              EXIT
                              ELSE

                              CLEAR MEMORY
                              @0,5 SAY ' '
                              ACCEPT "Please Re-Enter the Purveyor Code:  " TO gl_code
                              GOTO TOP
                              LOOP
                              ENDIF
                              ENDDO         &&   The Error Loop DO WHILE--Checks to see if purv_code entered exists

                              DO WHILE .T.
```

```
                    ACCEPT "Please Enter the PURV_ID for the record you wish to Edit:  " TO gl_id
                      IF ISLOWER(gl_id)
                    @ 11,2 SAY "Please Turn the CAPS Lock ON" COLOR R / N
                    LOOP
                      ELSE
                    SET ORDER TO PURV_ID     && Changing Index so SEEK will work

                    SEEK gl_id
                    IF .NOT. FOUND()
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G / G
                    ACTIVATE WINDOW err
                    WAIT "   This Purveyor ID was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    GOTO TOP
                    LOOP
                    ELSE
                    EXIT
                    ENDIF
                      ENDIF
                    ENDDO


DEACTIVATE WINDOW pick
DEACTIVATE WINDOW small

CLEAR

@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,26 SAY "User Edit / Update Description" COLOR gr+ / bg
@ 8,33 SAY "EXISTING USER" COLOR r+* / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ" COLOR
w+ / b
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 11,0 SAY "PURVEYOR NAME" COLOR w+ / b
@ 11,15 GET Purv_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Edit / Update the Purveyor Name (MANDATORY Field)"
@ 11,57 SAY "PURVEYOR CODE  "
@ 11,72 GET Purv_code PICTURE "XXXXXX" ;
  MESSAGE "Edit / Update the Purveyor Code (MANDATORY Field)"
@ 13,0 SAY "PURVEYOR LOCAL ID"
@ 13,19 GET Purv_id PICTURE "XXXXXXXX" ;
  MESSAGE "Edit / Update the Purveyor's Local Identifier (MANDATORY Field)"
@ 13,32 SAY "USGS LOCAL ID  "
@ 13,47 GET Usgs_local PICTURE "XXXXXXXX" ;
  MESSAGE "Edit / Update the USGS Local Identifier (if applicable)"
@ 13,63 SAY "TYPE OF USE"
@ 13,75 GET Type_use PICTURE "XXX" ;
  MESSAGE "Edit / Update the Type of Use Code (MANDATORY Field)"
@ 14,27 SAY "GEOLOGIC UNIT CODE  "
@ 14,47 GET Gunit_code PICTURE "XXXXXXX" ;
  MESSAGE "Edit / Update the Geologic Unit Code (if applicable)"
@ 16,2 SAY "----------------------------------------------------------------------------"
@ 17,24 SAY "Physical Location of Water User" COLOR w+ / n
@ 18,0 SAY "LATITUDE"
@ 18,10 GET Loc_lat PICTURE "XXXXXX" ;
  MESSAGE "Edit / Update Latitude"
@ 18,19 SAY "LONGITUDE"
@ 18,30 GET Loc_long PICTURE "XXXXXXX" ;
  MESSAGE "Edit / Update Longitude"
@ 18,39 SAY "UTM X COOR. "
@ 18,51 GET Utm18_x PICTURE "XXXXXX" ;
  MESSAGE "Edit / Update the UTM Zone_18 X_Coordinate"
@ 18,60 SAY "UTM Y COOR. "
@ 18,72 GET Utm18_y PICTURE "XXXXXXX" ;
  MESSAGE "Edit / Update the UTM Zone_18 Y_Coordinate"
@ 20,2 SAY "----------------------------------------------------------------------------"
```

```
@ 21,7 SAY “Basin and Stream Coding Information for the Source and Destination” COLOR w+ / n
@ 22,0 SAY “SOURCE BASIN CODE “
@ 22,18 GET Basin_sor PICTURE “XX” ;
  MESSAGE “Edit / Update the Source Basin”
@ 22,23 SAY “SOURCE STREAM CODE “
@ 22,42 GET Sstm_code PICTURE “XXXXXX” ;
  MESSAGE “Edit / Update the Pennsylvania Stream Code for the Source (if applicable)”
@ 22,51 SAY “SOURCE RIVER MILE “
@ 22,69 GET Srv_mile PICTURE “999.99” ;
  MESSAGE “Edit / Update the River Mile for the Source (if applicable)”
READ
 IF ISBLANK(PURV_NAME) .OR. ISBLANK(PURV_CODE) .OR. ISBLANK(PURV_ID)
     DO NODATA
     LOOP
 ENDIF
CLEAR
*-- Format Page: 2

@ 2,1 SAY “Existing User Edit / Update Design Screen Continued”
@ 3,2 SAY “----------”
@ 4,0 SAY “DESTINATION BASIN CODE “
@ 4,23 GET Basin_dest PICTURE “XX” ;
  MESSAGE “Edit / Update the Destination Basin”
@ 4,26 SAY “DESTINATION STREAM CODE “
@ 4,50 GET Dstm_code PICTURE “XXXXXX” ;
  MESSAGE “Edit / Update the Pennsylvania Stream Code for the Destination (if applicable)”
@ 4,57 SAY “DEST. RIVER MILE “
@ 4,74 GET Drv_mile PICTURE “999.99” ;
  MESSAGE “Edit / Update the River Mile for the Destination (if applicable)”
@ 6,27 SAY “Miscellaneous Information” COLOR w+ / n
@ 7,0 SAY “DRBC DOCKET NUMBER  “
@ 7,20 GET Drbc_doc PICTURE “XXXXXXXXXXXXXXX” ;
  MESSAGE “Edit / Update the DRBC Docket Number (if applicable)”
EXIT
ENDDO  &&  This Enddo goes with the Beginning of the file
READ
CLEAR
REINDEX
RETURN
*eof:  USER_EX

**********************************************
***  WAT_EX  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  APRIL 4, 1994
*NOTES :  CALLED BY POPUP MENU inup_mnu.  THIS PROCEDURE PULLS UP SCREEN FOR
*       EDITING WATER USE DATA FOR A USER IN THE WATERUSE DATABASE.

PROCEDURE WAT_EX
DO WHILE .T.
CLEAR
SELECT 3                &&  The WATERUSE.DBF database is in Area 3.
SET ORDER TO watmdx

gl_code = “     “
gl_id = “       “
gl_ann = “  “
DEFINE WINDOW small FROM 11,15 TO 13,65 COLOR W+ / N
ACTIVATE WINDOW small
@0,5 SAY ‘ ‘
ACCEPT “Please Enter the Purveyor Code:  “ TO gl_code

                                        DO WHILE .T.
                                        SEEK (gl_code)
                                        IF FOUND()
                                        SCAN FOR purv_code = gl_code   &&  Setting up the Scan for the Pick List

                                        DEFINE WINDOW pick FROM 1,0 TO 23,79 COLOR W+ / N, ,RG+
                                        ACTIVATE WINDOW pick
                                        @ 0,2 SAY “This is a list of PURV_IDs for Editing”
                                        @ 1,1 SAY “Note which ID you want to Edit for”+” “+ purv_name
                                        DISPLAY ALL OFF purv_id, type_use, ann_year, STR(annual_tot,10,4) ;
                                        FOR purv_code = gl_code
                                        WAIT ‘          Press any key to continue’
```

```
            ENDSCAN
            EXIT
            ELSE
            CLEAR SCREEN
            DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G
            ACTIVATE WINDOW err
            WAIT "This Purveyor Code was not found press any key"
            DEACTIVATE WINDOW err
            CLEAR MEMORY
            @0,5 SAY ' '
            ACCEPT "Please Re-Enter the Purveyor Code:  " TO gl_code
            GOTO TOP
            LOOP
            ENDIF
            ENDDO      &&   The Error Loop DO WHILE--Checks to see if purv_code entered exists

            DO WHILE .T.
            ACCEPT "Please Enter the PURV_ID for the record you wish to Edit:  " TO gl_id
            ACCEPT "Please Enter the YEAR for the reord you wish to Edit:     " TO gl_ann
              IF ISLOWER(gl_id)
            @ 11,2 SAY "Please Turn the CAPS Lock ON" COLOR R / N
            LOOP
              ELSE
            SET ORDER TO IDYEAR    && Changing Index so SEEK will work

            SEEK (gl_id + gl_ann)
            IF .NOT. FOUND()
            DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G / G
            ACTIVATE WINDOW err
            WAIT "   This Purveyor ID was not found press any key"
            DEACTIVATE WINDOW err
            CLEAR MEMORY
            GOTO TOP
            LOOP
            ELSE
            EXIT
            ENDIF
              ENDIF
            ENDDO  &&  CAPS Lock DO WHILE and Checking if the
     &&  user supplied purv_id exists

DEACTIVATE WINDOW pick
DEACTIVATE WINDOW small

CLEAR

@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,20 SAY "Water Use Totals Edit / Update Description" COLOR gr+ / bg
@ 8,34 SAY "EXISTING USER" COLOR r+* / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ"
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 12,0 SAY "PURVEYOR NAME" COLOR w+ / b
@ 12,13 SAY "  "
@ 12,15 GET purv_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Edit / Update the Purveyor Name"
@ 12,57 SAY "PURVEYOR CODE  "
@ 12,72 GET purv_code PICTURE "XXXXXX"  ;
  MESSAGE "Edit / Update the Purveyor Code"
@ 14,0 SAY "PURVEYOR LOCAL ID  "
@ 14,19 GET purv_id PICTURE "XXXXXXXX"  ;
  MESSAGE "Edit / Update the Purveyor's Local Identifier"
@ 14,39 SAY "TYPE OF USE  "
@ 14,52 GET type_use PICTURE "XXX" ;
  MESSAGE "Edit / Update the Type of Use Code"
@ 14,70 SAY "YEAR" COLOR w+ / b
@ 14,76 GET Ann_year PICTURE "XX" ;
  MESSAGE "Edit / Update the Year for which the following data apply (MANDATORY)"
@ 16,2 SAY "-----------------------------------------------------------------------"
```

```
@ 18,22 SAY "Annual and Monthly Water Use Totals" COLOR w+ / n
@ 20,27 SAY "ANNUAL TOTAL  "
@ 20,41 GET Annual_tot PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total annual water use for the year"
@ 22,10 SAY "************************************************************"
@ 23,0 SAY "JAN TOTAL   "
@ 23,12 GET Jan_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for January"
@ 23,29 SAY "FEB TOTAL   "
@ 23,41 GET Feb_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for February"
@ 23,58 SAY "MAR TOTAL   "
@ 23,70 GET Mar_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for March"
READ
 IF ISBLANK(PURV_NAME) .OR. ISBLANK(PURV_CODE) .OR. ISBLANK(PURV_ID)
     DO NODATA
     LOOP
 ENDIF
CLEAR

*-- Format Page: 2
@ 2,1 SAY "Edited Water Use Totals Design Screen Continued"
@ 3,2 SAY "------------------------------------------------------------------------"
@ 5,0 SAY "APR TOTAL"
@ 5,12 GET Apr_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for April"
@ 5,29 SAY "MAY TOTAL"
@ 5,41 GET May_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for May"
@ 5,58 SAY "JUN TOTAL"
@ 5,70 GET Jun_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for June"
@ 7,0 SAY "JUL TOTAL"
@ 7,12 GET Jul_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for July"
@ 7,29 SAY "AUG TOTAL"
@ 7,41 GET Aug_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for August"
@ 7,58 SAY "SEP TOTAL"
@ 7,70 GET Sep_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for September"
@ 9,0 SAY "OCT TOTAL"
@ 9,12 GET Oct_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for October"
@ 9,29 SAY "NOV TOTAL"
@ 9,41 GET Nov_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for November"
@ 9,58 SAY "DEC TOTAL"
@ 9,70 GET Dec_total PICTURE "99999.9999" ;
  MESSAGE "Edit / Update the Total monthly water use for December"
@ 10,10 SAY "************************************************************"
EXIT
ENDDO
READ
CLEAR
REINDEX
RETURN
*** eof:  WAT_EX
*****************************************************
***  AL_EX  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  APRIL 4, 1994
*NOTES :  CALLED BY POPUP MENU inup_mnu.  THIS PROCEDURE PULLS UP SCREEN FOR
*       EDITING ALLOCATION DATA FOR A USER IN THE ALOC DATABASE.

PROCEDURE AL_EX
DO WHILE .T.
CLEAR
SELECT 2                && The ALOC.DBF database is in Area 2.
SET ORDER TO purv_code

gl_code = "     "
```

```
gl_id = "      "
DEFINE WINDOW small FROM 11,15 TO 13,65 COLOR W+ / N
ACTIVATE WINDOW small
@0,5 SAY ' '
ACCEPT "Please Enter the Purveyor Code:  " TO gl_code

                    DO WHILE .T.
                    SEEK (gl_code)
                    IF FOUND()
                    SCAN FOR purv_code = gl_code   &&  Setting up the Scan for the Pick List

                    DEFINE WINDOW pick FROM 1,5 TO 23,75 COLOR W+ / N, ,RG+
                    ACTIVATE WINDOW pick
                    @ 0,2 SAY "This is a list of PURV_IDs for Editing"
                    @ 1,1 SAY "Note which ID you want to Edit for"+" "+ purv_name
                    DISPLAY ALL OFF purv_id, STR(allocation,10,4), STR(jt_alloc,10,4), STR(sys_alloc,10,4) ;
                    FOR purv_code = gl_code
                    WAIT '         Press any key to continue'
                    ENDSCAN
                    EXIT
                    ELSE
                    CLEAR SCREEN
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G
                    ACTIVATE WINDOW err
                    WAIT "This Purveyor Code was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    @0,5 SAY ' '
                    ACCEPT "Please Re-Enter the Purveyor Code:  " TO gl_code
                    GOTO TOP
                    LOOP
                    ENDIF
                    ENDDO       &&   The Error Loop DO WHILE--Checks to see if purv_code entered exists

                    DO WHILE .T.
                    ACCEPT "Please Enter the PURV_ID for the record you wish to Edit:  " TO gl_id
                       IF ISLOWER(gl_id)
                    @ 11,2 SAY "Please Turn the CAPS Lock ON" COLOR R / N
                    LOOP
                       ELSE
                    SET ORDER TO PURV_ID     && Changing Index so SEEK will work

                    SEEK gl_id
                    IF .NOT. FOUND()
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G / G
                    ACTIVATE WINDOW err
                    WAIT "   This Purveyor ID was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    GOTO TOP
                    LOOP
                    ELSE
                    EXIT
                    ENDIF
                       ENDIF
                    ENDDO  &&  CAPS Lock DO WHILE

DEACTIVATE WINDOW pick
DEACTIVATE WINDOW small

CLEAR

@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,23 SAY "Allocation Edit / Update Description" COLOR gr+ / bg
@ 8,34 SAY "EXISTING USER" COLOR r+* / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ"
@ 10,29 SAY "Water User Information" COLOR w+ / n
```

```
@ 12,0 SAY “PURVEYOR NAME “
@ 12,15 GET purv_name PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX” ;
  MESSAGE “Edit / Update the Purveyor Name”
@ 12,57 SAY “PURVEYOR CODE “
@ 12,72 GET purv_code PICTURE “XXXXXX” ;
  MESSAGE “Edit / Update the Purveyor Code>”
@ 14,26 SAY “PURVEYOR LOCAL ID “
@ 14,45 GET purv_id PICTURE “XXXXXXXX” ;
  MESSAGE “Edit / Update the Purveyor’s Local Identifier”
@ 16,2 SAY “-------------------------------------------------------------------------”
@ 17,34 SAY “Allocations” COLOR w+ / n
@ 19,0 SAY “PURVEYOR ALLOCATION “
@ 19,21 GET Allocation PICTURE “99999.9999” ;
  MESSAGE “Edit / Update the Purveyor’s Allocation”
@ 19,50 SAY “SYSTEM ALLOCATION “
@ 19,69 GET Sys_alloc PICTURE “99999.9999” ;
  MESSAGE “Edit / Update the System Allocation”
@ 21,2 SAY “-------------------------------------------------------------------------”
READ
 IF ISBLANK(PURV_NAME) .OR. ISBLANK(PURV_CODE) .OR. ISBLANK(PURV_ID)
     DO NODATA
     LOOP
 ENDIF
CLEAR

*-- Format Page: 2

@ 4,31 SAY “Joint Allocations” COLOR w+ / n
@ 5,26 SAY “JOINT ALLOCATION “
@ 5,44 GET Jt_alloc PICTURE “99999.9999” ;
  MESSAGE “Edit / Update any Joint Allocations”
@ 7,5 SAY “List up to 10 Purveyor Names which are a part of the Joint Allocation”
@ 9,0 SAY “NAME ID1”
@ 9,12 GET Jt_id1 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 10,0 SAY “NAME ID2”
@ 10,12 GET Jt_id2 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 11,0 SAY “NAME ID3”
@ 11,12 GET Jt_id3 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 12,0 SAY “NAME ID4”
@ 12,12 GET Jt_id4 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 13,0 SAY “NAME ID5”
@ 13,12 GET Jt_id5 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 14,0 SAY “NAME ID6”
@ 14,12 GET Jt_id6 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 15,0 SAY “NAME ID7”
@ 15,12 GET Jt_id7 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 16,0 SAY “NAME ID8”
@ 16,12 GET Jt_id8 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 17,0 SAY “NAME ID9”
@ 17,12 GET Jt_id9 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
@ 18,0 SAY “NAME ID10”
@ 18,12 GET Jt_id10 PICTURE “XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX”
EXIT
ENDDO  &&  This Enddo goes with the Beginning of the file
READ
CLEAR
REINDEX
RETURN
*** EOF:  AL_EX
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
**********************************************
***   The next 2 Procedures are for Adding Measuring Point Water Use Data for
***   an Existing User and Adding Allocation Data for an Existing Measuring
***   Point called from the inup_mnu.
*---------------------------------------------------------
**********************************************
***  ADD_WAT  ***
*AUTHOR:  CURTIS SCHREFFLER
*DATE  :  DECEMBER 21, 1994
*NOTES :  CALLED BY POPUP MENU inup_mnu.  THIS PROCEDURE PULLS UP SCREEN FOR
*        ADDING WATER USE DATA FOR A USER IN THE WATERUSE DATABASE.

PROCEDURE ADD_WAT
```

```
DO WHILE .T.
CLEAR
SELECT 3              && The WATERUSE.DBF database is in Area 3.
SET ORDER TO watmdx

gl_code = " "
gl_id = " "
gl_name = " "
gl_use = " "

DEFINE WINDOW small FROM 11,15 TO 13,65 COLOR W+ / N
ACTIVATE WINDOW small
@0,5 SAY ' '
ACCEPT "Please Enter the Purveyor Code:  " TO gl_code

                    DO WHILE .T.
                    SEEK (gl_code)
                    IF .NOT. FOUND()
                    CLEAR SCREEN
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G
                    ACTIVATE WINDOW err
                    WAIT "This Purveyor Code was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    @0,5 SAY ' '
                    ACCEPT "Please Re-Enter the Purveyor Code:  " TO gl_code
                    ELSE
                    DEACTIVATE WINDOW small
                    EXIT
                    ENDIF
                    ENDDO      &&  The Error Loop DO WHILE--Checks to see if purv_code entered exists

CLEAR
APPEND BLANK
REPLACE PURV_CODE WITH M->gl_code

DO WHILE .T.
CLEAR
@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,24 SAY "Water Use Totals Adding New Data" COLOR gr+ / bg
@ 8,34 SAY "EXISTING USER" COLOR r+* / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ"
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 12,0 SAY "PURVEYOR NAME" COLOR w+ / b
@ 12,13 SAY "  "
@ 12,15 GET purv_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Enter the Purveyor Name (MANDATORY)"
@ 12,57 SAY "PURVEYOR CODE  "
@ 12,72 GET gl_code PICTURE "XXXXXX"  ;
  MESSAGE "Purveyor Code (SKIP)" COLOR n+ / bg, n+ / bg
@ 14,0 SAY "PURVEYOR LOCAL ID  "
@ 14,19 GET purv_id PICTURE "XXXXXXXX"  ;
  MESSAGE "Enter the Purveyor's Local Identifier (MANDATORY)"
@ 14,39 SAY "TYPE OF USE  "
@ 14,52 GET type_use PICTURE "XXX" ;
  MESSAGE "Enter the Type of Use Code (MANDATORY)"
@ 14,70 SAY "YEAR" COLOR w+ / b
@ 14,76 GET Ann_year PICTURE "XX" ;
  MESSAGE "Enter the Year for which the following data apply (MANDATORY)"
@ 16,2 SAY "----------------------------------------------------------------------------"
@ 18,22 SAY "Annual and Monthly Water Use Totals" COLOR w+ / n
@ 20,27 SAY "ANNUAL TOTAL  "
@ 20,41 GET Annual_tot PICTURE "99999.9999" ;
  MESSAGE "Enter the Total annual water use for the year"
@ 22,10 SAY "************************************************************"
@ 23,0 SAY "JAN TOTAL   "
@ 23,12 GET Jan_total PICTURE "99999.9999" ;
```

```
  MESSAGE "Enter the Total monthly water use for January"
@ 23,29 SAY "FEB TOTAL   "
@ 23,41 GET Feb_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for February"
@ 23,58 SAY "MAR TOTAL   "
@ 23,70 GET Mar_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for March"
READ SAVE
 IF ISBLANK(PURV_NAME) .OR. ISBLANK(PURV_CODE) .OR. ISBLANK(PURV_ID)
     DO NODATA
     LOOP
 ENDIF
CLEAR

*-- Format Page: 2
@ 2,1 SAY "Adding New Water Use Totals Input Design Screen Continued"
@ 3,2 SAY "----------"
@ 5,0 SAY "APR TOTAL"
@ 5,12 GET Apr_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for April"
@ 5,29 SAY "MAY TOTAL"
@ 5,41 GET May_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for May"
@ 5,58 SAY "JUN TOTAL"
@ 5,70 GET Jun_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for June"
@ 7,0 SAY "JUL TOTAL"
@ 7,12 GET Jul_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for July"
@ 7,29 SAY "AUG TOTAL"
@ 7,41 GET Aug_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for August"
@ 7,58 SAY "SEP TOTAL"
@ 7,70 GET Sep_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for September"
@ 9,0 SAY "OCT TOTAL"
@ 9,12 GET Oct_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for October"
@ 9,29 SAY "NOV TOTAL"
@ 9,41 GET Nov_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for November"
@ 9,58 SAY "DEC TOTAL"
@ 9,70 GET Dec_total PICTURE "99999.9999" ;
  MESSAGE "Enter the Total monthly water use for December"
@ 10,10 SAY "**********"
READ SAVE
    *-- The Menu at the bottom of the User Input Form
@ 12,20 SAY "Press "
@ 12,26 SAY "C" COLOR R+ / N
@ 12,27 SAY " to continue to input Allocation data"
@ 13,20 SAY "Press "
@ 13,26 SAY "A" COLOR R+ / N
@ 13,27 SAY " to Add another Year of data"
@ 14,20 SAY "Press "
@ 14,26 SAY "M" COLOR R+ / N
@ 14,27 SAY " to modify description just entered"
@ 15,20 SAY "Press "
@ 15,26 SAY "D" COLOR R+ / N
@ 15,27 SAY " to delete current record"
@ 16,20 SAY "Press "
@ 16,26 SAY "R" COLOR R+ / N
@ 16,27 SAY " to save current record and Return to Main Menu"


                    DO WHILE .T.
                    M->Flag = " "
                    @ 18,20 SAY " "
                    WAIT "PRESS Choice now : " TO M->Flag
                    DO CASE
                    CASE M->Flag = "C" .OR. M->Flag = "c"
                    STORE PURV_ID TO gl_id
                    STORE PURV_NAME TO gl_name
```

```
                                        DO new_al && Program to Enter New ALOCATION Data

                                        CASE M->Flag = "A" .OR. M->Flag = "a"
                                        STORE PURV_NAME TO gl_name
                                        STORE PURV_ID TO gl_id
                                        STORE TYPE_USE TO gl_use
                                        APPEND BLANK && Adds another Record to the database
                                        REPLACE PURV_CODE WITH gl_code && ReInitializing
                                        REPLACE PURV_NAME WITH gl_name && global variables
                                        REPLACE PURV_ID WITH gl_id
                                        REPLACE TYPE_USE WITH gl_use
                                        EXIT

                                        CASE M->Flag = "M" .OR. M->Flag = "m"
                                        EXIT

                                        CASE M->Flag = "D" .OR. M->Flag = "d"
                                        DELETE
                                        PACK
                                        CLEAR
                                        REINDEX
                                        RETURN TO inup_mnu

                                        CASE M->Flag = "R" .OR. M->Flag = "r"
                                        CLEAR
                                        REINDEX
                                        RETURN to inup_mnu

                                        OTHERWISE
                                        @ 18,15 SAY "PLEASE CHOOSE: C, A, R, M, D" COLOR R+ / N
                                        LOOP
                                        ENDCASE
                                        ENDDO
                                        LOOP
ENDDO
ENDDO
RETURN TO inup_mnu
*** eof: ADD_WAT
**************************************************
*** ADD_ALOC ***
*AUTHOR: CURTIS SCHREFFLER
*DATE : DECEMBER 21, 1994
*NOTES : CALLED BY POPUP MENU inup_mnu. THIS PROCEDURE PULLS UP SCREEN FOR
*       ADDING ALLOCATION DATA FOR AN EXISTING USER'S MEASURING POINT
*       IN THE ALOC DATABASE.

PROCEDURE ADD_ALOC
DO WHILE .T.
CLEAR
SELECT 3                && The WATERUSE.DBF database is in Area 3.
SET ORDER TO purv_code


gl_code = " "
gl_id = " "
gl_name = " "

DEFINE WINDOW small FROM 11,15 TO 13,65 COLOR W+ / N
ACTIVATE WINDOW small
@0,5 SAY ' '
ACCEPT "Please Enter the Purveyor Code: " TO gl_code

                                        DO WHILE .T.
                                        SEEK (gl_code)
                                        IF FOUND()
                                        SCAN FOR purv_code = gl_code  && Setting up the Scan for the Pick List

                                        DEFINE WINDOW pick FROM 1,5 TO 23,75 COLOR W+ / N, ,RG+
                                        ACTIVATE WINDOW pick
                                        @ 0,2 SAY "This is a list of PURV_IDs for Adding DATA"
                                        @ 1,1 SAY "Note which ID you want to ADD Data for"+" "+ purv_name
                                        DISPLAY ALL OFF purv_id, type_use, ann_year, STR(annual_tot,10,4) ;
                                        FOR purv_code = gl_code
                                        WAIT '       Press any key to continue'
```

```
                    ENDSCAN
                    EXIT
                    ELSE
                    CLEAR SCREEN
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G
                    ACTIVATE WINDOW err
                    WAIT "This Purveyor Code was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    @0,5 SAY ' '
                    ACCEPT "Please Re-Enter the Purveyor Code:  " TO gl_code
                    GOTO TOP
                    LOOP
                    ENDIF
                    ENDDO       &&  The Error Loop DO WHILE--Checks to see if purv_code entered exists

                    DO WHILE .T.
                    ACCEPT "Please Enter the PURV_ID for the record you wish to ADD Data:  " TO gl_id
                      IF ISLOWER(gl_id)
                    @ 11,2 SAY "Please Turn the CAPS Lock ON" COLOR R / N
                    LOOP
                      ELSE
                    SET ORDER TO PURV_ID    && Changing Index so SEEK will work

                    SEEK gl_id
                    IF .NOT. FOUND()
                    DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G / G
                    ACTIVATE WINDOW err
                    WAIT "   This Purveyor ID was not found press any key"
                    DEACTIVATE WINDOW err
                    CLEAR MEMORY
                    GOTO TOP
                    LOOP
                    ELSE
                    EXIT
                    ENDIF
                      ENDIF
                    ENDDO  &&  CAPS Lock DO WHILE

DEACTIVATE WINDOW pick
DEACTIVATE WINDOW small
STORE PURV_NAME TO gl_name
STORE PURV_CODE TO gl_code
STORE PURV_ID TO gl_id


SELECT 2
APPEND BLANK
REPLACE PURV_NAME WITH gl_name
REPLACE PURV_CODE WITH gl_code
REPLACE PURV_ID WITH gl_id

  *--This form was created in the forms generator and copied into this
*      program.
DO WHILE .T.
CLEAR
@ 1,0 SAY "DATE:" + SPACE(2) + DTOC(DATE())
@ 1,70 SAY "" + TIME()
@ 2,20 TO 6,58 DOUBLE COLOR gr+ / bg
@ 3,24 SAY "Delaware River Basin Commission"
@ 4,21 SAY "Water Use Data Base Management System"
@ 5,22 SAY "Neshaminy Creek Basin Pilot Project"
@ 7,22 SAY "ADDING Allocation Input Description" COLOR gr+ / bg
@ 8,34 SAY "EXISTING USER" COLOR r+ / n
@ 9,0 SAY "ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ"
@ 10,29 SAY "Water User Information" COLOR w+ / n
@ 12,0 SAY "PURVEYOR NAME  "
@ 12,15 GET gl_name PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" ;
  MESSAGE "Purveyor Name (SKIP) Press <Enter>" ;
  COLOR n+ / bg,n+ / bg
@ 12,57 SAY "PURVEYOR CODE  "
@ 12,72 GET gl_code PICTURE "XXXXXX" ;
```

```
  MESSAGE "Purveyor Code (SKIP) Press <Enter>" ;
  COLOR n+/bg,n+/bg
@14,26 SAY "PURVEYOR LOCAL ID  "
@14,45 GET gl_id PICTURE "XXXXXXXX" ;
  MESSAGE "Purveyor's Local Identifier (SKIP) Press <Enter>" ;
  COLOR n+/bg,n+/bg
@16,2 SAY "----------"
@17,34 SAY "Allocations" COLOR w+/n
@19,0 SAY "PURVEYOR ALLOCATION  "
@19,21 GET Allocation PICTURE "99999.9999" ;
  MESSAGE "Enter the Purveyor's Allocation"
@19,50 SAY "SYSTEM ALLOCATION  "
@19,69 GET Sys_alloc PICTURE "99999.9999" ;
  MESSAGE "Enter the System Allocation"
@21,2 SAY "----------"
READ SAVE
CLEAR

*-- Format Page: 2

@4,31 SAY "Joint Allocations" COLOR w+/n
@5,26 SAY "JOINT ALLOCATION  "
@5,44 GET Jt_alloc PICTURE "99999.9999" ;
  MESSAGE "Enter any Joint Allocations"
@7,5 SAY "List up to 10 Purveyor Names which are a part of the Joint Allocation"
@9,0 SAY "NAME ID1"
@9,12 GET Jt_id1 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@10,0 SAY "NAME ID2"
@10,12 GET Jt_id2 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@11,0 SAY "NAME ID3"
@11,12 GET Jt_id3 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@12,0 SAY "NAME ID4"
@12,12 GET Jt_id4 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@13,0 SAY "NAME ID5"
@13,12 GET Jt_id5 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@14,0 SAY "NAME ID6"
@14,12 GET Jt_id6 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@15,0 SAY "NAME ID7"
@15,12 GET Jt_id7 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@16,0 SAY "NAME ID8"
@16,12 GET Jt_id8 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@17,0 SAY "NAME ID9"
@17,12 GET Jt_id9 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
@18,0 SAY "NAME ID10"
@18,12 GET Jt_id10 PICTURE "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
READ SAVE
    *-- The Menu at the bottom of the User Input Form

@20,20 SAY "Press "
@20,26 SAY "M" COLOR R+/N
@20,27 SAY " to modify description just entered"
@21,20 SAY "Press "
@21,26 SAY "D" COLOR R+/N
@21,27 SAY " to delete current record"
@22,20 SAY "Press "
@22,26 SAY "R" COLOR R+/N
@22,27 SAY " to save current record and Return to Main Menu"


                    DO WHILE .T.
                    M->Flag = " "
                    @23,20 SAY " "
                    WAIT "PRESS Choice now : " TO M->Flag
                    DO CASE
                    CASE M->Flag = "M" .OR. M->Flag = "m"
                    EXIT

                    CASE M->Flag = "D" .OR. M->Flag = "d"
                    DELETE
                    PACK
                    CLEAR
                    REINDEX
                    RETURN TO inup_mnu
```

```
                                        CASE M->Flag = "R" .OR. M->Flag = "r"
                                        CLEAR
                                        REINDEX
                                        RETURN TO inup_mnu

                                        OTHERWISE
                                        @ 18,15 SAY "PLEASE CHOOSE:  M, D, R" COLOR R+ / N
                                        LOOP
                                        ENDCASE
                                        ENDDO
                                        LOOP
ENDDO
ENDDO
RETURN TO inup_mnu
*-- EOP: NEW_AL
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
****************************************************************************************
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*--    The Next 2 Pocedures DEFINE and Execute the Recurrence Interval Menu
*-----------------------------------------
PROCEDURE freq_mnu
CLEAR
   *-------------------------------------------------------------------
 *-- Defining the Frequency Choice Popup menu
   *-------------------------------------------------------------------
 DEFINE POPUP freq_mnu FROM 4,10 TO 20,68 ;
 MESSAGE "Please Highlight RECURRENCE Interval and Press <Enter>"
  DEFINE BAR 1 OF freq_mnu PROMPT "***********Recurrence Interval Comparison Menu**********"   SKIP
  DEFINE BAR 2 OF freq_mnu PROMPT " "   SKIP
  DEFINE BAR 3 OF freq_mnu PROMPT "       2-Year Recurrence Interval Availability"
  DEFINE BAR 4 OF freq_mnu PROMPT " "   SKIP
  DEFINE BAR 5 OF freq_mnu PROMPT "       5-Year Recurrence Interval Availability"
  DEFINE BAR 6 OF freq_mnu PROMPT " "   SKIP
  DEFINE BAR 7 OF freq_mnu PROMPT "       10-Year Recurrence Interval Availability"
  DEFINE BAR 8 OF freq_mnu PROMPT " "   SKIP
  DEFINE BAR 9 OF freq_mnu PROMPT "       25-Year Recurrence Interval Availability"
  DEFINE BAR 10 OF freq_mnu PROMPT " "  SKIP
  DEFINE BAR 11 OF freq_mnu PROMPT "       50-Year Recurrence Interval Availability"
  DEFINE BAR 12 OF freq_mnu PROMPT REPLICATE(CHR(196),57) SKIP
  DEFINE BAR 13 OF freq_mnu PROMPT "       EXIT and return to Main Menu "
 ON SELECTION POPUP freq_mnu DO recur_pick

 SET BORDER TO DOUBLE
 ACTIVATE POPUP freq_mnu

 SET TALK OFF
 SET ESCAPE OFF
 SET STATUS OFF
 SET SCOREBOARD OFF

CLEAR

RETURN
*** eof: freq_mnu
**************************************************
PROCEDURE recur_pick
     *------------------------------------------------------------------
************  This Procedure SETS the Memory Variable for the Recurrence Interval
************      Ground-Water Availibility Comparisons

  DO CASE

  *--  2-Year Recurrence Interval Memory Variable
  CASE BAR() = 3
   SET MESSAGE TO "Ground-Water Availibility at the 2_YEAR Recurrence Interval"
   mvar_recur = mvar2
   mrecur = " 2-Year Recurrence Interval "
   DEACTIVATE POPUP

  *--  5-Year Recurrence Interval Memory Variable
  CASE BAR() = 5
   SET MESSAGE TO "Ground-Water Availibility at the 5_YEAR Recurrence Interval"
```

```
    mvar_recur = mvar5
    mrecur = " 5-Year Recurrence Interval "
    DEACTIVATE POPUP

  *-- 10-Year Recurrence Interval Memory Variable
  CASE BAR() = 7
    SET MESSAGE TO "Ground-Water Availibility at the 10_YEAR Recurrence Interval"
    mvar_recur = mvar10
    mrecur = " 10-Year Recurrence Interval "
    DEACTIVATE POPUP

  *-- 25-Year Recurrence Interval Memory Variable
  CASE BAR() = 9
    SET MESSAGE TO "Ground-Water Availibility at the 25_YEAR Recurrence Interval"
    mvar_recur = mvar25
    mrecur = " 25-Year Recurrence Interval "
    DEACTIVATE POPUP

  *-- 50-Year Recurrence Interval Memory Variable
  CASE BAR() = 11
    SET MESSAGE TO "Ground-Water Availibility at the 50_YEAR Recurrence Interval"
    mvar_recur = mvar50
    mrecur = " 50-Year Recurrence Interval "
    DEACTIVATE POPUP

  *-- Exiting this menu Returning to Water Calculation SUBMenu
  CASE BAR() = 13
                                        M->flag = .F.
                                        CLEAR
                                        DEACTIVATE POPUP
                                        RETURN TO ACT05
  ENDCASE
RETURN
*-- EOP: recur_pick - Menu freq_mnu
*************************************************
PROCEDURE set_prin
CLEAR

     *-----------------------------------------
*--- Setting up the Output Device Options "Destination menu"
     *-----------------------------------------
 DEFINE POPUP destin_mnu FROM 4,27 TO 18,59 ;
 MESSAGE "Highlight menu choice and Press <Enter>"
  DEFINE BAR 1 OF destin_mnu PROMPT "=========Destination========"  SKIP
  DEFINE BAR 2 OF destin_mnu PROMPT " "  SKIP
  DEFINE BAR 3 OF destin_mnu PROMPT "  File"
  DEFINE BAR 4 OF destin_mnu PROMPT " "  SKIP
  DEFINE BAR 5 OF destin_mnu PROMPT "  Line Printer"
  DEFINE BAR 6 OF destin_mnu PROMPT " "  SKIP
  DEFINE BAR 7 OF destin_mnu PROMPT "  Laser Printer"
  DEFINE BAR 8 OF destin_mnu PROMPT " " SKIP
  DEFINE BAR 9 OF destin_mnu PROMPT "  Exit and Return to Main Menu"
  DEFINE BAR 10 OF destin_mnu PROMPT REPLICATE(CHR(196),30)  SKIP
 ON SELECTION POPUP destin_mnu DO ACT03


   SET BORDER TO DOUBLE
   ACTIVATE POPUP destin_mnu

   SET TALK OFF
   SET ESCAPE OFF
   SET STATUS OFF
   SET SCOREBOARD OFF

   CLEAR

RETURN
*** eof: set_prin

*-------------------------------
PROCEDURE ACT03
```

```
   *-------------------------
CLEAR
  DO CASE

   CASE BAR() = 3   && Setting up to direct Output to a FILE
                                        M->file_nam = SPACE(8)
                                        DEFINE WINDOW alert FROM 5,18 TO 10,58 COLOR W+ / N
                                        ACTIVATE WINDOW alert  &&  This Routine was copied from the
*                          "Programming in dBASE IV Manual" pg. 155
                                        @ 0,0 SAY "------SEND A REPORT TO A FILE------"
                                        @ 2,1 SAY "Enter filename for report: " GET M->file_nam ;
                                        VALID "" <> TRIM(M->file_nam) ;
                                        MESSAGE "Enter a filename of up to eight charaters"
                                        READ
                                        DEACTIVATE WINDOW alert
                                        SET PRINTER TO FILE M->file_nam
                                        DEACTIVATE POPUP

   CASE BAR() = 5  && Setting up to direct Output to a Line Printer
                                        DEACTIVATE POPUP
                                        SET PRINTER TO LPT1

   CASE BAR() = 7  && Setting up to direct Output to a Laser Printer
                                        SET PRINTER TO LPT2
                                        DEACTIVATE POPUP
   CASE BAR() = 9  && Exit this Menu and Return to Previous Menu
                                        M->Flag=.F.
                                        DEACTIVATE POPUP

                                        RETURN
  ENDCASE

RETURN
****** EOP: ACT03

*************************************************
*PROGRAM:  CONTINUE.PRG
*DATE   :  JUNE 8, 1988
*NOTES  :  CALLED FROM WATERSHED PROGRAMS. USER
*         SELECTS TYPE OF WATER ANALYSIS.
*AUTHOR :  KAREN L. VOGEL
*
PROCEDURE CONTINUE
DO WHILE .T.
SET ESCAPE ON
@ 2,19 SAY "The ANNUAL Water Use Analysis will be computed"
@ 3,16 SAY "for the " + mtitle + " Watershed."
@ 6,1 SAY " "
@ 7,1 SAY " "
 DO WHILE .T.
                                        DEFINE WINDOW small FROM 10,25 to 12,60
                                        ACTIVATE WINDOW small
                                        @ 0,0 SAY "DO YOU WISH TO CONTINUE? (Y / N): " COLOR W+ / N
  DO WHILE .T.
  i=0
  DO WHILE i=0
    i=INKEY()
    @ 0,0 SAY ""
    IF UPPER (CHR(i))$"YN"
      EXIT
    ENDIF
    i=0
  ENDDO
  @ 0,0 SAY UPPER (CHR(i))
    EXIT
 ENDDO
 EXIT
ENDDO

DEACTIVATE WINDOW small
CLEAR
```

```
DO CASE

 CASE CHR(i) $ "Y" .OR. CHR(i) $ "y"
   DO ANALYSIS
   EXIT

 CASE CHR(i) $ "N" .OR. CHR(i) $ "n"
                          CLEAR MEMORY
                          RETURN TO ACT05
 OTHERWISE
                          LOOP
ENDCASE

ENDDO
                          SET SAFETY OFF
                          ZAP
                          CLOSE DATABASES
                          ERASE TEMP001.DBF
                          ERASE TEMP001.MDX
                          SET SAFETY ON

DEACTIVATE POPUP
CLEAR MEMORY
CLOSE DATABASES
RETURN
*** EOF: CONTINUE.PRG

*****************************************************************************
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
* PROGRAM:    USER_OUT.PRG
* PROGRAMER:  WRITTEN BY WAYNE BALMER.  MODIFIED BY KAREN VOGEL
* NOTES:     RETRIEVES A HARD COPY OF VIRTUALLY ALL DATA FOR
*            ANY WATER USER
PROCEDURE USER_OUT
DO WHILE .T.
SET PRINT OFF
CLEAR
SET CONSOLE ON
@ 11,12 SAY "USER OUTPUT TABLE BEING CREATED..." COLOR W / N
@ 11,46 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF

DO USER_VW          && A View program to set up the output
CLEAR
SET CONSOLE ON
SET MARGIN TO 5
USER = SPACE(6)
@ 10,5 SAY "ENTER PURVEYOR CODE :" GET USER PICTURE "XXXXXX"
READ
                          DO WHILE .T.
                          SEEK (USER)
                          IF .NOT. FOUND()
                          DEFINE WINDOW err FROM 10,14 TO 14,68 COLOR W+* / G, G / G
                          ACTIVATE WINDOW err
                          WAIT "  This Purveyor Code was not found press any key"
                          DEACTIVATE WINDOW err
                          CLEAR MEMORY
                          @ 2,5 SAY ' '
                          ACCEPT "Please Re-Enter the Purveyor Code:  " TO USER
                          GOTO TOP
                          LOOP
                          ELSE
                          EXIT
                          ENDIF
                          ENDDO
CLEAR
SET CONSOLE ON
@ 11,12 SAY "USER REPORT BEING GENERATED..." COLOR W / N
@ 11,42 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
```

```
REPORT FORM REPORTS \ RPT_USER NOEJECT FOR C->PURV_CODE=USER TO PRINTER

DELETE TAG TEMP3
REINDEX
SELECT A
DELETE TAG TEMP1
REINDEX
SELECT B
DELETE TAG TEMP2
REINDEX
CLOSE DATABASES
RETURN

SET CONSOLE ON
ENDDO
*** EOF: USER_OUT.PRG
*************************************************
* PROGRAM:    BASINOUT.PRG
* PROGRAMER:  WRITTEN BY CURTIS L. SCHREFFLER
* NOTES:      RETRIEVES A HARD COPY OF VIRTUALLY ALL DATA FOR
*             A SELECTED BASIN
PROCEDURE BASINOUT
DO WHILE .T.
SET PRINT OFF
CLEAR
SET CONSOLE OFF

SET MARGIN TO 5
mvar_basin = SPACE(2)
@ 10,5 SAY "ENTER THE BASIN CODE :" GET mvar_basin PICTURE "XXX"
READ

CLEAR
SET CONSOLE ON
@ 11,12 SAY "BASIN OUTPUT TABLE BEING CREATED..." COLOR W / N
@ 11,47 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
DO BASIN_VW

CLEAR
SET CONSOLE ON
@ 11,12 SAY "BASIN REPORT BEING GENERATED..." COLOR W / N
@ 11,43 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ RPT_BASN NOEJECT TO PRINTER

DELETE TAG TEMP1
REINDEX
SELECT C
DELETE TAG TEMP3
REINDEX
CLOSE DATABASES
RETURN

SET CONSOLE ON
ENDDO
*** EOF: BASINOUT.PRG

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*    The Following 3 Programs are Views which set up Relations and Filters
*         for the following programs:
*              YEAR_VW.PRG -->  ANALYSIS.PRG
*              USER_VW.PRG -->  USER_OUT.PRG
*              BASIN_VW.PRG --> BASINOUT.PRG
******************************************************************
PROCEDURE YEAR_VW
CLOSE DATABASES

@ 11,9 SAY "CREATING TEMPORARY TABLE..." COLOR W / N
```

```
@ 11,36 SAY "PLEASE WAIT" COLOR W+*/N

USE WATERUSE
SORT TO TEMP001 ON PURV_CODE /A, PURV_ID /A, ANN_YEAR /D
SET EXACT ON
SELECT 3
USE TEMP001 EXCLUSIVE
INDEX ON PURV_ID TAG ID OF TEMP001.MDX FOR (ANN_YEAR <= STR(mvar_yr,2,0)) UNIQUE
USE USERFILE IN 1 ORDER PURV_ID
USE ALOC IN 2 ORDER PURV_ID
SET RELATION TO C->PURV_ID INTO A
SELECT 1
SET RELATION TO A->PURV_ID INTO B
SELECT 3
SET FILTER TO FOUND(1) .AND. TYPE_USE=A->TYPE_USE .AND. PURV_ID=A->PURV_ID;
 .AND. (A->BASIN_SOR=mvar_basin .OR. A->BASIN_DEST=mvar_basin)
SET SKIP TO A
GO TOP
SET FIELDS TO A->PURV_CODE, A->PURV_ID, A->PURV_NAME, A->BASIN_SOR, A->BASIN_DEST, ;
C->TYPE_USE /R, C->ANN_YEAR, C->ANNUAL_TOT, B->ALLOCATION, ;
B->JT_ALLOC, B->SYS_ALLOC
RETURN
*** EOF: YEAR_VW.PRG
************************************************

PROCEDURE USER_VW
SET CONSOLE ON
CLOSE DATABASES
SELECT A
USE USERFILE IN A
INDEX ON PURV_CODE + PURV_ID TAG TEMP1
SELECT B
USE ALOC IN B
INDEX ON PURV_CODE + PURV_ID TAG TEMP2
SELECT C
USE WATERUSE IN C
INDEX ON PURV_CODE + PURV_ID TAG TEMP3
SELECT A
USE USERFILE IN A ORDER TEMP1
SET RELATION TO PURV_ID INTO C
SET SKIP TO C
SELECT C
USE WATERUSE IN C ORDER TEMP3
SET RELATION TO PURV_CODE + PURV_ID INTO B, PURV_CODE + PURV_ID INTO A
GO TOP
SET FIELDS TO C->PURV_CODE, C->PURV_ID, B->ALLOCATION, B->JT_ALLOC, B->SYS_ALLOC, ;
C->ANN_YEAR, C->ANNUAL_TOT, A->PURV_NAME, A->USGS_LOCAL, A->TYPE_USE, ;
A->LOC_LAT, A->LOC_LONG, A->UTM18_X, A->UTM18_Y, A->GUNIT_CODE, ;
A->BASIN_SOR, A->SSTM_CODE, A->SRV_MILE, A->BASIN_DEST, A->DSTM_CODE, ;
A->DRV_MILE, A->DRBC_DOC
RETURN
*** EOF: USER_VW.PRG
************************************************

PROCEDURE BASIN_VW
CLOSE DATABASES
SELECT A
USE USERFILE
INDEX ON PURV_CODE + PURV_ID TAG TEMP1
SELECT C
USE WATERUSE
INDEX ON PURV_CODE + PURV_ID TAG TEMP3
SET ORDER TO TEMP3
SELECT A
USE USERFILE IN A ORDER TEMP1
SET RELATION TO PURV_CODE + PURV_ID INTO C
SET SKIP TO C
SET FILTER TO (A->BASIN_SOR=mvar_basin .OR. A->BASIN_DEST=mvar_basin)
GO TOP
SET FIELDS TO A->PURV_CODE, A->PURV_ID, C->ANN_YEAR, C->ANNUAL_TOT, ;
A->PURV_NAME, A->TYPE_USE, A->BASIN_SOR, A->BASIN_DEST
RETURN
*** EOF: BASIN_VW.PRG
```

```
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
**********************************************************
* The following programs are for dumping ASCII files for GIS input
*PROGRAM:  GIS_USEDUMP
*DATE   :  DECEMBER 5, 1994.
*NOTES  :  PROGRAM CALLED FROM output_mnu.PRG THAT CREATES OUTPUT FILES IN THE
*        PROPER ASCII FORMAT TO BE USED IN A GIS.
*
*AUTHOR :  CURTIS L. SCHREFFLER
*
PROCEDURE GIS_USEDUMP
SET ESCAPE ON
_pdriver = "ASCII"
CLEAR
DO WHILE .T.
            M->file_nam = SPACE(8)
            M->choice = SPACE(3)
            DEFINE WINDOW choice FROM 1,10 TO 23,60 COLOR W+ / N
            ACTIVATE WINDOW choice && This window displays options the user cho

            @ 0,0 SAY "------------TYPE OF USE CODES------------"
            @ 2,2 SAY "  Public Supply Wells            --> PSW"
            @ 3,2 SAY "  Industrial, Commercial Wells   --> INW"
            @ 4,2 SAY "  Surface Water Withdrawals      --> SWW"
            @ 5,2 SAY "  Sewage Treatment Plants        --> STP"
            @ 6,2 SAY "  Treated Industrial Discharges  --> TID"
            @ 7,2 SAY "  Water Supply Importation       --> WSI"
            @ 8,2 SAY "  Water Supply Exportation       --> WSE"
            @ 9,2 SAY "  Discharge Importation          --> DIM"
            @ 10,2 SAY "  Discharge Exportation         --> DEX"
            @ 11,2 SAY "  Ground-water supplied irrigation--> GWI"
            @ 12,2 SAY "  Surface-water supplied irrigation--> SWI"
            @ 13,2 SAY "  Industrial Septic tank discharge --> SEP"
            @ 14,2 SAY "  Product Incorporation         --> PRO"
            @ 15,2 SAY "  Evaporation                   --> EVP"
            @ 16,2 SAY "  Ground-water recharge         --> RCG"
            @ 17,2 SAY "  Spray irrigation (discharge to GW)-> SPR"
            DO WHILE .T.
              ACCEPT "  Please ENTER the Code:  " TO M->choice
            IF ISLOWER(M->choice)
              @ 16,2 SAY "Please Turn CAPS Lock On" COLOR R / N
              LOOP
            ELSE
            DEACTIVATE WINDOW choice
            EXIT
            ENDIF
            ENDDO
            CLEAR
            DEFINE WINDOW alert FROM 5,20 TO 12,60 COLOR W+ / N
            ACTIVATE WINDOW alert  && This Routine was copied from the
      && Programming in dBASE IV Manual" pg. 155
            @ 0,0 SAY "------SEND OUTPUT TO A FILE------"
            @ 2,1 SAY "Enter filename for report: " GET M->file_nam ;
            VALID "" <> TRIM(M->file_nam) ;
            MESSAGE "Enter a filename of up to eight charaters"
            READ
            DEACTIVATE WINDOW alert
            CLEAR

@11,19 SAY "OUTPUT FILE BEING CREATED..." COLOR W / N
@11,47 SAY "PLEASE WAIT" COLOR W+* / N

CLOSE DATABASES
SELECT 1
USE USERFILE
INDEX ON PURV_CODE + PURV_ID TAG TEMP1
SELECT 2
USE ALOC
INDEX ON PURV_CODE + PURV_ID TAG TEMP2
SELECT 3
USE WATERUSE
SORT TO TEMP002 ON PURV_CODE  / A, PURV_ID  / A, ANN_YEAR  / D
```

```
SET EXACT ON
USE TEMP002 IN 3 EXCLUSIVE
INDEX ON PURV_ID TAG TEMP3 UNIQUE
USE USERFILE IN 1 ORDER TEMP1
USE ALOC IN 2 ORDER TEMP2
SET RELATION TO C->PURV_CODE + C->PURV_ID INTO A
SELECT 1
SET RELATION TO A->PURV_CODE + A->PURV_ID INTO B
SELECT 3
SET FILTER TO FOUND(1) .AND. PURV_ID=A->PURV_ID .AND. M->choice=A->TYPE_USE
SET SKIP TO A
SET SKIP TO B
GO TOP
SELECT 3
SET FIELDS TO A->LOC_LONG, A->LOC_LAT, A->PURV_ID, A->USGS_LOCAL, A->TYPE_USE,;
 C->ANN_YEAR, C->ANNUAL_TOT
SET HEADING OFF
SET PRINTER TO FILE M->file_nam
SET CONSOLE OFF
SET PRINT ON
?'1234567890123456789012345678901234567890123456789012345678901234567890'
SET PRINT OFF
LIST ALL OFF TO PRINTER
SET CONSOLE ON

SELECT 1
DELETE TAG TEMP1
SELECT 2
DELETE TAG TEMP2
SELECT 3
DELETE TAG TEMP3
SET SAFETY OFF
ZAP
SET SAFETY ON
CLOSE DATABASES
ERASE TEMP002.DBF
ERASE TEMP002.MDX

CLEAR
_pdriver="GENERIC.PR2"
RETURN
ENDDO
*** EOF: GIS_USEDUMP
********************************************************************************
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
PROCEDURE PrntRtry
*-------------------------------------------------------------------
* On error routine for handling printer errors.
*-------------------------------------------------------------------
 PRIVATE ll_escape
 ll_escape = SET("ESCAPE") = "ON"

 IF .NOT. PRINTSTATUS()          && If printer not ready

  IF ll_escape                   && If Escape on, set it off
   SET ESCAPE OFF
  ENDIF

  ACTIVATE WINDOW printemp
  @ 1,0 SAY "Please ready your printer or"
  @ 2,0 SAY "     press ESC to cancel"

  *-- Loop until printer is ready or user presses escape
  gn_pkey = 0
  DO WHILE ( .NOT. PRINTSTATUS()) .AND. gn_pkey <> 27
   gn_pkey = INKEY()
  ENDDO

  DEACTIVATE WINDOW printemp
  IF ll_escape
   SET ESCAPE ON
  ENDIF
```

```
  IF gn_pkey <> 27              && If user wants to retry
   RETRY                   && Retry the print command
  ENDIF

 ENDIF

RETURN
*-- EOP: PrntRtry
****************************************************************************
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
PROCEDURE NODATA
*---------------------------------------------------------------
* On error routine for handling entering of blanks in the mandatory
* fields: PURV_NAME, PURV_CODE, PURV_ID.
*---------------------------------------------------------------
 CLEAR SCREEN
 DEFINE WINDOW err FROM 14,14 TO 21,69 COLOR W / N, R / B
 ACTIVATE WINDOW err
 @ 1,5 SAY "You Must Enter Data Into the Following Fields"
 @ 3,2 SAY "PURVEYOR NAME    PURVEYOR CODE   PURVEYOR LOCAL ID" COLOR w+* / n
 SET COLOR TO R+ / N
 WAIT "           Press Any Key to Continue"
 DEACTIVATE WINDOW err
 CLEAR GETS
RETURN
*-- EOP: NODATA
```

APPENDIX 3. Watershed Water-Use Analysis Program

(filename analysis.prg)

```
*PROGRAM:  ANALYSIS.PRG
*DATE   :  JUNE 8, 1988.
*NOTES  :  Program called from  CONTINUE.PRG.
*          User chooses year for computation of water use analysis.
*          Computes gw and sw withdrawals, waste water
*          discharges, and transfer water. Procedures within this program
*          that reside in the Process Library are GWYIELD and GW_COMP. The
*          many report forms in this procedure reside in the reports
*          directory. The view YEAR_VW sets up the relates and databases.
*AUTHOR :  C.L. SCHREFFLER Modified from KAREN VOGEL, 1988
PROCEDURE ANALYSIS
set escape on
DO WHILE .T.
@ 11,15 SAY “Choose a year between 1988 and the present year”
@ 12,28 SAY “for computation of the”
@ 13,10 SAY mtitle + “ Watershed Water Use Analysis.”
@ 14,10 SAY “ “
INPUT SPACE(23)+”Enter year and press return:  19” TO mvar_yr
CLEAR
STORE 0.0 TO gwtotal, swtotal, totimport, totexport, transtotal, ;
cur_tot, rec_tot, import_cur, import_rec, export_cur, export_rec, ;
mvar_total, loss_cur, loss_rec, gw_psw, gw_inw, alloc_yr


DO YEAR_VW       && The view which sets up the relationships between the
          && databases and creates the temporary table TEMP001.DBF.
          && Resides in the Process Library.

SET CONSOLE OFF
SET PRINT ON
? SPACE(8)+”WATER USE ANALYSIS FOR “ + mtitle + “ WATERSHED, 19”+ STR(mvar_yr,2)
? SPACE(8)+”================================================================”
?
? SPACE(8)+      “_____________________________________________________________”
? SPACE(8)+”Ground Water Withdrawals for “ + mtitle + “ Watershed, 19”+ STR(mvar_yr,2)
? SPACE(8)+”              PUBLIC-WATER SUPPLY WELLS                “
? SPACE(8)+”-------------------------------------------------------”
SET PRINTER OFF
SET CONSOLE ON
CLEAR

@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ GWSW NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND.;
 TEMP001->TYPE_USE = “PSW” .AND. USERFILE->BASIN_SOR = mvar_basin TO PRINTER
                                        IF cur_tot = 0.000
                                        SET PRINT ON
                                        ? “ “
                                        ? SPACE(30)+” NO DATA AVAILABLE”
                                        ? “ “
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+      “_____________________________________________________________”
? SPACE(8)+”Ground Water Withdrawals for “ + mtitle + “ Watershed Most Recent DATA”
? SPACE(8)+”              PUBLIC-WATER SUPPLY WELLS                “
? SPACE(8)+”-------------------------------------------------------”
SET PRINTER OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N
```

```
SET CONSOLE OFF
REPORT FORM REPORTS\REC_GWSW NOEJECT FOR ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "PSW" .AND. USERFILE->BASIN_SOR = mvar_basin TO PRINTER
                                        IF rec_tot = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

gw_psw = cur_tot + rec_tot

CLEAR
cur_tot = 0.000   && Resetting the summation variables in the REPORT forms
rec_tot = 0.000   && GWSW and REC_GWSW to 0.0

SET PRINT ON
? SPACE(8)+      "_____"
? SPACE(8)+"Ground Water Withdrawals for " + mtitle + " Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"      INDUSTRIAL, COMMERCIAL, or INSTITUTIONAL and Irrigation"
? SPACE(8)+"----------"
SET PRINTER OFF
GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS\GWSW NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND.;
 USERFILE->BASIN_SOR = mvar_basin .AND. TEMP001->TYPE_USE = "INW" ;
 .OR. TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. USERFILE->BASIN_SOR = mvar_basin .AND.;
 TEMP001->TYPE_USE = "GWI" TO PRINTER
                                        IF cur_tot = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINTER ON
? SPACE(8)+      "_____"
? SPACE(8)+"Ground Water Withdrawals for " + mtitle + " Watershed Most Recent DATA"
? SPACE(8)+"      INDUSTRIAL, COMMERCIAL, or INSTITUTIONAL and Irrigation "
? SPACE(8)+"----------"
SET PRINTER OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS\REC_GWSW NOEJECT FOR ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
USERFILE->BASIN_SOR = mvar_basin .AND. TEMP001->TYPE_USE = "INW" ;
.OR. ANN_YEAR <> STR(mvar_yr,2,0) .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
TEMP001->TYPE_USE = "GWI" TO PRINTER
                                        IF rec_tot = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

gw_inw = cur_tot + rec_tot
```

```
gwtotal = gw_psw + gw_inw

EJECT
SET PRINTER ON
? SPACE(8)+      "________________________________________________________________"
? SPACE(8)+"Estimated Total Aggregate DOMESTIC Use Ground Water Withdrawals for "
? SPACE(8)+ mtitle + " Watershed"
? SPACE(8)+"----------------------------------------------------------------"
?
? SPACE(8)+"Estimated Domestic Use (mgyr) =  " + STR(mvar_domuse,10,2)
SET PRINTER OFF


DO GWYIELD       && The procedure that compares ground-water withdrawals with
          && ground-water availability at the choosen recurrence
          && interval and subtracts out the Domestic Use variable.

CLEAR
*******************************************************************************
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SET PRINT OFF
loss_cur = 0.0
loss_rec = 0.0
SET PRINT ON

? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Spray Irrigation System Discharges For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"----------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "SPR" TO PRINTER
                              IF loss_cur = 0.000
                              SET PRINT ON
                              ? " "
                              ? SPACE(30)+" NO DATA AVAILABLE"
                              ? " "
                              SET PRINT OFF
                              ENDIF

SET PRINT ON
? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Spray Irrigation System Discharges For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"----------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "SPR" TO PRINTER
                              IF loss_rec = 0.000
                              SET PRINT ON
                              ? " "
                              ? SPACE(30)+" NO DATA AVAILABLE"
                              ? " "
```

```
                                    SET PRINT OFF
                                    ENDIF

tot_spray = loss_cur + loss_rec

SET PRINT ON
? SPACE (10) + "TOTAL SPRAY IRRIGATION SYSTEM DISCHARGES -- " + STR(tot_spray,10,4)

EJECT
CLEAR
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*            SURFACE WATER TOTALING
cur_tot = 0.000    && Resetting the summation variables in the REPORT forms
rec_tot = 0.000    && GWSW and REC_GWSW to 0.0


SET PRINTER ON
? SPACE(8)+"________________________________________________________________________"
? SPACE(8)+"Surface Water Withdrawals for " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"-------------------------------------------------------------------"
SET PRINTER OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ GWSW NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "SWW" .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
TEMP001->TYPE_USE = "SWI" TO PRINTER
                                    IF cur_tot = 0.000
                                    SET PRINT ON
                                    ? " "
                                    ? SPACE(30)+" NO DATA AVAILABLE"
                                    ? " "
                                    SET PRINT OFF
                                    ENDIF

SET PRINTER ON
? SPACE(8)+    "________________________________________________________________________"
? SPACE(8)+"Surface Water Withdrawals for " + mtitle + " Watershed Most Recent DATA"
? SPACE(8)+"-------------------------------------------------------------------"
SET PRINT OFF

GOTO TOP
CLEAR
SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ REC_GWSW NOEJECT FOR ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "SWW" .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
ANN_YEAR <> STR(mvar_yr,2,0) .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
TEMP001->TYPE_USE = "SWI" TO PRINTER
                                    IF rec_tot = 0.000
                                    SET PRINT ON
                                    ? " "
                                    ? SPACE(30)+" NO DATA AVAILABLE"
                                    ? " "
                                    SET PRINT OFF
                                    ENDIF

swtotal = cur_tot + rec_tot

SET PRINT ON
? SPACE(10) + "TOTAL SURFACE WATER WITHDRAWALS -- " + STR(swtotal,10,4)
```

```
EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SET PRINT OFF
cur_tot = 0.000
rec_tot = 0.000

SET PRINT ON
? SPACE(8)+"____________________________________________________________________"
? SPACE(8)+"Waste-Water Treatment Facility Discharges For "
? SPACE(8)+ mtitle + " Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"------------------------------------------------------------"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ WASTE NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "STP" .OR. TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "TID" TO PRINTER
                                        IF cur_tot = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+"____________________________________________________________________"
? SPACE(8)+"Waste-Water Treatment Facility Discharges For "
? SPACE(8)+ mtitle + " Watershed Most RECENT Data"
? SPACE(8)+"------------------------------------------------------------"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ WASTE_RC NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "STP" .OR. ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "TID" TO PRINTER
                                        IF rec_tot = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

wastetot = cur_tot + rec_tot

SET PRINT ON
? SPACE(10) + "TOTAL WASTE WATER DISCHARGES -- " + STR(wastetot,10,4)
EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

************************************************************************
? SPACE(10) +"WATER USE IMPORT / EXPORT TRACKING FOR "+ mtitle +" Watershed "
************************************************************************
? SPACE(8) + "  "
? SPACE(8) + "  "
```

```
? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as sewage) For " + mtitle + " Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"-----"
?
? SPACE(38)+"IMPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ IMPORT NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "DIM" .OR. (TEMP001->ANN_YEAR = STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "DEX" .AND. USERFILE->BASIN_DEST = mvar_basin .AND. ;
USERFILE->BASIN_SOR <> mvar_basin) ;
TO PRINTER
                                        IF import_cur = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as sewage) For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"-----"
?
? SPACE(38)+"IMPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ IMPORT_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "DIM" .OR. (TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "DEX" .AND. USERFILE->BASIN_DEST = mvar_basin .AND. ;
USERFILE->BASIN_SOR <> mvar_basin) ;
TO PRINTER
                                        IF import_rec = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

tot_import = import_cur + import_rec

SET PRINT ON
? SPACE(10) + "TOTAL DISCHARGE IMPORTS (sewage or treated effluent) -- " + ;
STR(tot_import,10,4)
CLEAR

? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as sewage) For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"-----"
?
? SPACE(38)+"EXPORTS"
SET PRINT OFF
```

```
GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ EXPORT NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = “DEX” .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
(TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. TEMP001->TYPE_USE = “DIM” .AND. ;
USERFILE->BASIN_SOR = mvar_basin .AND. USERFILE->BASIN_DEST <> mvar_basin) ;
TO PRINTER
                                        IF export_cur = 0.000
                                        SET PRINT ON
                                        ? “ “
                                        ? SPACE(30)+” NO DATA AVAILABLE”
                                        ? “ “
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+”____________________________________________________________________”
? SPACE(8)+”Transfer Water (as sewage) For “ + mtitle +” Watershed Most RECENT Data”
? SPACE(8)+”---------------------------------------------------------------------”
?
? SPACE(38)+”EXPORTS”
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ EXPORT_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0);
 .AND. TEMP001->TYPE_USE = “DEX” .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
(TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. TEMP001->TYPE_USE = “DIM” .AND. ;
USERFILE->BASIN_SOR = mvar_basin .AND. USERFILE->BASIN_DEST <> mvar_basin) ;
TO PRINTER
                                        IF export_rec = 0.000
                                        SET PRINT ON
                                        ? “ “
                                        ? SPACE(30)+” NO DATA AVAILABLE”
                                        ? “ “
                                        SET PRINT OFF
                                        ENDIF

tot_export = export_cur + export_rec

SET PRINT ON
? SPACE(10) + “TOTAL DISCHARGE EXPORTS (sewage or treated effluent) --- “ + ;
STR(tot_export,10,4)
CLEAR

SET PRINT OFF
transtotal = tot_import - tot_export
SET PRINT ON

?
? SPACE(7) + “IMPORT TOTAL - EXPORT TOTAL = NET INTERBASIN TRANSFER (as sewage)”
?
? SPACE(8) + STR(tot_import,10,4) + “  -  “ + STR(tot_export,10,4) + “  =  “ + STR(transtotal,10,4)
EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

SET PRINT OFF

tot_import = 0.0
```

```
tot_export = 0.0
import_cur = 0.0
import_rec = 0.0
export_cur = 0.0
export_rec = 0.0

SET PRINT ON
? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as water supply) For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"----------"
?
? SPACE(38)+"IMPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ IMPORT NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "WSI" .AND. USERFILE->BASIN_SOR <> mvar_basin .AND. ;
USERFILE->BASIN_DEST = mvar_basin .OR. (TEMP001->ANN_YEAR = STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "WSE" .AND. USERFILE->BASIN_DEST = mvar_basin .AND. ;
USERFILE->BASIN_SOR <> mvar_basin) TO PRINTER
                                        IF import_cur = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as water supply) For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"----------"
?
? SPACE(38)+"IMPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ IMPORT_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "WSI" .AND. USERFILE->BASIN_SOR <> mvar_basin .AND. ;
USERFILE->BASIN_DEST = mvar_basin .OR. (TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "WSE" .AND. USERFILE->BASIN_DEST = mvar_basin .AND. ;
USERFILE->BASIN_SOR <> mvar_basin) TO PRINTER
                                        IF import_rec = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

tot_import = import_cur + import_rec

SET PRINT ON
? SPACE(10) + "TOTAL watersupply IMPORTS  -- " + STR(tot_import,10,4)
CLEAR


? SPACE(8)+"_____"
```

```
? SPACE(8)+"Transfer Water (as water supply) For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"----------"
?
? SPACE(38)+"EXPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ EXPORT NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "WSE" .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
USERFILE->BASIN_DEST <> mvar_basin .OR. (TEMP001->ANN_YEAR = STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "WSI" .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
USERFILE->BASIN_DEST <> mvar_basin) TO PRINTER
                                        IF export_cur = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+"_____"
? SPACE(8)+"Transfer Water (as water supply) For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"----------"
?
? SPACE(38)+"EXPORTS"
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ EXPORT_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "WSE" .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
USERFILE->BASIN_DEST <> mvar_basin .OR. (TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) ;
.AND. TEMP001->TYPE_USE = "WSI" .AND. USERFILE->BASIN_SOR = mvar_basin .AND. ;
USERFILE->BASIN_DEST <> mvar_basin) TO PRINTER
                                        IF export_rec = 0.000
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

tot_export = export_cur + export_rec

SET PRINT ON
? SPACE(10) + "TOTAL watersupply EXPORTS  -- " + STR(tot_export,10,4)
CLEAR

SET PRINT OFF
transtotal = tot_import - tot_export
SET PRINT ON

?
? SPACE(7) + "IMPORT TOTAL - EXPORT TOTAL = NET INTERBASIN TRANSFER (as water supply)"
?
? SPACE(8) + STR(tot_import,10,4) + "  -  " + STR(tot_export,10,4) + "  =  " + STR(transtotal,10,4)
EJECT
```

```
*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
loss_cur = 0.0
loss_rec = 0.0
? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Evaporative Losses For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "EVP" TO PRINTER
                    IF loss_cur = 0.000
                    SET PRINT ON
                    ? " "
                    ? SPACE(30)+" NO DATA AVAILABLE"
                    ? " "
                    SET PRINT OFF
                    ENDIF

SET PRINT ON
? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Evaporative Losses For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "EVP" TO PRINTER
                    IF loss_rec = 0.000
                    SET PRINT ON
                    ? " "
                    ? SPACE(30)+" NO DATA AVAILABLE"
                    ? " "
                    SET PRINT OFF
                    ENDIF

tot_evap = loss_cur + loss_rec

SET PRINT ON
? SPACE (10) + "TOTAL EVAPORATIVE LOSSES -- " + STR(tot_evap,10,4)
EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SET PRINT OFF
loss_cur = 0.0
loss_rec = 0.0
SET PRINT ON

? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Product Incorportation Losses For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR
```

```
SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "PRO" TO PRINTER
                              IF loss_cur = 0.000
                              SET PRINT ON
                              ? " "
                              ? SPACE(30)+" NO DATA AVAILABLE"
                              ? " "
                              SET PRINT OFF
                              ENDIF

SET PRINT ON
? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Product Incorporation For " + mtitle +" Watershed Most RECENT Data"
? SPACE(8)+"----------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = "PRO" TO PRINTER
                              IF loss_rec = 0.000
                              SET PRINT ON
                              ? " "
                              ? SPACE(30)+" NO DATA AVAILABLE"
                              ? " "
                              SET PRINT OFF
                              ENDIF

tot_prod = loss_cur + loss_rec

SET PRINT ON
? SPACE (10) + "TOTAL PRODUCT INCORPORTATION LOSSES -- " + STR(tot_prod,10,4)

SET PRINT OFF
mvar_total = tot_evap + tot_prod
SET PRINT ON

?
?
? SPACE (5) + "Evaporative Losses " + "   +   " + "Product Incorporation ;
Losses " + "=" + "   TOTAL"
? SPACE(8) + STR(tot_evap,10,4) + SPACE(18) + STR(tot_prod,10,4) + ;
SPACE(8) + STR(mvar_total,10,4)
EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SET PRINT OFF
loss_cur = 0.0
loss_rec = 0.0
SET PRINT ON

? SPACE(8)+"________________________________________________________________"
? SPACE(8)+"Septic Tank Discharges For " + mtitle +" Watershed, 19"+ STR(mvar_yr,2)
? SPACE(8)+"----------------------------------------------------------------"
?
SET PRINT OFF

GOTO TOP
CLEAR
```

```
SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = “SEP” TO PRINTER
                                        IF loss_cur = 0.000
                                        SET PRINT ON
                                        ? “ “
                                        ? SPACE(30)+” NO DATA AVAILABLE”
                                        ? “ “
                                        SET PRINT OFF
                                        ENDIF

SET PRINT ON
? SPACE(8)+”________________________________________________________________”
? SPACE(8)+”Septic Tank Discharges For “ + mtitle +” Watershed Most RECENT Data”
? SPACE(8)+”----------------------------------------------------------------”
?
SET PRINT OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ LOSSES_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2,0) .AND. ;
TEMP001->TYPE_USE = “SEP” TO PRINTER
                                        IF loss_rec = 0.000
                                        SET PRINT ON
                                        ? “ “
                                        ? SPACE(30)+” NO DATA AVAILABLE”
                                        ? “ “
                                        SET PRINT OFF
                                        ENDIF

tot_sept = loss_cur + loss_rec

SET PRINT ON
? SPACE (10) + “TOTAL SEPTIC TANK DISCHARGES -- “ + STR(tot_sept,10,4)

EJECT

*%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

CLEAR
STORE 0.0 TO alloc_tot, jtall_tot, sysall_tot, cur_alloc, rec_alloc, ;
cur_jt, rec_jt, cur_sys, rec_sys, mwith

SET PRINT ON
? SPACE(8)+    “________________________________________________________________”
? SPACE(8)+”Allocations for “ + mtitle + “ Watershed, 19”+ STR(mvar_yr,2)
? SPACE(8)+” Allocations are for a 30 DAY Period”
? SPACE(8)+”----------------------------------------------------------------”
SET PRINTER OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY “COMPUTATION IN PROGRESS...” COLOR W / N
@ 11,45 SAY “PLEASE WAIT” COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ ALLOC NOEJECT FOR TEMP001->ANN_YEAR = STR(mvar_yr,2) .AND. ;
B->ALLOCATION > 0.000 .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
TEMP001->ANN_YEAR = STR(mvar_yr,2) .AND. B->JT_ALLOC > 0.000 .AND. ;
```

```
USERFILE->BASIN_SOR = mvar_basin .OR. TEMP001->ANN_YEAR = STR(mvar_yr,2) .AND. ;
B->SYS_ALLOC > 0.000 .AND. USERFILE->BASIN_SOR = mvar_basin TO PRINTER
                                        IF (cur_alloc = 0.000 .AND. cur_jt = 0.000 .AND. cur_sys = 0.000)
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

SET PRINTER ON
? SPACE(8)+     "_____"
? SPACE(8)+"Allocation for " + mtitle + " Watershed Most Recent DATA"
? SPACE(8)+" Allocations are for a 30 DAY Period"
? SPACE(8)+"----------"
SET PRINTER OFF

GOTO TOP
CLEAR

SET CONSOLE ON
@ 11,19 SAY "COMPUTATION IN PROGRESS..." COLOR W / N
@ 11,45 SAY "PLEASE WAIT" COLOR W+* / N

SET CONSOLE OFF
REPORT FORM REPORTS \ ALLOC_R NOEJECT FOR TEMP001->ANN_YEAR <> STR(mvar_yr,2) .AND. ;
B->ALLOCATION > 0.000 .AND. USERFILE->BASIN_SOR = mvar_basin .OR. ;
TEMP001->ANN_YEAR <> STR(mvar_yr,2) .AND. B->JT_ALLOC > 0.000 .AND. ;
USERFILE->BASIN_SOR = mvar_basin .OR. TEMP001->ANN_YEAR <> STR(mvar_yr,2) .AND. ;
B->SYS_ALLOC > 0.000 .AND. USERFILE->BASIN_SOR = mvar_basin TO PRINTER
                                        IF (rec_alloc = 0.000 .AND. rec_jt = 0.000 .AND. rec_sys = 0.000)
                                        SET PRINT ON
                                        ? " "
                                        ? SPACE(30)+" NO DATA AVAILABLE"
                                        ? " "
                                        SET PRINT OFF
                                        ENDIF

alloc_tot = cur_alloc + rec_alloc
jtall_tot = cur_jt + rec_jt
sysall_tot = cur_sys + rec_sys
alloc_yr = alloc_tot * (365 / 30)    && To annualize the 30 Day Allocation data

DO GW_COMP      && Procedure that compares Allocations with Availability
          && and Withdrawals of ground- and surface-water.

CLEAR
SET PRINT OFF
RETURN
ENDDO
```

APPENDIX 4. Water-Use Analysis Report for Little Neshaminy Creek, Warminster Subbasin

WATER USE ANALYSIS FOR Warminster Subbasin Little Neshaminy WATERSHED, 1992

Ground Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed, 1992
PUBLIC-WATER SUPPLY WELLS

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CODE	Water User	Withdrawn Amount (mgal)
100230	CHRISTS HOME WELL # 1	3.1890
100230	CHRISTS HOME WELL # 2	0.0000
101921	HORSHAM TWP WATER AUTHORITY WELL#10	12.5000
101254	NORTHAMPTON BUCKS CO MUN A-WELL #12	0.0000
101262	WARRINGTON TWP MUN AUTH WELL#1	44.7800
101262	WARRINGTON TWP MUN AUTH WELL#2	43.2600
101262	WARRINGTON TWP MUN AUTH WELL#3	60.0000
101262	WARRINGTON TWP MUN AUTH WELL#4	26.3600
101262	WARRINGTON TWP MUN AUTH WELL#5	53.5800
101262	WARRINGTON TWP MUN AUTH WELL #6	12.4800
101262	WARRINGTON TWP MUN AUTH WELL#9	72.7600
101237	WARMINSTER TWP MUN AUTH WELL#4	42.4200
101237	WARMINSTER TWP MUN AUTH WELL#5	78.5700
101237	WARMINSTER TWP MUN AUTH WELL#6	43.8800
101237	WARMINSTER TWP MUN AUTH WELL#9	137.3000
101237	WARMINSTER TWP MUN AUTH WELL#10	134.4300
101237	WARMINSTER TWP MUN AUTH WELL#13	24.4800
101237	WARMINSTER TWP MUN AUTH WELL#14	43.1400
101237	WARMINSTER TWP MUN AUTH WELL#15	93.3000
101237	WARMINSTER TWP MUN AUTH WELL #26	92.9300
101237	WARMINSTER TWP MUN AUTH WELL#36	38.3400
101237	WARMINSTER TWP MUN AUTH WELL#3	144.3000
101237	WARMINSTER TWP MUN AUTH WELL #39	56.5400
*** Total ***		1258.5390

Ground Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed Most Recent DATA
PUBLIC-WATER SUPPLY WELLS

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CODE	Water User	Year of Data	Withdrawn Amount (mgal)
101237	WARMINSTER TWP MUNIC AUTH WELL 23A	90	0.0000
101237	WARMINSTER TWP MUNIC AUTH WELL 23B	90	0.0000
101237	WARMINSTER TWP MUN AUTH WELL#24	90	0.0000
*** Total ***			0.0000

Ground Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed, 1992
INDUSTRIAL, COMMERCIAL, or INSTITUTIONAL and Irrigation

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CODE	Water User	Withdrawn Amount (mgal)
450053	FEENEYS NURSERY WELL W2	3.2400
018508	JN WAGNER & SONS INC-WELL #1	6.4440
018508	JN WAGNER & SONS INC-WELL #2	0.4060
100159	NAVAL AIR DEV CTR WELL#3	5.9530
100159	NAVAL AIR DEV CTR WELL#4	3.0710
100159	NAVAL AIR DEV CTR WELL#10	35.5780
250003	SPRING MILL COUNTRY CLUB WELL #1	2.2530
250003	SPRING MILL COUNTRY CLUB WELL #2	0.8460
*** Total ***		57.7910

Ground Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed Most Recent DATA
INDUSTRIAL, COMMERCIAL, or INSTITUTIONAL and Irrigation

CODE	Water User	Year of Data	Withdrawn Amount (mgal)
021167	AMERICAN BROCHURE–WITHDRAW WELL	88	0.0025
005945	ATCH-MONT GEAR INC	77	0.0325
018949	R M C INC.- WITHDRAW WELL	84	0.0375
018936	BALDWIN PRINTING- WITHDRAW WELL	83	0.0118
020822	BENNETT HEAT TREATING - WITH WELL	88	0.2299
016856	CAROLINCH CO	83	0.0750
016854	COMPUSTATICS INC	83	0.1125
020862	CRANE CO - WITHDRAW WELL	88	1.0842
005949	CROCKETT MACHINE CO	83	0.0450
005938	CURRAN MFG CO.- WITHDRAW WELL	88	0.0030
016839	DELVCO INDS INC	83	0.1040
020826	DELAWARE VALLEY PRODUCTS-WITH WELL	88	0.0850
016851	DA-TECH CORP - WITHDRAW WELL	88	0.1200
006194	DENTRONIX INC	83	0.1014
020817	EHMCO INC - WITHDRAW WELL	88	0.0360
020819	E & J METAL FABRICATORS- WITH WELL	88	0.0200
020856	ELECTRONIC DEVELOPMENT-WITHDR WELL	88	0.0001
016858	ESSEX ENGINEERING - WITHDRAW WELL	88	0.0260
018326	FORANNE MFG INC.- WITHDRAW WELL	84	0.1476
005941	FELCO MFG CO.- WITHDRAW WELL	88	0.0195
016865	FLUITRON INC - WITHDRAW WELL	88	0.1404
006375	FOX RUN CRAFTSMEN - WITHDRAW WELL	88	0.2063
006378	FRANKLIN INSTRUMENT- WITHDRAW WELL	88	0.0858
006518	GAUSS SYSTEMS & CONTROLS	77	0.0104
020821	G S C INC - WITHDRAW WELL	88	0.0499
450061	HAIST MATT A GROUND WITHDRAWAL	77	0.4656
005948	HAHN & KAISER- WITHDRAW WELL	83	0.0078
020818	H & R INDUSTRIES INC -WITHDRAW WELL	88	0.0349
005935	INDUSTRIAL NAME PLATE–WITHDR WELL	88	0.0190
006470	INNOVATIVE MEDICAL SYSTEM-WITH WELL	88	0.3120
018316	JANOR WIRE & CABLE- WITHDRAW WELL	84	0.0749
016861	J M CHEM FEED & CONTROL SYS	83	0.1001
006474	JOMAC INC.- WITHDRAWAL WELL	88	0.2808
005936	KAR-GO DECAL CO.- WITHDRAW WELL	84	0.5200
018953	KING-GUTHRIE CO.- WITHDRAW WELL	83	0.0300
006452	K & W MACHINE CO.- WITHDRAW WELL	88	0.0117
020858	KOSMA TOOL & DIE - WITHDRAW WELL	88	0.0060
020825	KOVACS MFG CO - WITHDRAW WELL	88	0.0350
020859	KRUSE TOOL & DIE INC -WITHDRAW WELL	88	0.2800
020824	KINETIC TOOL CO - WITHDRAW WELL	88	0.0113
005946	LAMINAR FLOW INC.- WITHDRAW WELL	84	0.0563
018947	LIFTEX INC.- WITHDRAW WELL	88	0.0858
018975	LEGENDARY CORVETTE- WITHDRAW WELL	83	0.0507
018957	MANSCO PRODUCTS INC.- WITHDRAW WELL	88	0.0150
006471	METAL CRAFTERS INC	83	0.0470
020860	MEDL TOOL & DIE INC - WITHDRAW WELL	88	0.0140
006488	METCO MFG CO INC - WITHDRAW WELL	88	0.3203
020816	MID ATLANTIC CIRCUIT INC- WITH WELL	88	0.0120
005944	MILTON ROY CO HARTELL DIV	83	0.1560
016853	M T I CORP - WITHDRAW WELL	88	0.0699
020823	NEU DYNAMICS CORP - WITHDRAW WELL	88	0.0180
020864	NEWTOWN TOOL & MFG CO INC-WITH WELL	88	0.0400
006442	NUCLEAR RESEARCH- WITHDRAW WELL	88	0.2912
100159	NAVAL AIR DEV CTR WELL#5	90	0.0000
100159	NAVAL AIR DEV CTR WELL#7	90	0.0000
016860	OMNI ELECS & MFG INC	83	0.0383
006311	PACKAGING SERVICE- WITHDRAW WELL	83	0.0975
005950	PIONEER TOOL DIE & MACH - WITH WELL	88	0.0234

CODE	Water User	Year of Data	Withdrawn Amount (mgal)
018391	PRINTED LINE DESIGN- WITHDRAW WELL	83	0.3640
006480	REBLING PLASTICS CO - WITHDRAW WELL	88	0.0540
016847	REIF, M M & CO	83	0.1500
020820	S K S EQUIPMENT COMPANY- WITH WELL	88	0.0200
006318	TECHNICAL GLASS PRODUCTS -WITH WELL	88	0.0400
016677	TINIUS OLSEN - WITHDRAW WELL	88	0.4290
006374	TUBRO COMPANY- WITHDRAW WELL	88	0.4992
018954	UNITED CIRCUITS INC.- WITHDRAW WELL	83	0.0390
005953	VISTA SCIENTIFIC CORP-WITHDRAW WELL	88	0.0907
016857	WARREN MCH CO INC	83	0.0842

006497	WARRINGTON EQPT-FOUR WITHDRAW WELLS	84	0.3250
005932	WORLD FLAVORS--WITHDRAW WELL	88	0.2400
020863	WESLEY M JOHNSON INC -WITHDRAW WELL	88	0.5625
*** Total ***			9.2084

Estimated Total Aggregate DOMESTIC Use Ground Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed

Estimated Domestic Use (mgyr) = 95.86

Comparison of Ground Water Withdrawals with Warminster Subbasin Little Neshaminy Watershed Ground-Water contribution to base-flow for the 10-Year Recurrence Interval

Basin Contribution (mgal)	Total GW Withdrawals (mgal)	Difference (mgal)
2464.832	1325.538	1139.294

Spray Irrigation System Discharges For Warminster Subbasin Little Neshaminy Watershed, 1992

NO DATA AVAILABLE

Spray Irrigation System Discharges For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

NO DATA AVAILABLE

TOTAL SPRAY IRRIGATION SYSTEM DISCHARGES -- 0.0000

Surface Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed, 1992

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CODE	Water Use	Withdrawn Amount (mgal)
250556	NESHAMINY VALLEY- L.NESHAMINY CREEK	3.3000
*** Total ***		3.3000

Surface Water Withdrawals for Warminster Subbasin Little Neshaminy Watershed Most Recent DATA

NO DATA AVAILABLE

TOTAL SURFACE WATER WITHDRAWALS -- 3.3000

Waste-Water Treatment Facility Discharges For Warminster Subbasin Little Neshaminy Watershed, 1992

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CODE	Waste-Water Treatment Facility	Discharge Amount (mgal)
100159	NAVAL AIR DEV CTR - STP	41.8500
602292	WARMINSTER TWP MUN AUT-L NESHAMINY	1585.7000
*** Total ***		1627.5500

Waste-Water Treatment Facility Discharges For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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CODE	Waste-Water Treatment Facility	Year of Data	Discharge Amount (mgal)
020862	CRANE CO-LITTLE NESHAMINY CK DISCHR	88	0.5018
006518	GAUSS SYSTEMS & CONTROLS	77	0.0097
020816	MID ATLANTIC CIRCUIT-INSTREAM DISCH	88	0.0050

018391	PRINTED LINE DESIGN- SEWAGE PLANT	83	0.2240
005953	VISTA SCIENTIFIC CORP	88	0.0858

*** Total *** 0.8263

TOTAL WASTE WATER DISCHARGES -- 1628.3763

WATER USE IMPORT / EXPORT TRACKING FOR Warminster Subbasin Little Neshaminy Watershed

---

Transfer Water (as sewage) For Warminster Subbasin Little Neshaminy Watershed, 1992

IMPORTS

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CODE	Water User	From	USE	TO	Amount (mgal)
101262	WARRINGTON TWP M.A. EXPORT 2	06	DEX	08	17.2300

*** Total *** 17.2300

Transfer Water (as sewage) For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

---

IMPORTS

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CODE	Water User	YEAR	From	USE	TO	Amount (mgal)
150014	FOX NURSING HOME INC - EXPORT	91	05	DEX	08	0.1130
006498	MEECO - EXPORT	88	07	DEX	08	0.7878
006491	O P SCHUMAN & SONS INC - EXPORT	88	07	DEX	08	0.5756
006459	REFRESHMENT MACHINERY - IMPORT		00	DIM	08	1.5000
101262	WARRINGTON TWP M.A. EXPORT 1	91	05	DEX	08	4.4400
021162	WARRINGTON PASTRY SHOP - EXPORT	88	06	DEX	08	0.1404

*** Total *** 7.5568

TOTAL DISCHARGE IMPORTS (sewage or treated effluent) -- 24.7868

Transfer Water (as sewage) For Warminster Subbasin Little Neshaminy Watershed, 1992

EXPORTS

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CODE	Water User	To	USE	FROM	Amount (mgal)
100166	NAVAL AIR STATION NAVY - EXPORT	07	DEX	08	29.2400
101921	HORSHAM TWP W.A. EXPORT 1	00	DEX	08	11.3000
101254	NORTHAMPTON BUCKS CO. M.A. EXPORT 1	00	DEX	08	0.0000

*** Total *** 40.5400

Transfer Water (as sewage) For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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EXPORTS

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CODE	Water User	YEAR	To	USE	FROM	Amount (mgal)
005944	MILTON ROY CO HARTELL DIV - EXPORT	83	00	DEX	08	0.0100

Total 0.0100

TOTAL DISCHARGE EXPORTS (sewage or treated effluent) --- 40.5500

IMPORT TOTAL - EXPORT TOTAL = NET INTERBASIN TRANSFER (as sewage)

24.7868 - 40.5500 = -15.7632

Transfer Water (as water supply) For Warminster Subbasin Little Neshaminy Watershed, 1992

IMPORTS

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CODE	Water User	From	USE	TO	Amount (mgal)
102283	N PENN & N WALES W A - EXPORT 1	03	WSE	08	52.6700
101237	WARMINSTER TWP MUN AUTH - IMPORT	00	WSI	08	104.9000
*** Total ***					157.5700

Transfer Water (as water supply) For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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IMPORTS

NO DATA AVAILABLE

TOTAL watersupply IMPORTS -- 157.5700

Transfer Water (as water supply) For Warminster Subbasin Little Neshaminy Watershed, 1992

EXPORTS

NO DATA AVAILABLE

Transfer Water (as water supply) For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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EXPORTS

NO DATA AVAILABLE

TOTAL watersupply EXPORTS -- 0.0000

IMPORT TOTAL - EXPORT TOTAL = NET INTERBASIN TRANSFER (as water supply)

157.5700 - 0.0000 = 157.5700

Evaporative Losses For Warminster Subbasin Little Neshaminy Watershed, 1992

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CODE	Water User	Amount (mgal)
100230	CHRISTS HOME - EVAP LOSS	0.3189
450053	FEENEYS NURSERY - EVAP LOSS 2	2.9200
101921	HORSHAM TWP EVAP 2	1.2500
018508	JN WAGNER & SONS - EVAP LOSS	1.0894
102283	N PENN N WALES W.A. EVAP 1	5.3000
100159	NAVAL AIR DEV CTR - EVAPORATIVE LOSS	4.6500
250556	NESHAMINY VALLEY- EVAPORATION LOSS	2.9700
250003	SPRING MILL COUNTRY CLUB	2.7900
101262	WARRINGTON TWP MUN AUTH - EVAP LOSS	33.7000
101237	WARMINSTER TWP MUN AUTH - EVAP LOSS 1	103.4500
101237	WARMINSTER TWP M.A. EVAP 2	1.0200
*** Total ***		159.4583

Evaporative Losses For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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CODE	Water User	Year of Data	Amount (mgal)
020822	BENNETT HEAT TREATING - EVAP LOSS	88	0.1800
020862	CRANE CO - EVAP LOSS	88	0.1999
005938	CURRAN MFG CO - EVAP LOSS	88	0.0001
450061	HAIST MATT A	77	0.4656
006470	INNOVATIVE MEDICAL SYSTEM - EVAP LOSS	88	0.0312

006474	JOMAC INC - EVAP LOSS	88	0.0100
005936	KAR-GO DECAL CO.- EVAPORATION LOSS	84	0.0052
006471	METAL CRAFTERS INC	83	0.0015
006488	METCO MFG CO INC - EVAP LOSS	88	0.0161
020816	MID ATLANTIC CIRCUIT INC-EVAP LOSS	88	0.0010
005944	MILTON ROY CO HARTELL DIV - EVAP LOSS	83	0.0160
006442	NUCLEAR RESEARCH - EVAP LOSS	88	0.0291
018391	PRINTED LINE DESIGN - EVAP LOSS	83	0.0360
006374	TUBRO COMPANY INCORPORATED - EVAP LOSS	88	0.0499
006497	WARRINGTON EQUIPMENT - EVAP LOSS	88	0.0325
*** Total ***			1.0741

TOTAL EVAPORATIVE LOSSES -- 160.5324

Product Incorportation Losses For Warminster Subbasin Little Neshaminy Watershed, 1992

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CODE	Water User	Amount (mgal)
018508	JN WAGNER & SONS - PROD CONS	2.1788
*** Total ***		2.1788

Product Incorporation For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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CODE	Water User	Year of Data	Amount (mgal)
005945	ATCH-MONT GEAR INC	77	0.0014
018936	BALDWIN PRINTING- PRODUCT CONSUMP	83	0.0001
005938	CURRAN MFG CO - PROD CONS	88	0.0003
006518	GAUSS SYSTEMS & CONTROLS	77	0.0007
020816	MID ATLANTIC CIRCUIT INC -PROD CONS	88	0.0020
006480	REBLING PLASTICS CO - PROD CONS	88	0.0020
005953	VISTA SCIENTIFIC CORP - PROD CONS	88	0.0047
*** Total ***			0.0112

TOTAL PRODUCT INCORPORTATION LOSSES -- 2.1900

Evaporative Losses	+	Product Incorporation Losses	=	TOTAL
160.5324	+	2.1900	=	162.7224

Septic Tank Discharges For Warminster Subbasin Little Neshaminy Watershed, 1992

NO DATA AVAILABLE

Septic Tank Discharges For Warminster Subbasin Little Neshaminy Watershed Most RECENT Data

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CODE	Water User	Year of Data	Amount (mgal)
021167	AMERICAN BROCHURE--ON-LOT SEPTIC	88	0.0025
005945	ATCH-MONT GEAR INC	77	0.0309
018949	R M C INC.- ON-LOT SEPTIC	84	0.0375
018936	BALDWIN PRINTING- ON-LOT SEPTIC	83	0.0117
020822	BENNETT HEAT TREATING - SEPTIC	88	0.0499
016856	CAROLINCH CO	83	0.0750
016854	COMPUSTATICS INC	83	0.1125
005949	CROCKETT MACHINE CO	83	0.0450
005938	CURRAN MFG CO.- ON-LOT SEPTIC	88	0.0027
016839	DELVCO INDS INC	83	0.1040
020826	DELAWARE VALLEY PRODUCTS - SEPTIC	88	0.0850

016851	DA-TECH CORP - ON LOT SEPTIC	88	0.1200
006194	DENTRONIX INC	83	0.1014
020817	EHMCO INC - ON LOT SEPTIC	88	0.0360
020819	E & J METAL FABRICATORS INC- SEPTIC	88	0.0200
020856	ELECTRONIC DEVELOPMENT - SEPTIC	88	0.0001
016858	ESSEX ENGINEERING - ON LOT SEPTIC	88	0.0260
018326	FORANNE MFG INC.- ON-LOT SEPTIC	84	0.1476
005941	FELCO MFG CO.- ON-LOT SEPTIC	88	0.0195
016865	FLUITRON INC - ON LOT SEPTIC	88	0.1404
006375	FOX RUN CRAFTSMEN - ON LOT SEPTIC	88	0.2063
006378	FRANKLIN INSTRUMENT- ON-LOT SEPTIC	88	0.0858
020821	G S C INC - ON LOT SEPTIC	88	0.0499
005948	HAHN & KAISER- ON-LOT SEPTIC	83	0.0078
020818	H & R INDUSTRIES INC - SEPTIC	88	0.0349
005935	INDUSTRIAL NAME PLATE--ON-LOT SEPTC	88	0.0190
006470	INNOVATIVE MEDICAL SYSTEMS - SEPTIC	88	0.2810
018316	JANOR WIRE & CABLE- ON-LOT SEPTIC	84	0.0749
016861	J M CHEM FEED & CONTROL SYS	83	0.1001
020861	J M MACHINE - ON LOT SEPTIC	88	0.0050
006474	JOMAC INC.- ON-LOT SEPTIC	88	0.2688
005936	KAR-GO DECAL CO.- ON-LOT SEPTIC	84	0.5148
018953	KING-GUTHRIE CO.- ON-LOT SEPTIC	83	0.0300
020858	KOSMA TOOL & DIE - ON LOT SEPTIC	88	0.0060
020825	KOVACS MFG CO - ON LOT SEPTIC	88	0.0350
020859	KRUSE TOOL & DIE INC - SEPTIC	88	0.2800
020824	KINETIC TOOL CO - ON LOT SEPTIC	88	0.0113
005946	LAMINAR FLOW INC.- ON-LOT SEPTIC	84	0.0563
018947	LIFTEX INC.- ON-LOT SEPTIC	88	0.0858
018975	LEGENDARY CORVETTE- ON-LOT SEPTIC	83	0.0507
018957	MANSCO PRODUCTS INC.- ON-LOT SEPTIC	88	0.0150
006471	METAL CRAFTERS INC	83	0.0456
020860	MEDL TOOL & DIE INC - ON LOT SEPTIC	88	0.0140
006488	METCO MFG CO INC - ON LOT SEPTIC	88	0.3060
020816	MID ATLANTIC CIRCUIT INC - SEPTIC	88	0.0040
005944	MILTON ROY CO HARTELL DIV	83	0.1300
016853	M T I CORP - ON LOT SEPTIC	88	0.0699
020823	NEU DYNAMICS CORP - ON LOT SEPTIC	88	0.0180
020864	NEWTOWN TOOL & MFG C0 INC - SEPTIC	88	0.0400
006442	NUCLEAR RESEARCH- ON-LOT SEPTIC	88	0.2620
016860	OMNI ELECS & MFG INC	83	0.0383
006311	PACKAGING SERVICES- ON-LOT SEPTIC	83	0.0975
005950	PIONEER TOOL DIE & MACH CO - SEPTIC	88	0.0234
018391	PRINTED LINE DESIGN- ON-LOT SEPTIC	83	0.1040
006480	REBLING PLASTICS CO - ON LOT SEPTIC	88	0.0520
016847	REIF, M M & CO	83	0.1500
020820	S K S EQUIPMENT COMPANY - SEPTIC	88	0.0200
006318	TECHNICAL GLASS PRODUCTS - SEPTIC	88	0.0400

CODE	Water User	Year of Data	Amount (mgal)
016677	TINIUS OLSEN - SEPTIC	88	0.4290
006374	TUBRO COMPANY- ON-LOT SEPTIC	88	0.4493
018954	UNITED CIRCUITS INC.- ON-LOT SEPTIC	83	0.0390
016857	WARREN MCH CO INC	83	0.0842
006497	WARRINGTON EQUIPMENT- ON-LOT SEPTIC	88	0.2925
005932	WORLD FLAVORS--ON-LOT SEPTIC	88	0.2400
020863	WESLEY M JOHNSON INC -ON LOT SEPTIC	88	0.5625
*** Total ***			6.8973

TOTAL SEPTIC TANK DISCHARGES -- 6.8973

Allocations for Warminster Subbasin Little Neshaminy Watershed, 1992
Allocations are for a 30 DAY Period

CODE	Water User	Allocation
101921	HORSHAM TWP WATER AUTHORITY WELL#10	6.380
101254	NORTHAMPTON BUCKS CO MUN A-WELL #12	12.960
101262	WARRINGTON TWP MUN AUTH WELL#1	7.250
101262	WARRINGTON TWP MUN AUTH WELL#2	6.800
101262	WARRINGTON TWP MUN AUTH WELL#3	8.400
101262	WARRINGTON TWP MUN AUTH WELL#4	3.950

101262	WARRINGTON TWP MUN AUTH WELL#5	9.760
101262	WARRINGTON TWP MUN AUTH WELL #6	1.500
101262	WARRINGTON TWP MUN AUTH WELL#8	2.720
101262	WARRINGTON TWP MUN AUTH WELL#9	6.270
101237	WARMINSTER TWP MUN AUTH WELL#4	5.610
101237	WARMINSTER TWP MUN AUTH WELL#5	6.080
101237	WARMINSTER TWP MUN AUTH WELL#6	2.800
101237	WARMINSTER TWP MUN AUTH WELL#9	8.420
101237	WARMINSTER TWP MUN AUTH WELL#10	8.420
101237	WARMINSTER TWP MUN AUTH WELL#13	2.620
101237	WARMINSTER TWP MUN AUTH WELL#14	4.110
101237	WARMINSTER TWP MUN AUTH WELL#15	6.540
101237	WARMINSTER TWP MUN AUTH WELL #26	17.400
101237	WARMINSTER TWP MUN AUTH WELL#36	5.400
101237	WARMINSTER TWP MUN AUTH WELL#37	15.000
101237	WARMINSTER TWP MUN AUTH WELL #39	6.060
*** Totals ***		154.450

Allocation for Warminster Subbasin Little Neshaminy Watershed Most Recent DATA
Allocations are for a 30 DAY Period

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CODE	Water User	Year of Data	Allocation
101237	WARMINSTER TWP MUNIC AUTH WELL 23A	90	17.400
101237	WARMINSTER TWP MUNIC AUTH WELL 23B	90	8.600
101237	WARMINSTER TWP MUN AUTH WELL#24	90	10.000
*** Totals ***			36.000

Comparison of Allocations with Ground Water Base-Flow Contribution
with Warminster Subbasin Little Neshaminy Watershed Ground Water
Contribution to Base-Flow for the 10-Year Recurrence Interval

Basin Contribution (mgal)		Total Allocation (mgal)		Difference (mgal)
2464.832	-	2317.142	=	147.691

Comparison of Allocations with Total Ground Water / Surface Water
Withdrawals for Warminster Subbasin Little Neshaminy Watershed

Total Withdrawals (mgal)		Total Allocation (mgal)		Difference (mgal)
1328.838	-	2317.142	=	-988.303