CHESAPEAKE BAY DATA BASE: DOCUMENTATION OF HISTORICAL DATA IN THE LOWER SUSQUEHANNA RIVER BASIN

SUSQUEHANNA RIVER BASIN COMMISSION

RESOURCE QUALITY MANAGEMENT & PROTECTION DIVISION

AUGUST 1986

COASTAL ZONE
INFORMATION CENTER

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The Susquehanna River Basin Commission was created as an independent agency by a Federal-Interstate Compact* among the States of Maryland, New York, Commonwealth of Pennsylvania and the Federal Government. In creating the Commission, the Congress and State Legislatures formally recognized the water resources of the Susquehanna River basin as a regional asset vested with local, State and National interests for which all the parties share responsibility. As the single Federal-Interstate water resources agency with basinwide authority, the Commission's goal is to effect coordinated planning, conservation, management, utilization, development and control of basin water resources among the government and private sectors.

SUSQUEHANNA RIVER BASIN COMMISSION

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Executive Director

* Statutory Citations: Federal - Pub. L. 91-575, 84 Stat. 1509 (December, 1970); Maryland - Natural Resources §8-301 (Michie 1974); New York - ECL §21-1301 (McKinney 1973); and Pennsylvania - 32 P.S. 820.1 (Supp. 1976).

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DOCUMENTATION OF HISTORICAL DATA

IN THE

LOWER SUSQUEHANNA RIVER BASIN

TD225.C43E39 1986 no. 106 c.2

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I. PURPOSE AND SCOPE

In order to effectively manage the resources of the Chesapeake Bay as well as the implementation of pollution controls in the Chesapeake Bay drainage basin, the Susquehanna River Basin Commission (SRBC) has placed historical water quality data and corresponding project documentation into the EPA's Chesapeake Bay Data Base. The data collected and stored have been generated from special studies, general surveys, and monitoring networks in the lower Susquehanna River Basin. These data will be useful in monitoring baseline trends within the lower Susquehanna River Basin.

II. METHOD OF INVESTIGATION

A. Data Sources

An inventory of organizations involved in data collection was complied for possible sources of data generated from studies involving water quality. These organizations include federal and state agencies, colleges and universities, power companies, consulting firms, and other private organizations. Organizations contacted for data are listed in Table 1. The majority of water quality data were documented from projects completed by the U. S. Geological Survey, Pennsylvania Department of Environmental Resources, and the SRBC.

Online computer searches were utilized to generate lists of publications and reports completed on water quality studies in the Susquehanna River Basin. These lists were then reviewed and the reports located to determine the ones pertinent to the pur-

TABLE 1

DATA SOURCES

1) Susquehanna River Basin Commission
2) Pennsylvania Environmental Research Foundation
3) Academy of Natural Sciences
4) Pennsylvania State Library, Harrisburg, PA
5) Institute of Land and Water Research
6) Northeast Water Research Center
7) PADER Bureau of Water Quality Management
8) Environmental Protection Agency
9) Ichthyological Associates, Inc.
10) Philadelphia Electric Company
11) The Pennsylvania State University
12) U.S. Soil Conservation Service
13) USGS Water Resources Division
14) PADER Bureau of Soil and Water Conservation

pose and scope of this project. The two systems utilized were the Library Information Access System (LIAS) at the Pennsylvania State University and the DIALOG system, a commercial network of bibliographic data bases available at the Pennsylvania State Library in Harrisburg, Pennsylvania.

B. Data Set Documentation & Data Files

A data sheet was prepared and the format approved by the Chesapeake Bay Program's Senior Science Specialist, Bess Gillelan, Computer Sciences Corporation (Table 2). These data sheets provided the means to organize information from water quality reports and publications before entry on a computer system. The two types of information included on the sheets were the data set documentation and the actual data file.

The data set documentation consisted of descriptive information about its associated data file. This information included project background, station locations, and parameter descriptions. Also, lists of water quality network stations and stream investigations are included in separate documented reports.

The project background includes information on the title of the study and the agency and/or persons responsible for the contents. Addresses are provided if anyone needs to contact the agency for information on the data or questions on the methodologies.

In many reports, the stream stations used in a particular study were not defined by a geographic coordinate system (i.e.,

TABLE 2

DATA DOCUMENTATION SHEET FORMAT

*TI: Title of report.

*DS: Name of attached data set if data was not already in STORET.

*RR: Associated data sets if data was not already in STORET.

*PI: Principle investigating agency.

*PO: Address of agency.

*PR: Authors of report or project officer.

*PE: Period of project record.

*GE: Geographic names of study area.

*GL: Defined area by maximun and minimum latitude and longitude.

*AB: Abstract of study.

*ST: Station ID, latitude, longitude, river mile, description.

*PA: Parameter, units, CAS code, label.

SAS data set if data was not located in STORET.

latitude and longitude) or a stream mile index. Even after contacting some project leaders, they could not provide geographic coordinate location of the site. Therefore, many station locations are indexed only by descriptive site information in the data set documentation.

A list of parameters complied from all documented reports appears in Appendix A. This list includes the coded label of the parameter, its associated CAS code, and a brief description of the parameter. Several different labels may appear for the same parameter depending on how the parameter was referenced in each documented report.

After the data set documentation was completed, the associated data set file was attached to the documentation as a SAS data set. Paper-based data files were collected, formatted, and keypunched for storage on the SRBC computer system. Computerized data that existed for each data set on systems other than the EPA's STORET system were retrieved and reformatted for storage on the SRBC computer system. Data that already existed on STORET were not retrieved but noted in the data set documentation.

Once the data set documentation and data set file were entered on the SRBC computer system, the data set was visually checked for errors and corrected. The finalized form was then transferred to magnetic tape and transmitted to the Chesapeake Bay Data Base.

C. Data Quality

The key objectives of a project QA plan are to document sampling methods and laboratory procedures for data being generated for various water quality parameters. The QA plan also ensures data comparability over different points in time by standardizing sampling and lab procedures. Knowing the quality of the data in each documented report is important in some applications where data may need to be of the highest quality. In other instances, data of lower quality may be acceptable.

Presently, agencies participating in EPA funded water quality projects are required to submit individual QA plans. QA plans for recent EPA funded projects that were documented in this report appear in Appendix B. QA plans from individual agencies were not required for projects in the past. For projects completed by government agencies, the procedures utilized are outlined at the particular lab processing water samples for each project. For example, the analytical methods completed for water samples at the PADER lab in Harrisburg are outlined in the Quality Assurance/Work Plan for the PADER Bureau of Laboratories. When possible, laboratories processing samples were noted in each documented report under the abstract of the report documentation.

Because of technological advances in water quality monitoring, laboratory procedures for measuring certain water quality parameters may have changed thus establishing new critical limits for those parameters. In many instances these limits are not known or available for historical data. This case was true for many studies completed by non-governmental agencies

and also studies completed several years ago. However, information on the establishment of new critical limits for water quality parameters may be obtainable from the particular lab processing samples. The assumption is made that the use of a ">" or "<" symbol in the actual data constitutes the critical limit for that parameter in the documented report.

III. CONCLUSIONS

An investigation of historical data generated from studies in the lower Susquehanna River Basin was conducted by the SRBC. The purpose of this investigation was to obtain historical surface water quality data and transfer the information to the Chesapeake Bay Data Base. These data would then be useful in establishing baseline trends in the Susquehanna River.

The generation of water quality data from studies related to historical nutrient loadings in tributaries to the lower Susquehanna River didn't really begin until after the early 1970's with only a very few stations containing long term records on particular parameters. Most water quality monitoring activities were directed at point sources of pollution. Recently, water quality monitoring studies have been focusing more on nonpoint sources of pollution. Only within the past few years has there been an increase in the number of projects investigating the effects of rural land use practices upon surface water quality within the lower Susquehanna River Basin. Some studies conducted by various governmental agencies are still continuing.

Most of the major studies that resulted in a significant period of record are documented in this report. Studies and surveys that generated data for only a one time sample analysis were not included except for a list of stream investigations completed by the Pennsylvania Department of Environmental Resources. Other historical data may be located in sewage treatment plant records, public water supply records, and theses completed by individuals at various colleges and universities. This report is not an all inclusive source of information for water quality studies completed in the lower Susquehanna River Basin, but is intended as a general directory for those interested in management of and research on the environment and water resources of the lower Susquehanna River Basin and its relationships to the water quality problems of the Chesapeake Bay.

A list of documented reports and data submitted to the Chesapeake Bay Data Base is located in Appendix D. Also included is a selected bibliography for which a filename follows each documented reference in Appendix C.

APPENDIX A

PARAMETER LIST

LIST OF PARAMETERS SAMPLED FROM ALL DOCUMENTED REPORTS

1M2EBENZ	611143	1-METHYL-2-ETHYLBENZENE
PCLTOLU	106434	1-METHYL-4-CHLOROBENZENE
ACID	?	ACIDITY AS CACO3
ALACHLOR	15972608	ALACHLOR
ALDRN	309002	ALDRIN
ALK	NONE	ALKALINITY AS CaCO3
ALPHABHC	319846	ALPHA BENZENE HEXACHLORIDE
DAL	7429905	ALUMINUM, DISSOLVED
EXAL	7429905	ALUMINUM, EXTRACTABLE
TAL	7429905	ALUMINUM, TOTAL
AMETRYNE	834129	AMETRYNE, (GESAPAX OR EVIK)
TSB	7440360	ANTIMONY, TOTAL
DAS	7440382	ARSENIC, DISSOLVED
TAS	7440382	ARSENIC, TOTAL
ATRATON	1610179	ATRATON
ATRZ.E		ATRAZINE IN EAST CHANNEL
ATRZ.W		ATRAZINE IN WEST CHANNEL
ATRZ	1912249	ATRAZINE, WHOLE WATER SMPL
BEDLOAD.25	NONE	BEDLOAD SEDIMENT % < 0.25mm
BEDLOAD.50	NONE	BEDLOAD SEDIMENT % < 0.50mm
BEDLOAD1.0	NONE	BEDLOAD SEDIMENT % < 1.00mm
BEDLOAD128	NONE	BEDLOAD SEDIMENT % < 128mm
BEDLOAD16.0	NONE	BEDLOAD SEDIMENT % < 16.0mm
BEDLOAD2.0	NONE	BEDLOAD SEDIMENT % < 2.00mm
BEDLOAD256	NONE	BEDLOAD SEDIMENT % < 256mm
BEDLOAD32.0	NONE	BEDLOAD SEDIMENT % < 32.0mm
BEDLOAD4.0	NONE	BEDLOAD SEDIMENT % < 4.00mm
BEDLOAD64.0	NONE	BEDLOAD SEDIMENT % < 64.0mm
BEDLOAD8.0	NONE	BEDLOAD SEDIMENT % < 8.00mm
BHC-A	319846	BENZENE HEXACHLORIDE (BHC)
BHC-G	58899	BENZENE HEXACHLORIDE (LINDANE)
TBE	7440417	BERYLLIUM, TOTAL
HCO3	71523	BICARBONATE
BOD	NONE	BIOCHEMICAL OXYGEN DEMAND
BOD2	NONE	BIOCHEMICAL OXYGEN DEMAND, 2 DAY
BOD5	NONE	BIOCHEMICAL OXYGEN DEMAND, 5 DAY
BOD7	NONE	BIOCHEMICAL OXYGEN DEMAND, 7 DAY
BOD8	NONE	BIOCHEMICAL OXYGEN DEMAND, 8 DAY
BOD10	NONE	BIOCHEMICAL OXYGEN DEMAND, 10 DAY
BOD11	NONE	BIOCHEMICAL OXYGEN DEMAND, 11 DAY
BOD14	NONE	BIOCHEMICAL OXYGEN DEMAND, 14 DAY
BOD17	NONE	BIOCHEMICAL OXYGEN DEMAND, 17 DAY
BOD20	NONE	BIOCHEMICAL OXYGEN DEMAND, 20 DAY
BOD20I	NONE	BOD 20 DAY INHIBITED
BOD20U	NONE	BOD 20 DAY UNINHIBITED
BOD5I	NONE	BOD 5 DAY INHIBITED
BOD5U	NONE	BOD 5 DAY UNINHIBITED
EXCD	7440439	CADMIUM, EXTRACTABLE
TCD	7440439	CADMIUM, TOTAL
DCA	7440702	CALCIUM, DISSOLVED
CACUT	7440702	CALCIUM, LOAD
TCA	7440702	CALCIUM, TOTAL

DORGC	7440440	CARBON, DISSOLVED ORGANIC
DCO2	7440440	CARBON, DISSOVLED CO2
INORGC	7440440	CARBON, INORGANIC
ORGC	7440440	CARBON, PERCENT ORGANIC
SORGC	7440440	CARBON, SUSPEDENED ORGANIC
TORGC	7440440	CARBON,TOTAL ORGANIC
COD	NONE	CARBONACEOUS OXYGEN DEMAND
CLRDNE	57749	CHLORDANE
DCL	16887006	CHLORIDE, DISSOLVED
CLOUT	16887006	CHLORIDE, LOAD
TCL	16887006	CHLORIDE, TOTAL
TCLRES	7782505	CHLORINE, TOTAL RESIDUE
CHLRFORM	67663	CHLOROFORM, WHOLE WATER SMPL
CHLORPHYLA	479618	CHLOROPHYLL-a
EXCR	7440473	CHROMIUM, EXTRACTABLE
TCR	7440473	CHROMIUM, TOTAL
CISDICL	156592	CIS-1 2-DICHLOROETHENE
CLRDNEC	5103719	CIS-CHLORDANE
NONCLRC	29555473	CIS-NONACHLOR
CLAY	NONE	CLAY, % FRACTION OF
EXCO	7440484	COBALT, EXTRACTABLE
COLIFORM	29569	COLIFORMS, TOTAL
COLOR	NONE	COLOR UNITS
SCOND	NONE	CONDUCTIVITY, SPECIFIC, IN FIELD
SCONDLAB	NONE	CONDUCTIVITY, SPECIFIC, IN LAB @ 25 C
DCU	7440508	COPPER, DISSOLVED
EXCU	7440508	COPPER, EXTRACTABLE
TCU	7440508	COPPER, TOTAL
CYANAZIN	21725462	CYANAZINE, WHL WTR SMPL
EXCN	57125	CYANIDE, EXTRACTABLE
CYPRAZIN	NONE	CYPRAZINE
DDD	72548	DDD
DDE	72559	DDE
DDT	50293	DDT
SUMDDT	50293	DDT, SUM OF
DEPTH	NONE	DEPTH, DEPTH OF SMPL
DNBPHYH	84742	DI-N-BUTYL PHYHALATE
DIAZ	333415	DIAZINON, WHL WTR SMPL
DICHLOROBE	25321226	DICHLOROBENZENE
DICHLOROEA	1300216	DICHLOROETHANE
DICHLOROEE	25323302	DICHLOROETHENE
DDRIN	60571	DIELDRIN
DIMETHYLD	624920	DIMETHYL DISULFIDE
DACTHAL	1861321	DIMETHYL TRETRACHLOROTEREPHTHALATE
EDRIN	72208	ENDRIN
FECCOL	NONE	FECAL COLIFORM
FECSTR	NONE	FECAL STREPTOCCI
FISH	NONE	FISH TYPE
TF	16984488	FLUORIDE, TOTAL
GAGE	NONE	GAGE HEIGHT
CHARD	471341	HARDNESS, CARBONATE
NCHARD	471341	HARDNESS, NONCARBONATE
HEPCLR	76448	HEPTACHLOR
HEPEPOX	1024573	HEPTACHLOR EPOXIDE

HCB	118741	HEXACHLOROBENZENE
INDOLE	120729	INDOLE
DFE	7439896	IRON, DISSOLVED
EXFE	7439896	IRON, EXTRACTABLE
TFE	7439896	IRON, TOTAL
LAURIC	143077	LAURIC ACID
EXPB	7439921	LEAD, EXTRACTABLE
TPB	7439921	LEAD, TOTAL
LDNE	58899	LINDANE
LIPID	NONE	LIPID
DMG	7439954	MAGNESIUM, DISSOLVED
MGOUT	7439954	MAGNESIUM, LOAD
TMG	7439954	MAGNESIUM, TOTAL
DMN	7439965	MANGANESE, DISSOLVED
EXMN	7439965	MANGANESE, EXTRACTABLE
TMN	7439965	MANGANESE, TOTAL
FISHL	NONE	MEAN FISH LENGTH
FISHW	NONE	MEAN FISH WEIGHT
THG	7439976	MERCURY, TOTAL
METAOXCHL	72435	METHOXYCHLOR
C1PHENOL	UNKNOWN	METHYL PHENOL
METHYLCL	75092	METHYLENE CHLORIDE
MEBZCA	UNKNOWN	METHYLESTER/BENZENE DICARBOXYLIC ACID
METALA	UNKNOWN	METOLACHLOR
MOIST	NONE	MOISTURE
NHEPTHD	629787	N-HEPTADECANE
NHXDECN	544763	N-HEXADECANE
NOCTADE	593453	N-OCTADECANE
NTRIDEC	629505	N-TRIDECANE
NUNDECA	1120214	N-UNDECANE
EXNI	7440020	NICKEL, EXTRACTABLE
TNI	7440020	NICKEL, TOTAL
DN	17778880	NITROGEN, DISSOLVED
DNH4	17778880	NITROGEN, DISSOLVED AMMONIUM
DNH4ORGN	17778880	NITROGEN, DISSOLVED NH4 + ORGANIC-N
DNO2	17778880	NITROGEN, DISSOLVED NITRITE
DNO3	17778880	NITROGEN, DISSOLVED NITRITE
DNO23	17778880	NITROGEN, DISSOLVED NITRITE+NITRATE
AMMONIAF	17778880	NITROGEN, FILTERED AMMONIA
INORGN	17778880	NITROGEN, INORGANIC
NO3OUT	17778880	NITROGEN, NITRATE, LOAD
ORGN	17778880	NITROGEN, ORGANIC
AMMONIAP	17778880	NITROGEN, PARTICULATE AMMONIA
TN	17778880	NITROGEN, TOTAL
TAMMONIA	17778880	NITROGEN, TOTAL AMMONIA
TNH4	17778880	NITROGEN, TOTAL AMMONIUM
TKNF	17778880	NITROGEN, TOTAL FILTERED KJELDHAL
TKN	17778880	NITROGEN, TOTAL KJELDAHL
TNH4ORGN	17778880	NITROGEN, TOTAL NH4 + ORGANIC-N
TNO3	17778880	NITROGEN, TOTAL NITRATE
TKNP	17778880	NITROGEN, TOTAL PARTICULATE KJELDHAL
TNO23	17778880	NITROGEN,TOTAL NITRATE+NITRITE
TNO2	17778880	NITROGEN,TOTAL NITRITE
NONDECAN	629925	NONADECANE

OXCLRDNE	26880488	OXYCLORDANE
DO	7782447	OXYGEN, DISSOLVED
PALMITIC	57103	PALMITIC ACID
LABEL	CAS CODE	PARAMETER
PCB	2767792	PCB-
PCN	UNKNOWN	PCN
PCA	1825214	PENTACHLOROANISOLE
PHENOL	UNKNOWN	PHENOL, TOTAL
TPHENOLS	UNKNOWN	PHENOLICS, TOTAL RECOVERABLE
INORGPO4	14265442	PHOSPHATE, INORGANIC
TPO4	14265442	PHOSPHATE, TOTAL
DP	7723140	PHOSPHOROUS, DISSOLVED
DORTHOP	7723140	PHOSPHOROUS, DISSOLVED ORTHOPHOSPHATE
TINORGPO4	7723140	PHOSPHOROUS, INORGANIC PHOSPHATE
PSOLOUT	7723140	PHOSPHOROUS, SOLUBLE, LOAD
TP	7723140	PHOSPHOROUS, TOTAL
TPSOL	7723140	PHOSPHOROUS, TOTAL SOLUBLE
TORTHOP	7723140	PHOSPHOROUS,TOTAL ORTHOPHOSPHATE
DK	7440097	POTASSIUM, DISSOLVED
KOUT	7440097	POTASSIUM, LOAD
TK	7440097	POTASSIUM, TOTAL
PROMETON	161080	PROMETONE
PRMETRYN	7287196	PROMETRYNE
PROPAZNE	139402	PROPAZINE
FRES	NONE	RESIDUE, FILTERED
NFRES	NONE	RESIDUE, NON-FILTERED
TRES	NONE	RESIDUE, TOTAL
CLRES	NONE	RESIDUE, TOTAL CHLORINE
SAND	NONE	SAND, % FRACTION OF
SEDDISC	NONE	SEDIMENT DISCHARGE
SEDLOAD	NONE	SEDIMENT LOAD
SEDYLD	NONE	SEDIMENT YIELD
CONC	NONE	SEDIMENT, CONCENTRATION
MSEDLOAD	NONE	SEDIMENT, MEAN DAILY LOAD
SSED.002	NONE	SEDIMENT, SUSPENDED % < 0.002mm
SSED.004	NONE	SEDIMENT, SUSPENDED % < 0.004mm
SSED.008	NONE	SEDIMENT, SUSPENDED % < 0.008mm
SSED.016	NONE	SEDIMENT, SUSPENDED % < 0.016mm
SSED.031	NONE	SEDIMENT, SUSPENDED % < 0.031mm
SSED.062	NONE	SEDIMENT, SUSPENDED % < 0.062mm
SSED.125	NONE	SEDIMENT, SUSPENDED % < 0.125mm
SSED.250	NONE	SEDIMENT, SUSPENDED % < 0.250mm
SSED.500	NONE	SEDIMENT, SUSPENDED % < 0.500mm
SSED1.0	NONE	SEDIMENT, SUSPENDED % < 1.0mm
SSED2.0	NONE	SEDIMENT, SUSPENDED % < 2.0mm
MSEDCONC	NONE	SEDIMENT, SUSPENDED MEAN CONCETRATION
SEDSUS	NONE	SEDIMENT,SUSPENDED
DSE	7782429	SELENIUM, DISSOLVED
TSE	7782492	SELENIUM, TOTAL
SIO2	7631869	SILICA, TOTAL
SI/CL	NONE	SILT+CLAY, SILT/CLAY FRACTION OF SMPL
SILT	NONE	SILT, % FRACTION OF
EXAG	7440224	SILVER, EXTRACTABLE
TAG	7440224	SILVER, TOTAL

SIM.E		SIMAZINE IN EAST CHANNEL
SIM.W		SIMAZINE IN WEST CHANNEL
SIMAZINE	122349	SIMAZINE, WHL WTR SMPL
SIMETONE	673041	SIMETONE, WHL WTR SMPL
SIMETRYN	1014706	SIMETRYNE, WHL WTR SMPL
TNAK	UNKNOWN	SODIUM + POTASSIUM, TOTAL
DNA	7440235	SODIUM, DISSOLVED
NAOUT	7440235	SODIUM, LOAD
TNA	7440235	SODIUM, TOTAL
DSOLIDS	NONE	SOLIDS, DISSOLVED
SSOLID	NONE	SOLIDS, SUSSPENDED
TSOLID	NONE	SOLIDS, TOTAL
FLOW	NONE	STREAMFLOW, AVERAGE
STREAM	NONE	STREAMFLOW, INSTATANEOUS
SRRATIO	NONE	STRONTIUM, 87SR/86SR RATIO
TSR		STRONTIUM, TOTAL
DSO4	14808793	SULFATE, DISSOLVED
SO4OUT	14808798	SULFATE, LOAD
TSO4	14808798	SULFATE, TOTAL
TANLIG	9005532	TANNINS + LIGNINS
WTEMP	NONE	TEMPERATURE, WATER
TETRACHL	127184	TETRACHLOROETHYLENE
TETRADEC	544638	TETRADECANOIC ACID
TTL	7440208	THALLIUM, TOTAL
TOLUENE	108883	TOLUENE, WHOLE WATER SMPL
TOXPHNE	8001352	TOXAPHENE
CLRDNET	5103742	TRANS-CHLORDANE
NONCLRT	3734494	TRANS-NONACHLOR
TRICLETH	25323891	TRICHLOROETHANE
TRICHLOR	79016	TRICHLOROETHYLENE, WHL WTR SMPL
TRIDECOL	NONE	TRIDECANOL
TURBID	NONE	TURBIDITY
DZN	7440666	ZINC, DISSOLVED
EXZN	7440666	ZINC, EXTRACTABLE
TZN	7440666	ZINC, TOTAL
PH	NONE	pH, IN FIELD
PHLAB	NONE	pH, IN LAB @ 25 C

APPENDIX B

QA PLANS

WORK/QA PROJECT PLAN

ASSESSMENT OF NUTRIENT SOURCES FROM MAIN STEM AND SELECTED WATERSHEDS IN THE SUSQUEHANNA RIVER BASIN

Susquehanna River Basin Commission

Project Officer: Jerrald R. Hollowell

Project QA Officer: Arthur Ott

Date_____

Project Director Signature_____

Name_____

Project QA Officer Signature_____

Name_____

U.S. EPA Project Officer Signature_____

Name_____

U.S. EPA QA Officer Signature_____

Name_____

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1. Project Name: Assessment of Nutrient Sources from Main Stem and Selected Watersheds in the Susquehanna River Basin

2. Project Requested By: U.S. EPA

3. Date of Request: April 1984

4. Date of Project Initiation: October 1984

5. Project Officer: Jerrald R. Hollowell

6. Quality Assurance Officer: Arthur Ott

7. Project Description:

   A. Objective and Scope Statement

   A five-year study was designed to provide: (1) nutrient loading data for the Main Stem Susquehanna River and its major tributaries in the Central and Lower Basin, and (2) nutrient runoff from selected small watersheds representative of each of the prevalent land uses found in the Central and Lower Basin. Nutrient loadings will be documented on a seasonal and individual storm basis. Figure 1 shows the general locations of the sampling sites in the study area.

   B. Data Usage

   The environmental measurements and analysis will provide baseline nutrient loading data for Main Stem, major tributaries and other representative subwatersheds in sufficient detail to:

   1. Allow model refinement.
   2. Allow model verification.
   3. Establish a sound data base for government, agriculture, industry and the public to most

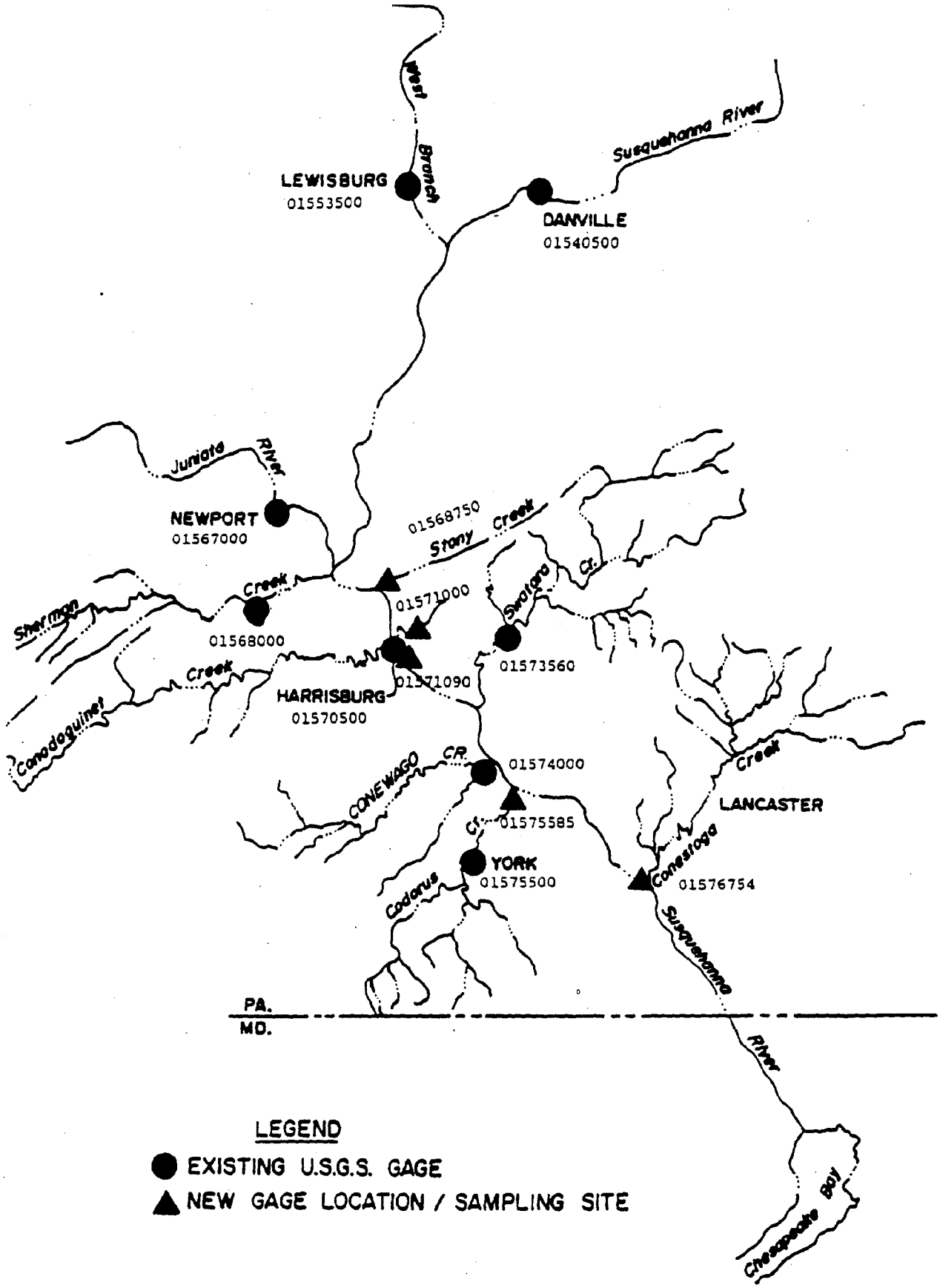


FIGURE 1. General Locations of Sampling Stations in the Study Area

effectively plan and implement immediate and long-range nutrient reduction efforts.

C. Monitoring Network Design and Rationale

This section provides the rationale for establishing the sampling network which includes a series of Main Stem and major tributary sites and a series of sites located on subwatersheds that support significant areas of specific land use or representative combinations of land uses.

Series 1

The collection of nutrient data above the fall line at stations on the Main Stem and large tributaries is deemed necessary to enable accurate allocation of loadings to main river reaches and to major subbasins (see Figure 1). Sound base line nutrient data for the Susquehanna River at Harrisburg (01570500) and Danville (01540500), the West Branch at Lewisburg (01553500), the Juniata at Newport (01567000), and at appropriate stations on Conestoga River (01576754), Swatara Creek (01573560), and Conewago Creek (01574000) will confirm existing Bay model loading allocations and provide the basis for refining the model output for these areas. Each site represents large areas having significant differences and levels of complexity in terms of geological setting and current land uses.

In most cases the sites include stations that have been sampled consistently for one purpose or another over a

period of years and where flow measurements are available or facilities for such measurements can be readily installed.

Series 2

These stations are located on relatively small watersheds of varying geologic setting. They provide a range of specific land uses or representative combinations of land uses. The sites were chosen to represent: 1) a total wilderness area, 2) a sparsely populated forest/cropland watershed with no areas of concentrated residential development, 3) a small watershed of intense suburban development throughout its headwaters with urban/industrial development surrounding its lower reaches, and 4) a complex area that drains extensive cropland, suburban and urban development and includes a number of fairly large reservoirs throughout the watershed.

These four watersheds are considered to be representative of many areas throughout the basin and will provide detailed information for: 1) refining the Bay NPS model, 2) identifying problems related to specific land uses and combinations of land uses, and 3) future management actions in these areas. The watersheds selected are:

1. Paxton Creek: a 27-square mile watershed draining greater Harrisburg area. One monitoring site will be established at an existing USGS gage (01571000) near Rt. 81 and Progress Avenue and will monitor runoff

from a highly developed suburban area of about 11.2 square miles. Another monitoring site (01571090) will be established near the mouth and will include runoff from an urban and light industrial area.

2. Stony Creek: a 35-square mile watershed draining a pristine, entirely forested valley. The only development is a secondary road crossing the extreme upper end of the watershed and some abandoned coal mine workings of limited extent. A monitoring site (01568750) will be established at the lower limit of the forested area (21.9 sq.mi.) approximately nine miles upstream of the mouth.

3. Sherman Creek: a 244-square mile watershed draining a lightly developed valley of mixed forest and agriculture uses typical of the central Susquehanna River Basin, Valley and Ridge Province Watersheds. A monitoring site (01568000) will be established at Shermansdale at an existing USGS gage. At this point, Sherman Creek drains 200 square miles.

4. Codorus Creek: a 278-square mile watershed draining a mixed urban, suburban, forested, and agriculture use area, typical of the lower basin watersheds. A monitoring station will be established at the USGS gage (01575500) upstream of York which will sample a predominately agricultural--lightly developed and forested area. Another monitoring station (01575585) will be established just upstream of the

Springettsbury Township STP. This station will monitor an urban environment.

The stream monitoring stations have been established. Gage houses have been erected, where necessary to house continuous stage recording instruments and automatic streamflow sampling equipment. Stage recorders have been installed at all stations and discharge measurements have been initiated at each new gaging station in order to develop a stage-discharge relationship. Table 1 lists those sites to be hand-sampled from bridges and those to be sampled using battery-operated automatic sampling equipment. Additional station descriptions are provided in Attachment A.

Starting October 1, 1984 and continuing for five years, samples from baseflow and selected storms will be collected at all stations described above and appearing on Table 1. Samples will be collected at six verticals across the section and composited using the equal-width sampling procedure. All samples will be depth-integrated using USGS standard equipment and techniques. Baseflow samples will be collected manually once a month at all stations.

Storm runoff samples will be collected during five selected storms to document seasonal runoff and a major runoff event following spring planting in the agricultural watersheds. Field personnel will be dispatched to collect a baseflow sample prior

TABLE 1

Sampling Site	Exist. Gage	Drainage Area @ Gage	Drainage Area @ Mouth	USGS Data	New Gage	Auto. Sampler
Hand Sampling						
Susquehanna R. @ Danville	X	11,220		dcbs*		
W. Branch Susq. R. @ Lewisburg	X	6,847		dcbs		
Susquehanna R. @ Harrisburg	X	24,100		dcbs		
Juniata R. @ Newport	X	3,354	3,404	dcbts		
W. Conewago Cr. near Manchester	X	510	515	dc		
Swatara Cr. @ Hershey	X	483	571	d		
Conestoga R. @ Mouth		472	477		X	
Codorus Creek near York	X	222	278	d		
Codorus Creek at Springetts-bury STP		267	278		X	
Sherman Creek @ Shermandale	X	200	244	d		
Automatic Sampler						
Paxton Creek @ Penbrook	X	11.2	27.4	d	Sampler Shed	X
Paxton Creek @ Mouth		27.0	27.4		X	X
Stony Creek @ Dauphin		21.9	35.6	d	X	X

d = discharge, c = chemical, b = biological, t = temperature, s = suspended sediment

to the onset of selected storms. These individuals will then collect samples periodically to document the quality of the rising and falling stream stage. Six discreet samples over the hydrograph (three on the rising and three on the fallling stage) will be sent to the laboratory for analysis. Field personnel will periodically collect samples manually in conjunction with the automatic samplers to check the representativeness of the samples collected automatically (minimum of two storms per year).

D. Monitoring Parameters and Their Frequency of Collection

During the first year of the project, all samples will be analyzed for the following physical characteristics and constituents:

pH

Temperature

Specific Conductance

Suspended Sediment

Organic Carbon, total

Nitrite - N and Nitrate - N, total

Ammonia - N, total and dissolved

Organic N + NH_4, total and dissolved

Phosphorus, total and dissolved

Orthophosphate, dissolved

In subsequent years, half of the storm samples will be analyzed only for physical characteristics and total concentrations.

Baseflow samples will be collected once a month and storm runoff samples will be collected during five selected storms per year.

E. Parameter Table

Parameter	No. of Samples/yr	Sample Matrix	Analytical Method Ref. USGS**	Sample Preservation*	Holding Time*
Total Organic $N+NH_4-N$	545	water/sed	I-4552-78	4°C + HgCl	+ 16 days
Dissolved Organic $N+NH_4-N$		water	I-2552-78		
Total NH_4-N		water/sed	I-4522-78		
Dissolved NH_4-N		water	I-2522-78		
Total NO_2+NO_3-N		water/sed	I-4545-78		
Total Phosphorus-P		water/sed	I-4600-78		
Dissolved Phosphorus-P		water	I-2600-78		
Dissolved O'P		water	I-2601-78		
Total Organic Carbon		water/sed	O-3100-83		

* See Attachment B. Normal turn around time for nutrient analysis is four days.

**TWRI Book 5 Methods for Determination of Inorganic Substances in Water & Fluvial Sediment: Skougstad and other, 1979

8. Project Fiscal Information (optional)

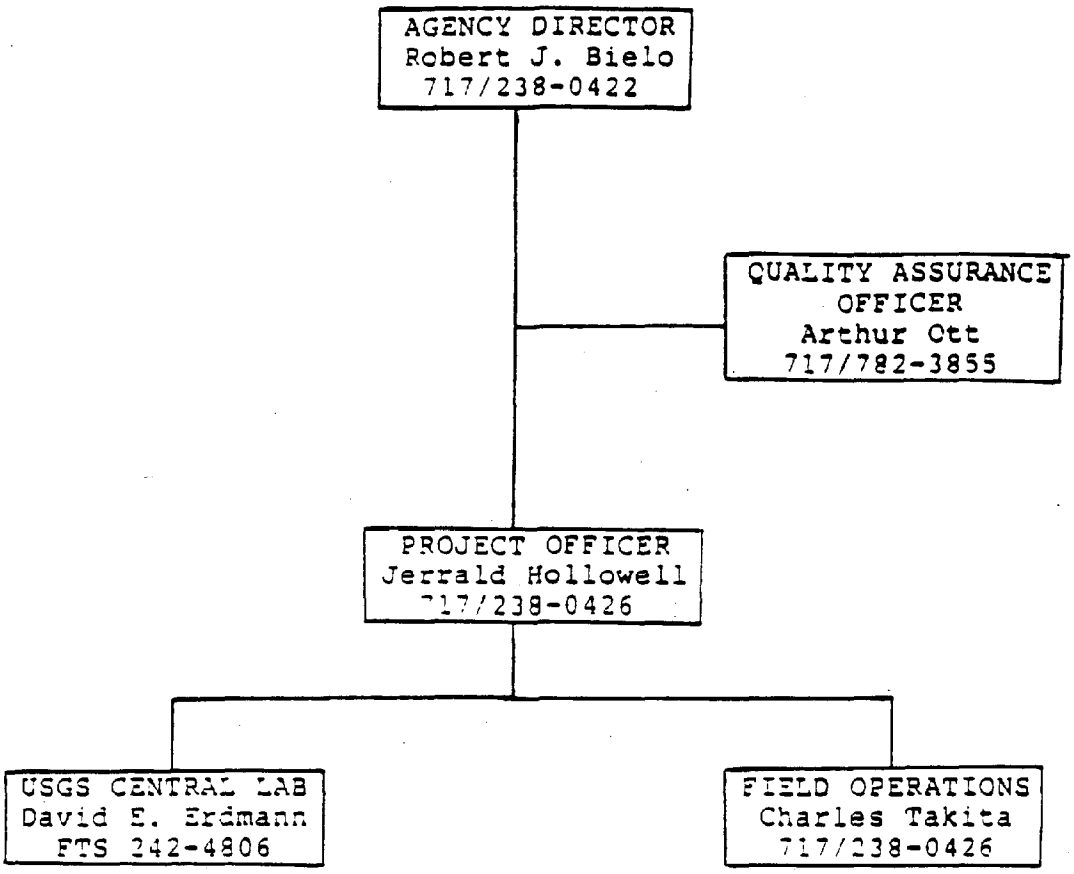
See EPA grant application.

9. Schedule of Tasks and Products

	FY-84									FY-85									FY 86	FY 87	FY 88	FY 89	FY 90
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep					
Project Request	X																						
Project Plan Review			X	X	X	X																	
Project Plan Finalized							X	X															
Sample Site Reconnaissance				X	X																		
Gaging Station Construction						X	X	X															
Water Quality Sampling							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Publication of Data																			X	X	X	X	X
Data Analyses									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Modeling Testing																						X	X
Report Preparation																							
Quarterly										X			X			X			X	X	X	X	X
Interim																				X	X		
Final																						X	X

10. Project Organization and Responsibility

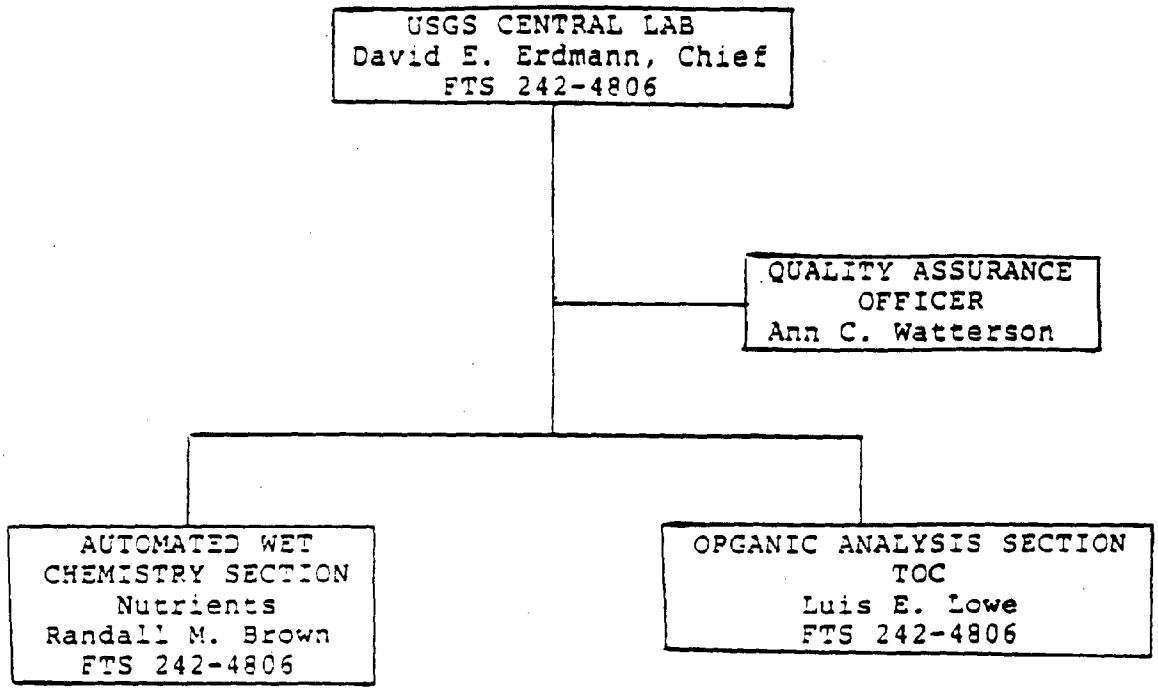
a. Project Organization



Due to the routine nature of the project, it is not essential to require lab personnel to review the combined work/QA project plan before monitoring is initiated.

10. Project Organization and Responsibility

b. USGS Central Lab



Due to the routine nature of the project, it is not essential to require lab personnel to review the combined work/QA project plan before monitoring is initiated.

11. Data Quality Requirements and Assessments

DETECTION LIMITS AND QUALITY ASSURANCE OBJECTIVES

Parameter	Sample	Detection Limit mg/l	Accuracy	Precision	QA Protocol
Total Organic N + NH_4-N	all	0.1	*	*	2 EPA reference samples plus 1 standard per 15 samples
Dissolved Organic N+NH_4-N	all	0.1			Samples sent to the Lab for analyses will include 5% duplicate samples, 5% standard reference samples and 5% sample blanks
Total NH_4-N	all	0.01			
Dissolved NH_4-N	all	0.01			
Total NO_2+NO_3-N	all	0.1			
Total P	all	0.01			
Dissolved P	all	0.01			
Dissolved O'P	all	0.01			
TOC	all	0.1			

*See Attachment C

Field instrument and field operator techniques are checked twice a year for pH and specific conductance with USGS standard samples. Field pH and specific conductances are checked against lab values. Lab analyses are performed on the same day that the samples are received.

Field operators will check the pH and conductivity meters in the field against pH and specific conductance standards once in the morning prior to the start of sample collection and once in the afternoon. These checks will be made during each sample collection day. All standard values and meter readings will be recorded in the operating log accompanying the meters. The QA officer will periodically accompany field personnel to check on sampling and field chemistry procedures.

One duplicate sample, one standard reference sample and a sample blank will be submitted with each set of samples collected and sent to the laboratory for analyses. These results will be used to determine the precision and accuracy for the project samples.

Data Representativeness - Site Representation

Spatial variability inherent to a sampling site is addressed by taking depth-integrated, discharge-weighted water samples across the cross-sectional area at the sampling site and thus reflects the composite effect of whatever has occurred upstream from the site.

Data Comparability - Use of the USGS laboratory and field techniques, found in the National Handbook of Recommended Methods for Water-Data Acquisition, provides for a nationally and regionally uniform methodology for both field and laboratory analysis.

Data Completeness

Collection of greater than 90% of the total programmed samples will be deemed as fulfilling the project objectives. Sample collection at each site must provide adequate coverage so that seasonal variations in loading can be evaluated.

12. Sampling Procedures

A complete description of the sampling procedures used for this study can be found in "Methods for collection and analysis of water samples for dissolved minerals and gases." E. Brown, M.W. Skougstad, & M. Fishman: USGS---TWRI Book 5 Chapter A1,

1970; "Field methods for measurement of fluvial sediment." H.P. Guy and V. W. Norman: USGS---TWRI Book 3, Chapter C2, 1970; National Handbook of Recommended Methods for Water-Data Acquisition, Chapter 3 & 5.

The tracking of the sampling operations is shown in Table 2.

Description of sampling devices are found in National Handbook of Recommended Methods for Water-Data Acquisition, Chapter 3, pp 3-18 to 3-24.

Description of sampling containers, preservation techniques, and sample identification forms are found in the USGS Open-File Report 83-758, Water Quality Laboratory Services Catalog.

13. Sample Custody Procedures are not applicable to this study.

14. Calibration Procedures & Preventative Maintenance

Routine Calibration Instructions

Every instrument used to collect water quality data, or used to calibrate water quality monitors, will be checked for accuracy on a regular basis. Each instrument will have its own calibration sheets identified by W-number. These checks are required over and above those specified for field calibration in the "District Water Quality Field Handbook."

Batteries in all meters should be changed whenever needed, but at least yearly, preferably in the late fall.

TABLE 2. Record of Baseflow and Storm Sampling Dates

	1984			1985								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Susq. R. @ Danville	22	20	13									
Susq. R. @ Lewisburg	22	20	13									
Juniata R. @ Newport	22	20	14									
Sherman Cr. @ Shermans Dale	22	20	14									
Stony Cr. near Dauphin	--	21	13									
Susq. R. @ Harrisburg	23	21	14									
Paxton Cr. near Penbrook	19	21	14									
Paxton Cr. @ S. Harrisburg	19	21	13									
Swatara Cr. @ Hershey	22	20	14									
W. Conewago Cr. Nr. Manchester	19	20	13									
Codorus Cr. Nr. York	19	20	13									
Codorus Cr. @ Pleasureville	19	20	13									
Conestoga R. @ Conestoga	22	20	13									

A. Specific Conductance Meter

Record meter calibration at least weekly if in continuous use (or just before usage, if used infrequently) against three specific conductance standards, obtained within six months from the Central Laboratories.

Acceptance Criteria:

Standards	(<1000 umhos/cm)	± 4%
	(>1000 umhos/cm)	± 3%

B. pH Meter

Record meter calibration at least weekly if in continuous use (or just before usage, if used less frequently) against three pH buffer standards (4, 7, and 10), purchased within six months of its use. The pH meter is to be checked with at least two buffers at least prior to and just after each day's use. This check is to always be done and recorded in the instrument calibration log.

C. Thermometer

Check thermometers on an as needed basis or at least semi-annually against laboratory grade thermometers.

Acceptance Criteria:

Temperature	+ 0.2°C

D. Maintenance of Calibration Records

1. Maintain records of instrument calibrations, repairs, and maintenance of each piece of equipment in the individual or "Water Quality Field Instrument Calibration Log."

2. Report any abuse or neglect of equipment or calibration schedules to the Project Chief.

E. Preventative Maintenance

1. Conductivity - dip cell

   a. Wash with liquid detergent, 1% HCl, tap and distilled water.

   b. Shake dry and store

2. pH - combination electrode

   a. Store in electrode storage solution if to be used within 4-5 weeks.

   b. For longer storage period, empty filling solution from electrode, rinse and store dry.

15. Documentation, Data Reduction & Reporting

All project data will be entered in the USGS WATSTORE (Water Data Storage and Retrieval) system. All data entered on "Central Laboratories Analytical Services Request Form" (Attachment D) plus the chemical analyses completed and verified by the Central Laboratory are transmitted and stored in the Water Quality File of WATSTORE.

Data products ranging from retrieval of data in tabular form to complex statistical analyses can be provided by the WATSTORE system.

Data stored in WATSTORE can also be obtained in machine-readable form for use on other computers or for use as input to user-written computer programs. Approved data is transferred to EPA/STORET on a monthly basis.

16. Data Validation

A. Review of Results from Laboratory Analyses

Computer trained personnel will retrieve results of analyses from the Central Laboratories weekly by executing the computer program LABPRIME and will submit copies of the analyses and "primary printouts" to the project personnel. Personnel will review results for accuracy and acceptability within 5-10 days after receipt using their analytical experience and knowledge of the water quality of streams in the basin and using methods prescribed in the following:

1. "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments" (Skougstad and others, 1979).
2. "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association and others, 1976).
3. "Study and Interpretation of the Chemical Characteristics of Natural Water" (Hem, 1970).

The LABPRIME program and the Water Quality File Edit System perform a number of consistency checks automatically (U.S. Geological Survey, 1975, Volume 3, Chapter VI A). These include but are not limited to the following:

1. Comparison of sum of cations with sum of anions (cation-anion balance).
2. Comparison of determined and calculated values for dissolved solids.

3. Comparison of specific conductance with sum of cations or anions.
4. Comparison of specific conductance with determined and calculated values for dissolved solids.
5. Comparison of values for dissolved constituents with values for total constituents.

Also available are a number of statistical and data-consistency checks which may be applied by use of SAS computer programs, which are readily available for use with USGS's WATSTORE Water-Quality File (SAS Institute Inc., 1979).

The project reviewer will investigate all LABPRIME and QW Edit consistency check remarks. If an error in an analysis is detected or suspected, the questionable value will be noted on the computer copy and a request for a rerun will be made to the USGS. Rerun data from the Central Laboratory are reviewed by the project personnel and appropriate changes made in the WATSTORE file. A copy of the approved analysis is transmitted to the project chief or cognizant personnel.

All water quality data obtained by the field service units and all results of analyses by the Central Laboratories for continuing stations will be stored in the appropriate WATSTORE computer file. The "primary printouts" obtained following entry of data in the appropriate WATSTORE computer file will be reviewed by the Laboratory Records Coordinator to insure that results of laboratory analyses are correctly entered into the computer file.

In addition to the above listed duties, the Laboratory Records Coordinator is responsible for the following:

1. Posting a sample log that includes this information:
   a. Station identifier.
   b. Date and time of sample collection.
   c. Date samples shipped to lab.
   d. Central Laboratory identification and record numbers.
   e. Date analyses appeared on LABWEEK.
   f. Date analytical sheet received.
2. Communication with Central Laboratory on any sample handling problems.
3. Maintaining an organized central filing system for all original water quality records which includes:
   a. Field data sheets and notes.
   b. Laboratory data sheets with notes.
   c. Laboratory analytical sheets with notes.
   d. Records from water quality monitors.

B. Review of Field Data

See "Acceptance Criteria", No. 14.

17. Performance and Systems Audit

A. Performance Audit

Independent sampling and laboratory analysis audits will be performed by USGS personnel sampling two of the thirteen sampling sites bi-monthly; and quarterly for four of the thirteen sampling sites.

B. System Audit

This audit is made as a qualitative and quantitative inspection and review of the total measurement system to determine whether the Data Quality Assurance (DQA) plan has been executed as specified and to evaluate the validity of data by independent checking by USGS.

The DQA plan for the measurement program should be the basis for conducting these audits. Audits include reviews of the following:

1. Organization and responsibility - Is the quality control organization operational? Are quality control and system audits properly made and documented?
2. Data collection - Are written data collection procedures available and followed? Are personnel completing all record forms and identification labels?
3. Sample collection - Are written sample collection procedures available and followed? Do the personnel use the required containers? Are containers cleaned to prevent contamination?
4. Sample analysis - Are written analysis procedures available and followed?
5. Human errors - Are data checks made and actions taken to control human errors? Is the program of pass-fail checks for operations in use? Does checking show that the desired quality assurance level is met?

6. Calibration - Are written calibration procedures available and followed? Are the records of past calibrations available; do they indicate that calibration corrections have been applied to the data?
7. Measurement comparisons - Are results from measurement comparison testing reviewed and used?
8. Preventive maintenance - Is the preventive maintenance schedule for the measurement program being followed?

Copies of reports on completed systems audits are sent to the program management for review, and to operators and supervisors for any necessary actions. Audit reports list:

1. Purpose of the audit.
2. Personnel involved in the audit.
3. Activities audited, the tests observed, the documents and data reviewed.
4. Observations of work performance and errors in procedures.
5. Recommendations for corrective action, changes in numbers of personnel, and changes in calibration on future work.
6. Deadline for completion of corrective actions.
7. Date chosen should minimize the effect of the discrepancies on future work.
8. Provide for verification of completion of corrective actions, either by written reports to the auditor, or by an additional visit to the operations site.

At the conclusion of the measurement program, a final audit should be made to verify that the program has met its objectives and was conducted in accordance with the DQA plan, and that all actions were adequately documented.

The role of audits in the overall measurement program is one of verification. While audits do not improve data quality if all work is correctly performed, they do provide assurance that the work prescribed for the measurement program has been conducted properly. Audits conducted by individuals not responsible for day-to-day operations provide another management control mechanism to program managers.

18. Corrective Action

Corrective action is practiced immediately upon discovery of a problem. USGS and SRBC project personnel constantly interact. Data and data collection activities are continually discussed and evaluated. Corrective action is taken immediately if the evaluation indicates action is necessary.

19. Reports

An interim report that characterizes nutrient discharges in the Lower Susquehanna River Basin will be prepared by March 1988.

The final report will include an assessment of nutrients discharged by the Susquehanna River to the Chesapeake Bay.

QUALITY ASSURANCE / WORK PLAN

WATER QUALITY MONITORING NETWORK OF INTERSTATE STREAMS

IN THE SUSQUEHANNA RIVER BASIN

Document Control Number SRBC - QA004

Susquehanna River Basin Commission

Project Officer: Carl P. McMorran

Project QA Officer: Jerrald R. Hollowell

Date - April 4, 1986

Project Officer Signature_____
Carl P. McMorran

Project QA Officer Signature Jerrald R. Hollowell
Jerrald R. Hollowell

EPA Project Officer Signature_____

EPA QA Officer Signature_____

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QUALITY ASSURANCE / WORK PLAN

WATER QUALITY MONITORING NETWORK OF INTERSTATE STREAMS

IN THE SUSQUEHANNA RIVER BASIN

I. PROJECT NAME: Water Quality Monitoring Network of Interstate Streams in the Susquehanna River Basin.

II. PROJECT OFFICER: Carl P. McMorran, Environmental Protection Specialist

III. QUALITY ASSURANCE OFFICER: Jerrald R. Hollowell, Chief Division of Resource Quality, Management and Protection

IV. DATE OF PROJECT INITIATION: April 1986

V. PROJECT DESCRIPTION:

A. Objective and Scope. In Paragraph 803.4(b)(1) of the Regulations and Procedures for Review of Projects in the Susquehanna River Basin, the Susquehanna River Basin Commission (SRBC) staff is responsible for "reviewing projects that may result in a significant interstate effect on the water resources of the Basin." Staff has had difficulty meeting this responsibility due to a lack of current data from the interstate streams of the Basin. Although available data have generally been adequate for determinations concerning acute impacts, chronic and cumulative impacts are not readily discerned. A monitoring network on these interstate streams would greatly enhance the ability of SRBC staff to evaluate water quality impacts.

The data generated from such a network will also be useful for other water quality management plans. Sparse distribution of quantitative sampling locations is a major problem in determining the quality of the streams in the Susquehanna River Basin. Both the Pennsylvania Department of Environmental Resources (PaDER)

and the Maryland Department of Natural Resources (MdDNR) as well as other governmental agencies have expressed the need for more data to develop and enhance water quality management programs. These data are particularly critical for the management of water quality as it relates to the Chesapeake Bay.

B. Data usage. The proposed water quality monitoring network would consist of a series of surface water quality stations. These stations would be periodically sampled for biological and water quality conditions. The data will be reviewed to determine if interstate water quality standards are being compromised. The data will also contribute towards a staff ability to predict the probability that new discharge permit limitations or other factors will result in degraded water quality. The data will be treated statistically to differentiate seasonal fluctuations, long term trends and relationships between specific parameters and other factors.

In addition, the data will be entered into the EPA STORET database where it will be available to update 305(b) reports (water quality inventory) and 205(j) priorities (sewage construction grants), as well as for other uses. Appropriate data will also contribute to the Chesapeake Bay Monitoring Subcommittee reports.

C. Monitoring Network Design and Rationale. Streams which flow across state borders within the Basin are listed in Table 1. Data for project review purposes are most needed from the Susquehanna River between New York and Pennsylvania, and between Pennsylvania and Maryland; the Chemung River between New York and

Pennsylvania; the Tioga River between Pennsylvania and New York; Cayuta Creek between New York and Pennsylvania; and Deer Creek between Pennsylvania and Maryland.

The Susquehanna River receives many industrial and municipal discharges between Binghamton, New York and Owego, New York. Owego is only twelve river miles from the Pennsylvania border and the large number of discharges between Binghamton and Owego create the potential for cumulative downstream impacts.

The Chemung River presents a similar situation. The population centers of Corning and Elmira, New York are located on the Chemung River a short distance upstream from the Pennsylvania line. It is already known that discharges are occurring from Elmira which are causing water quality degradation in the Chemung River. Whether this degradation is carrying downstream into Pennsylvania has not been documented.

The Tioga River is degraded by acid mine drainage for most of its length. The Tioga-Hammond project at Tioga Junction, Pennsylvania has contributed to improved water quality downstream, but water quality in the vicinity of the New York line is still degraded.

Cayuta Creek is a very high quality stream for most of its length. However, pollution in the vicinity of Waverly, New York is a historical fact. The downstream reach of Cayuta Creek has been severely degraded with most of the impacted reach flowing through Pennsylvania. A new sewage treatment plant at Waverly appears to have improved water quality conditions in Cayuta Creek.

The lower Susquehanna River between Harrisburg, Pennsylvania and the Chesapeake Bay is a major production area for electricity. This section of river holds four hydroelectric dams, two nuclear power plants, one coal burning power plant and one pumped storage hydroelectric plant. These facilities all have impacts upon the Susquehanna River in varying ways. There is also increasing interest in the impacts of the Susquehanna River on the Chesapeake Bay, particularly with respect to water quality and water quality management.

Deer Creek has documented water quality problems in its headwaters near Stewartstown, Pennsylvania due to inadequate sewage treatment.

Two other streams which also have suspected water quality problems are Snake Creek and Seeley Creek. Both flow from Pennsylvania into New York.

In addition, this sampling program allows the investigation of smaller interstate streams. All of these flow between New York and Pennsylvania (see Table 4). Until now it has been assumed that these streams had good water quality due to the relatively undeveloped nature of their watersheds. Biological and chemical sampling will be conducted on these streams at a rate of one stream per month during warm weather in order to document water quality conditions.

D. Monitoring Parameters and Frequency of Collection. Sampling at these stations will include biological sampling of the macroinvertebrate community; conducting field tests for various physical and chemical parameters; and collecting water

samples which will be analyzed for chemical and bacteriological parameters.

In order to provide consistent data it is necessary to sample frequently. Past stream surveys have concentrated on summer base flow conditions. Comments from PaDER and MdDNR have suggested that year round sampling is necessary to provide data from high flow events and to differentiate seasonal trends. This may be especially critical with regards to the Chesapeake Bay. It is proposed to collect water quality samples on a monthly basis. Biological samples will be collected on a bimonthly basis as weather permits.

E. Parameter Table

Parameter	Number of Samples	Sample Matrix	Analytical Method Reference	Sample Preservation	Holding Time
Temperature	180	aq.		none	0
Dissolved oxygen	180	aq.		none	0
Conductivity	180	aq.		none	0
pH	180	aq.		none	0
Alkalinity	180	aq.		none	0
Acidity	180	aq.		none	0
Turbidity	180	aq.		none	0
B.O.D., 5-day	180	aq.	*	chill on ice	24 hrs
Dissolved solids	180	aq.	*	chill on ice	24 hrs
Total NH_3	180	aq.	*	chill on ice	24 hrs
Total NO_2	180	aq.	*	chill on ice	24 hrs
Total NO_3	180	aq.	*	chill on ice	24 hrs
Total PO_4	180	aq.	*	chill on ice	24 hrs
Total Calcium	180	aq.	*	chill on ice	24 hrs
Total Magnesium	180	aq.	*	chill on ice	24 hrs
Chloride	180	aq.	*	chill on ice	24 hrs
Sulfate	180	aq.	*	chill on ice	24 hrs
Total Iron	180	aq.	*	chill on ice	24 hrs
Total Manganese	180	aq.	*	chill on ice	24 hrs
Total Aluminum	180	aq.	*	chill on ice	24 hrs
Fecal Coliform	180	aq.	*	chill on ice	6 hrs
Fecal Strep	180	aq.	*	chill on ice	6 hrs

* see Quality Assurance/Work Plan for PaDER Bureau of Laboratories.

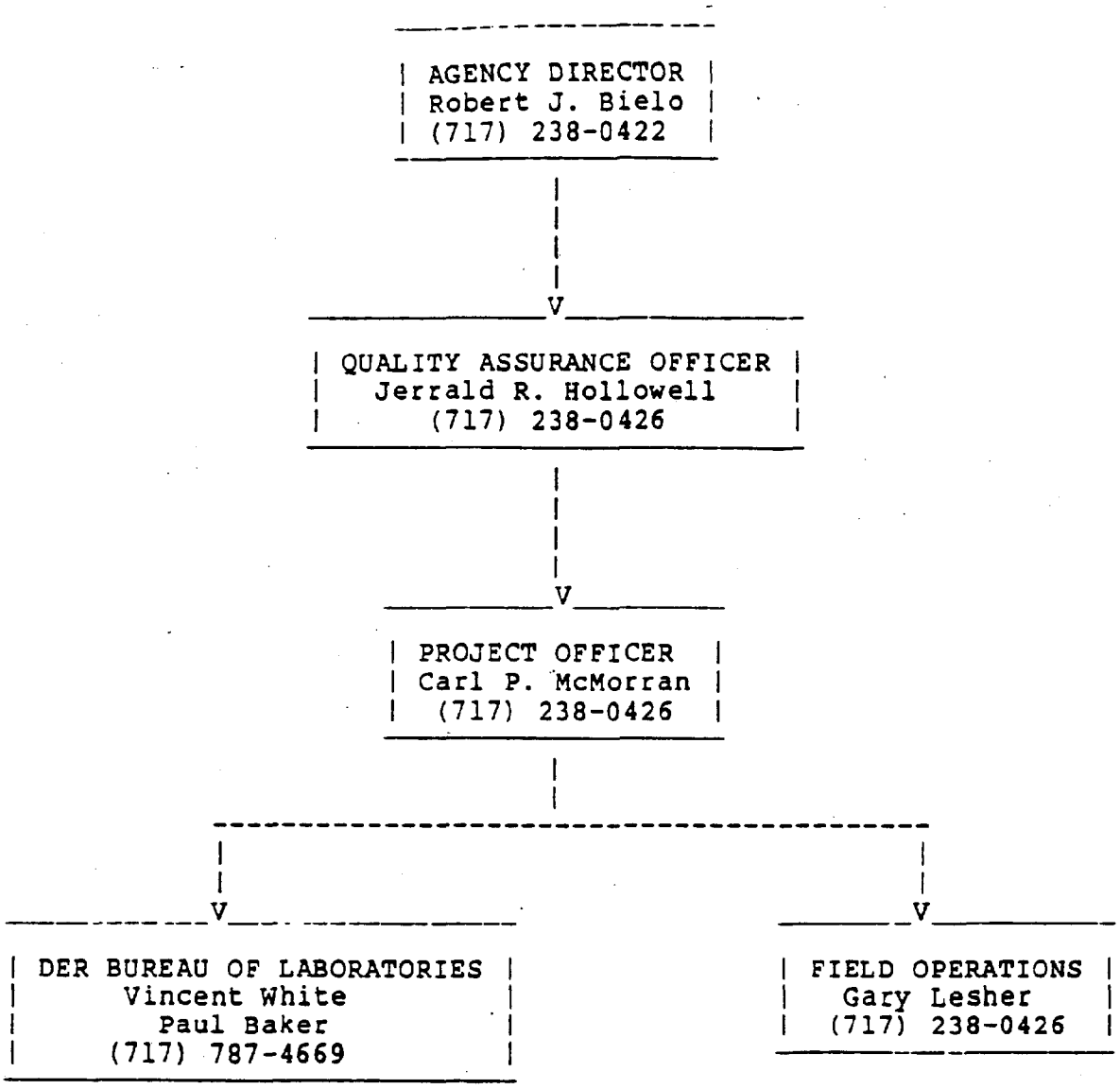
VI. PROJECT FISCAL INFORMATION (see EPA grant application).

VII. SCHEDULE

ACTIVITY/DATE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	1986 Dec	1987 Jan	Feb	Mar
Finalize project plan	X														
Collect water samples	X	X	X	X	X	X	X	X	X	X	X	X			
Collect biological samples				X		X		X		X					
Process data	X	X	X	X	X	X	X	X	X	X	X	X	X		
Data entry into STORET		X	X	X	X	X	X	X	X	X	X	X	X		
Write project report												X	X	X	X
Final report due															X

VIII. PROJECT ORGANIZATION AND RESPONSIBILITY

A. Project Organization



B. Project Responsibility

1. Sampling operations - Carl McMorran
2. Sampling QC - Carl McMorran
3. Laboratory analysis - Vincent White
4. Laboratory QC - Paul Baker
5. Data processing activities - Carl McMorran
6. Data processing QC - Carl McMorran
7. Data quality review - Jerrald Hollowell
8. Performance auditing - Carl McMorran
9. Systems auditing - Carl McMorran
10. Overall QA - Jerrald Hollowell
11. Overall project coordination - Jerrald Hollowell

IX. DATA QUALITY REQUIREMENTS AND ASSESSMENTS

PARAMETER	REPORTING LIMIT, mg/l	ACCURACY(1)	PRECISION(2)
B.O.D.	0.2	N/A(3)	N/A(3)
Total NH_3-N	0.02	94-111% @ 0.04-0.20	+/- 0.009 @ 0.040
Total NO_2-N	0.004	N/A(3)	+/- 0.002 @ 0.02
Total NO_3-N	0.04	N/A(3)	+/- 0.01 @ 0.21
Total P	0.01	67-133% @ 0.01-0.10	+/- 0.0012 @ 0.024
Total Ca	0.03	91-94% @ 0.1-1.0 96% @ 4.00	+/- 0.006 @ 1.0 +/- 0.13 @ 3.84
Total Mg	0.01	99-100% @ 0.1-1.0 94% @ 4.00	+/- 0.004 @ 1.0 +/- 0.12 @ 3.78
Chloride	0.001	100-107% @ 2.0-10.0	+/- 0.35 @ 4.00
Total SO_4	0.01	98-114% @ 10.0-20.0	+/- 1.94 @ 10.0
Total Fe	0.01	104% @ 0.1 100% @ 4.0	+/- 0.004 @ 0.1 +/- 0.16 @ 4.00
Total Mn	0.01	102% @ 0.1 98% @ 4.0	+/- 0.004 @ 0.1 +/- 0.11 @ 3.93
Total Al	0.035	81-102% @ 0.1-0.3 97% @ 4.0	+/- 0.016 @ 0.1 +/- 0.12 @ 3.87
Fecal Coliform	0	N/A(3)	N/A(3)
Fecal Strep	0	N/A(3)	N/A(3)
TOC	1.0	94-135% @ 1.2-6.0	+/- 0.36 @ 3.2

1. Accuracy was estimated from the recovery of pure material spiked into deionized water.

2. Precision was estimated from replicate analysis of the same sample, generally analyzed by the same analyst. Some samples were spiked deionized water.

3. N/A indicates that data is not available at this time.

Data representativeness. Water quality samples will be collected from riffle areas in the smaller streams. These areas have the greatest amount of mixing and therefore should be most representative of the stream. Composite samples will be collected from the larger streams and rivers to average out cross channel differences in water quality.

Data comparability. The purpose of this QA plan is to eliminate factors in sampling and analysis that will reduce the comparability of data collected at different points in space and time. All sampling, analysis and processing procedures are standardized to ensure comparability.

X. SAMPLING PROCEDURES

A. Macroinvertebrates: Macroinvertebrate sampling will be conducted in riffle areas of the streams. Qualitative sampling involves the use of a kick screen. The screen is stretched out perpendicular to the current, while the substrate upstream of the screen is raked up with a hoe so that macroinvertebrates are dislodged and carried into the net. Specimens are collected and the procedure is repeated until no new taxa are observed.

Quantitative sampling involves the use of a Surber sampler. This is a square metal frame attached to a net. The frame encloses one square foot of substrate. The sampler is placed onto the substrate in a shallow area with moderate current. The area inside the frame is agitated, dislodging macroinvertebrates which are swept into the net. The contents of the net are collected and preserved. A minimum of three Surber samples are collected at each station.

All collected specimens are preserved with 5% formalin solution. Identification of macroinvertebrate specimens to generic level be done by experienced SRBC staff using current taxonomic keys. Processing of macroinvertebrate data includes the calculation of average density values and diversity indices.

B. Field chemistry: Dissolved oxygen, conductivity and pH will be measured using meters. Meters will be checked for accuracy on a regular basis. Each instrument will have its own calibration log identified by W-number. Alkalinity and acidity will be measured using field titrations. Alkalinity will be measured in the field by titrating a known volume of sample water to pH 4.5 with 0.2N H_2SO_4. Acidity will be measured in the field by titrating a known volume of sample water to pH 8.3 with 0.2N NaOH. Titrations will be done using automatic self-zeroing 10ml burettes.

C. Water samples

1. A total of 1120 ml of water will be collected for analysis and shipped to the Pennsylvania Department of Environmental Resources, Bureau of Laboratories in Harrisburg, Pennsylvania. The samples will consist of one 500 ml sample for general analyses, one 500 ml sample for metals analysis (this sample will be fixed with 5 ml of 1:1 HNO_3), and one 120 ml sample for bacteriological analyses. The two 500 ml bottles will be rinsed with sample water before being filled. The 120 ml bottles were autoclaved and inoculated with a fixative by the laboratory prior to the beginning of the stream survey.

D. Flow measurements: Most stations will be located at USGS gaging stations. At stations where flow measurements must be done, standard equipment and procedures followed by USGS will be used.

XI. SAMPLE CUSTODY PROCEDURES

Since the water samples collected will not be used for enforcement purposes, no sample custody procedures are performed.

XII. CALIBRATION PROCEDURES AND PREVENTATIVE MAINTENANCE.

A. Dissolved oxygen meter: The DO meter is a YSI model dissolved oxygen meter. Meter calibration will be done using the air-saturated chamber technique prior to and just after each day's use. This last calibration is always to be done and recorded in the calibration log. An additional calibration check will be conducted daily using the Winkler test. Calibration of the zero using Na_2SO_3 solution, and the temperature at three points will be done every three months.

	Acceptable criteria
Winkler	$\pm$ 0.4 mg/l
Air saturated water	$\pm$ 0.3 mg/l
Zero	less than 0.2 mg/l
Temperature	$\pm$ 0.5^{o}C

B. Specific Conductance meter: The conductivity meter is a Beckman Solu-bridge. Meter calibration should be recorded weekly against three specific conductance standards, obtained within six months.

	Acceptable criteria
Standards (<1000 umhos/cm)	± 4%
(>1000 umhos/cm)	± 3%

C. pH meters: Record meter calibration against two buffers daily before and after use. This check is to always be done and recorded in the instrument calibration log.

D. Thermometers: Check thermometers on an as needed basis or at least semi-annually against laboratory grade thermometers.

	Acceptable criteria
Temperature	± 0.2°

XIII. DOCUMENTATION AND DATA REDUCTION

A. Documentation - Water quality and biological samples collected in the field will be labeled at the time of collection. Water samples are collected in polypropylene bottles which are labeled with a seven digit identification number, a station code, and sampling date and time. The seven digit identification number consists of a four digit collector number and a three digit station number. The station codes are listed with the station descriptions in Table 1. This identification information is also recorded on a laboratory analysis form. One form is submitted with each set of samples and also includes an analysis code which designates the laboratory analyses to be conducted.

Upon receiving the results of laboratory analyses, the water quality data is transcribed to a computer data file. From here

data reductions can be performed directly, thus eliminating possibilities of transcription errors. Transfer to hardcopy data sheets is also done directly from these data files.

Biological samples are placed in glass bottles and labeled with the station code and date. These are then stored until field personnel return to the office and begin the identification process. During the identification process, the number of different taxa are recorded on log sheets. These log sheets are then transcribed onto a computer file. All data reduction and reporting of macroinvertebrate data is done from these computer data files to eliminate transcription errors.

Data from field tests are recorded in a field notebook (see Figure 1). This data is later transcribed to a computer data file for processing.

B. Data Reduction - The reduction of data (from raw analyses to specific results) involves different treatments of the data. Water quality data will be interpreted outright and also used to compute loadings. Macroinvertebrate and fish data will be used to compute diversity and other biotic indices. Data processing will be conducted using computer data files thus eliminating human transcription errors. Data entered into data files will be double checked to confirm accuracy. Statistical tests will be performed to correlate parametric data with other parametric data and other factors, and to analyze trends.

XIV. DATA VALIDATION

Primary responsibility for data validation lies with the collector. Field collections will be conducted according to

the above methodology to insure accurate data. The use of duplicates, reviewed by the project officer also validates the water quality analyses. The data will also be validated by testing ion balances and other mass balance comparisons against the data. The data also goes through a series of validations as they are entered into the STORET database.

Biological samples will be validated by the two staff biologists.

XV. PERFORMANCE AND SYSTEMS AUDITS

A. Laboratory analyses. Water samples will be labeled, chilled on ice, and shipped daily to the laboratory via Purolator. Analytical and quality assurance procedures for the laboratory are detailed in the QA plan submitted by the laboratory. Duplicate samples will also be submitted to the laboratory.

B. Field procedures. Field instruments and field operator techniques are checked twice a year for pH, alkalinity and specific conductance with USGS standard samples. The project officer is responsible for seeing that all field personnel are competent in assessment and collection techniques prior to the beginning of the stream survey. The project officer is also responsible for insuring the quality of all equipment and reagents. A percentage of duplicate tests will also be performed on alkalinity, acidity and turbidity as an additional quality control measure.

C. Biological sampling. A percentage of the biological samples will be reconstituted, resorted and identified

again by another staff biologist to verify the biological information.

X. CORRECTIVE ACTION

Problems that develop will be corrected as soon as possible. Since sampling will be on a monthly basis the implementation of corrective actions will ensure that problems do not go uncorrected and do not reoccur. The QA officer is responsible for reviewing all data and taking whatever actions are necessary to correct the problem.

XI. REPORTS

A draft project report will be written in January 1987 with a final report due by April 1, 1987. This report will list the data collected and the result of all treatments of the data. Conclusions will be drawn from the data and any recommendations based on the data will be made. In addition, the data will be utilized by SRBC staff as it becomes available for project review purposes. The data will also be entered into STORET within one month after it is received from the laboratory and validated.

TABLE 1

INTERSTATE STREAMS OF THE SUSQUEHANNA RIVER BASIN

Between New York and Pennsylvania	Between Pennsylvania and Maryland
Apalachin Creek	Big Branch Deer Creek
Bentley Creek	Broad Creek
Bulkley Brook	Conowingo Creek
Camp Brook Creek	Deer Creek
Cascade Creek	Falling Branch Deer Creek
Cayuta Creek	Long Arm Creek
Chemung River	Muddy Creek
Choconut Creek	Octoraro Creek
Cowanesque River	Scott Creek
Denton Creek	South Branch Conewago Creek
Holden Creek	Susquehanna River
Little Snake Creek	
Seeley Creek	
Snake Creek	
South Creek	
Susquehanna River	
Tioga River	
Troups Creek	
Trowbridge Creek	
Wappasening Creek	
White Branch	

TABLE 2

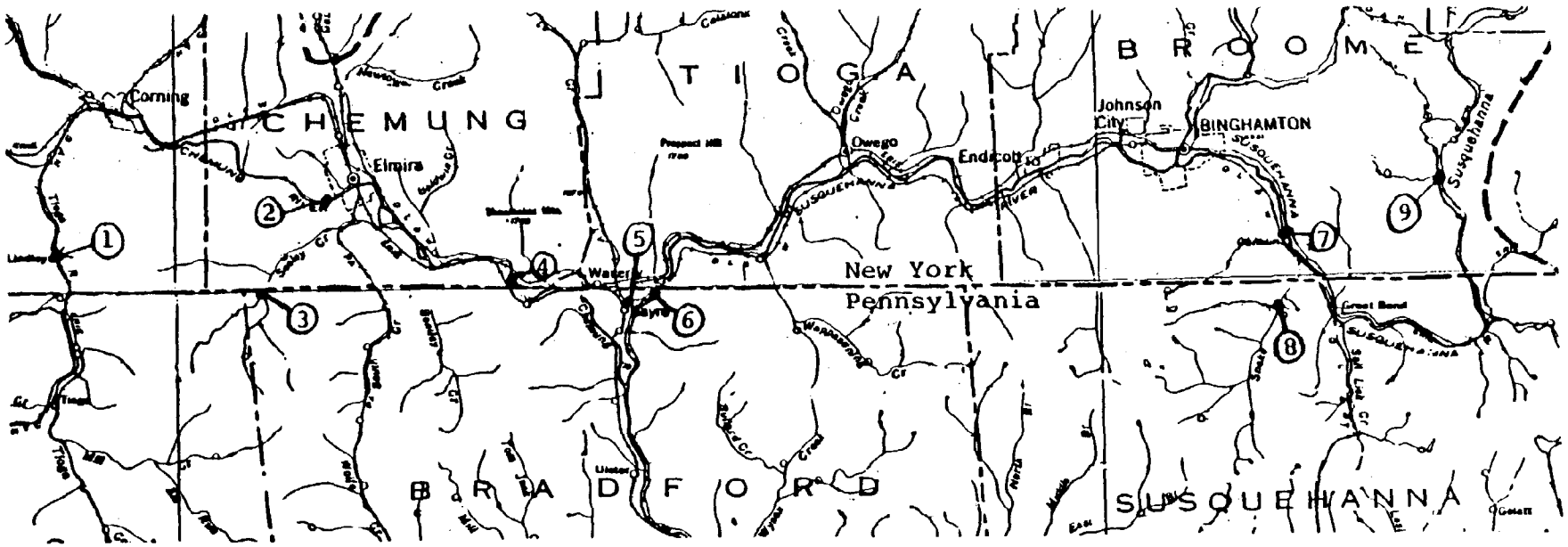
PROPOSED WATER QUALITY NETWORK STATIONS

1. Tioga River @ Lindley, New York
2. Chemung River near Fitch Bridge, New York
3. Seeley Creek near Mosherville, Pennsylvania
4. Chemung River @ Chemung, New York
5. Cayuta Creek @ Sayre, Pennsylvania
6. Susquehanna River @ Sayre, Pennsylvania
7. Susquehanna River @ Conklin, New York
8. Snake Creek near Brookdale, Pennsylvania
9. Susquehanna River @ Windsor, New York
10. Deer Creek near Stewartstown, Pennsylvania
11. Ebaugh's Creek near Stewartstown, Pennsylvania
12. Susquehanna River @ Marietta, Pennsylvania
13. Susquehanna River near Havre de Grace, Maryland
14. Conowingo Creek near Pleasant Grove, Pennsylvania
15. Octoraro Creek near Camp Horseshoe, Pennsylvania

FIGURE 1

SAMPLING LOCATIONS ALONG NEW YORK - PENNSYLVANIA BORDER

(Refer to Table 2)



N

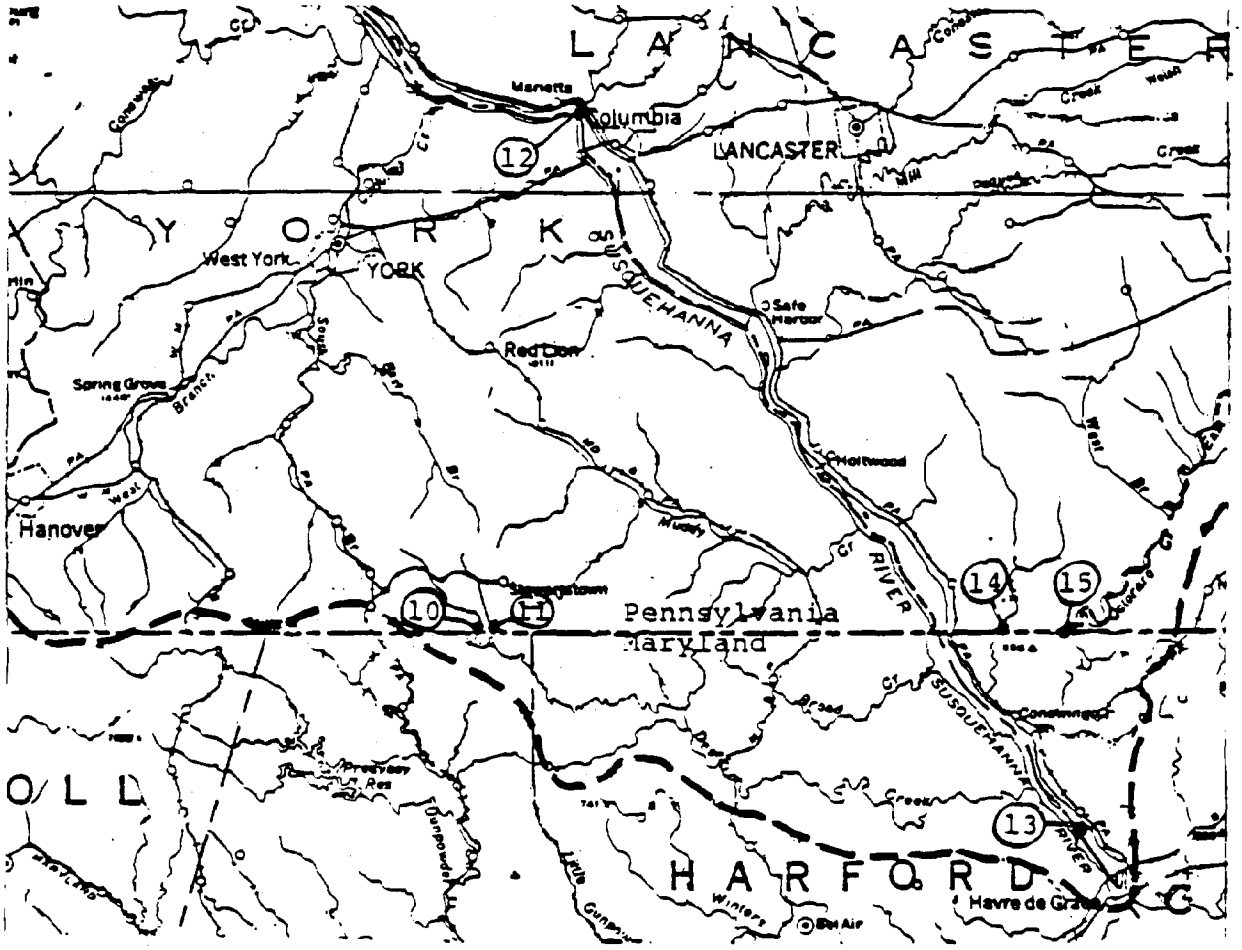
1 inch = 9 miles

FIGURE 2

SAMPLING LOCATIONS ALONG

PENNSYLVANIA - MARYLAND BORDER

(Refer to Table 2)



N

1 inch = 8 miles

FIGURE 3

SAMPLE PAGE FROM FIELD NOTEBOOK

STATION CODE_____ INVESTIGATORS_____

DATE_____ TIME_____

FIELD MEASUREMENTS

FLOW_____ GAGE READINGS_____

TEMPERATURE_____ CONDUCTIVITY_____

DISSOLVED OXYGEN: METER_____

WINKLER_____

pH_____ TURBIDITY_____ DUPLICATE_____

ALKALINITY: SAMPLE VOLUME_____ MLS TITRANT_____ AMOUNT_____

DUPLICATE: SAMPLE VOLUME_____ MLS TITRANT_____ AMOUNT_____

ACIDITY: SAMPLE VOLUME_____ MLS TITRANT_____ AMOUNT_____

DUPLICATE: SAMPLE VOLUME_____ MLS TITRANT_____ AMOUNT_____

REMARKS_____

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TABLE 3

EQUIPMENT LIST

Equipment	Chemicals/Supplies	Sundries
Kick screen	pH buffers	Field notebook
Surber	0.02 N NaOH	Pencils
Bug bottles	0.02 N H_2SO_4	Pens
Sieve	Winkler reagents	Gage house keys
Bucket	1:1 HNO_3	Calibration logs
Brush		Lab sheets
Forceps		Bac-T sheets
Dissolved Oxygen meter		
Conductivity meter		
pH meter		
Burrettes		
Beakers		
Magnetic stirrer		
Stir bars		
Turbidity kit		
Thermometer		
Squeeze bottle		
Sample bottles		
Bac-T bottles		
Winkler glassware		
Flow meter		
Kemmerer sampler		

Auxiliary

Cleaning apparatus for glassware

Na_2SO_3 solution

TABLE 4

SMALL INTERSTATE STREAMS*

Stream	Drainage areas PA	NY	Tot	USGS quad
Cascade Creek	1.42	9.98	11.4	Susquehanna, PA
Denton Creek	3.83	2.08	5.91	Great Bend, PA
Unnamed tributary	?	?	?	Great Bend, PA
Trowbridge Creek	1.60	15.1	16.7	Great Bend, PA
Little Snake Creek	5.87	?	?	Laurel Lake, PA
Russell Run	2.02	2.33	4.35	Windham, PA
Briggs Hollow Run				Windham, PA
Little Wappasening Creek				Litchfield, PA
Sackett Creek	6.24	?	?	Litchfield, PA
Parks Creek	3.86	?	?	Litchfield, PA
Bill Hess Creek	0.95	1.86	2.81	Elkland, PA
Camp Brook	2.63	7.77	10.4	Elkland, PA
Holden Creek	5.33	7.37	12.7	Knoxville, PA
2 unnamed tributaries at Austinburg	?	?	?	Knoxville, PA
White Branch and tributary	1.54	2.55	4.09	Harrison Valley PA

* no smaller streams of significant size flow between Pennsylvania and Maryland.

? - watershed areas not available from published sources.

APPENDIX C

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AND
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* Denotes documented reports stored as files on SRBC computer system that were transferred to the Chesapeake Bay Data Base. Filenames are listed under the reference as ' [CBP.REPORT#] '.

APPENDIX D

DATA SET DOCUMENTATION
AND
DATA SET FILES

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*TI: Assessment of Nutrient Sources from Main Stem and Selected
*    Watersheds in the Susquehanna River Basin.
*DS: SRBC.STORM.A
*RR: SRBC.STORM.B
*PI: Susquehanna River Basin Commission
*PO: 1721 N. Front St.  Harrisburg  PA  17102
*PR: Jerrald Hollowell, Chief  Resource Management Quality
*    Protection Division, 717-239-0425
*PE: Oct. 1984  ongoing until Oct. 1989
*GE: Susquehanna River Basin
*GL:
*AB: Water quality monitoring activities consisting of
*    monthly baseflow and selected storm runoff sampling, field chemistry
*    measurements, sample preservation and shipment, and laboratory analyses.
*    Sample analysis based on "Techniques of Water-Resource Investigations
*    of the USGS, Book 5". Data is also contained in WATSTORE and STORET.
*    A remark code of " L " indicates the true value is less than the value
*    indicated. Remark codes follow the parameter value.
*ST: STATION,DESCRIPTION,LATITUDE,LONGITUDE
*    01553500,Susquehanna River @ Lewisburg,405805,765225
*    01540500,Susquehanna River @ Danville,405729,763710
*    01567000,Juniata River @ Newport,402842,770746
*    01568000,Shermans Creek @ Shermansdale,401924,771009
*    01568750,Stony Creek @ Dauphin,402451,764650
*    01570500,Susquehanna River @ Harrisburg,401517,765311
*    01571000,Paxton Creek @ Penbrook,401830,765100
*    01571090,Paxton Creek @ South Harrisburg,401554,765156
*    01573560,Swatara Creek @ Hershey,401754,764005
*    01574000,West Conewago Creek @ Manchester,400456,764313
*    01575500,Codorus Creek @ York,395646,764520
*    01575585,Codorus Creek @ Pleasureville,400107,764136
*    01576754,Conestoga River @ Conestoga,395647,762205
*PA: PARAMETER,CAS CODE,UNITS,LABEL
*    PH,none,SU,PH
*    WTEMP,none,Deg C,WATER TEMPERATURE
*    SCOND,none,umohs,SPECIFIC CONDUCTANCE
*    TORGC,none,mg/l,TOTAL ORGANIC CARBON
*    TKN,none,mg/l,TOTAL KJELDAHL N
*    DKN,none,mg/l,DISSOLVED KJELDAHL N
*    TNH4,none,mg/l,TOTAL NH4
*    DNH4,none,mg/l,DISSOLVED NH4
*    TNO23,none,mg/l,NITRATE PLUS NITRITE
*    TP,none,mg/l,TOTAL PHOSPHOROUS
*    DP,none,mg/l,DISSOLVED PHOSPHOROUS
*    DORTHOP,none,mg/l,DISSOLVED ORTHOPHOSPHATE AS P
*    SEDSUS,none,mg/l,SUSPENDED SEDIMENT CONCENTRATION
*    STREAM,none,inst-cfs,INSTATANEOUS DISCHARGE
DATA SRBC.STORM.A;
 INPUT @1 STATION 8. @9 DATE YYMMDD6. @15 TIME TIME5.
       @20 STREAM 9.2 @29 GAGE 5.2 @34 WTEMP 4.1
       @38 PH 5.2 @43 SCOND 5.0 @48 SEDSUS 7.1
       @55 REMSEDSUS $1. @56 TORGC 6.3 @62 REMTORG $1.
       @63 TKN 6.3 @69 REMTKN $1. @70 DKN 6.3 @76 REMDKN $1.;
 CARDS;
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01574000850927 02:30000032.10      19.008.200057500015.0 04.500 00.900 00.600
01574000850927 05:30000042.80      18.008.100038000011.0 04.100 00.700 00.500
01574000850927 07:00000054.20      18.008.100036000019.0 04.700 00.800 00.600
01574000850927 12:15000818.30      17.007.900027000333.0 10.000 01.700 00.600
01574000850927 15:00001135.00      17.007.500025500538.0 12.000 03.900 01.200
01574000850927 16:30000980.10          07.700016500458.0 13.000 04.600 01.400
01574000850927 21:05000453.30      18.008.000020000170.0 09.200 01.400 00.700
01574000850927 23:45000317.90      17.007.800020000115.0 07.600 01.300 00.700
01574000850928 03:05000620.70      17.007.800022000126.0 04.600 01.000 00.400
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CBP.REPORT1

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DATA SRBC.STORM.B;
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       @20 TNH4 6.3 @26 REMTNH4 $1. @27 DNH4 6.3 @33 REMDNH4 $1.
       @34 TNO23 6.3 @40 REMTP $1. @41 TP 5.3 @46 REMTP $1.
       @47 DP 5.3 @52 REMDP $1. @53 DORTHOP 5.3 @58 REMORTHOP $1.;
 CARDS;
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0156875085032213:1500.080 00.020 00.100L0.040 0.010L0.010L
0156875085041912:3000.010L00.040 00.100 0.010L0.030 0.020
0156875085051011:0000.010L00.040 00.100L0.020 0.040 0.010L
0156875085060516:2300.010 00.020 00.100L0.010L0.010L0.010L
0156875085070113:3000.070 00.030 00.100L0.010 0.010 0.010L
0156875085080712:4500.020 00.010L00.100L0.010L0.010L0.010L
0156875085090410:1500.040 00.030 00.200 0.040 0.040 0.010
0156875085102411:0000.040 00.030 00.010L0.010L0.010L
0156875085121110:0000.120 00.010 00.040 0.020 0.020 0.004
0156875086011412:1500.005 00.005L00.040 0.020 0.010 0.003
0157100086031413:3000.040 00.035 01.480 0.080 0.020 0.008
0157100086031417:0000.065 00.060 01.180 0.140 0.036 0.006
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0157100086031418:3000.065 00.060 01.180 0.140 0.036 0.006
0157100086031420:1500.115 00.095 00.980 0.160 0.030 0.012
0157100086031500:4500.150 00.135 00.920 0.250 0.020 0.012
0157100086031503:0000.150 00.060 01.060 0.250 0.020 0.012
0157100086031505:4500.075 00.050 01.300 0.160 0.030 0.017
0157100086031509:3000.040 00.015 01.680 0.120 0.030 0.017
0157100086031601:1500.010 00.010 01.840 0.070 0.020 0.015
0155350086031316:0400.025 00.025 00.740 0.060 0.056 0.002
0155350086031413:1500.025 00.025 00.720 0.050 0.020 0.003
0155350086031511:3500.040 00.040 00.740 0.200 0.030 0.004
0155350086031611:3000.025 00.100 00.580 0.110 0.020 0.003
0155350086031711:5100.450 00.450 00.580 0.020 0.010 0.004
0155350086031810:0000.014 00.014 00.620 0.020 0.010 0.009
0155350086031911:0000.050 00.050 00.660 0.030 0.010 0.005
0157050086031310:0000.095 00.095 01.400 0.170 0.060 0.040
0157050086031409:4500.080 00.075 01.320 0.130 0.020 0.009
0157050086031507:1500.085 00.065 01.400 0.160 0.030 0.010
0157050086031608:0000.070 00.060 01.400 0.360 0.030 0.011
0157050086031714:1500.065 00.065 01.200 0.100 0.020 0.012
0157050086031814:1500.050 00.050 01.040 0.040 0.020 0.013
0157050086031907:3000.050 00.050 01.280 0.040 0.020 0.011
0157050086032111:0000.020 00.020 01.360 0.160 0.020 0.009
0157675484022      00.110 00.120 07.700 0.730 0.180 0.660
0157675484112009:3001.000 01.100 08.600 0.550 0.520 0.500
0157675484121310:1000.660 00.680 08.000 0.340 0.300 2.070
0157675485011811:0000.900 00.900 10.000 0.440 0.410 0.390
0157675485022110:3000.650 00.680 08.000 0.250 0.230 0.240
0157675485032111:0000.360 00.350 07.400 0.350 0.280 0.270
0157675485041810:0000.340 00.340 10.000 0.470 0.690 0.380
0157675485050911:3000.330 00.300 06.100 0.410 0.330 0.330
0157675485060410:2400.120 00.090 05.900 0.450 0.370 0.400
0157675485070110:4500.060 00.080 06.700 0.460 0.440 0.420
0157675485080711:3600.040 00.010 05.100 0.560 0.520 0.520
0157675485090211:1500.030 00.030 05.200 0.620 0.580 0.580
0157675485102410:4500.230 00.250 08.400 0.490 0.430 0.400
0157675485121011:0000.450 00.450 08.700 0.270 0.240 0.210
0157675486011413:3000.550 00.550 09.200 0.230 0.200 0.200
0157675486030413:0000.295 00.295 11.600 0.160 0.130 0.150
0154050084102212:0000.010 00.040 01.000 0.020 0.010L0.010L
0154050084112009:3000.070 00.010L01.000 0.040 0.010L0.010L
0154050084121311:3000.090 00.070 00.900 0.050 0.010L0.010
0154050085011810:0000.200 00.190 01.000 0.110 0.030 0.030
0154050085022110:0000.180 00.130 01.400 0.050 0.010L0.010L
0154050085032109:5500.100 00.100 01.100 0.060 0.010L0.020
0154050085041810:3000.010L00.010L00.800 0.060 0.040 0.050
0154050085050909:3000.010L00.120 00.500 0.040 0.010L0.010L
0154050085060413:4500.030 00.110 00.500 0.090 0.030 0.010
0154050085070210:3000.050 00.040 00.800 0.030 0.010 0.010L
0154050085080810:4500.070 00.080          0.010L0.010L0.020
0154050085090311:3000.020 00.040 00.500 0.060 0.060 0.010L
0154050085102511:0000.060 00.070 00.600 0.050 0.010L0.010
0154050085121011:0000.110 00.110 00.950 0.050 0.030 0.014
0154050086011511:3000.310 00.310 01.300 0.100 0.020 0.008
0154050086030510:0000.085 00.085 01.260 0.050 0.020 0.010
0157555584101915:0001.700 01.800 03.000 0.390 0.180 0.170
0157555584112012:1800.540 00.440 03.300 0.160 0.100 0.090
0157555584121313:3000.370 00.380 04.000 0.140 0.030 0.080
0157555585011813:3000.380 00.360 03.700 0.330 0.170 0.120
0157555585022113:2000.510 00.510 04.100 0.130 0.070 0.090
0157555585032114:0000.760 00.750 03.300 0.200 0.160 0.090
0157555585041813:3000.620 00.610 03.600 0.240 0.220 0.190
0157555585050913:1500.680 00.620 03.500 0.170 0.110 0.080
0157555585060414:4800.530 00.480 03.400 0.200 0.130 0.130
0157555585070112:0000.760 00.740 03.000 0.130 0.110 0.080
0157555585080713:0000.780 00.670 02.700 0.110        0.090
0157555585090212:4501.900 01.800 02.600 0.530 0.490 0.460
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015755858510241 3:3000.370 00.370 02.500 0.190 0.090 0.070
015755858512101 3:5400.710 00.710 04.400 0.120 0.090 0.059
015755858601141 4:5000.660 00.660 04.400 0.250 0.130 0.140
015755858603041 1:5000.400 00.400 06.380 0.070 0.030 0.019
015687508603141 0:4500.005 00.005 00.120 0.030 0.020 0.013
015687508603142 3:0000.010 00.010 00.160 0.030 0.030 0.006
015687508603150 2:3000.010 00.010 00.160 0.030 0.010 0.005
015687508603150 9:0000.010 00.010 00.120 0.030 0.010 0.004
015687508603151 6:3000.040 00.035 00.080 0.030 0.010 0.005
015687508603152 3:0000.015 00.020 00.100 0.020 0.020 0.006
015687508603160 8:0000.035 00.035 00.080 0.030 0.020 0.010
015687508603171 4:3000.005 00.005 00.080 0.020 0.020 0.004
015755858602181 3:0000.770 00.600 03.520 0.350 0.120 0.059
015755858602181 7:4500.710 00.710 03.080 0.570 0.140 0.083
015755858602182 1:0000.500 00.490 03.500 0.250 0.130 0.066
015755858602190 2:2000.420 00.400 03.960 0.270 0.100 0.052
015755858602190 5:0000.470 00.360 03.960 0.310 0.100 0.053
015755858602190 6:4000.370 00.340 03.960 0.220 0.090 0.046
015755858602201 2:4000.370 00.350 04.400 0.210 0.080 0.056
015755858602211 0:4500.280 00.290 05.600 0.150 0.070 0.041
015755858602220 9:4500.290 00.280 05.280 0.150 0.060 0.039
015755858602241 1:2000.280 00.270 05.720 0.130 0.050 0.028
015535008410221 3:3000.130 00.130 01.000 0.070 0.040 0.050
015535008411201 0:3000.050 00.010L00.700 0.020 0.010 0.010L
015535008412131 2:2500.060 00.040 00.700 0.020 0.010L0.010L
015535008501181 2:3000.030 00.110 00.900 0.030 0.020 0.030
015535008502211 1:0000.180 00.230 00.900 0.010L0.010L0.010L
015535008502211 1:3000.050 00.040 00.600 0.020 0.010L0.010L
015535008504181 3:3000.010L00.010L00.600 0.010L0.010L0.010L
015535008505091 1:1500.010L00.030 00.500 0.050 0.010L0.010L
015535008506041 5:1500.030 00.020 00.300 0.010L0.010L0.010L
015535008507021 1:3000.070 00.030 00.900 0.040 0.030 0.010
015535008508081 2:2000.080 00.020 00.900 0.010L0.010L0.030
015535008509031 3:3000.030 00.070 00.900 0.040 0.060 0.020
015535008510251 2:0000.040 00.040 00.700 0.050 0.030 0.020
015535008512101 2:0000.070 00.070 00.680 0.020 0.010 0.004
015535008601151 2:5000.110 00.110 01.000 0.040 0.020 0.012
015535008603051 1:4500.050 00.012 00.920 0.030 0.020 0.006
015755008410191 6:3000.050 00.050 02.500 0.130 0.050 0.090
015755008411201 1:0500.010L00.010L02.900 0.120 0.070 0.060
015755008412131 2:0000.140 00.110 03.900 0.080 0.030 0.060
015755008501181 2:3000.080 00.090 03.600 0.100 0.070 0.060
015755008502211 2:3000.120 00.130 03.800 0.110 0.090 0.090
015755008503211 2:4500.070 00.070 03.500        0.070 0.070
015755008504181 2:0000.010L00.010L03.200 0.080 0.060 0.030
015755008505091 4:2000.030 00.030 03.300 0.070 0.060 0.050
015755008506041 3:2000.110 00.080 03.300 0.110 0.080 0.080
015755008507011 3:1000.080 00.080 02.800 0.080 0.060 0.050
015755008508071 4:3300.120        03.000              0.090
015755008509021 4:0000.050 00.060 02.100 0.110 0.100 0.090
015755008510241 2:3000.060 00.050 02.400 0.100 0.070 0.060
015755008512101 1:4500.110 00.110 03.900 0.090 0.060 0.035
015755008601141 3:3000.100 00.100 03.500 0.110 0.070 0.040
015755008603041 0:5000.275 00.260 05.940 0.050 0.020 0.014
015670008602191 5:4500.045 00.040 01.980 0.060 0.030 0.016
015670008602200 7:4000.095 00.080 01.980 0.110 0.040 0.024
015670008602201 7:0000.075 00.070 01.980 0.110 0.040 0.023
015670008602210 7:0000.100 00.090 01.980 0.110 0.040 0.021
015670008602211 8:3000.045 00.045 01.600 0.090 0.030 0.022
015670008602221 0:3000.050 00.045 01.600 0.090 0.030 0.023
015670008602221 5:3000.050 00.040 01.760 0.100 0.030 0.024
015670008602231 0:3000.060 00.050 01.660 0.080 0.090 0.010
015670008602241 0:5000.040 00.020 01.720 0.050 0.030 0.017
015670008602250 8:0000.020 00.020 01.800 0.060 0.040 0.023
015670008410221 5:0000.050 00.030 01.100 0.070 0.060 0.060
015670008411201 2:0000.120 00.010L01.300 0.070 0.050 0.040
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0156700084121412:0000.030 00.010L01.300 0.030 0.040 0.030
0156700085011813:3000.040 00.060 01.500 0.060 0.040 0.060
0156700085022113:0000.090 00.070 01.700 0.020 0.010L0.030
0156700085032113:1500.070 00.050 01.400 0.130 0.020 0.020
0156700085041911:0000.010L00.010L01.500 0.050 0.030 0.050
0156700085050913:0000.010L00.020 01.400 0.040 0.020 0.020
0156700085060412:0000.040 00.020 01.500 0.050 0.060 0.060
0156700085070214:0000.090 00.010L01.200 0.050 0.030 0.010L
0156700085080715:0000.010L01.600 00.200 0.010L0.010L0.870
0156700085090314:3000.020 00.010L00.700 0.090 0.100 0.070
0156700085102412:3000.050 00.060 00.800 0.090 0.080 0.060
0156700085121108:1500.080 00.080 01.700 0.050 0.040 0.023
0156700086011514:0000.055 00.055 01.600 0.070 0.060 0.047
0156700086030513:4500.010 00.005 01.900 0.040 0.030 0.010
0157550086021812:0000.220 00.220 04.400 0.180 0.080 0.022
0157550086021816:3000.215 00.210 04.180 0.260 0.100 0.052
0157550086021820:2000.420 00.250 03.960        0.310 0.240
0157550086021901:3000.210 00.200 03.960 0.410 0.100 0.040
0157550086021903:0000.200 00.190 03.960 0.240 0.090 0.039
0157550086021905:5500.190 00.180 04.180 0.210 0.080 0.180
0157550086022011:1500.305 00.300 04.620 0.180 0.080 0.050
0157550086022110:1500.140 00.140 05.260 0.150 0.090 0.060
0157550086022208:4000.100 00.090 04.840 0.120 0.060 0.033
0157550086022412:3500.090 00.090 05.500 0.100 0.050 0.031
0154050086031314:3000.105 00.105 00.980 0.130 0.030 0.010
0154050086031412:0000.100 00.100 00.940 0.070 0.060 0.022
0154050086031510:0500.110 00.100 01.040 0.440 0.030 0.006
0154050086031610:1500.100 00.080 00.800 0.190 0.040 0.017
0154050086031710:2000.175 00.137 00.740 0.140 0.020 0.010
0154050086031911:1500.095 00.085 00.840 0.230 0.180 0.169
0154050086031910:0000.175 00.175 00.920 0.070 0.020 0.010
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CBP.REPORT2

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*TI: Dissolved Oxygen and Temperature Survey of the Lower Susquehanna River
*    August 9th and 10th, 1979
*DS: In STORET, AGENCY CODE:42SRBCWQ
*RR: None
*PI: Susquehanna River Basin Commission
*PO: 1721 North Front St.
*    Harrisburg, PA 17102
*PR: Stanley E. Rudisill    717-238-0425
*    Gregory E. Senko       717-238-0425
*PE: 8-9-79 to 8-10-79
*GE: Susquehanna River, Safe Harbor Reservoir, Holtwood Res., Conowingo Res.
*GL:
*AB: 35 river transects collecting samples from 6:00am to 8:00pm at
*    depths of surface, 1, 2, 5, 10, 15, 20 meters, and off bottom.
*    Collection of samples to define severity and areal extent of depressed
*    DO concentrations in the Lower Susquehanna River below Columbia, PA.
*    Three hydroelectric facilities and associated reservoirs have created
*    conditions that significantly decreases DO concentrations as compared to
*    the upstream free-flowing river.
*ST: STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*    SUSQ01.0,393317,760511,RM01.0,SUSQUEHANNA RIVER IN MARYLAND
*    SUSQ02.3,393416,760532,RM02.3,SUSQUEHANNA RIVER IN MARYLAND
*    SUSQ03.2,393451,760615,RM03.2,SUSQUEHANNA RIVER IN MARYLAND
*    SUSQ04.8,393553,760707,RM04.8,SUSQUEHANNA RIVER IN MARYLAND
*    SUSQ05.9,393637,760810,RM05.9,SUSQUEHANNA RIVER IN MARYLAND
*    SUSQ10,393945,761032,RM10,CONOWINGO RESERVOIR MARYLAND
*    SUSQ10.8,393945,761032,RM10.0,CONOWINGO DAM TAILRACE
*    SUSQ10.3,393949,761038,RM10.3,CONOWINGO RESERVOIR MARYLAND
*    SUSQ11.9,394048,761207,RM11.9,CONOWINGO RESERVOIR MARYLAND
*    SUSQ13.9,394201,761334,RM13.9,CONOWINGO RESERVOIR MARYLAND
*    SUSQ15.8,394324,761355,RM15.8,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ17,394440,761422,RM17,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ17.7,394518,761453,RM17.7,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ18.5,394610,761534,RM18.5,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ20.5,394709,761626,RM20.5,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ22.4,394807,761759,RM22.4,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ24,394903,761930,RM24,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ24.5,394920,761938,RM24.5,CONOWINGO RESERVOIR LANCASTER CO. PA.
*    SUSQ25,394940,762012,RM25,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ25.4,395000,762035,RM25.4,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ25.9,395024,762057,RM25.9,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ26.5,395055,762057,RM26.5,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ27.3,395129,762127,RM27.3,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ28.4,395209,762224,RM28.4,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ29,395228,762237,RM29,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ30.8,395413,762226,RM30.8,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ31.5,395439,762252,RM31.5,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ32,395455,762304,RM32,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ32.3,395520,762318,RM32.3,HOLTWOOD RESERVOIR LANCASTER CO. PA.
*    SUSQ33,395515,762359,RM33,SAFE HARBOR RESERVOIR
*    SUSQ33.9,395538,762450,RM33.9,SAFE HARBOR RESERVOIR
*    SUSQ34.8,395603,762603,RM34.8,SAFE HARBOR RESERVOIR
*    SUSQ37,395702,762801,RM37,SAFE HARBOR RESERVOIR
*    SUSQ37.9,395801,762832,RM37.9,SAFE HARBOR RESERVOIR
*    SUSQ39.1,395922,762906,RM39.1,SAFE HARBOR RESERVOIR
*    SUSQ41.0,400039,762945,RM41.0,SAFE HARBOR RESERVOIR
*    SUSQ43,400138,763059,RM43,SAFE HARBOR RESERVOIR
*PA: PARAMETER,UNITS,CAS CODE,LABEL
*    DO,MG/L,NONE,DISSOLVED OXYGEN
*    WTEMP,DEG C,NONE,WATER TEMPERATURE
*    DEPTH,METERS,NONE,SAMPLE DEPTH
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*TI:  RESULTS OF INITIAL SAMPLING OF HEAVY METALS & PESTICIDES FOUND IN STREAM
*     BOTTOM SEDIMENTS IN THE SUSQUEHANNA RIVER BASIN
*DS:  IN STORET
*RR:  NONE
*PI:  SUSQUEHANNA RIVER BASIN COMMISSION                          CBP.REPORT3
*PO:  1721 N. FRONT ST.
*     HARRISBURG, PA.  17102
*     (717)238-0425
*PR:  JERRALD R. HOLLOWELL
*PE:  OCT. 1974-NOV. 1974
*GE:  SUSQUEHANNA RIVER BASIN
*GL:
*AB:  THE SUSQUEHANNA RIVER BASIN COMMISSION IN COOPERATION WITH THE USGS
*     INITIATED A SURVEILLANCE SYSTEM TO MONITOR THE ABSENCE OR PRESENCE OF
*     METALS AND CHEMICAL COMPOUNDS THAT ARE CONSIDERED TOXIC BY THE LATEST
*     AVAILABLE INFORMATION.  BECAUSE OF THE TENDANCY OF THESE SUBSTANCES TO
*     BECOME ADSORBED ON THE SURFACE OF SUSPENDED SEDIMENT, ANNUAL SAMPLING OF
*     STREAMBED SEDIMENT THROUGHOUT THE BASIN, DURING LOW FLOW, WOULD PROVIDE
*     THE COMMISSION WITH AN INDICATION OF THE OCCURRENCE, TYPE AND MAGNITUDE
*     OF TOXIC POLLUTANTS IN THE BASIN.
*     SAMPLE COLLECTIONS WERE TAKEN DOWNSTREAM OF KNOWN DISCHARGE POINTS WHERE
*     THE STREAMBED HAD AN ACCUMULATION OF ALLUVIAL MATERIAL.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     01565512,403540,773430,UNKNOWN,KISHACOQUILLAS CK. @ LEWISTOWN, PA.
*     01567000,402842,770746,UNKNOWN,JUNIATA R. @ NEWPORT, PA.
*     01569700,401252,771848,UNKNOWN,CONODOGUINET CK. @ GRIEDER BRIDGE
*     01573000,402409,763439,UNKNOWN,SWATARA CK. @ HARPER TAVERN, PA.
*     01571105,401412,765116,UNKNOWN,SUSQUEHANNA R. @ STEELTON, PA.
*     01571509,401254,765000,UNKNOWN,SUSQUEHANNA R NR NEW CUMBERLAND BELOW STP
*     01573825,395526,765926,UNKNOWN,CONEWAGO CK. @ EAST BERLIN, PA.
*     01575510,395903,764326,UNKNOWN,CODORUS CK. @ N. YORK, PA ON RTE. 30
*     01576520,400118,761314,UNKNOWN,CONESTOGA R. NR. LANCASTER, PA.
*     01576003,405903,764326,UNKNOWN,SUSQUEHANNA R. @ COLUMBIA, PA.
*     01576010,400003,763004,UNKNOWN,SUSQUEHANNA R. NR. WRIGHTSVILLE, PA.
*     01577510,394502,761535,UNKNOWN,SUSQUEHANNA R. NR. DELTA, PA.
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SAND,%,NONE,PERCENTAGE OF SAND FRACTION
*     SILT,%,NONE,PERCENTAGE OF SILT FRACTION
*     CLAY,%,NONE,PERCENTAGE OF CLAY FRACTION
*     INORGC,%,7440440,INORGANIC CARBON
*     ORGC,%,7440440,ORGANIC CARBON
*     TORGC,%,7440440,TOTAL CARBON
*     INORGN,MG/KG,17778880,INORGANIC NITROGEN
*     ORGN,MG/KG,17778880,ORGANIC NITROGEN
*     TN,MG/KG,17778880,TOTAL NITROGEN
*     EXAL,UG/G,7429905,EXTRACTABLE ALUMINUM
*     EXCD,UG/G,7440439,EXTRACTABLE CADMIUM
*     EXCR,UG/G,7440473,EXTRACTABLE CHROMIUM
*     EXCO,UG/G,7440484,EXTRACTABLE COBALT
*     EXCU,UG/G,7440508,EXTRACTABLE COPPER
*     EXCN,UG/G,57125,EXTRACTABLE CYANIDE
*     EXFE,UG/G,7439896,EXTRACTABLE IRON
*     EXPB,UG/G,7439921,EXTRACTABLE LEAD
*     EXMN,UG/G,7439965,EXTRACTABLE MANGANESE
*     EXNI,UG/G,7440020,EXTRACTABLE NICKEL
*     EXAG,UG/G,7440224,EXTRACTABLE SILVER
*     EXZN,UG/G,7440666,EXTRACTABLE ZINC
*     TAS,UG/G,7440382,TOTAL ARSENIC
*     THG,UG/G,7439976,TOTAL MERCURY
*     TSE,UG/G,7782492,TOTAL SELINIUM
*     ALDRN,UG/KG,309002,ALDRIN
*     CLRDNE,UG/KG,57749,CHLORDANE
*     DDD,UG/KG,72548,DDD
*     DDE,UG/KG,72559,DDE
*     DDT,UG/KG,50293,DDT
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*     DDRIN,UG/KG,60571,DIELDRIN
*     EDRIN,UG/KG,72208,ENDRIN
*     HEPEPOX,UG/KG,1024573,HEPTACHLOR EPOXIDE
*     HEPCLR,UG/KG,76448,HEPTACHLOR
*     LDNE,UG/KG,58899,LINDANE
*     PCB,UG/KG,2767792,PCB
*     PCN,UG/KG,UNKNOWN,PCN
*     TOXPHNE,UG/KG,8001352,TOXAPHENE
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CBP.REPORT4

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*TI:  Summary of data from a toxics screening survey of the Lower Susquehanna
*     River and major tributaries
*DS:  In STORET
*RR:  None
*PI:  Susquehanna River Basin Commission
*PO:  1721 N. Front Street
*     Harrisburg, PA  17102
*     717-238-0425
*PR:  Charles S. Takita
*     Sanitary Engineer
*PE:  June 1981-Sept. 1981
*GE:  Lower Susquehanna River
*GL:
*AB:  Monthly base flow samples and samples after significant runoff periods
*     were collected at 22 sites in the Lower Susquehanna River Basin and
*     analyzed for heavy metals, herbicides, and insecticides.  Concluded the
*     quality of water is very good with respect to heavy metals and organic
*     contaminants.
*ST:  STATION,DESCRIPTION,LATITUDE,LONGITUDE
*     POW87.9,Powell's Creek @ Bridge. 1.7 miles above mouth,402509,765736
*     SUSQ86.5,Susquehanna R. @ Clarks Ferry Bridge RM 86.5,402357,770031
*     JUN86.4,Juniata R. @ Bridge near mouth,402409,770047
*     SHE85.1,Shermans Ck @ Bridge RM 3.1,402249,770457
*     CON73.0,Conodoguinet Ck @ Rt. 15 Bridge near mouth,401616,765453
*     PAX69.1,Paxton Ck @ RR Bridge RM 0.1,401440,765143
*     YEB68.4,Yellow Breeches Ck @ Greenlane Bridge,401329,765354
*     SUSQ61.5,Susquehanna R. upstream of Hill Island,400946,764345
*     SWA61.3,Swatara Ck. @ Bridge RM 0.1mi,401120,764359
*     WCON56.1,W. Conewago Ck. @ Bridge near York Haven,400637,764240
*     CONY51.7,Conoy Ck. @ Bridge 0.5 RM,400505,763945
*     CODU51.0,Codorus Ck. @ Bridge RM 0.5,400306,763900
*     CODO4.7,Codorus Ck. near Springettsbury STP RM7.7,400107,764115
*     CODO9.8,Codorus Ck. @ Rt. 30 Bridge above York STP RM 9.8,395901,764325
*     CODO16.6,Codorus Ck. @ 1st Bridge above Indian Rock Dam,395508,764549
*     CHI44.9,Chickies Ck. @ Rt. 441 Bridge,400319,763133
*     CNG32.4,Conestoga R. @ Rt. 441 Bridge RM0.9,395620,762315
*     PEQ29.9,Pequea Ck. @ PP&L Rec. Park Bridge RM 1.5,395356,762032
*     MUD21.7,Muddy Ck. @ Bridge near Castle Fin RM 3.0,394623,761859
*     SUSQ15.8,Susquehanna River near MD-PA State Line,394324,761355
*     SUSQ10.8,Susquehanna @ Conowingo Dam Tailrace,393945,761032
*     OCT09.3,Octoraro Ck. @ Rowlandsville Bridge Md.,393942,760853
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     STREAM,CFS,NONE,INSTATANEOUS STREAMFLOW
*     TAS,UG/L,7440382,TOTAL ARSENIC
*     TBE,UG/L,7440417,TOTAL BERYLLIUM
*     TCD,UG/L,7440439,TOTAL CADMIUM
*     TCR,UG/L,7440473,TOTAL CHROMIUM
*     TCU,UG/L,7440508,TOTAL COPPER
*     TPB,UG/L,7439921,TOTAL LEAD
*     TTL,UG/L,7440280,TOTAL THALLIUM
*     TNI,UG/L,7440020,TOTAL NICKEL
*     TAG,UG/L,7440224,TOTAL SILVER
*     TZN,UG/L,7440666,TOTAL ZINC
*     TSB,UG/L,7440360,TOTAL ANTIMONY
*     TSE,UG/L,7782492,TOTAL SELENIUM
*     CHLRFORM,UG/L,67663, WHOLE WATER CHLOROFORM
*     TPHENOLS,UG/L,NONE,TOTAL RECOVERABLE PHENOLICS
*     TOLUENE,UG/L,108883,TOLUENE IN WTR SMPLE GC-MS. HEXADECONE EXTR.
*     METHYLCL,UG/L,75092,TOTAL METHYLENE CHLORIDE
*     TETRACHL,UG/L,127184,TOTAL TETRACHLOROETHYLENE
*     ATRZ,UG/L,1912249,ATRAZINE EN WHOLE WATER SAMPLE
*     DNBPHYH,UG/L,84742,WHOLE WATER DI-N-BUTYL PHTHALATE
*     TRICHLOR,UG/L,79016,TRICHLOROETHYLENE-WHOLE WATER SAMPLE
*     ALPHABHC,UG/L,57749,CHLORDANE (TECH MIX & METABS) INE WHL WTR SMPLE
*     DIAZ,UG/L,333415,DIAZINON IN WHL WATER SMPLE
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*     LDNE,UG/L,58899, LINDANE IN WHL WATER SMPLE
*     C1PENOL,UG/L,NONE,TOTAL METHYL PHENOL
*     TRIDECOL,UG/L,NONE,TOTAL TRIDECANOL
*     MEBZCA,UG/L,NONE,TOTAL METHYLESTER/BENZENE DICARBOXYLIC ACID
*     THG,UG/L,7439976,TOTAL MERCURY AS MERCURY
*     1M2EBENZ,UG/L,611143, 1-METHYL-2-ETHYLBENZENE
*     PCLTOLU,UG/L,106434,1-METAYL-4-CHLOROBENZENE
*     NUNDECA,UG/L,1120214,TOTALN-UNDECANE
*     NTRIDEC,UG/L,629505,TOTAL N-TRIDELANE
*     LAURIC,UG/L,143077,TOTAL LAURIC ACID
*     NHYDECN,UG/L,544763,TOTAL N-HEXADECANE
*     TETRADEC,UG/L,544638,TOTAL TETRADECANOIC ACID
*     NHEPTHD,UG/L,629787,TOTAL N-HEPTADECANE
*     NOCTADE,UG/L,593453,TOTAL N-OCTADECANE
*     PALMITIC,UG/L,57103,TOTAL PALMITIC ACID
*     NONDECAN,UG/L,629925,TOTAL NONADECANE
*     ALACHLOR,UG/L,15972608,TOTAL ALACHLOR
*     DICHLOROEE,UG/L,25323302, TOTAL DICHLOROETHENE
*     DICHLOROBE,UG/L,25321226,TOTAL DICHLOROBENZENE
*     INDOLE,UG/L,120729,TOTAL INDOLE
*     DIMETHYLD,UG/L,624920,TOTAL DIMETHYL DISULFIDE
*     DICHLOROEA,UG/L,1300216,TOTAL DICHLOROETHANE
*     CISDICL,UG/L,156592, TOTAL CIS-1 2-DICHOROETHENE
*     TRICLETH,UG/L,25323891,TOTAL TRICHLORDETHANE
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CBP.REPORT5

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*TI:  WATER QUALITY AND CHEMICAL LOADS OF THE SUSQUEHANNA RIVER AT HARRISBURG,
*     PA. APRIL 1980 TO MARCH 1981
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  WATER RESOURCES DIVISION
*     P.O. BOX 1107
*     HARRISBURG PA.  17108
*     717-782-3813
*PR:  DAVID K. FISHEL
*PE:  APRIL 1980 TO MARCH 1981 FOR STUDY
*     OCT. 1890 TO PRESENT ON DISCHARGE FOR HISTORIC RECORD
*     OCT. 1944 TO PRESENT ON WATER QUALITY FOR HISTORIC RECORD
*GE:  SUSQUEHANNA RIVER, HARRISBURG, PA., WALNUT ST. BRIDGE, CITY ISLAND
*GL:
*AB:  PROVIDES QUANTITATIVE AND QUALITATIVE INFORMATION ON CHEMICAL, PHYSICAL,
*     AND BIOLOGICAL WATER QUALITY CHARACTERISTICS OF THE SUSQUEHANNA RIVER @
*     HARRISBURG, PA.  STUDY RESULTS PROVIDE INFORMATION TO EVALUATE THE EF-
*     FECTS OF EXISTING AND FUTURE LAND USE, WATER USE, AND REGIONAL ECONOMIC
*     DEVELOPMENT IN THE SUSQUEHANNA RIVER BASIN ON THE WATER QUALITY OF THE
*     CHESAPEAKE BAY.  DEPENDING ON PARAMETERS ANALYZED, SAMPLES WERE TAKEN BI-
*     WEEKLY, WEEKLY, MONTHLY, AND DURING STORMS.  SAMPLES WERE DEPTH INTE-
*     GRATED FROM SIX VERTICLES IN THE EAST CHANNEL AND SIX VERTICLES IN THE
*     WEST CHANNEL AROUND CITY ISLAND.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01570500,401517,765311,UNKNOWN,SUSQUEHANNA RIVER @ HARRISBURG
*PA:  81 PARAMETERS INCLUDING GENERAL INORGANICS, PHYSICAL, NUTRIENTS, PHYTO-
*     PLANKTON, TRACE METALS, MAJOR IONS, HERBICIDES, AND INSECTICIDES
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CBP.REPORT6

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*TI:  EFFECTS OF SPECIFIC LAND USES ON NONPOINT SOURCES OF SUSPENDED SEDIMENTS,
*     NUTRIENTS, AND HERBICIDES - PEQUEA CREEK BASIN, PENNSYLVANIA 1979-1980
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA.  17108
*PR:  PATRICIA L. LIETMAN  717-782-3860
*     JANICE R. WARD       717-782-3798
*     T. E. BEHRENDT       717-782-3780
*PE:  MAY 1979 TO DECEMBER 1980 FOR STUDY
*     MAY 1979 TO MAY 1981 FOR HISTORIC RECORD
*GE:  SUSQUEHANNA RIVER BASIN, PENNSYLVANIA, SOUTH CONESTOGA VALLEY, PEQUEA
*     CK. BASIN
*GL:  MIN. LAT: 394700  LONG: 754500
*     MAX. LAT: 400500  LONG: 762300
*AB:  TO DETERMINE THE EFFECT OF VARIOUS LAND USES (FOREST, CORNFIELD, RESIDEN-
*     TIAL, PASTURE) ON WATER QUALITY OF RECEIVING STREAMS BY MEASURING STREAM-
*     FLOW AND CONCENTRATIONS OF SUSPENDED SEDIMENTS, NUTRIENTS, ORGANIC CAR-
*     BON, AND HERBICIDES.  SAMPLES COLLECTED DURING BASEFLOW AND STORM FLOW.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01576787,395421,761943,UNKNOWN,PEQUEA CREEK @ MARTIC FORGE
*     01576788,395328,761814,UNKNOWN,PEQUEA CK. TRIB. NEAR MT. NEBO
*     01576782,395933,761117,UNKNOWN,SITE #2 ON PEQUEA CK. @ STRASBURG
*     01576783,395800,761753,UNKNOWN,GOODS RUN TRIB. @ WEST WILLOW
*     01576722,395800,761642,UNKNOWN,GOODS RUN TRIB. @ WILLOW ST.
*     01576771,395928,761114,UNKNOWN,SITE #1 ON PEQUEA CK. @ STRASBURG
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SEDSUS,MG/L,NONE,SUSPENDED SEDIMENT
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTANCE
*     TNH4,MG/L,NONE,TOTAL AMMONIUM
*     DNH4,MG/L,NONE,DISSOLVED AMMONIUM
*     TNH4ORGN,MG/L,NONE,TOTAL AMMONIUM & ORGANIC NITROGEN
*     DNH4ORGN,MG/L,NONE,DISSOLVED AMMONIUM & ORGANIC NITROGEN
*     TNO2,MG/L,17778880,TOTAL NITRITE AS NITROGEN
*     DNO2,MG/L,17778880,DISSOLVED NITRITE AS NITROGEN
*     TNO23,MG/L,17778880,TOTAL NITRITE & NITRATE AS NITROGEN
*     DNO23,MG/L,17778880,DISSOLVED NITRITE & NITRATE AS NITROGEN
*     TP,MG/L,7723140,TOTAL PHOSPHORUS AS P
*     DP,MG/L,7723140,DISSOLVED PHOSPHORUS AS P
*     TORTHOP,MG/L,7723140,TOTAL ORTHOPHOSPHATE AS P
*     DORTHOP,MG/L,7723140,DISSOLVED ORTHOPHOSPHATE AS P
*     DORGC,MG/L,7440440,DISSOLVED ORGANIC CARBON AS C
*     SORGC,MG/L,7440440,SUSPENDED ORGANIC CARBON AS C
*     ALACHLOR,UG/L,15972608,TOTAL ALACHLOR
*     AMETRYNE,UG/L,834128,TOTAL AMETRYNE (GESAPAX OR EVIK)
*     ATRZ,UG/L,1912249,TOTAL ATRAZINE IN WHOLE WTR SMPLE
*     ATRATON,UG/L,1610179,TOTAL ATRATON
*     CYANAZIN,UG/L,21725462,TOTAL CYANAZINE IN WHOLE WTR SMPLE
*     CYPRAZIN,UG/L,NONE,TOTAL CYPRAZINE
*     PRMETRYN,UG/L,7287196,TOTAL PROMETRYNE
*     PROMETON,UG/L,161080,TOTAL PROMETONE
*     PROPAZNE,UG/L,139402,TOTAL PROPAZINE
*     SIMAZINE,UG/L,122349,TOTAL SIMAZINE IN WHOLE WTR SMPLE
*     SIMETONE,UG/L,673041,TOTAL SIMETONE
*     SIMETRYN,UG/L,1014706,TOTAL SIMETRYNE IN WHOLE WTR SMPLE
*     STREAM,CFS,NONE,DISCHARGE
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CBP.REPORT7

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*TI:  APPRAISAL OF STREAM SEDIMENTATION IN THE SUSQUEHANNA RIVER BASIN
*OS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  KENNETH F. WILLIAMS
*     LLOYD A. REED, 717/782-3732
*PE:  1962 TO 1967
*GE:  SUSQUEHANNA RIVER BASIN, BELOW SUNBURY
*GL:
*AB:  MEASURES SEDIMENT YIELDS IN THE SUSQUEHANNA RIVER BASIN FROM GAGES
*     HAVING DRAINAGE AREAS OF 100 TO 800 SQ. MI.
*ST:  STATION,LAT,LONG,RIVER MILE,DESCRIPTION
*     01555500,403640,765444,UNKNOWN,EAST MAHANTANGO CK. NEAR DALMATIA PA.
*     01559000,402905,780110,UNKNOWN,JUNIATA R. @ HUNTINGDON PA
*     01560000,400418,782934,UNKNOWN,DUNNING CK 2 BELDEN PA
*     01565000,403915,773500,UNKNOWN,KISHACOQUILLIS CK @ REEDSVILLE PA
*     01567000,402842,770746,UNKNOWN,JUNIATA R. @ NEWPORT PA
*     01567500,402215,772409,UNKNOWN,BIXLER RUN NEAR LOYSVILLE PA
*     01568000,401924,771009,UNKNOWN,SHERMANS CK @ SHERMANS DALE PA
*     01570500,401517,765311,UNKNOWN,SUSQUEHANNA R. @ HARRISBURG PA
*     01571500,401329,765354,UNKNOWN,YELLOW BREECHES CK NEAR CAMP HILL PA
*     01573000,402409,763439,UNKNOWN,SWATARA CK @ HARPER TAVERN PA
*     01574000,400455,764310,UNKNOWN,W. CONEWAGO CK. NEAR  MANCHESTER PA
*     01575000,395514,764457,UNKNOWN,SOUTH BR. CODORUS CK NEAR YORK PA
*     01576500,400300,761639,UNKNOWN,CONESTOGA CK @ LANCASTER PA
*     01562000,401257,781556,UNKNOWN,RAYSTOWN BR. JUNIATA R. @ SAXTON PA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C,NONE,WATER TEMPERATURE
*     FLOW,CFS,NONE,MEAN AVG. FLOW
*     SCOND,UHMOS,NONE,SPECIFIC CONDUCTANCE
*     SUSPSED,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     BEDLOAD.25,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <0.25MM
*     BEDLOAD.50,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <0.50MM
*     BEDLOAD1.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <1.0MM
*     BEDLOAD2.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <2.0MM
*     BEDLOAD4.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <4.0MM
*     BEDLOAD8.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <8.0MM
*     BEDLOAD16.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <16.0MM
*     BEDLOAD32.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <32.0MM
*     BEDLOAD64.0,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <64.0MM
*     BEDLOAD128,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <128.0MM
*     BEDLOAD256,% FINER THAN MM,NONE,BEDLOAD SEDIMENT SIEVE DIAM. % <256.0MM
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CBP.REPORT8

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*TI:  SUSPENDED SEDIMENT DISCHARGE IN FIVE STREAMS NEAR HARRISBURG, PA,
*     BEFORE, DURING, AND AFTER HIGHWAY CONSTRUCTION
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  LLOYD A. REED 717/782-3732
*PE:  OCT 1969-SEPT 1976
*GE:  SUSQUEHANNA RIVER BAISN, CONODOGUINET CK. BASIN
*GL:  MIN. LAT:  401712  LONG. 765642
*     MAX. LAT:  401830  LONG. 770100
*AB:  COLLECTION OF SEDIMENT AND STREAM FLOW DATA TO EVALUATE EFFECTS OF
*     HIGHWAY CONSTRUCTION ON SUSPENDED SEDIMENT DISCHARGES IN STREAMS.  MOST
*     EFFECTIVE SEDIMENT CONTROL WAS OFF-STREAM PONDS.  SAMPLES COLLECTED EVERY
*     15 MINUTES DURING STORMS AND TWICE WEEKLY DURING BASEFLOW.
*ST:  STATION,LAT,LONG,RIVER MILE, DESCRIPTION
*     01570100,401727,765938,UNKNOWN,CONODOGUINET CK. TRIB #1 NEAR ENOLA
*     01570200,401721,765835,UNKNOWN,CONODOGUINET CK. TRIB #2 NEAR ENOLA
*     01570300,401805,765657,UNKNOWN,CONODOGUINET CK. TRIB #3 @ ENOLA
*     01570230,401744,765755,UNKNOWN,CONODOGUINET CK. TRIB #2A NEAR ENOLA
*     01570260,401747,765751,UNKNOWN,CONODOGUINET CK. TRIB #2B NEAR ENOLA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,MEAN DAILY FLOW
*     MSEDCONC,MG/L,NONE,MEAN SUSPENDED SEDIMENT CONCENTRATION
*     SEDLOAD,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     SUSSED,MG/L,NONE,SUSPENDED SEDIMENT
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*TI:  ENVIRONMENTAL MONITORING & SURVEILLANCE PROGRAM:  A REPORT OF AQUATIC
*     ECOLOGY STUDIES CONDUCTED IN THE VICINITY OF FOUR POWER PLANTS BY
*     BIOLOGISTS FROM PENNSYLVANIA POWER & LIGHT COMPANY AND PENNSYLVANIA
*     DEPARTMENT OF ENVIRONMENTAL RESOURCES.
*DS:  PPL/DER.BRUNNER1
*RR:  PPL/DER.BRUNNER2
*PI:  DEPARTMENT OF ENVIRONMENTAL RESOURCES
*PO:  BUREAU OF WATER QUALITY MANAGEMENT
*     200 NORTH 3RD ST.
*     HARRISBURG, PA
*     717/787-2666
*PR:  ROBERT J. SCHOTT, DER; G.G. MILLER, DER; P.E. BRONNER, DER;
*     R.B. DOMERMUTH, PP&L; W.F. SKINNER, PP&L.
*PE:  NOVEMBER 1980-1981
*GE:  SUSQUEHANNA RIVER BASIN, BRUNNER ISLAND S.E.S., LANCASTER COUNTY
*GL:  MIN. LAT. 400330 LONG. 763900
*     MAX. LAT. 400800 LONG. 764300
*AB:  A COOPERATIVE AND ON-GOING MONITORING AND SURVEILLANCE STUDY
*     CONCENTRATING ON WATER QUALITY, FISH AND MACROINVERTEBRATE SAMPLING.
*     OBJECTIVE WAS TO DETERMINE THE IMPACT OF NORMAL PLANT OPERATIONS UPON THE
*     AQUATIC ENVIRONMENT.  DATA WAS COLLECTED SEASONALLY TO FORM A BASELINE
*     FOR ASSESSING CHRONIC EFFECTS OF NORMAL PLANT OPERATIONS.
*ST:  STATION,LAT,LONG,RIVER MILE,DESCRIPTION
*     BRUNNER01,400639,764232,UNKNOWN,N. BRUNNER IS. BELOW CONEWAGO CK.
*     BRUNNER02,400755,764257,UNKNOWN,OFF PUBLIC ACCESS S. CONEWAGO FALLS
*     BRUNNER03,400527,764113,UNKNOWN,CONFLUENCE OF RIVER AND THERMAL DISCHRG.
*     BRUNNER04,400558,764108,UNKNOWN,MIDCHANNEL @ N. TIP OF HALDEMANN IS.
*     BRUNNER05,400435,764036,UNKNOWN,S. BRUNNER IS. ABOVE BLACK GUT R.
*     BRUNNER06,400508,764010,UNKNOWN,EAST SHORE DOWNSTREAM OF BAINBRIDGE
*     BRUNNER07,400339,763919,UNKNOWN,WEST SHORE S. TIP OF ELY IS.
*     BRUNNER08,400434,763935,UNKNOWN,ADJACENT TO QUARRY AREA @ LOCUST GROVE
*     BRUNNER9A,400408,763943,UNKNOWN,MIDCHANNEL @ N. TIP OF ELY IS.
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C,NONE,WATER TEMPERATURE
*     PH,S.U.,NONE,PH IN FIELD
*     DO,MG/L,NONE,DISSOLVED OXYGEN
*     SCOND,UMHOS/CM,NONE,CONDUCTIVITY IN FIELD
*     PHLAB,S.U.,NONE,PH IN LAB @ 25C
*     SCONDLAB,UMHOS/CM,NONE,CONDUCTIVITY IN LAB @ 25C
*     TRES,MG/L,NONE,TOTLAL RESIDUE
*     NFRES,MG/L,NONE,NON-FILTERED RESIDUE
*     FRES,MG/L,NONE,FILTERABLE RESIDUE
*     CHARD,MG/L,471341,HARDNESS @ CACOS
*     TFE,MG/L,7439896,TOTAL IRON
*     DFE,MG/L,7439896,DISSOLVED IRON
*     TMN,MG/L,7439965,TOTAL MANGANESE
*     DMN,MG/L,7439965,DISSOLVED MANGANESE
*     TCU,MG/L,7440508,TOTAL COPPER
*     DCU,MG/L,7440508,DISSOLVED COPPER
*     TZN,MG/L,7440666,TOTAL ZINC
*     DZN,MG/L,7440666,DISSOLVED ZINC
*     TAL,MG/L,7429905,TOTAL ALUMINUM
*     DAL,MG/L,7429905,DISSOLVED ALUMINUM
*     TAS,MG/L,7440392,TOTAL ARSENIC
*     DAS,MG/L,7440382,DISSOLVED ARSENIC
*     TSE,MG/L,7782429,TOTAL SELENIUM
*     DSE,MG/L,7782429,DISSOLVED SELENIUM
DATA PPL/DER.BRUNNER1;
 INPUT @1 STATION $9. @10 DATE YYMMDD6. @16 WTEMP 4.1 @20 PH 4.2 @24 DO 4.2
       @28 SCOND 3.0 @31 PHLAB 4.2 @35 SCONDLAB 3.0 @38 TRESIDUE 3.0
       @41 NFRESIDUE 3.0 @44 FRESIDUE 3.0 @47 CHARD 3.0 @50 TFE 4.2 @54 DFE $5.
       @59 TMN 4.2 @63 DMN $5. @68 TCU 4.2 @72 DCU $5.;
 CARDS;
BRUNNER0181061823.57.207.702007.5523040406439208 21.33=0.290.12=0.050.01(0.01
BRUNNER0281061824.58.007.202737.2023524605222408 42.41=0.120.38=0.040.01(0.01
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CBP.REPORT9A

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BRUNNER0481061824.07.907.901907.3015516001215815 61.27<0.050.27=0.050.01<0.01
BRUNNER0681061825.08.007.50    7.452252340101320811.60=0.050.26=0.020.01<0.01
BRUNNER0881061827.08.207.901637.45230          0812.30=0.120.35=0.020.02<0.01
BRUNNER0381061834.57.706.702357.5527526405818808 12.32=0.140.18=0.050.01<0.01
BRUNNER0581061833.07.206.603207.6022531209014208 52.55=0.130.20=0.030.01<0.01
BRUNNER0781061830.08.106.402307.6021025004412207 81.31=0.050.13=0.020.01<0.01
BRUNNER0181090122.27.457.402707.55243    1721560863.18=0.090.27=0.010.02=0.01
BRUNNER0281090123.28.407.203528.15378    0142601540.37<0.050.22<0.010.01<0.01
BRUNNER0481090123.28.558.003308.30375    0222561540.51<0.050.22<0.010.01<0.01
BRUNNER0681090123.58.907.803308.45362    0122461450.36<0.050.18<0.010.01<0.01
BRUNNER0881090123.08.756.003158.50335    0022461370.37<0.050.18<0.010.01<0.01
BRUNNER0381090134.08.656.303687.80312    0702001221.53=0.060.22=0.030.01=0.01
BRUNNER0581090126.07.806.703427.95355    0022401400.41<0.050.14=0.030.01<0.01
BRUNNER0781090128.07.656.20    7.70325    0262081240.81<0.050.28=0.070.01<0.01
;
DATA PPL/DER.BRUNNER2;
 INPUT @1 STATION $9. @10 DATE YYMMDD6. @16 TZN 4.2 @20 DZN 4.2
       @24 TAL $4. @28 DAL $4. @32 TAS $6. @38 DAS $7.
       @45 TSE $5. @50 DSE $5.;
 CARDS;
BRUNNER018106180.030.01=0.7<0.3<0.010<0.0100<0.01<0.01
BRUNNER028106180.050.02=0.7<0.3<0.010<0.0100<0.01<0.01
BRUNNER048106180.030.02=0.5<0.3<0.010<0.0100<0.01<0.01
BRUNNER068106180.020.02=0.5<0.3<0.010<0.0100<0.01<0.01
BRUNNER088106180.030.01=0.7<0.3<0.010<0.0100<0.01<0.01
BRUNNER038106180.030.01=1.2<0.3<0.010<0.0100<0.01<0.01
BRUNNER058106180.020.02=1.4<0.3<0.010<0.0100<0.01<0.01
BRUNNER078106180.020.01=0.7<0.3<0.010<0.0100<0.01<0.01
BRUNNER018109010.020.02=1.9<0.3=0.008=0.0068<0.01<0.01
BRUNNER028109010.010.01<0.3<0.3<0.005<0.0050<0.01<0.01
BRUNNER048109010.020.01<0.3<0.3<0.005<0.0050<0.01<0.01
BRUNNER068109010.020.01<0.3<0.3<0.005<0.0050<0.01<0.01
BRUNNER088109010.020.01<0.3<0.3<0.010<0.0050<0.01<0.01
BRUNNER038109010.060.05=0.7<0.3<0.005<0.0050<0.01<0.01
BRUNNER058109010.020.01<0.3<0.3=0.025=0.0197<0.01<0.01
BRUNNER078109010.020.01=0.3<0.3=0.011=0.0098<0.01<0.01
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*TI:  ENVIRONMENTAL MONITORING & SURVEILLANCE PROGRAM:  A REPORT OF AQUATIC
*     ECOLOGY STUDIES CONDUCTED IN THE VICINITY OF FOUR POWER PLANTS BY
*     BIOLOGISTS FROM PENNSYLVANIA POWER & LIGHT COMPANY AND PENNSYLVANIA
*     DEPARTMENT OF ENVIRONMENTAL RESOURCES
*DS:  PPL/DER.SUNBURY1                                          CBP.REPORT9B
*RR:  PPL/DER.SUNBURY2
*PI:  DEPARTMENT OF ENVIRONMENTAL RESOURCES
*PO:  BUREAU OF WATER QUALITY MANAGEMENT
*     200 NORTH 3RD
*     HARRISBURG, PA.
*     717-787-2666
*PR:  ROBERT J. SCHOTT, DER; G.G. MILLER, DER; P.E. BRONNER, DER; R.B.
*     DONIERMUTH, PP&L; W.F. SKINNER, PP&L
*PE:  NOVEMBER 1980-1981
*GE:  SUSQUEHANNA RIVER BASIN, SUNBURY S.E.S., NORTHUMBERLAND COUNTY
*GL:  MIN. LAT. 404830  LONG. 764900
*     MAX. LAT. 405050  LONG. 765100
*AB:  A COOPERATIVE AND ONGOING MONITORING AND SURVEILLANCE STUDY CONCEN-
*     TRATING ON WATER QUALITY, FISH AND MACROINVERTEBRATE SAMPLING.  OBJEC-
*     TIVE WAS TO DETERMINE THE IMPACT OF NORMAL PLANT OPERATIONS UPON THE
*     AQUATIC ENVIRONMENT.  DATA WAS COLLECTED SEASONALLY TO FORM A BASELINE
*     FOR ASSESSING CHRONIC EFFECTS OF NORMAL PLANT OPERATIONS.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     SUNBURY01,405048,764848,UNKNOWN,W. SHORE @ PUBLIC ACCESS AREA NR. STP
*     SUNBURY02,405009,764932,UNKNOWN,W. SHORE BELOW OF SNSES THERMAL DISCHRG
*     SUNBURY03,404954,764927,UNKNOWN,W. SHORE OF BYERS IS. UDR TRANS. LINES
*     SUNBURY04,404939,765002,UNKNOWN,@ CONFLUENCE OF ROLLING GREEN RUN & RIVER
*     SUNBURY05,404843,765049,UNKNOWN,W. SHORE @ N. TIP OF ISLE OF QUE
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C,NONE,WATER TEMPERATURE
*     PH,S.U.,NONE,PH IN FIELD
*     DO,MG/L,NONE,DISSOLVED OXYGEN
*     SCOND,UMHOS/CM,NONE,CONDUCTIVITY IN FIELD
*     PHLAB,S.U.,NONE,PH IN LAB @ 25C
*     SCONDLAB,UMHOS/CM,NONE,CONDUCTIVITY IN LAB @ 25C
*     TRES,MG/L,NONE,TOTLAL RESIDUE
*     NFRES,MG/L,NONE,NON-FILTERED RESIDUE
*     FRES,MG/L,NONE,FILTERABLE RESIDUE
*     CHARD,MG/L,471341,HARDNESS @ CACOS
*     TFE,MG/L,7439896,TOTAL IRON
*     DFE,MG/L,7439896,DISSOLVED IRON
*     TMN,MG/L,7439965,TOTAL MANGANESE
*     DMN,MG/L,7439965,DISSOLVED MANGANESE
*     TCU,MG/L,7440508,TOTAL COPPER
*     DCU,MG/L,7440508,DISSOLVED COPPER
*     TZN,MG/L,7440666,TOTAL ZINC
*     DZN,MG/L,7440666,DISSOLVED ZINC
*     TAL,MG/L,7429905,TOTAL ALUMINUM
*     DAL,MG/L,7429905,DISSOLVED ALUMINUM
*     TAS,MG/L,7440392,TOTAL ARSENIC
*     DAS,MG/L,7440382,DISSOLVED ARSENIC
*     TSE,MG/L,7782429,TOTAL SELENIUM
*     DSE,MG/L,7782429,DISSOLVED SELENIUM
DATA PPL/DER.SUNBURY1;
 INPUT @1 STATION $9. @10 DATE YYMMDD6. @16 WTEMP 4.1
       @20 PH 4.2 @24 DO 4.2 @28 SCOND 3.0 @31 PHLAB 4.2
       @35 SCONDLAB 3.0 @38 TRESIDUE 3.0 @41 NFRESIDUE 3.0
       @44 FRESIDUE 3.0 @47 CHARD 3.0 @50 TFE 4.2
       @54 DFE $5. @59 TMN 4.2 @63 DMN 5.2 @68 TCU $5. @73 DCU $5.;
 CARDS;
SUNBURY0181091622.08.409.752007.452242000061900840.28<0.050.1200.07<0.01<0.01
SUNBURY0381091621.08.358.303158.503492380362581290.96<0.050.2700.01=0.01<0.01
SUNBURY0281091626.87.608.352237.352211680081540830.33<0.050.1500.08<0.01<0.01
SUNBURY0481091624.57.608.202307.402541760061740780.32<0.050.1700.11<0.01<0.01
SUNBURY0581091625.07.608.002177.352361880161800780.36<0.050.1700.08<0.01<0.01
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DATA PPL/DER.SUNBURY2;
 INPUT @1 STATION $9. @10 DATE YYMMDD6.
       @16 TZN 4.2 @20 DZN 4.2 @24 TAL $4.
       @28 DAL $4. @32 TAS $6. @38 DAS $6.
       @44 TSE $5. @49 DSE $5.;
 CARDS;
SUNBURY018109160.010.02<0.3<0.3<0.005<0.005<0.01<0.01
SUNBURY038109160.010.01<0.3<0.3<0.005<0.005<0.01<0.01
SUNBURY028109160.010.01<0.3<0.3<0.005<0.005<0.01<0.01
SUNBURY048109160.010.01<0.3<0.3<0.005<0.005<0.01<0.01
SUNBURY058109160.020.01<0.3<0.3<0.005<0.005<0.01<0.01
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*TI:  A WATER QUALITY INVESTIGATION OF THE CODORUS CREEK WATERSHED
*DS:  IN STORET, AGENCY CODE:  1113VABD
*RR:  NONE
*PI:  ENVIRONMENTAL PROTECTION AGENCY                          CBP.REPORT10
*PO:  FIELD INVESTIGATION SECTION
*     SURVEILLANCE & ANALYSIS DIVISION
*     REGION III
*     PHILADELPHIA, PA
*PR:  ERNEST A. KAEUFER, P.E.
*PE:  AUGUST 18, 1971-NOVEMBER 12, 1971
*GE:  SUSQUEHANNA RIVER BASIN, CODORUS CREEK WATERSHED
*GL:  MAX LAT. 400500  LONG. 770000
*     MIN LAT. 394000  LONG. 760300
*AB:  THE WATER QUALITY STUDY WAS INITIATED TO DETERMINE EXISTING CONDITIONS
*     OF THE CODORUS CK. WATERSHED NECESSARY TO ESTABLISH A WASTEWATER
*     MANAGEMENT PLAN.  THE STUDY'S OBJECTIVE WAS TO:  1) ESTABLISH BASE-LINE
*     RECORD OF WATER QUALITY, 2) DETERMINE CHARACTERISTICS AND RATES OF
*     NATURAL PURIFICATION OF CODORUS CK. AND ITS TRIBUTARIES, 3) DETERMINE
*     PATTERNS OF POLLUTION DOWNSTREAM FROM WASTE DISCHARGE, 4) ESTIMATE
*     WASTE ASSIMILATION CAPACITIES, AND 5) ESTIMATE WASTE REDUCTIONS NECES-
*     SARY TO MEET WATER QUALITY REQUIREMENTS.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     COR001,400307,763853,0.6,CODORUS CK. NR. CODORUS FURNACE
*     COR005,400106,764141,5.0,CODORUS CK. NR. GLADES
*     COR005(STP),400107,764120,4.8,SPRINGETTSBURY STP OUTFALL TO CODORUS CK.
*     COR007,400039,764238,6.7,CODORUS CK. NR. EMIGSVILLE
*     COR009(STP),395917,764343,9.0,YORK STP OUTFALL TO CODORUS CK.
*     COR001,395817,764343,10.6,CODORUS CK. @ YORK BRIDGE I-83
*     COR014,395601,764517,14.4,CODORUS CK. NR. WEST YORK
*     WC0016,395521,76451112,16.2,W. BR. CODORUS CK. NR. INDIAN ROCK DAM
*     WC0019,395516,764753,18.7,W. BR. CODORUS CK. NR. NEW SALEM
*     WC0022,395345,764845,21.8,W. BR. CODORUS CK. NR. STOVERSTOWN
*     WC0024,395314,765012,23.7,W. BR. CODORUS CK. NR. NASHVILLE
*     WC0025(IWP),395242,765047,24.5,P.H. GLATFELTER INDUSTRIAL OUTFALL
*     WC0026(STP),395224,765134,25.8,SPRING GROVE STP OUTFALL
*     WC0027,395202,765211,26.2,W. BR. CODORUS CK. SOUTH OF SPRING GROVE
*     WC0028,395146,765321,28.1,W. BR. CODORUS CK. @ MENGES MILLS
*     WC0033,394914,765238,32.6,W. BR. CODORUS CK. NR. CODORUS STATE PARK
*     WC0034,394838,765226,33.6,E. BR. OF W BR CODORUS CK NR CODORUS STATE PARK
*     SC0000,395512,764457,0.3,S. BR. OF CODORUS CK. @ YORK CO. PUMPING STATION
*     SC0007,395118,764617,7.2,S. BR. OF CODORUS CK. @ SEVEN VALLEYS
*     SC0014,394910,764537,14.4,S. BR. CODORUS CK. NR. LARUE
*     SC0015(STP),UNKNOWN,UNKNOWN,15.7,GLEN ROCK STP OUTFALL
*     SC0016,394735,764356,16.3,S. BR. CODORUS CK. @ GLEN ROCK
*     EC0000,395343,764435,0.05,E. BR. CODORUS CK. @ REYNOLDS MILL
*     MIL000,395856,764326,0.01,MILL CK. IN N. YORK
*     MIL008,395436,763805,9.3,MILL CK. IN YORK
*     MIL009(STP),395408,763716,9.1,RED LION STP OUTFALL
*     OIL000,395148,765332,0.2,OIL CK. @ MENGES MILLS
*     OIL005,394909,765648,4.8,OIL CK. NR. YORK RD.
*     OIL006(STP),UNKNOWN,UNKNOWN,6.0,PENN TWP. STP OUTFALL
*PA:  PARAMETER.UNITS,CAS CODE,LABEL
*     PH,SU,NONE,pH IN FIELD
*     ALK,MG/L,NONE,ALKALINITY AS CACO3
*     SCOND,UHOMS,NONE,CONDUCTIVITY
*     COLOR,SU,NONE,COLOR UNITS
*     TURBID,JTU,NONE,TURBIDITY
*     WTEMP,DEGC,NONE,WATER TEMPERATURE
*     TORGC,MG/L,7440440,TOTAL ORGANIC CARBON
*     COD,MG/L,NONE,CARBONACEOUS OXYGEN DEMAND
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     STREAM,CFS,NONE,INSTANTANEOUS STREAMFLOW
*     TKN,MG/L,17778880,TOTAL KJELDAHL NITROGEN
*     TORGN,MG/L,17778880,TOTAL ORGANIC NITROGEN
*     TAMMONIA,MG/L,17778880,TOTAL AMMONIA AS N
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*     TNO2,MG/L,17778880,TOTAL NITRATE AS N
*     TNO3,MG/L,17778880,TOTAL NITRATE AS N
*     TP,MG/L,7723140,TOTAL PHOSPHORUS AS P
*     TORTHROP,MG/L,7723140,ORTHOPHOSPHATE AS P
*     TSOLID,MG/L,NONE,TOTAL SOLIDS
*     SSOLID,MG/L,NONE,SUSPENDED SOLIDS
*     DSOLIDS,MG/L,NONE,DISSOLVED SOLIDS
*     TFE,MG/L,7439896,TOTAL IRON
*     TCU,MG/L,7440508,TOTAL COPPER
*     TZN,MG/L,7440666,TOTAL ZINC
*     TMN,MG/L,7439965,TOTAL MANGANESE
*     TAL,MG/L,7429905,TOTAL ALUMINUM
*     TCA,MG/L,7440702,TOTAL CALCIUM
*     TMG,MG/L,7439954,TOTAL MAGNESIUM
*     THG,UG/L,7439976,TOTAL MERCURY
*     TCL,MG/L,16887006,TOTAL CHLORIDES
*     TSO4,MG/L,14808798,TOTAL SULFATE
*     TANLIG,MG/L,9005532,TANNINS + LIGNINS
*     CLRES,MG/L,7782505,TOTAL CHLORINE RESIDUES
*     BOD1,MG/L,NONE,2-DAY BOD
*     BOD5,MG/L,NONE,5-DAY BOD
*     BOD7,MG/L,NONE,7-DAY BOD
*     BOD8,MG/L,NONE,8-DAY BOD
*     BOD10,MG/L,NONE,10-DAY BOD
*     BOD11,MG/L,NONE,11-DAY BOD
*     BOD14,MG/L,NONE,14-DAY BOD
*     BOD17,MG/L,NONE,17-DAY BOD
*     BOD20,MG/L,NONE,20-DAY BOD
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*TI:  WATER QUALITY OF THE SWATARA CREEKK BASIN, PA.
*DS:  SWATARA.USGS1A
*RR:  SWATARA.USGS1B
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  WATER QUALITY BRANCH
*     FED. BLDG.
*     HARRISBURG, PA. 17108
*PR:  E.F. MCCARREN, J.W. WARK, AND J.R. GEORGE
*PE:  1959
*GE:  SUSQUEHANNA RIVER BASIN, SWATARA CK BASIN
*GL:  MIN LAT. 400800  LONG. 760900
      MAX LAT. 404400  LONG. 770000
*AB:  SWATARA CREEK IS THE FARTHEST DOWNSTREAM SUBBASIN THAT DRAINS ACID
*     WATER FROM ANTHRACITE COAL MINES. SAMPLES WERE COLLECTED DURING HIGH
*     AND LOW FLOWS AND ANALYZED FOR COMMON DISSOLVED PROPERTIES OF WATER.  THE
*     HYDROLOGIC PROCESSES OF DILUTION, CHANGES IN CHEMICAL COMPOSITION OF MINE
*     OVERFLOW WATER, AND THE NEUTRALIZATION OF THE ACID SEGMENTS OF SWATARA
*     CREEK WERE OBSERVED.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     SWA01,401200,764300,UNKNOWN,SWATARA CK @ MIDDLETOWN
*     BEV01,401553,764359,UNKNOWN,BEAVER CK @ HUMMELSTOWN
*     SPR01,401700,764045,UNKNOWN,SPRING CK NR. UNION DEPOSIT
*     MAN01,401822,764010,UNKNOWN,MANADA CK @ SAND BEACH
*     QUI01,402059,763557,UNKNOWN,QUITTAPAHILLA CK @ SYNER
*     SWA02,402445,762945,UNKNOWN,SWATARA CK @ JONESTOWN
*     LSW01,402446,762702,UNKNOWN,LITTLE SWATARA CK NR. JONESTOWN
*     LSW02,402607,761801,UNKNOWN,LITTLE SWATARA CK NR. MT. AETNA
*     FIS01,403138,762803,UNKNOWN,FISHING CK NR. SUEDBERG
*     LLS01,403213,762242,UNKNOWN,LOWER LITTLE SWATARA CK @ MARSTOWN
*     ULS01,403354,762206,UNKNOWN,UPPER LITTLE SWATARA CK NR. PINE GROVE
*     SWA03,403428,762410,UNKNOWN,SWATARA CK @ RAVINE
*     LOR01,403515,762536,UNKNOWN,LOREERRY CK @ LOREERRY JUNCTION
*     LRH01,403534,762441,UNKNOWN,LOWER RAUSCH CK @ RAUSCH
*     BLK01,403530,762336,UNKNOWN,BLACK CK NR. TREMONT
*     GSP01,403744,762315,UNKNOWN,GOOD SPRING RUN NR. TREMONT
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,MEAN DISCHARGE
*     WTEMP,DEGF,NONE,TEMPERATURE OF WATER
*     SIO2,PPM,7631869,SILICA
*     TAL,PPM,7429905,ALUMINUM
*     TFE,PPM,7439896,IRON
*     TMN,PPM,,MANGANESE
*     TMG,PPM,7439954,MAGNESIUM
*     TNA,PPM,7440235,SODIUM
*     TK,PPM,7440097,POTASSIUM
*     HCO3,PPM,71523,BICARBONATE
*     TSO4,PPM,14808798,SULFATE
*     TCL,PPM,16887006,CHLORIDES
*     TF,PPM,16984488,FLUORIDE
*     TNO3,PPM,17778880,NITRATE
*     DSOLIDS,PPM,NONE,DISSOLVED SOLIDS RESIDUE @ 180 DEGREES C.
*     CHARD,PPM,471341,CARBONATE HARDNESS
*     NCHARD,PPM,471341,NONCARBONATE HARDNESS
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTIVITY
*     PH,S.U.,NONE,pH IN FIELD
*     COLOR,S.U.,NONE,COLOR
*     DO,PPM,7782447,DISSOLVED OXYGEN
DATA SWATARA.USGS1A;
 INPUT @1 STATION $5. @6 DATE YYMMDD6. @12 FLOW 6.1 @18 WTEMP 2.0
       @20 SIO2 4.1 @24 TAL 3.1 @27 TFE 4.2 @31 TMN 4.2 @35 TCA 4.1
       @39 TMG 4.1 @43 TNA 4.1 @47 TK 3.1 @50 HCO3 3.0 @53 SO4 5.1
       @58 TCL 4.1 @62 TF 3.1 @65 NO3 4.1 @69 RESIDUE 3.0
       @72 CHARD 3.0 @75 NCHARD 3.0;
 CARDS;
SWA01580425116 0.06407.1   0.050.0024.005.203.21.7059034.003.50.206.4135082033
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CBP.REPORT11

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SWA015807170456.07607.1   0.020.0036.005.205.53.0094036.007.0   09.0170112035
SWA015904230502.05805.2   0.140.0424.005.804.01.6057034.004.50.014.0126084038
SWA01590822       84                                120044.0                142
SWA015908270427.08007.1   0.030.0024.007.207.43.8096032.007.30.208.8172115036
SWA01590829       76                                090044.0                116
SWA01590905       66                                043033.0                069
SWA01590912       57                                073041.0                102
SWA01590919       48                                114054.0                148
SWA01590926       65                                116059.0                154
SWA01591003       64                                042040.0                073
SWA015910070220.07407.2   0.000.0033.008.408.83.0080050.007.60.106.9167117052
SWA01591010       57                                103046.0                116
SWA01591017       53                                089058.0                132
SWA01591024       64                                050053.0                090
SWA01591101                                         054042.0                090
SWA01591114       57                                061048.0                100
SWA01591128       42                                057043.0                092
SWA01591128       44                                060035.0                086
MAN015804250033.660                                 025009.101.8   01.1   027007
MAN015807170081.274                                 035007.102.0   02.1   034006
MAN015904230028.45108.6   0.070.0208.402.702.51.0030007.101.90.003.9054032008
MAN015908270021.77707.5   0.060.0016.003.503.32.5056013.004.00.202.9090055009
MAN015910070002.4  03.4   0.000.0014.003.803.82.0056019.004.00.101.4081051005
SPR015804250039.569                                 191027.007.0   22.0   200044
SPR015807170041.878                                 169031.009.1   14.0   180042
SPR015904230029.96512.0   0.040.0059.006.904.92.1170029.005.80.018.0217176036
SPR015908200037.58409.6   0.020.0056.007.707.44.5166032.007.90.216.0232171035
SPR015910060032.08108.6   0.000.0059.009.106.82.5167039.007.40.113.0231185048
BEV015804250022.864                                 073030.007.3   03.4   088028
BEV015807170007.571                                 105025.009.0   03.8   108022
BEV015904230017.55405.4   0.060.0225.006.605.81.5072028.006.80.109.6127090031
BEV015908270051.27609.8   0.090.0125.005.105.53.0070024.007.30.106.1138084026
BEV015910070003.6  05.9   0.010.0143.008.309.93.0133033.012.00.102.9182142033
SWA025804240423.15905.60.60.020.4907.304.901.90.8002041.001.0   00.9   043041
SWA025807160402.07807.90.40.000.0022.002.802.51.5004067.001.0   01.1   069065
SWA025904220286.06209.0   0.010.6709.606.601.80.9004049.001.20.001.7080051048
SWA025908270076.47706.9   0.060.0216.006.703.32.5006059.002.90.104.0135068063
SWA025910070082.07408.0   0.001.0015.009.105.01.8003079.003.40.102.9122075073
QUI015804250123.05711.0   0.010.0669.017.008.34.5198060.009.00.220.0313242030
QUI015807170088.36410.0   0.020.0074.012.010.04.8208059.011.0   18.0   234064
QUI015904220085.05907.9   0.040.0372.015.016.04.4206071.013.00.018.0321241072
QUI015908260047.26810.0   0.020.0078.015.018.06.0218078.015.00.124.0361256078
QUI015910070045.96810.0   0.010.0178.014.028.08.0218097.014.00.225.0370252074
LLS015804240077.758                                 008006.701.7   02.7   011005
LLS015807160042.074                                 012007.702.5   13.0   020010
LLS015904220038.54907.1   0.070.0104.001.702.10.5012002.401.80.007.3033017007
LLS015908260003.08006.8   0.020.0004.102.402.21.5022005.102.60.000.7048020002
LLS015910080013.76704.9   0.030.0004.902.704.01.5018009.503.20.104.4043023008
FIS015807160037.977                                 004012.000.5   00.3   010007
LSW025804240038.859                                 029014.002.4   02.5   035011
LSW025807160010.276                                 071011.003.8   03.9   067009
LSW025904220022.75007.5   0.160.0113.003.402.31.0036013.002.9   06.5069046017
LSW025908270020.37306.2   0.350.0920.003.603.35.0060015.004.80.106.8130065016
LSW025910080004.37404.9   0.020.0023.004.405.02.8082015.004.20.202.5101076009
LSW015804240139.05906.4   0.020.0317.002.703.01.5046016.002.80.405.0098054016
LSW015807160057.58010.0   0.000.0026.003.804.02.6080013.005.0   07.5120081015
LSW015904220073.25807.1   0.080.0117.004.403.51.4053015.003.60.009.6092061017
LSW015908270215.07706.8   0.270.0416.002.103.35.0039015.004.00.108.3111049017
LSW015910080024.07306.7   0.020.0229.004.006.73.2089018.003.00.107.0112089016
LRH01580424       58                                000277.003.5   00.3   237237
LRH01580716       67                                000337.001.1   00.1   280280
LRH015904210002.158       0.04                      002247.004.0   00.3367245244
LDR01580424       53                                000077.000.3   00.0   063063
LDR01580716       70                                002038.000.6   00.4   038037
LDR015904210014.323       0.03                      002080.001.0   00.1111066065
LDR015908260001.67511.0   0.010.4820.013.003.21.3004105.001.00.100.2164104100
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LOR015910070004.46410.01.00.012.0014.013.003.21.2000098.004.00.100.4147089089
SWA035904220114.05010.0   0.142.0046.002.201.80.8000134.002.00.000.3204124124
SWA035908260013.87612.04.30.103.6041.023.004.31.5000237.003.10.100.8369197197
SWA035910080028.16312.04.70.103.0036.027.003.21.5000252.002.00.100.3344201201
ULS015804240031.466                                 012006.901.9   03.8   016006
ULS015807160044.682                                 024005.502.1   00.9   021002
GSP015804240031.55810.04.50.0903.534.023.002.51.5000222.002.00.400.7342228228
GSP015807160011.47712.02.50.2100.045.031.003.62.0000273.006.0   00.0   273273
GSP015904240010.256       0.06                      000148.002.0   00.1225128128
GSP015908260001.77518.04.82.3003.539.030.003.52.0000276.003.80.200.5448221221
GSP015910080004.66513.05.20.2202.934.028.005.02.0000268.003.00.200.2360200200
BLK01590424       53       0.07                         005.101.0   00.2048011000
;
DATA SWATARA.USGS1B;
 INPUT @1 STATION $5. @6 DATE YYMMDD6. @12 SCOND 4.0
       @16 PH 4.2 @20 COLOR 3.0 @23 DO 4.1;
 CARDS;
GSP015804240536 3.50003
GSP015807160662 3.45005
GSP015904240392 4.0000208.4
GSP015908260690 3.20003
GSP015910080651 3.35005
LRH015804240664 3.40002
LRH015807160758 3.50003
LRH015904210526 4.7000205.4
LOR015804240195 4.05002
LOR015807160109 5.10027
LOR015904210181 4.7000304.4
LOR015908260241 6.10005
LOR015910070240 4.15002
SWA035904220338 4.1000309.8
SWA035908260557 3.60002
SWA035910080585 3.45003
ULS015804240047 6.90003
ULS015907160061 6.60005
LLS015804240039 6.10003
LLS015807160063 6.10080
LLS015904220043 7.1000210.8
LLS015908260053 6.70003
LLS015910080078 6.50003
FIS015807160039 5.90004
LSW025804240089 6.70007
LSW025807160159 7.10017
LSW025904220095 7.9000311.1
LSW025908270155 6.90110
LSW025910080183 7.40003
LSW015804240129 6.70007
LSW015807160186 7.00005
LSW015904220133 8.1000410.1
LSW015908270134 6.70110
LSW015910080237 7.30002
SWA025804240102 4.90002
SWA025807160169 5.40003
SWA025904220127 5.4000209.1
SWA025908270175 5.80017
SWA025910070190 5.50003
QUI015804250482 7.50004
QUI015807170502 7.30005
QUI015904220511 7.9000310.1
QUI015908260560 7.70005
QUI015910070590 7.40006
MAN015804250068 6.80003
MAN015807170085 6.90040
MAN015904230074 7.8000309.7
MAN015908270136 7.40020
MAN015910070152 6.80003
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SPR0158042504067.50003
SPR0158071703827.60005
SPR0159042303658.0000508.8
SPR0159082003787.40007
SPR0159100603887.50003
BEV0158042502037.00004
BEV0158071702587.50015
BEV0159042302018.5000210.2
BEV0159082702066.80023
BEV0159100703287.70008
SWA0158042501916.90007
SWA0158071702656.80008
SWA0159042302007.4000310.0
SWA0159082203277.30
SWA0159082702717.20010
SWA0159082902707.20
SWA0159090501726.90
SWA0159091202427.30
SWA0159091903367.60
SWA0159092603497.60
SWA0159100301807.00
SWA0159100702707.20
SWA0159101002637.20
SWA0159101703037.20
SWA0159102402276.90
SWA0159110102136.80
SWA0159111402357.10
SWA0159112102147.10
SWA0159112802096.20
;
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*TI:  PROGRESS REPORT OF HYDROLOGY AND SEDIMENTATION IN BIXLER RUN, COREY
*     CREEK, AND ELK RUN WATERSHEDS, PENNSYLVANIA
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  WATER QUALITY
*     FEDERAL BUILDING
*     HARRISBURG, PA  17108
*PR:  J. K. CULBERTSON
*PE:  APRIL 1954 TO SEPTEMBER 1955
*GE:  SUSQUEHANNA RIVER BASIN, BIXLER RUN
*GL:  MIN LAT 403000  LONG 771900
*     MAX LAT 402800  LONG 773300
*AB:  HYDROLOGY AND SEDIMNETATION OF THREE SMALL WATERSHEDS WHERE SOIL
*     CONSERVATION PRACTICES ARE APPLIED.  WATER IN BIXLR RUN, COREY CREEK
*     AND ELK RUN WAS LOW IN DISSOLVED SOLIDS DURING STUDY. WATERS ARE OF
*     SECONDARY ALKALINE TYPE WITH CALCIUM AND MAGNESIUM BICARBONATE BEING
*     THE MAIN DISSOLVED CONSTITUENTS.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     01567500,402215,772409,2.3,BIXLER RUN NEAR LOYSVILLE
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     STREAM,CFS,NONE,INSTANTANEOUS DISCHARGE
*     CONC,MG/L,NONE,SEDIMENT CONCENTRATION
*     SEDSUS,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     WTEMP,DEG C,NONE,WATER TEMPERATURE
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CBP.REPORT12

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*TI:  HYDROLOGY AND SEDIMENTATION OF BIXLER RUN BASIN, CENTRAL PENNSYLVANIA
*OS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY                                  CBP.REPORT13
*PO:  FEDERAL BLDG.
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*     717/782-3732
*PR:  LLOYD A. REED
*PE:  FEBRUARY 1954 TO SEPTEMBER 1969
*GE:  SUSQUEHANNA RIVER BASIN, BIXLER RUN BASIN
*GL:  MIN LAT 407000  LONG 771900
*     MAX LAT 402800  LONG 773300
*AB:  RAINFALL, STREAMFLOW, STREAM CHEMICAL, AND SEDIMENT DISCHARGE DATA FROM
*     AN AGRICULTURAL AREA IN WHICH SOIL CONSERVATION TECHNIQUES WERE BEING
*     ADOPTED AT A MODERATE RATE.  SEDIMENT YIELDS AVERAGED 64 TONS PER
*     SQUARE MILE PER YEAR, APPROXIMATELY 25% LESS THAN YIELDS FROM THE
*     SURROUNDING AREA.  SOIL CONSERVATION MEASURES THAT WERE ADOPTED ARE
*     APPARENTLY LIMITING THE AMOUNT OF SEDIMENT AVAILABLE TO THE STREAM.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01567500,402215,772410,2.3,BIXLER RUN NEAR LOYSVILLE PA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C, NONE,WATER TEMPERATURE
*     STREAM,CFS,NONE,INSTANTANEOUS DISCHARGE
*     SEDSUS,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     CONC,MG/L,NONE,CONCENTRATION
*     SSED.002,MM,NONE,% FINER THAN .002 MM
*     SSED.004,MM,NONE,% FINER THAN .004 MM
*     SSED.008,MM,NONE,% FINER THAN .008 MM
*     SSED.016,MM,NONE,% FINER THAN .016 MM
*     SSED.031,MM,NONE,% FINER THAN .031 MM
*     SSED.062,MM,NONE,% FINER THAN .062 MM
*     SSED.125,MM,NONE,% FINER THAN .125 MM
*     SSED.250,MM,NONE,% FINER THAN .250 MM
*     SSED.500,MM,NONE,% FINER THAN .500 MM
*     SSED1.0,MM,NONE,% FINER THAN 1.00 MM
*     SSED2.0,MM,NONE,% FINER THAN 2.00 MM
*     FLOW,CFS,NONE,MEAN DISCHARGE
*     MSEDCONC,MG/L,NONE,MEAN CONCENTRATION
*     SEDLOAD,TONS,NONE,LOAD
*     SIO2,MG/L,7631869,TOTAL SILICA
*     TFE,MG/L,7439896,TOTAL IRON
*     TMN,MG/L,7439965,TOTAL MANGANESE
*     TCA,MG/L,7440702,TOTAL CALCIUM
*     TMG,MG/L,7439954,TOTAL MAGNESIUM
*     TNA,MG/L,7440235,TOTAL SODIUM
*     TK,MG/L,7440097,TOTAL POTASSIUM
*     HCO3,MG/L,71523,BICARBONATE
*     TSO4,MG/L,14808798,TOTAL SULFATE
*     TCL,MG/L,16887006,TOTAL CHLORIDES
*     TF,MG/L,16984488,TOTAL FLUORIDES
*     TNO3,MG/L,17778880,TOTAL NITRATES
*     DSOLIDS,MG/L,NONE,DISSOLVED SOLIDS
*     CHARD,MG/L,471341,CARBONATE HARDNESS AS CACO3
*     NCHARD,MG/L,471341,NONCARBONATE HARDNESS AS CACO3
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTIVITY
*     PH,S.U.,NONE,PH IN FIELD
*     COLOR,S.U.,NONE,COLOR
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CBP.REPORT14

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*TI:  SEDIMENT DISCHARGE OF CONESTOGA CK @ LANCASTER, PA.
*     JANUARY 1962 TO SEPTEMBER 1964
*DS:  IN STORET
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA.  17108
*PR:  KENNETH F. WILLIAMS
*PE:  JAN 1962 TO SEPT 1964
*GE:  SUSQUEHANNA RIVER BASIN, CONESTOGA CK
*GL:  MAX LAT. 402000  LONG. 762500
*     MIN LAT. 394800  LONG. 754700
*AB:  THE CONESTOGA CK DRAINS SOME OF THE MOST INTENSIVELY FARMED AND MOST
*     FERTILE LAND IN THE EASTERN UNITED STATES.  THIS STUDY WAS DESIGNED
*     SO THAT SUSPENDED SEDIMENT DATA COULD BE COLLECTED DURING DIRECT RUNOFF
*     EVENTS, WHEN A LARGE PART OF THE SEDIMENT IS CARRIED.  WEEKLY BASE FLOW
*     MEASUREMENTS WERE ALSO TAKEN.
*ST:  01576500,400300,761639,UNKNOWN,CONESTOGA RIVER @ LANCASTER, PA.
*PA:  FLOW,CFS,NONE,MEAN DISCHARGE
*     MSEDCONC,MG/L,NONE,MEAN SEDIMENT CONCENTRATION
*     SEDLOAD,TONS/DAY,NONE,SEDIMENT DISCHARGE
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CBP.REPORT15

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*TI:  WATER QUALITY EVALUATION OF LETORT SPRING RUN
*DS:  EPA.LETORT
*RR:  NONE
*PI:  U.S. ENVIRONMENTAL PROTECTION AGENCY
*PO:  REGION III
*     PHILADELPHIA, PA.
*PR:  EDWARD W. FURIA, REGIONAL ADMINISTRATOR
*PE:  OCT. 2, 1972 TO OCT. 3, 1972
*GE:  SUSQUEHANNA RIVER BASIN, LETORT SPRING RUN
*GL:  MIN LAT. 400730  LONG. 770730
*     MAX LAT. 401500  LONG. 771500
*AB:  BIOLOGICAL SURVEY AND CHEMICAL ANALYSES OF LETORT SPRING RUN TO DETERMINE
*     POTENTIAL QUANTITIES OF NUTRIENTS, PESTICIDES, METALS, ORGANIC MATERIAL,
*     GREASE, AND OILS IN THE STREAM
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     LETORT01,400939,771158,UNKNOWN,3000' UP FROM RTE 34 BRIDGE ON LETORT RUN
*     LETORT02,401006,771133,UNKNOWN,LETORT AT RTE 34 BRIDGE
*     LETORT03,401034,771108,UNKNOWN,LETORT @ BONNYBROOK FROM DOWNSTREAM BRDG.
*     LETORT04,401121,771111,UNKNOWN,LETORT @ 200' NORTH OF I-81
*     LETORT04,401203,771101,UNKNOWN,LETORT @ CARLISLE & RTE 641
*     LETORT06,401234,771048,UNKNOWN,LETORT @ CARLISLE 1ST BRDG. NE OF BORO BDY
*     LETORT07,401251,771011,UNKNOWN,LETORT ABOVE STP DISCHARGE
*     LETORT08,401250,771002,UNKNOWN,LETORT @ STP
*     LETORT09,401306,770936,UNKNOWN,LETORT @ HARMONY HALL SCHOOL
*     LETORT10,401333,770858,UNKNOWN,LETORT @ BRDG. BTWN EXIT16 & LETORT CHURCH
*     LETORT11,401405,770831,UNKNOWN,LETORT @ MOUTH & CONODOGUINET
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEGC,NONE,WATER TEMPERATURE
*     PH,S.U.,NONE,pH
*     TP,MG/L,7723140,TOTAL PHOSPHORUS
*     TKN,MG/L,17778880,TOTAL KJELHDAL NITROGEN
*     TNO3,MG/L,17779880,TOTAL NITRATE AS NITROGEN
*     BOD,MG/L,NONE,BIOLOCHEMICAL OXYGEN DEMAND
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     TURBID,JTU,NONE,TURBIDITY OF WATER SAMPLE
*     CHLORPHYLA,UG/L,479618,CHLOROPHYLL-a
DATA EPA.LETORT;
 INPUT @1 STATION $8. @9 DATE YYMMDD6. @15 TIME TIME5.
       @20 WTEMP 4.1 @24 PH 4.2 @28 TP 6.3 @34 TKN 6.3
       @40 NO3 4.2 @44 BOD 5.2 @49 DO 5.2 @54 TURBID 4.1
       @58 CHLORPHYLA 4.2;
 CARDS;
LETORT0172100210:1013.07.4500.03800.5195.1001.0809.19
LETORT0272100210:2012.07.3000.04700.4304.6500.7709.23
LETORT0372100210:3012.07.4000.05000.4294.1500.7810.40
LETORT0472100210:4011.07.6000.50500.3674.3500.9010.71
LETORT0572100210:4512.07.6000.07400.3674.3500.8110.8003.5
LETORT0672100211:1011.07.9000.06900.3314.4501.1510.6706.5
LETORT0772100211:3011.57.6000.08300.4664.5501.0809.4804.0
LETORT0872100212:0022.07.0035.90022.5701.2509.9205.8225.0
LETORT0972100211:4513.07.1002.76001.5224.4502.2004.1805.5
LETORT10721007      13.57.5002.18000.9904.4001.1806.13
LETORT1172100212:0013.07.4002.16000.7704.5501.0209.90
LETORT0172100212:2013.07.7000.10200.3595.6001.7309.17
LETORT0272100212:2014.07.4000.00600.3045.1501.5009.63
LETORT0372100212:3513.57.6000.05800.3225.0501.0610.84
LETORT0472100212:4013.07.6000.07700.3414.8501.0712.54
LETORT0572100212:5013.57.9000.12400.3694.75      12.3805.0
LETORT0672100213:0013.57.9000.09700.4144.4001.0811.9608.0
LETORT0772100212:1513.57.7000.12200.4334.7501.3910.2207.0
LETORT08721002      25.57.0037.60023.1200.9007.6004.7435.0
LETORT0972100213:4016.07.4004.49001.9674.8502.7204.6605.0
LETORT1072100213:5015.07.4003.82001.9624.8505.9005.78
LETORT1172100214:0015.07.6003.32000.9584.6001.6710.25
LETORT0172100314:3014.07.7000.07500.5375.40      08.99      6.00
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LETORT0272100314:3514.57.6000.08600.4665.00      09.72      3.00
LETORT0372100314:4014.57.6000.04400.4304.75      10.87      3.00
LETORT0472100314:4514.58.0000.04900.4574.35      13.04      1.50
LETORT0572100314:5515.08.0000.08900.4394.45      13.20      1.50
LETORT0672100315:0014.07.9000.05300.4034.35      12.85      6.75
LETORT0772100315:1014.57.9000.07200.4124.45      11.20      3.75
LETORT0872100315:2024.07.2036.40022.8401.3513.56
LETORT0972100315:2517.07.6003.37002.0334.40      05.50      1.50
LETORT1072100315:3015.07.5002.84001.3794.75      06.10      1.50
LETORT1172100315:4015.07.8001.99000.7614.55      10.56      9.00
LETORT0172100308:0011.57.3000.03900.2496.10      09.20
LETORT0272100308:0511.07.4500.04200.2495.25      08.55
LETORT0372100308:1011.07.3500.56000.2864.85      09.13
LETORT0472100308:2010.57.4000.07700.3134.85      08.43
LETORT0572100308:2511.07.5000.12100.3044.75      08.81
LETORT0672100308:3511.07.4000.12200.2955.05      08.82
LETORT0772100308:5511.57.4500.15600.3324.95      08.18
LETORT0872100309:0522.07.0039.80020.5400.7009.7205.61
LETORT0972100309:1513.07.3004.68001.5664.20      03.14
LETORT1072100309:2013.07.4503.13001.2444.67      03.52
LETORT1172100309:3013.07.4403.53001.2714.60      06.63
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CBP.REPORT16

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*TI:  VARIATIONS IN THE CHEMICAL CHARACTER OF THE SUSQHEANNNA RIVER AT
*     HARRISBURG, PA.
*OS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  PETER W. ANDERSON
*PE:  1944-1960
*GE:  SUSQUEHANNA RIVER, HARRISBURG, PA, CITY ISLAND
*GL:
*AB:  VARIATIONS OF CHEMICAL QUALITY ACROSS THE RIVER ARE DESCRIBED.
*     THE CHEMICAL QUALITY IS INFLUENCED BY STREAMFLOW, ANTHRACITE
*     AND BITUMINUS COAL MINE DRAINAGE, AND GEOLOGY.  CHEMICAL COMPOSITIONS
*     OF THE RIVER INDICATE THAT WATER FROM PRINCIPLE TRIBS DOES NOT MIX
*     SUFFICIENTLY TO LOSE ITS CHEMICAL QUALITY IDENTITY.  REPORT SUMMARIZES
*     DATA COLLECTED FROM 1944-1960 AT HARRISBURG.  CHEMICAL ANALYSES:
*     COMPOSITES OF DAILY SAMPLES COLLECTED FROM EAST CHANNEL STATION
*     OCT '44 TO  SEPT '46.  CROSS SECTION SAMPLES ONE TO THREE TIMES
*     MONTHLY, OCT '44 TO SEPT '49.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01570500,401517,765311,UNKNOWN,SUSQUEHANNA RIVER AT HARRISBURG PA.
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG F,NONE,WATER TEMPERATURE
*     PH,S.U.,NONE,PH IN FIELD.
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTIVITY AT 25 C.
*     TCA,PPM,7440702,TOTAL CALCIUM
*     TMG,PPM,7439954,TUTAL MAGNESIUM
*     TNAK,PPM,NONE,TOTAL SODIUM AND POTASSIUM
*     HCO3,PPM,71523,TOTAL BICARBONATE
*     TSO4,PPM,,TOTAL SULFATE (SO4)
*     TCL,PPM,16887006,TOTAL CHLORIDES
*     TRES,PPM,NONE,RESIDUE AT 180 C
*     CHARD,PPM,471341,CARBONATE HARDNESS
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CBP.REPORT17

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*TI:  SUMMARY AND CONCLUSIONS - NUTRIENT TRANSPORT & ACCOUNTABILITY IN THE
*     LOWER SUSQUEHANNA RIVER BASIN
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. ENVIRONMENTAL PROTECTION AGENCY
*PO:  REGION III
*     ANNAPOLIS FIELD OFFICE
*     ANNAPOLIS, MD.
*PR:  LEO J. CLARK, V. GUIDE, T.H. PHEIFFER
*PE:  JUNE 1971-MAY 1972
*GE:  LOWER SUSQUEHANNA RIVER BASIN
*GL:
*AB:  A ONE YEAR MONITORING STUDY TO DELINEATE SIGNIFICANT NUTRIENT INPUTS TO
*     THE CHESAPEAKE BAY, QUANTIFY NUTREINT LOADINGS AND ESTABLISH SEASONAL
*     TRENDS, AND DETERMINE RELATIVE IMPORTANCE OF EACH WATERSHED'S NUTRIENT
*     LOAD.  THE SUSQUEHANNA RIVER CONTRIBUTES 50% OF THE TOTAL PHOSPHORUS, 60%
*     OF TKN, AND 66% OF THE TOTAL NITRATE LOADINGS ENTERING THE BAY.  SAMPLES
*     WERE COLLECTED WEEKLY AND BI-WEEKLY FROM STREAM STATIONS AND SEWAGE
*     TREATMENT PLANTS.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     SUS001A,393925,761030,UNKNOWN,CONOWINGO DAM TURBINE 1
*     SUS001B,393925,761030,UNKNOWN,CONOWINGO DAM TURBINE 2
*     SUS001C,393925,761030,UNKNOWN,CONOWINGO DAM TURBINE 3
*     SUS002 ,393941,760927,UNKNOWN,OCTORARO CREEK @ RTE 322 BRIDGE
*     SUS003 ,394820,761747,UNKNOWN,MUDDY RUN
*     SUS004A,394910,762015,UNKNOWN,HOLTWOOD DAM @ NORMAN ROAD BRIDGE
*     SUS004B,394900,762030,UNKNOWN,HOLTWOOD DAM @ NORMAN ROAD BRIDGE
*     SUS005 ,395400,762041,UNKNOWN,PEQUEA CREEK
*     SUS006 ,395527,762327,UNKNOWN,SAFE HARBOR DAM
*     SUS007 ,395622,762316,UNKNOWN,CONESTOGA CREEK @ RTE 441 BRIDGE
*     SUS008A,400143,763056,UNKNOWN,SUSQUEHANNA RIVER @ COLUMBIA BRIDGE
*     SUS008B,400140,763115,UNKNOWN,SUSQUEHANNA RIVER @ COLUMBIA BRIDGE
*     SUS009 ,400250,763134,UNKNOWN,CHICKIES CREEK
*     SUS010 ,400507,763936,UNKNOWN,CONDY CREEK @ RTE 441 BRIDGE
*     SUS011 ,400653,764156,UNKNOWN,SUSQUEHANNA RIVER BELOW YORK HAVEN DAM
*     SUS012 ,401037,764327,UNKNOWN,SUSQUEHANNA RIVER ABOVE YORK HAVEN DAM
*     SUS013 ,401122,764352,UNKNOWN,SWATARA CREEK @ RTE 441 BRIDGE
*     SUS014A,401458,765443,UNKNOWN,SUSQUEHANNA RIVER @ RTE 93 BRIDGE
*     SUS014B,401452,765445,UNKNOWN,SUSQUEHANNA RIVER @ RTE 83 BRIDGE
*     SUS015A,401537,765407,UNKNOWN,SUSQUEHANNA RIVER @ RTE 15 BRIDGE
*     SUS015B,401544,765353,UNKNOWN,SUSQUEHANNA RIVER @ RTE 15 BRIDGE
*     SUS015C,401551,765339,UNKNOWN,SUSQUEHANNA RIVER @ RTE 15 BRIDGE
*     SUS016 ,401630,775448,UNKNOWN,CONODOGUINET CREEK @ RTE 11-15 BRIDGE
*     SUS017 ,402537,770100,UNKNOWN,JUNIATA RIVER @ RTE 11-15 BRIDGE
*     SUS018A,402403,770037,UNKNOWN SUSQUEHANNA RIVER @ RTE 22-322 BRIDGE
*     SUS018B,402357,770037,UNKNOWN,SUSQUEHANNA RIVER @ RTE 22-322 BRIDGE
*     SUS019 ,404630,765215,UNKNOWN,MIDDLE CREEK @ 11-15 BRIDGE
*     SUS020 ,404850,765120,UNKNOWN,PENNS CREEK @ RTE 11-15 BRIDGE
*     SUS021 ,425300,764800,UNKNOWN,W. BR. SUSQUEHANNA RIVER @ RTE 11
*     SUS022A,405315,764725,UNKNOWN,SUSQUEHANNA RIVER @ NORTHUMBERLAND
*     SUS022B,405246,764712,UNKNOWN,SUSQUEHANNA RIVER @ NORTHUMBERLAND
*     SUS023 ,401537,764810,UNKNOWN,SHAMOKIN CREEK @ RTE 147 BRIDGE
*     SUS024A,405115,764815,UNKNOWN,SUSQUEHANNA RIVER @ SUNBURY
*     SUS024B,405116,764826,UNKNOWN,SUSQUEHANNA RIVER @ SUNBURY
*     SUS025 ,401325,765135,UNKNOWN,YELLOW BREECHES CREEK @ N.W. CUMBERLAND
*     SUS026 ,404453,764307,UNKNOWN,CONEWAGO CREEK @ RTE 181 BRIDGE
*     SUS027 ,400210,763902,UNKNOWN,CODORUS CREEK
*     SUS028 ,402246,765421,UNKNOWN,STONY CREEK @ DAUPHIN
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,MEAN FLOW
*     TPO4,MG/L,14265442,TOTAL PHOSPHATE AS PO4
*     TINORGPO4,MG/L,14265442,INORGANIC PHOSPHORUS AS PO4
*     TKN,MG/L,17778880,TOTAL KJELDAHL NITROGEN AS N
*     TAMMONIA,MG/L,17778880,TOTAL AMMONIA
*     TNO23,MG/L,17778880,NITRITE + NITRATE AS N
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*       TN,MG/L,17778880,TOTAL NITROGEN
*       INORGN,MG/L,17778880,TOTAL INORGANIC NITROGEN
*       SEDLOAD,TONS,NONE,SEDIMENT LOAD
*       SEDYLD,TONS/SQ.MI.,NONE,SEDIMENT YIELD
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CBP.REPORT18

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*TI:  EFFECTS OF ROADWAY CONSTRUCTION ON SEDIMENT YIELD NEAR HARRISBURG,
*     PENNSYLVANIA
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUIDLING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  LLOYD A. REED 717-782-3732
*PE:  JUNE 1970-SEPT 1970
*GE:  SUSQUEHANNA RIVER BASIN, CONODOGUINET CK BASIN, ENOLA, PA.
*GL:  MIN LAT. 401712  LONG. 765642
*     MAX LAT. 401830  LONG. 770100
*AB:  REPORT DEMONSTRATES THE EFFECTS OF CONSTRUCTION ON A HALF MILE OF
*     ROADWAY.  THE DATA COLLECTED ON SEDIMENT CONCENTRATIONS AND SEDIMENT
*     DISCHARGES ARE COMPARED TO DATA COLLECTED FROM A SIMILAR ADJACENT BASIN,
*     UNAFFECTED BY CONSTRUCTION.  DURING THE PERIOD OF JUNE 1970 TO DECEMBER
*     1970, SEDIMENT DISCHARGE ATTRIBUTABLE TO THE CONSTRUCTION WAS 55 TONS,
*     TWO-THIRDS OF THE AMOUNT NORMALLY EXPECTED DURING THE YEAR.
*     SAMPLES WERE COLLECTED DURING BASE FLOW PERIODS AND EVERY 15 MINUTES
*     DURING STORM RUNOFF.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     01570100,401727,765938,UNKNOWN,CONODOGUINET CK TRIB #1 NR. ENOLA
*     01570200,401721,765825,UNKNOWN,CONODOGUINET CK TRIB #2 NR. ENOLA
*     01570300,401805,765657,UNKNOWN,CONODOGUINET CK TRIB #3 NR. ENOLA
*     01570230,401744,765755,UNKNOWN,CONODOGUINET CK TRIB #2A NR. ENOLA
*     01570260,401747,765751,UNKNOWN,CONODOGUINET CK TRIB #2B NR. ENOLA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,MEAN DAILY FLOW
*     MSEDCONC,MG/L,NONE,MEAN SUSPENDED SEDIMENT CONCENTRATION
*     SEDLOAD,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     SEDSUS,MG/L,NONE,SUSPENDED SEDIMENT
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*TI:  SEDIMENT CHARACTERISTICS OF FIVE STREAMS NEAR HARRISBURG,
*     PENNSYLVANIA, BEFORE HIGHWAY CONSTRUCTION
*OS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1109
*     HARRISBURG, PA  17108
*PR:  LLOYD A. REED 717/782-3732
*PE:  OCTOBER 1969 TO SEPTEMBER 1971
*GE:  LOWER SUSQUEHANNA RIVER BASIN, CONODOGUINET CREEK BASIN
*GL:  MIN LAT 401712  LONG 765642
*     MAX LAT 401830  LONG 770100
*AB:  THE STUDY EVALUATES PRECONSTRUCTION DATA ON STREAMFLOW, SEDIMENT
*     CONCENTRATIONS, SEDIMENT DISCHARGES, AND TURBIDITIES OF FIVE SMALL
*     BASINS, FOUR OF WHICH WILL BE CROSSED BY INTERSTATE 81.  THE STUDY
*     IS ALSO DESIGNED TO DETERMINE THE EFFECTIVENESS OF DIFFERENT
*     EROSION-CONTROL MEASURES IN REDUCING SEDIMENT DISCHARGES.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01570100,401727,765938,UNKNOWN,CONODOGUINET CR. TRIB #1 NEAR ENOLA
*     01570200,401721,765835,UNKNOWN,CONODOGUINET CR. TRIB #2 NEAR ENOLA
*     01570300,401805,765657,UNKNOWN,CONODOGUINET CR. TRIB #3 AT ENOLA
*     01570230,401744,765755,UNKNOWN,CONODOGUINET CR. TRIB #2A NEAR ENOLA
*     01570260,401747,765751,UNKNOWN,CONODOGUINET CR. TRIB #2B NEAR ENOLA
*PA:  PARAMTER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,MEAN DAILY FLOW
*     MSEDCONC,MG/L,NONE,MEAN SUSPENDED SEDIMENT CONCENTRATION
*     SEDLOAD,TONS/DAY,NONE,SUSPENDED SEDIMENT DISCHARGE
*     SEDSUS,MG/L,NONE,SUSPENDED SEDIMENT
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CBP.REPORT19

CBP.REPORT20

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*TI:  LOWER SUSQUEHANNA RIVER BASIN WATER QUALITY
*DS:  IN STORET
*RR:
*PI:  PA. DEPT. OF ENVIRONMENTAL RESOURCES
*PO:  BUREAU OF WATER QUALITY MANAGEMENT
*     HARRISBURG, PA  17120
*PR:  ED. R. BREZINA, KARL K. SHEAFFER, JAMES T. ULANESKI, MIKE V. ARNOLD,
*     RONALD HUGHEY, THEODORE P. CLISTA
*PE:  JULY 1976 TO AUGUST 1976
*GE:  SUSQUEHANNA RIVER BELOW SUNBURY, JUNIATA RIVER
*GL:
*AB:  THE SCOPE OF THIS INVESTIGATION INCLUDED PHYSICAL AND CHEMICAL ANALYSES
*     OF WATER AND WASTEWATER, QUALITATIVE AND/OR QUANTITATIVE MEASUREMENTS
*     OF BENTHIC MACROINVERTEBRATES, FISHES, AQUATIC VASCULAR PLANTS AND
*     ALGAE, BACTERIA AND CHLOROPHYLL AND PHEOPHYTON AT 196 STATIONS.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     PEN044,405116,773420,UNKNOWN,PENNS CREEK AT SPRING MILLS
*     SIN000,405112,773425,UNKNOWN,SINKING SPRING CREEK AT SPRING MILLS
*     PEN026,405154,771100,UNKNOWN,PENNS CREEK DOWNSTREAM FROM LAURELTON STP
*     MID020,404627,771100,UNKNOWN,MIDDLE CREEK NEAR BEAVERTOWN
*     MID012,404728,770223,UNKNOWN,MIDDLE CREEK DOWNSTEAM OF MIDDLEBURG STP
*     MID000,404628,765214,UNKNOWN,MIDDLE CREEK NEAR ROUTE 11-15 BRIDGE
*     PEN000,404629,765155,UNKNOWN,PENNS CREEK 0.5 MI UPSTREAM OF SUSQ. RIVER
*     WMA000,403847,765751,UNKNOWN,W. MAHANTANGO CR. DWNSTRM OF RT. 104 BRIDGE
*     BUD000,404923,763509,UNKNOWN,BUDDIES RUN UPSTREAM OF RT. 61 BRIDGE
*     SHA007,405226,764213,UNKNOWN,SHAMOKIN CREEK NEAR SNYDERTOWN
*     MAH009,404440,764726,UNKNOWN,MAHANOY CREEK AT DORNSIFE FEED DAM RT. 225
*     MAH   ,404356,765000,UNKNOWN,MAHANOY CREEK AT WASHED OUT BRIDGE ON T336
*     WIC017,403407,764934,UNKNOWN,WICONISCO CR. 2 MI DWNSTRM OF ELIZABETHVILLE
*     WIC000,403213,765738,UNKNOWN,WICONISCO CREEK IN MILLERSBURG AT RT. 147
*     EMA001,403642,765554,UNKNOWN,E. MAHANTANGO CREEK AT BRIDGE T302
*     POW001,402431,765855,UNKNOWN,POWELLS CREEK .25 MI UPSTRM OF T547 BRIDGE
*     SHE023,402009,771831,UNKNOWN,SHERMANS CR. NEAR LANDISBURG COVERED BRIDGE
*     SHE003,404247,770454,UNKNOWN,SHERMANS CREEK AT BRIDGE ON LR50014
*     CON071,400548,773413,UNKNOWN,CONODOGUINET CR @ BRIDGE ON MACLAYS MILLS RD
*     MDS002,400507,773235,UNKNOWN,MIDDLE SPRING CREEK AT BRIDGE ON T312
*     YEL000,401327,765138,UNKNONW,YELLOW BREECHES CR NEW CUMBERLAND OLD RT. 11
*     PAX006,401824,765200,UNKNOWN,PAXTON CR @ WALKER MILL-PAXTON CHURCH RD.
*     PAX000,401441,765139,UNKNOWN,PAXTON CR UPSTRM FROM PRR BRDG ON LOCHELL RD
*     LSW001,402425,762824,UNKNOWN,LITTLE SWATARA CREEK AT JONESTOWN ON LR38005
*     SWA041,402708,763032,UNKNOWN,SWATARA CREEK AT LICKDALE ON T571
*     SWA027,402409,763432,UNKNOWN,SWATARA CREEK AT HARPERS TAVERN ON RT. 934
*     QUI012,402014,762701,UNKNOWN,QUITTAPHAILLA CREEK AT 22ND ST. IN LEBANON
*     QUI007,401939,763133,UNKNOWN,QUITTAPHAILLA CR. DWNSTRM OF RT422 AB STP
*     QUI000,402102,763652,UNKNOWN,QUITTAPHAILLA CR. @ CONFLUENCE OF SWATARA CR
*     MAN000,401834,764017,UNKNOWN,MANADA CR. AT T425 BRIDGE
*     SPR000,401708,764046,UNKNOWN,SPRING CR. AT RT. 39 BRIDGE
*     BEA000,401553,764357,UNKNOWN,BEAVER CR. AT T375 BRIDGE
*     SWA002,401217,764249,UNKNOWN,SWATARA CR. @ CONFLUENCE WITH SUSQUEHANNA R.
*     BOW000,395444,771437,UNKNOWN,BOWERS RUN NEAR BIGLERVILLE AT CONEWAGO CR.
*     CNW054,395452,771317,UNKNOWN,CONEWAGO CR. AT RT. 394 BRIDGE
*     SCN001,395255,770411,UNKNOWN,SOUTH BRANCH CR. AT LR01004 BRIDGE ADAMS CO.
*     LCN000,400513,764336,UNKNOWN,LITTLE CONEWAGO CR @ CONFLUENCE W/CONEWAGO
*     CNW000,400634,764244,UNKNOWN,CONEWAGO CR. @ CONFLUENCE WITH SUSQUEHANNA R
*     SCO014,394802,764420,UNKNOWN,S. BR. CODORUS CR @ RT616 BRDG IN GLEN ROCK
*     SCO002,395514,764457,UNKNOWN,S. BR. CODORUS CR. @ YORK WATER CO.PUMP STN
*     OIL000,395147,765336,UNKNOWN,OIL CR. AT CONFLUENCE WITH W. BR. CODORUS CR
*     WCO012,395154,765323,UNKNOWN,W. BR. CODORUS CR. 50 YDS DWNSTRM OF OIL CR
*     WCO008,395514,765009,UNKNOWN,W. BR. CODORUS CR. @ T488 BRDG N.CODORUS TWP
*     COD014,395530,764505,UNKNOWN,CODORUS CR AT RT. 182 UPSTREAM OF YORK
*     COD006,400102,764246,UNKNOWN,CODORUS CR. @ LR66021 BRIDGE DWNSTRM OF YORK
*     COD001,400306,763900,UNKNOWN,CODORUS CR. AT CODORUS FURNACE YORK CO.
*     MUD012,394726,762519,UNKNOWN,MUDDY CR. AT BRIDGETOWN YORK CO.
*     MUD003,394621,761858,UNKNOWN,MUDDY CR. AT LR66062 BRIDGE YORK CO.
*     COY000,400447,763941,UNKNOWN,CONOY CR. AT T302 BRIDGE LANCASTER CO.
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*       CHI000,400318,763132,UNKNOWN,CHICKEES CR. AT PTR441 BRIDGE LANCASTER CO.
*       COC001,400748,761351,UNKNOWN,COCALICO CR. AT LOG CABIN ROAD, LANCASTER CO
*       LIT000,400638,761454,UNKNOWN,LITITZ RUN NR. RT. 272 BRIDGE LANCASTER CO.
*       COS024,400437,761534,UNKNOWN,CONESTOGA R. @ RT. 23 IN HOLLAND HEIGHTS
*       COS022,400300,761639,UNKNOWN,CONESTOGA R. ABOVE N. PLANT LANCASTER STP
*       COS021,400239,761630,UNKNOWN,CONESTOGA R. BELOW N. PLANT LANCASTER STP
*       COS015,400112,761819,UNKNOWN,CONESTOGA R. ABOVE S. PLANT LANCASTER STP
*       COS014,395952,761821,UNKNOWN,CONESTOGA R. BELOW S. PLANT LANCASTER STP
*       MIL001,400015,761801,UNKNOWN,MILL CR ON T508 BRIDGE LANCASTER CO.
*       COS010,395948,761942,UNKNOWN,CONESTOGA R. AT WASHED OUT BRIDGE RICE RD.
*       SWR000,400417,762125,UNKNOWN,SWARR RUN AT BRIDGE LR36006 LANCASTER CO.
*       LCO000,395726,762215,UNKNOWN,LITTLE CONESTOGA CR AT BRIDGE T561
*       COS001,395614,762313,UNKNOWN,CONESTOGA R. AT SAFE HARBOR REC. AREA
*       PEQ001,395315,762132,UNKNOWN,PEQUEA CR AT PEQUEA CR REC. AREA
*       OCT034,395614,755900,UNKNOWN,OCTORARO CR AT CHRISTIANA
*       OCT008,394333,760809,UNKNOWN,OCTORARO CR NEAR PA-MD STATE LINE
*       RTB109,400114,783429,UNKNOWN,RAYSTOWN BR. AT RT. 96 BRIDGE
*       RTB100,400039,782808,UNKNOWN,RAYSTOWN BR. NEAR BEDFORD
*       DUN000,400126,782809,UNKNOWN,DUNNING DR AT CONFLUENCE OF RAYSTOWN BR.
*       DUN014,400838,783334,UNKNOWN,DUNNING CR AT LR05099 BRIDGE BEDFORD CO.
*       BOB000,400850,783314,UNKNOWN,BOBBS CR AT LR05060 BRIDGE BEDFORD CO.
*       RIB070,400309,781930,UNKNOWN,RAYSTOWN BR. AT LR05050 BRIDGE BEDFORD CO.
*       RIB057,400816,781617,UNKNOWN,RAYSTOWN BR. AT RT 916 IN HOPEWELL
*       YEL000,400816,781617,UNKNOWN,YELLOW CR OFF RT. 26 NEAR HOPEWELL
*       SIX000,400943,781518,UNKNOWN,SIXMILE RUN NEAR RIDDLESBURG OFF T529
*       RTB047,401254,781554,UNKNOWN,RAYSTOWN BR. AT RT. 913 BRIDGE NEAR SAXTON
*       RTB001,402656,775854,UNKNOWN,RAYSTOWN BR. UPSTREAM FROM JUNIATA R.
*       FRB044,402015,782603,44.1,FRANKSTOWN BR. AT BRIDGE T363 GREENFIELD TWP.
*       HAL004,401959,782426,4.0,HALTER CR UPSTREAM OF APPLETON PAPER CO.
*       PLM000,402115,782351,0.5,PLUM CR OFF T322 NEAR HALTER CR
*       HAL000,402237,782521,000,HALTR CR AT CONFLUENCE W/FRANKSTOWN BR.
*       FRB039,402342,782428,38.8,FRANKSTOWN BR. AT BRIDGE T373
*       FRB034,402549782130,34.2,FRANKSTOWN BR. NEAR BEAVERDAM BR.
*       BDB000,402551,782140,0.2,BEAVERDAM BR. OFF T405 ALLEGHENY TWP.
*       BDB002,402526,782337,2.4,BEAVERDAM BR. IN HOLIDAYSBURG BOROUGH
*       BDB005,402625,782521,4.5,BEAVERDAM BR. UPSTREAM OF BRIDGE LR07059
*       SUG000,402746,782538,000,SUGAR RUN AT RT. 764 BRIDGE
*       BUR000,402805,782533,000,BURGOON RUN AT BRIDGE ON RT. 764
*       FRB032,421145,791302,32.2,FRANKSTOWN BR. @ BROG ON T427 FRANKSTOWN TWP.
*       FRB022,402826,781332,22,FRANKSTOWN BR. AT VILLAGE OF GAISTER RT. 866
*       FRB002,403155,780411,1.6,FRANKSTOWN BR. NR CONFLUENCE W/LITTLE JUNIATA R
*PA:    PARAMETER,UNITS,CAS CODE,LABEL
*       PHLAB,S.U.,NONE,PH IN LAB
*       PH,S.U.,NONE,PH IN FIELD
*       TURBID,MG/L,NONE,TURBIDITY
*       WTEMP,DEG C,NONE,WATER TEMPERATURE
*       TORGC,MG/L,7440440,TOTAL ORGANIC CARBON
*       BOD5,MG/L,NONE,5 DAY BIOCHEMICAL OXYGEN DEMAND
*       TP,MG/L,7723140,TOTAL PHOSPHORUS
*       DP,MG/L,7723140,DISSOLVED PHOSPHORUS
*       TRES,MG/L,NONE,TOTAL RESIDUE
*       FRES,MG/L,NONE,FILTERABLE RESIDUE
*       TNO2,MG/L,17778880,TOTAL NITRITE-N
*       TNO3,MG/L,17778880,TOTAL NITRATE-N
*       TAMMONIA,MG/L,17778880,TOTAL AMMONIA-N
*       CHARD,MG/L,471341,CARBONATE HARDNESS
*       DCA,MG/L,7440702,DISSOLVED CALCIUM
*       DMG,MG/L,7439954,DISSOLVED MAGNESIUM
*       TSO4,MG/L,14808798,SULFATE
*       TCL,MG/L,16887006,CHLORIDE
*       TAL,UG/L,7429905,TOTAL ALUMINUM
*       TCD,UG/L,7440439,TOTAL CADMIUM
*       TCR,UG/L,7440473,TOTAL CHROMIUM
*       TCU,UG/L,7440508,TOTAL COPPER
*       TFE,UG/L,7439896,TOTAL IRON
*       TMN,UG/L,7439965,TOTAL MANGANESE
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*     TNI,UG/L,7440020,TOTAL NICKEL
*     TPB,UG/L,7439921,TOTAL LEAD
*     TZN,UG/L,7440666,TOTAL ZINC
*     THG,UG/L,7439976,TOTAL MERCURY
*     PHENOL,UG/L,108952,TOTAL PHENOL
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CBP.REPORT21

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*TI:  PRELIMINARY APPRAISAL OF STREAM SEDIMENTATION IN THE SUSQUEHANNA RIVER
*     BASIN
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  WATER RESOURCES DIVISION
*     FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  K.F. WILLIAMS, J.R. GEORGE
*PE:  VARIES WITH STATION
*     ASSESSMENT MADE ON DATA COLLECTED UP TO OCTOBER 1965
*GE:  SUSQUEHANNA RIVER BASIN
*GL:
*AB:  ANALYSES OF STREAM SEDIMENT DISCHARGE MEASUREMENTS COLLECTED
*     IN THE SUSQUEHANNNA RIVER BASIN TO DESCRIBE THE SEDIMENT YIELD
*     OF MAJOR TRIBUTARIES.  HIGHEST YIELDS GENERALLY ARE OBSERVED IN
*     STREAMS DRAINING FARM LANDS IN THE PIEDMONT PROVINCE.  STREAM
*     TRANSPORTED SEDIMENTS ARE APPROXIMATELY 15% SAND, 55% SILT, AND 30% CLAY
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01555000,405200,770255,UNKNOWN,PENNS CR AT PENNS CREEK PA
*     01555500,403640,765444,UNKNOWN,EAST MAHANTANGO CR NEAR DALMATIA PA
*     01559000,402905,780109,UNKNOWN,JUNIATA RIVER AT HUNTINGDON PA
*     01560000,400418,782934,UNKNOWN,DUNNING CR AT BELDEN PA
*     01562000,401257,781556,UNKNOWN,RAYSTOWN BR JUNIATA RIVER AT SAXTON PA
*     01565000,403915,773500,UNKNOWN,KISHACOQUILLAS CR AT REEDSVILLE PA
*     01567000,402842,770746,UNKNOWN,JUNIATA RIVER AT NEWPORT PA
*     01567500,402215,772409,UNKNOWN,BIXLER RUN NEAR LOYSVILLE PA
*     01568000,401924,771009,UNKNOWN,SHERMAN CR AT SHERMANSDALE PA
*     01570500,401517,765311,UNKNOWN,SUSQUEHANNA RIVER AT HARRISBURG PA
*     01571500,401329,765354,UNKNOWN,YELLOW BREECHES CR NEAR CAMP HILL PA
*     01573000,402409,763439,UNKNOWN,SWATARA CR AT HARPER TAVERN PA
*     01574000,400456,764313,UNKNOWN,WEST CONEWAGO CR NEAR MANCHESTER PA
*     01576500,400300,761639,UNKNOWN,CONESTOGA RIVER AT LANCASTER PA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG F,NONE,WATER TEMPERATURE
*     STREAM,CFS,NONE,INSTANTANEOUS DISCHARGE
*     CONC,PPM,NONE,SEDIMENT CONCENTRATION
*     SEDLOAD,TONS/DAY,NONE,SEDIMENT DISCHARGE
*     SSED.002,MM,NONE,% FINER THAN 0.002 MILLIMETERS
*     SSED.004,MM,NONE,% FINER THAN 0.004 MILLIMETERS
*     SSED.008,MM,NONE,% FINER THAN 0.008 MILLIMETERS
*     SSED.016,MM,NONE,% FINER THAN 0.016 MILLIMETERS
*     SSED.031,MM,NONE,% FINER THAN 0.031 MILLIMETERS
*     SSED.062,MM,NONE,% FINER THAN 0.062 MILLIMETERS
*     SSED.125,MM,NONE,% FINER THAN 0.125 MILLIMETERS
*     SSED.250,MM,NONE,% FINER THAN 0.250 MILLIMETERS
*     SSED.500,MM,NONE,% FINER THAN 0.500 MILLIMETERS
*     SSED1.0,MM,NONE,% FINER THAN 1.00 MILLIMETERS
*     SSED2.0,MM,NONE,% FINER THAN 2.00 MILLIMETERS
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*TI:  AN AQUATIC ECOLOGICAL STUDY OF THE FRANKSTOWN BRANCH OF THE JUNIATA
*     RIVER IN THE VICINITY OF THE WILLIAMSBURG STEAM ELECTRIC GENERATING
*     STATION
*OS:  IN STORET
*RR:  NONE
*PI:  PENNSYLVANIA ELECTRIC CO.
*PO:  1001 BROAD ST.
*     JOHNSTOWN, PA  15907
*PR:  AQUATIC ECOLOGY ASSOCIATES
*     412-621-3130
*PE:  JULY 1975-FEB. 1976
*GE:  SUSQUEHANNA RIVER BASIN, JUNIATA RIVER BASIN, FRANKSTOWN BRANCH
*GL:  MAX LAT. 403600  LONG. 783600
*     MIN LAT. 401100  LONG. 780300
*AB:  THE REPORT PRESENTS RESULTS OF AN AQUATIC PHYSICAL, CHEMICAL AND
*     BIOLOGICAL STUDY IN RELATION TO THE WILLIAMSBURG POWER PLANT IN
*     WILLIAMSBURG, PA.  THE PROJECT WAS INTENDED TO ACQUIRE DATA FOR USE AS
*     EVIDENCE IN PROCEEDINGS GENERATED BY THE FEDERAL WATER POLLUTION CONTROL
*     ACT OF 1972.  THE STUDY PERTAINS TO THERMAL DISCHARGES OF THE POWER
*     PLANT.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     WQN0224,402834,781039,UNKNOWN,FRANKSTOWN BR. JUNIATA R. @ PENN CENTRAL RR
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEGC,NONE,WATER TEMPERATURE
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     BOD5,MG/L,NONE,5-DAY BIOCHEMICAL OXYGEN DEMAND
*     PH,SU,NONE,pH IN FIELD
*     ALK,MG/L,471341,ALKALINITY AS CACO3
*     TAMMONIA, MG/L,7664417,TOTAL AMMONIA AS NITROGEN
*     TNO3,MG/L,17778880,TOTAL NITRATE AS NITROGEN
*     TPO4,MG/L,14265442,TOTAL PHOSPHATE
*     CHARN,MG/L,471341,CARBONATE HARDNESS
*     TCA,MG/L,7440702,TOTAL CALCIUM
*     DMG,MG/L,7439954,DISSOLVED MAGNESIUM
*     TCL,MG/L,16887006,TOTAL CHLORIDES
*     TSO4,MG/L,14808798,TOTAL SULFATE
*     TCD,UG/L,7440439,TOTAL CADMIUM
*     TFE,MG/L,7439896,TOTAL IRON
*     TZN,MG/L,7440666,TOTAL ZINC
*     TAL,MG/L,7429905,TOTAL ALUMINUM
*     THG,UG/L,7439976,TOTAL MERCURY
*     COLIFORM,/100ML,29569,TOTAL COLIFORMS COMPLETED TEST MNP
*     STREAM,CFS,NONE,INSTANTANEOUS STREAMFLOW
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CBP.REPORT23

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*TI:  ECOLOGICAL STUDY OF SUSQUEHANNA RIVER AND TRIBUTARIES BELOW THE
*     CONOWINGO DAM
*DS:  IN STORET
*RR:  NONE
*PI:  MARYLAND DEPARTMENT OF NATURAL RESOURCES
*PO:
*PR:  W.R. CARTER, III, PROJECT LEADER
*PE:  JAN. 1967 TO MARCH 1971
*GE:  SUSQUEHANNA RIVER BASIN IN MARYLAND
*GL:
*AB:  FOUR ASPECTS OF THE ECOSYSTEM OF THE SUSQUEHANNA RIVER MOUTH - SUSQUE-
*     HANNA FLATS HAVE BEEN STUDIES.  THESE ARE THE SIZE OF THE SPAWNING ALOSA
*     POPULATION, ITS DISPERSAL, AND ITS MIGRATORY BEHAVIOR; A CREEL CENSUS OF
*     THE SPORT FISHERY ON THE SPAWNING RUN; DENSITY AND GROWTH OF THE JUVENILE
*     AND ADULT OR SUBADULT FISHES UTILIZING THE LOWER SUSQUEHANNA RIVER - SUS-
*     QUEHANNA FLATS NURSERY AREA; AND CHEMICAL AND PHYSICAL STATUS QUO, OR
*     BASELINE, PROFILES OF THE AREA
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     DER0015,393734,760954,UNKNOWN,DEER CK @ STAFFORD BRIDGE
*     UNKNOWN,UNKNOWN,UNKNOWN,UNKNOWN,SUSQUEHANNA R. @ SHORE'S LANDING
*     UNKNOWN,UNKNOWN,UNKNOWN,UNKNOWN,SUSQUEHANNA R. @ RIVERSIDE
*     UNKNOWN,UNKNOWN,UNKNOWN,UNKNOWN,OCTORARO CREEK
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SCOND,UMHOS,NONE,CONDUCTIVITY
*     PH,S.U.,NONE,PH IN FIELD
*     TURBID,PPM.SIO2,NONE,TURBIDITY PPM OF SIO2
*     TPO4,PPM,14265442,TOTAL PHOSPHATE
*     TSO4,PPM,14808798,TOTAL SULFATE
*     ALK,PPM,471341,TOTAL ALKALINITY
*     DO,PPM,7782447,DISSOLVED OXYGEN
*     THARD,PPM,471341,TOTAL HARDNESS
*     CHARD,PPM,471341,CARBONATE HARDNESS @ CACO3
*     FLOW,CFS,NONE,FLOW THROUGH CONOWINGO DAM
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*TI:  APPENDIX A:  WATER QUALITY STATIONS IN THE SUSQUEHANNA RIVER BASIN.
*DS:  MOST STATIONS ON STORET
*PI:  UNKNOWN                                          CBP.REPORT24
*PE:  UNKNOWN
*GE:  LOWER SUSQUEHANNA RIVER BASIN, JUNIATA RIVER BASIN
*AB:  AN APPENDIX OF WATER QUALITY STATIONS WAS FOUND WITH NO KNOWLEDGE
*     OF TITLE OF REPORT CONTAINING THE LIST.  THIS LIST CONTAINS THE STATION,
*     SAMPLING AGENCY, SAMPLING FREQUENCY, STATION TYPED, AND YEARS OF RECORD.
*     THOSE STATIONS OF THE LOWER MAIN STEM ARE LISTED IN THIS DOCUMENT.
*     AGENCIES: MDDNR-MARYLAND DEPT. OF NATURAL RESOURCES
*               USGS-GEOLOGICAL SURVEY
*               PE-PHILADELPHIA ELECTRIC
*               PADER-PENNSYLVANIA DEPT. OF ENVIRONMENTAL RESOURCES
*     NOTE:  STATION CORRESPONDS TO STORET NUMBER.
*
*ST:   STORET #, LAT, LONG, DESCRIPTION, AGENCY
*      NONE,,,SUSQUEHANNA R SE OF C-1 MD, MDDNR
*      NONE,,,SUSQUEHANNA R BUOY N18-PERRY P MD,MDDNR
*      NONE,,,SUSQUEHANNA R CONCORD PT MD, MDDNR
*      01573310,,,SUSQUEHANNA R CONOWINGO MD,USGS
*      SUQ-010.1,393928,761033,SUSQUEHANNA R CONOWINGO MD,PE
*      SUQ-009.8,393909,761012,CONOWINGO DAM CONOWINGO DNSTRM MD,PE
*      NONE,,,SUSQUEHANNA R E SIDE I-95 BRID MD,MDDNR
*      NONE,,,SUSQUEHANNA R E SPENCER ISLAND MD,MDDNR
*      NONE,,,SUSQUEHANNA R E TRE40 BRIDGE MD,MDDNR
*      01570500,401527,765312,SUSQUEHANNA R HARRISBURG PA,USGS
*      NONE,,,SUSQUEHANNA R HAVRE DE GRACE MD,MDDNR
*      01576990,394901,761924,SUSQUEHANNA R HOLTWOOD PA,PE
*      WQN0201,400316,763152,SUSQUEHANNA R MARIETTA PA,PADER
*      NONE,,,SUSQUEHANNA R MID RIVER I-95 B MD,MDDNR
*      NONE,,,SUSQUEHANNA R MID-R SPENCER I MD,MDDNR
*      NONE,,,SUSQUEHANNA R PCRR BRIDGE MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD 250 YDS S PCRR B MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD PERRY PT MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD BELOW RTE 40 MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD S PORT DEPOSIT MD,MDDNR
*      01554000,405115,764821,SUSQUEHANNA R SUNBURY PA,USGS
*      NONE,,,SUSQUEHANNA R MD W SIDE I-95 BRID MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD W SPENCER ISLAND MD,MDDNR
*      NONE,,,SUSQUEHANNA R MD W RTE 40 BRIDGE MD,MDDNR
*      NONE,,,BIG BR DEER CR EDEN MILL BRIDGE MD,MDDNR
*      WQN0206,400319,763133,CHICKIES CK EAST DONEGAL TWP PA,PADER
*      WQN0207,400037,764237,CODORUS CK MANCHESTER TWP PA,PADER
*      WQN0205,400300,761639,CONESTOGA R LANCASTER PA,PADER
*      01576500,400300,761639,CONESTOGA R LANCASTER PA,USGS
*      WQN0231,395741,762158,CONESTOGA R ROCK HILL PA,PADER
*      01570100,401727,765938,CONODOGUINET CK #1 ENOLA PA,USGS
*      01570200,401721,765935,CONODOGUINET CK #2 ENOLA PA,USGS
*      01570230,401744,765755,CONODOGUINET CK #2A ENOLA PA,USGS
*      01570260,401747,765751,CONODOGUINET CK #2B ENOLA PA,USGS
*      01570300,401805,765657,CONODOGUINET CK #3 ENOLA PA,USGS
*      WQN0240,401638,765700,CONODOGUINET CK HAMPDEN TWP PA,PADER
*      WQN0213,401536,770611,CONODOGUINET CK MIDDLESEX TWP PA,PADER
*      NONE,,,DEER CK BOND RD CROSSNG MD,MDDNR
*      NONE,,,DEER CK BRIDGE CAREA RD MD,MDDNR
*      NONE,,,DEER CK BRDGE MD RTE 165 MD,MDDNR
*      01580200,,,DEER CK BRIDGE ON US1 MD,USGS
*      01580000,,,DEER CK CHERRY HILL RD MD,USGS
*      NONE,,,DEER CK GREEN RD CROSSNG MD,MDDNR
*      NONE,,,DEER CK HARRIS MISS RD MD,MDDNR
*      NONE,,,DEER CK MARYLAND RTE 136 MD,MDDNR
*      NONE,,,DEER CK MOUTH AT BRIDGE MD,MDDNR
*      NONE,,,DEER CK NOBLE MILL RD MD,MDDNR
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*       NONE,,,DEER CK ST CLAIR BRID RD MD,MDDNR
*       WQN0254,394323,763646,DEER CK SHREWSBURY TWP PA,PADER
*       NONE,,,DEER CK STAFFORD BRIDGE MD,MDDNR
*       NONE,,,DEER CK WALTERS MILL RD MD,MDDNR
*       NONE,,,EBAUGHS CK BLEVINS RD PA,MDDNR
*       NONE,,,EBAUGHS CK HARRIS MILL RD PA,MDDNR
*       NONE,,,EBAUGHS CK ORCHARD RD PA,MDDNR
*       NONE,,,EBAUGHS CK STEWARTSTOWN RD PA,MDDNR
*       NONE,,,EBAUGHS CK ZEIGLAR RD MD,MDDNR
*       NONE,,,FALLING BR DEER CK RED BRIDGE RD MD,MDDNR
*       NONE,,,ISLAND BR DEER CK TELEGRAPH RD MD,MDDNR
*       NONE,,,LITTLE DEER CK MARYLAND RTE 165 MD,MDDNR
*       NONE,,,LITTLE DEER CK ABOVE MOUTH MD,MDDNR
*       01555250,404440,764738,MAHANOY CK DORNSIFE PA,USGS
*       WQN0227,404334,765016,MAHANOY CK JACKSON TWP PA,PADER
*       WQN0226,403640,765443,MAHANTANGO CK DALMATIA PA,PADER
*       WQN0237,400346,760925,MILL CK LEACOCK TWP PA,PADER
*       WQN0242,404719,770042,MIDDLE CK MIDDLEBURG PA,PADER
*       WQN0241,400507,773235,MIDDLE SPRING CK NEWTON TWP PA,PADER
*       WQN0228,404629,765211,MIDDLE CK PENN TWP PA,PADER
*       WQN0239,400841,771043,MOUNTAIN CK S MIDDLETON TWP PA,PADER
*       01577500,394621,761958,MUDDY CK CASTLE FIN PA,USGS
*       01578500,,,OCTORARO CK RISING SUN MD,USGS
*       WQN0229,404850,765120,PENNS CK MONROE TWP PA,PADER
*       01555000,405200,770255,PENNS CK PENNS CREEK PA,USGS
*       WQN0204,395339,762134,PEQUEA CK MARTIC TWP PA,PADER
*       WQN0238,402102,763652,QUITTAPAHILLA CK ANNVILLE TWP PA,PADER
*       WQN0230,404837,763504,SHAMOKIN CK SHAMOKIN TWP PA,PADER
*       WQN0243,402249,770456,SHERMANS CK PENN TWP PA,PADER
*       WQN0209,395514,764457,S BR CODORUS CK SPRING GARDEN TP PA,PADER
*       WQN0211,401123,764352,SWATARA CK MIDDLETOWN PA,PADER
*       01571820,403457,762425,SWATARA CK RAVINE PA,USGS
*       01572950,402623,763600,SWATARA CK TRIB HARPER TAVERN PA,USGS
*       NONE,,,UNNAMED TRB BASIN R JACK RD BRIDGE MD,MDDNR
*       NONE,,,UNNAMED TRB DEER CK LIES RD CROSSNG MD,MDDNR
*       NONE,,,UNNAMED TRB EBAUGH SHAW RD CROSSNG PA,MDDNR
*       WQN0208,395314,765009,W BR CODORUS CK MARTIN PA,PADER
*       WQN0210,400452,764307,WEST CONEWAGO CK E MANCHESTER TWP PA,PADER
*       01555570,403340,764830,WISCONISCO CK ELIZABETHVILLE PA,USGS
*       WQN0225,403214,765739,WICONISCO MILLDERSBURG PA,PADER
*       WQN0212,401337,765139,YELLOW BREECHES CK FAIRVIEW TWP PA,PADER
*       WQN0216,402905,780109,JUNIATA R   HUNTINGDON PA,PADER
*       01559000,402905,780109,JUNIATA R HUNTINGDON PA,USGS
*       WQN0215,402342,775624,JUNIATA R MAPLETON PA,PADER
*       01567000,402842,770746,JUNIATA R NEWPORT PA,USGS
*       WQN0214,402842,770746,JUNIATA R NEWPORT PA,PADER
*       01567000,402842,770746,JUNIATA R NEWPORT PA,USGS
*       WQN0249,402005,775136,AUGHWICK CK AUGHWICK MILLS PA,PADER
*       WQN0221,401245,775532,AUGHWICK CK CROMWELL TWP PA,PADER
*       WQN0252,402554,782130,BVRDAM BR JUNIATA R BLAIR TWP PA,PADER
*       01564550,401355,775225,BLACKLOG CK ORBISCONIA PA,USGS
*       WQN0251,403050,783321,BOBBS CK REYNOLDSDALE PA,PADER
*       WQN0235,395720,781515,BRUSH CK GAPSVILLE PA,PADER
*       WQN0250,400126,782839,DUNNING CK BEDFORD TWP PA,PADER
*       WQN0234,400418,782934,DUNNING CK BELDEN PA,PADER
*       01555780,402123,782541, FRANKTWN BR JUNIATA EAST FREEDOM PA,USGS
*       WQN0224,402834,781039,FRANKTWN BR JUNIATA WOODBURY TWP PA,PADER
*       WQN0236,402100,780750,GREAT TROUGH CK MARKLESBURG PA,PADER
*       WQN0248,403944,773540,HONEY CK REEDSVILLE PA,PADER
*       WQHN0246,403507,773327,JACKS CK LEWISTOWN PA,PADER
*       WQN0253,403917,773500,KISHACOQUILLAS CK BROWN TWP PA,PADER
*       WQN0247,403752,773401,KISHACOQUILLAS CK DERRY TWP PA,PADER
*       WQN0220,403622,773355,KISHACOQUILLAS CK LEWISSTOWN BORO,PADER
*       WQN0218,403739,781742,LITTLE JUNIATA R ANTIS TWP,PADER
*       WQN0244,402320,770156,LITTLE JUNIATA R DUNCANNON PA,PADER
*       WQN0217,403633,780811,LITTLE JUNIATA R SPRUCE CREEK PA,PADER
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*       01559758,400255,783802,MILE RUN SHELLSBURG PA,USGS
*       01563000,402535,780147,RAYSTN BR JUNIATA R HUNTINGDON PA,USGS
*       WQN0222,402535,780147,RAYSTN BR JUNIATA R JUNIATA R,PADER
*       WQN0223,401257,781556,RAYSTN BR JUNIATA R LIBERTY TWP PA,PADER
*       01559750,401003,783707,RAYSTN BR JUNIATA R MANNS CHOICE PA,USGS
*       01559756,400217,783916,SHYAWNEE BRANCH SHELLSBURG PA,USGS
*       WQN0233,403125,775815,STANDING STONE CK HUNTINGDON PA,PADER
*       WQN0245,403141,772332,TUSCARORA CK PORT ROYAL PA,PADER
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*TI:  NONPOINT SOURCE DISCHARGE IN PEQUEA CREEK BASIN, PENNSYLVANIA 1977
*DS:  IN STORET
*RR:  NONE
*PI:  U.S. GEOLOGICAL SURVEY
*PO:  FEDERAL BUILDING
*     P.O. BOX 1107
*     HARRISBURG, PA  17108
*PR:  JANICE R. WARD 717-782-3798
*     DAVID A. ECKHARDT
*PE:  FEB. 1977 TO DEC. 1977
*GE:  SUSQUEHANNA RIVER BASIN, PEQUEA CREEK BASIN
*GL:  MIN LAT. 394700  LONG. 754500
*     MAX LAT. 400500  LONG. 762300
*AB:  THE MAGNITUDES AND TYPES OF NONPOINT DISCHARGES THAT AFFECT THE WATER
*     QUALITY OF PEQUEA CREEK WERE INVESTIGATED.  THE PROJECT INCLUDED THE
*     DETERMINATION OF (1) THE TOTAL DISCHARGES OF SUSPENDED SEDIMENT,
*     NITROGEN, AND PHOSPHORUS FROM THE BASIN; (2) INTERMITTENT STORM AND
*     BASEFLOW DISCHARGES FROM SIX SUBBASIN SITES OF VARYING SIZE, GEOLOGY,
*     AND LAND USE; (3) THE WAYS IN WHICH NONPOINT DISCHARGE CONSTITUENTS
*     ARE TRANSPORTED; AND (4) THE DIFFERENCE IN MAGNITUDES OF DISCHARGES
*     DURING STORMS AND BASE FLOW PERIODS.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     01576787,395421,761943,UNKNOWN,PEQUEA CK @ MARTIC FORGE
*     01576786,395428,761906,UNKNOWN,PEQUEA CK TRIB. NR. MARTIC FORGE
*     01576777,395629,761428,UNKNOWN,BIG BEAVER CK @ REFTON
*     01576775,395600,761204,UNKNOWN,BIG BEAVER CK TRIB. @ NEW PROVIDENCE
*     01576769,400021,761112,UNKNOWN,PEQUEA CK @ STRASBURG
*     01576768,400001,761016,UNKNOWN,PEQUEA CK TRIB. NR. STRASBURG
*     01576763,400104,760412,UNKNOWN,PEQUEA CK @ NEW MILLTOWN
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SEDSUS,MG/L,NONE,SUSPENDED SEDIMENT
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTANCE
*     TNH4,MG/L,NONE,TOTAL AMMONIUM
*     DNH4,MG/L,NONE,DISSOLVED AMMONIUM
*     TNH4ORGN,MG/L,NONE,TOTAL AMMONIUM + ORGANIC NITROGEN
*     DNH4ORGN,MG/L,NONE,DISSOLVED AMMONIUM + ORGANIC NITROGEN
*     TNO2,MG/L,17778880,TOTAL NITRITE AS NITROGEN
*     DNO2,MG/L,17778890,DISSOLVED NITRITE AS NITROGEN
*     TNO23,MG/L,17778880,TOTAL NITRITE + NITRATE AS NITROGEN
*     DNO23,MG/L,17778880,DISSOLVED NITRITE + NITRATE AS NITROGEN
*     TP,MG/L,7723140,TOTAL PHOSPHORUS AS P
*     DP,MG/L,7723140,DISSOLVED PHOSPHORUS AS P
*     TORTHOP,MG/L,7723140,TOTAL ORTHOPHOSPHATE AS P
*     DORTHOP,MG/L,7723140,DISSOLVED ORTHOPHOSPHATE AS P
*     DORGC,MG/L,7440440,DISSOLVED ORGANIC CARBON AS C
*     SORGC,MG/L,7440440,SUSPENDED ORGANIC CARBON AS C
*     ALACHLOR,UG/L,15972608,TOTAL ALACHLOR
*     AMETRYNE,UG/L,834128,TOTAL AMETRYNE (GESAPAX OR EVIK)
*     ATRZ,UG/L,1912249,TOTAL ATRAZINE IN WHOLE WTR SMPLE
*     ATRATON,UG/L,1610179,TOTAL ATRATON
*     CYANAZIN,UG/L,21725462,TOTAL CYANAZINE IN WHOLE WTR SMPLE
*     CYPRAZIN,UG/L,NONE,TOTAL CYPRAZINE
*     PRMETRYN,UG/L,7287196,TOTAL PROMETRYNE
*     PROMETON,UG/L,161080,TOTAL PROMETONE
*     PROPAZNE,UG/L,139402,TOTAL PROPAZINE
*     SIMAZINE,UG/L,122349,TOTAL SIMAZINE IN WHOLE WTR SMPLE
*     SIMETONE,UG/L,673041,TOTAL SIMETONE
*     SIMETRYN,UG/L,1014706,TOTAL SIMETRYNE IN WHOLE WTR SMPLE
*     STREAM,CFS,NONE,INSTATANEOUS STREAMFLOW
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*      DDD,NG/G,72548,DDD
*      DDT,NG/G,50293,DDT
*      SUMDDT,NG/G,50293,SUM OF DDT'S
*      HEPEPOX,NG/G,1024573,HEPTACHLOR EPOXIDE
*      DORIN,NG/G,65071,DIELDRIN
DATA SRBC.A-16.1;
 INPUT @1 STATION $5. @6 DATE YYMMDD6. @12 SAND 4.1
       @16 SI/CL 4.1 @20 TCD 3.1 @23 TCR 2. @25 TCU 3.
       @28 THG 5.3 @33 TNI 2. @35 TPB 4. @39 TZN 3.
       @42 TFE 4.1 @46 TMN 4.2 @50 SAMPLE $11.;
 CARDS;
KCS.D79072396.0     0.1090260.00219017107907.80.48BOTTOM SED.
KCS.D790723     04.01.6161210.21834033430212.10.66BOTTOM SED.
COD.U79072474.9     0.5030060.02205002702502.20.18BOTTOM SED.
COD.U790724     25.11.5070260.09318005012005.60.60BOTTOM SED.
COD.D79072493.6     2.3080540.00917019112905.80.48BOTTOM SED.
COD.D790724     06.44.6251040.40531020753614.41.10SOTTOM SED.
CON.U79072414.3     1.206008     10007005602.402.0BOTTOM SED.
CON.U790724     85.70.7060200.09411004805407.20.64BOTTOM SED.
CON.D79072499.0     0.5060110.00217007706605.10.22BOTTOM SED.
CON.D790724     01.08.5723780.35529110999317.63.93BOTTOM SED.
;
DATA SRBC.A-16.2;
 INPUT @1 STATION $5. @6 DATA YYMMDD6. @12 ORGC 4.2
       @16 PCB 3. @19 ALDRIN 3.1 @22 LINDANE 3.1
       @25 HEPTACHLOR 3.1 @28 DDE 4.1 @32 DDD 4.1
       @36 DDT 4.1 @40 HEPEPOX 3.1 @43 DIELDRIN 3.1
       @46 SAMPLE $11.;
 CARDS;
KCS.U790723     1120.00.01.115.004.400.90.10.8BOTTOM SED.
KCS.D7907230.682790.00.82.606.704.514.00.71.0BOTTOM SED.
COD.U7907241.111350.00.30.316.005.907.80.43.4BOTTOM SED.
COD.D7907240.825240.01.01.807.217.529.01.84.7BOTTOM SED.
CON.U7907242.062110.00.00.005.511.003.71.27.4BOTTOM SED.
CON.D7907240.290880.00.41.206.805.804.81.21.1SOTTOM SED.
;
DATA SRBC.A-16.3;
 INPUT @1 STATION $5. @6 DATE YYMMDD6. @12 PCB 3.
       @12 ALDRIN 3.1 @18 LINDANE 3.1 @21 HEPTACHLOR 3.1
       @24 DDE 4.1 @28 DDD 4.1 @32 DDT 4.1
       @36 SUMDDT 2. @39 HEPEPOX 4.1 @42 DIELDRIN 4.1
       @46 SAMPLE $4.;
 CARDS;
COD.17907242570.01.80.007.514.028.05001.404.7SOIL
COD.27907241200.00.60.613.007.006.02604.503.4SOIL
COD.37907242820.00.20.017.004.608.62601.512.0SOIL
COD.47907243320.01.34.334.012.012.05801.704.7SOIL
COD.57907242340.00.01.213.013.053.07901.306.0SOIL
CON.17907242640.00.80.020.008.909.63906.012.0SOIL
CON.27907242260.00.00.606.003.609.21900.717.0SOIL
CON.37907242140.01.23.321.010.019.05003.805.9SOIL
CON.47907246240.02.67.020.033.028.08130.030.0SOIL
CON.57907243680.00.94.111.008.337.05608.012.0SOIL
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*TI:  NONPOINT SOURCE POLLUTION ASSESSMENT OF THE LOWER SUSQUEHANNA RIVER
*     BASIN
*DS:  IN STORET                                          CBP.REPORT26
*RR:  NONE
*PI:  SUSQUEHANNA RIVER BASIN COMMISSION
*PO:  1721 NORTH FRONT ST.
*     HARRISBURG, PA.  17102
*     717-238-0425
*PR:  CHARLES S. TAKITA
*PE:  EXISTING DATA FROM WATER QUALITY PROGRAMS FROM OTHER AGENCIES UP TO 1977
*GE:  LOWER SUSQUEHANNA RIVER BASIN
*GL:
*AB:  ASSESSES THE PROBLEM OF NONPOINT SOURCES OF POLLUTION AND IDENTIFIES
*     PROBLEM AREAS WHICH MAY WARRANT DETAILED STUDIES WITH THE ULTIMATE GOAL
*     OF PROVIDING A BASIS FOR RECOMMENDING CONTROL MEASURES BASED UPON THE
*     IMPACT THAT IDENTIFIED NONPOINT SOURCE POLLUTION HAS UPON STREAM QUALITY.
*     THE ASSESSMENT IS BASED UPON AVAILALBE DATA FROM OTHER COLLECTION AGEN-
*     CIES. ALL 'WQN' STATIONS OPERATED BY PENSYLVANNIA DEPARTMENT OF ENVIRON-
*     MENTAL RESOURCES, WHILE ALL THE REMAINING STATIONS ARE OPERATED BY THE
*     MARYLAND DEPARTMENT OF NATURAL RESOURCES.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     WQN0204,395339,762134,UNKNOWN,PEQUEA CK. PTR 324 MARTIC TWP.
*     WQN0231,395741,762158,UNKNOWN,CONESTOGA CK. @ ROCK HILL ON T-561 BRIDGE
*     WQN0205,400300,761639,UNKNOWN,CONESTOGA CK. 500' BELOW WATER WORKS
*     WQN0209,395514,764457,UNKNOWN,S BR CODORUS CK @ YORK WATER CO PUMP STN
*     WQN0210,400452,764307,UNKNOWN,W. CONEWAGO CK. @ BRIDGE ON RTE. 181
*     WQN0211,401128,764352,UNKNOWN,SWATARA CK. 2 BRIDGE ON RTE. 441 MIDDLETOWN
*     WQN0212,401327,765138,UNKNOWN,YELLOW BREECHES CK. ON OLD RTE. 111
*     WQN0240,401638,765700,UNKNOWN,CONODOGUINET CK. DOWNSTREAM OF LR 21016
*     WQN0213,401536,770611,UNKNOWN,CONODOGUINET CK. @ BROG T-574
*     WQN0225,403214,765739,UNKNOWN,WICONISCO CK. @ MILLERSBURG ON RTE. 147
*     WQN0226,403640,765443,UNKNOWN,MAHANTANGO CK. NR. DALMATIA
*     WQN0227,404334,765016,UNKNOWN,MAHANOY CK. ON RTE. 147 NR. MOUTH
*     WQN0229,404850,765120,UNKNOWN,PENNS CK. ON RTES. 11 & 15 NR. MOUTH
*     WQN0230,404837,763504,UNKNOWN,SHAMOKIN CK. FOOTBRIDGE AT USGS GAGE
*     WQN0214,402842,770746,UNKNOWN,JUNIATA RIVER @ NEWPORT RTE. 34
*     WQN0245,403141,772332,UNKNOWN,TUSCARORA CK. @ PORT ROYAL RTE. 333
*     WQN0220,403622,773355,UNKNOWN,KISHACOQUILLAS CK @ LEWISTOWN BORO RT 522
*     WQN0246,403507,773327,UNKNOWN,JACKS CK. @ LEWISTOWN RTE. 22
*     WQN0247,403752,773401,UNKNOWN,KISHACOQUILLAS CK. BRIDGE ON LR 44002
*     WQN0248,403944,773540,UNKNOWN,HONEY CK. @ REEDSVILLE RTE. 322
*     WQN0253,403917,773500,UNKNOWN,KISHACOQUILLAS CK. ON RTE. 322
*     WQN0249,402005,775136,UNKNOWN,AUGHWICK CK. @ AUGHWICK MILLS ON T-403
*     WQN0215,402342,775624,UNKNOWN,JUNIATA RIVER @ MAPLETON ON LR 31084
*     WQN0223,401257,781556,UNKNOWN,RAYSTOWN BR. JUNIATA RIVER ON RTE. 913
*     WQN0250,400126,782839,UNKNOWN,DUNNING CK. @ RR BRIDGE OFF T-477
*     WQN0251,400850,783321,UNKNOWN,BOBBS CK. @ REYNOLDSDALE LR 05060
*     WQN0216,402905,780109,UNKNOWN,JUNIATA R. @ HUNTINGDON ROAD A-135
*     WQN0224,402834,781039,UNKNOWN,FRANKSTOWN BR JUNIATA R @ PENN CENTRAL RR
*     WQN0252,402554,782130,UNKNOWN,BEAVER DAM BR. JUNIATA R. BLAIR TWP.
*     WQN0217,403633,780811,UNKNOWN,LITTLE JUNIATA R @ SPRUCE CK BORO ON RT45
*     WQN0218,403739,781742,UNKNOWN,LITTLE JUNIATA R. ON RTE. 220
*     WQN0219,404014,781415,UNKNOWN,S. BALD EAGLE CK. @ TYRONE ON RTE. 350
*     LDE0007,UNKNOWN,UNKNOWN,UNKNOWN,LITTLE DEER CK. OFF HARRIS MILL ROAD
*     DER0437,UNKNOWN,UNKNOWN,UNKNOWN,DEER CK. @ HARRIS MILL ROAD
*     EBA0001,UNKNOWN,UNKNOWN,UNKNOWN,EBAUGHS CK. @ HARRIS MILL ROAD
*     DER0424,UNKNOWN,UNKNOWN,UNKNOWN,DEER CK. @ BOND RD.
*     UDR0005,UNKNOWN,UNKNOWN,UNKNOWN,UNNAMED TRIB. @ LIEB RD.
*     DER0399,UNKNOWN,UNKNOWN,UNKNOWN,DEER CK. @ GREEN RD.
*     DER0328,394049,762936,UNKNOWN,DEER CK. @ CAREA RD.
*     BIG0002,394036,762716,UNKNOWN,BIG BR. DEER CK. @ EDEN MILL RD.
*     FLL0001,394027,762637,UNKNOWN,FALLING BR. DEER CK. @ RED BRIDGE RD.
*     DER0282,393954,762632,UNKNOWN,DEER CK. @ BRIDGE ON MD. 165
*     LDC006,393942,762654,UNKNOWN,LITTLE DEER CK. @ BRIDGE ON MD. 165
*     DER0263,393840,762539,UNKNOWN,DEER CK. @ ST. CLAIR BRIDGE RD.
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*       DER0231,393747,762355,UNKNOWN,DEER CK. @ CHERRY HILL RD.
*       DER0175,393718,762003,UNKNOWN,DEER CK. @ WALTERS MILL RD.
*       DER0124,393716,761800,UNKNOWN,DEER CK. @ U.S. RTE. 1
*       DER0090,393604,761538,UNKNOWN,DEER CK. @ MD. 136
*       DER0069,393703,761419,UNKNOWN,DEER CK. @ NOBLE MILL RD.
*       DER0015,393724,760954,UNKNOWN,DEER CK. @ STAFFORD BRIDGE RD.
*       DER0001,393649,760859,UNKNOWN,DEER CK. @ MOUTH @ RR BRIDGE
*PA:    PARAMETER,UNITS,CAS CODE,LABEL
*       NO23,MG/L,17778880,NITRITE + NITRATE
*       NH3,MG/L,17778880,AMMONIA
*       TP,MG/L,7723140,TOTAL PHOSPHORUS
*       FLOW,CFS,NONE,MEAN FLOW
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*TI:  SUSQUEHANNA RIVER BOTTOM SEDIMENTS, PART IV:  SURFICIAL HEAVY METALS &
*     ORGANIC POLLUTANTS AT NEW YORK AND PENNSYLVANIA SITES, 1979-1980; RE-
*     LATED CHEMICAL INVESTIGATIONS
*DS:  SRBC.A-16.1                                    CBP.REPORT27
*RR:  SRBC.A-16.2, SRBC.A-16.3
*PI:  SUSQUEHANNA RIVER BASIN COMMISSION
*PO:  1721 N. FRONT ST.
*     HARRISBURG, PA.  17102
*     717-238-0425
*PR:  BRUCE MCDUFFIE, FRANK EMMI, GARY C. MUCKLOW, DAVID J. RUSSELL
*PE:  1979-1980
*GE:  LOWER SUSQUEHANNA RIVER BASIN, KISHACOQUILLAS CK. BASIN, CODORUS CK.
*     BASIN, CONESTOGA RIVER BASIN
*GL:
*AB:  BOTTOM SEDIMENTS IN THE SUSQUEHANNA RIVER BASIN WERE COLLECTED AND
*     ANALYZED FOR SURFICIAL HEAVY METALS IN THE SAND AND SILT/CLAY FRACTIONS.
*     SOIL SAMPLES REPRESENTATIVE OF THREE PENNSYLVANIA SEDIMENT SITES WERE
*     ALSO ANALYZED FOR ORGANIC POLLUTANTS.
*ST:  STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
*     KCS.U,UNKNOWN,UNKNOWN,UNKNOWN,KISHACOQUILLAS CK. ABOVE YEAGERSTOWN
*     KCS.D,UNKNOWN,UNKNOWN,UNKNOWN,KISHACOQUILLAS CK. NR. CONF. W/ JUNIATA R.
*     COD.U,UNKNOWN,UNKNOWN,UNKNOWN,CODORUS CK. @ USGS GAGE IN W. YORK, PA.
*     COD.D,UNKNOWN,UNKNOWN,UNKNOWN,CODORUS CK. BELOW RTE. 30 IN YORK, PA.
*     CON.U,UNKNOWN,UNKNOWN,UNKNOWN,CONESTOGA R. ABOVE WATER TREATMENT PLANT
*     CON.D,UNKNOWN,UNKNOWN,UNKNOWN,CONESTOGA R. BELOW RT.272 IN LANCASTER, PA
*     KCS.1,UNKNOWN,UNKNOWN,NONE,KISHACOQUILLAS CK. BASIN FARM SOIL SMPL
*     KCS.2,UNKNOWN,UNKNOWN,NONE,KISHACOQUILLAS CK. ALONG RD. BY CAVE
*     KCS.3,UNKNOWN,UNKNOWN,NONE,KISHACOQUILLAS CK 0.1 MI W OF YEAGERSTOWN
*     KCS.4,UNKNOWN,UNKNOWN,NONE,KISHACOQUILLAS CK 0.1 MI W OF YEAGERSTOWN
*     KCS.5,UNKNOWN,UNKNOWN,NONE,KISHACOQUILLAS CK 0.1 MI W OF YEAGERSTOWN
*     COD.1,UNKNOWN,UNKNOWN,NONE,CODORUS CK BASIN OVERBURDEN BY USGS SS#20
*     COD.2,UNKNOWN,UNKNOWN,NONE,CODORUS CK BASIN EDGE OF WOODS 1/4 MI.
*                                SOUTHEAST OF USGS SS#20
*     COD.3,UNKNOWN,UNKNOWN,NONE,CODORUS CK BASIN EDGE OF WHEATFIELD NR.
*                                PUMPING STN. SOIL SMPL
*     COD.4,UNKNOWN,UNKNOWN,NONE,CODORUS CK. BASIN W. BANK 1/4 MI. DOWN-
*                                STREAM OF USGS SS#20 SOIL SMPL
*     COD.5,UNKNOWN,UNKNOWN,NONE,CODORUS CK. BASIN YORK COLLEGE GROUNDS
*     CON.1,UNKNOWN,UNKNOWN,NONE,CONESTOGA R. BASIN WOODED AREA NR.
*                                LANCASTER CO. CENTRAL PK. SOIL SMPL
*     CON.2,UNKNOWN,UNKNOWN,NONE,CONESTOGA R. BASIN FALLOW FIELD SOIL SMPL
*     CON.3,UNKNOWN,UNKNOWN,NONE,CONESTOGA R. BASIN ALONG HEDGEROW NR.
*                                CONESTOGA SCHOOL SOIL SMPL
*     CON.4,UNKNOWN,UNKNOWN,NONE,CONESTOGA R. BASIN NR. COMMUNITY POOL NR.
*                                WATER WORKS SOIL SMPL
*     CON.5,UNKNOWN,UNKNOWN,NONE,CONESTOGA R. BASIN WOODED AREA 1/4 S. OF
*                                RT. 222 BRIDGE SOIL SMPL
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SAND,%OFSMPL,NONE,SAND FRACTION OF SAMPLE
*     SI/CL,%OFSMPL,NONE,SILT/CLAY FRACTION OF SAMPLE
*     TCD,UG/G,7440439,TOTAL CADMIUM
*     TCR,UG/G,7440473,TOTAL CHROMIUM
*     TCU,UG/G,7440508,TOTAL COPPER
*     THG,UG/G,7439976,TOTAL MERCURY
*     TNI,UG/G,7440020,TOTAL NICKEL
*     TPB,UG/G,7439921,TOTAL LEAD
*     TZN,UG/G,7440666,TOAL ZINC
*     TFE,MG/G,7439896,TOTAL IRON
*     TMN,MG/G,7439965,TOTAL MANGANESE
*     ORGC,%,7440440,PERCENT ORGANIC CARBON
*     PCB,NG/G,12767792,PCB'S
*     ALDRIN,NG/G,309002,ALDRIN
*     LDNE,NG/G,58899,LINDANE
*     HEPCLR,NG/G,76448,HEPTACHLOR
*     DDE,NG/G,72559,DDE
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*TI:  MAHANTANGO CREEK WATERSHED - FATE AND TRANSPORT OF WATER AND NUTRIENTS
*OS:  NWRC.MAH
*RR:  NONE
*PI:  NORTHEAST WATER RESEARCH CENTER, AGRICULTURAL RESEARCH SERVICE
*PO:  110 RESEARCH BUILDING A
*     UNIVERSITY PART, PA  16802
*PR:  PIONKE, H.B., ET AL.
*PE:  JUNE 1969 - JANUARY 1971
*GE:  SUSQUEHANNA RIVER BASIN, MAHANTANGO CREEK WATERSHED
*GL:
*AB:  THE NWRC COLLECTED ROUTINE RAINFALL-RUNOFF DATA AND WATER CHEMISTRY DATA.
*     THE RESULTS ARE PRESENTED IN THE CONTEX OF EXPERIMENTAL HYDROLOGIC CROSS-
*     SECTIONS.  A HYDROLOGICALLY BASED CROSS-SECTION MODEL WAS DEVELOPED AND
*     GENERALIZED TO DESCRIBE THE DOMINANT HYDROLOGIC PROCESSES IN THE NEAR-
*     STREAM ZONE.  THE BEHAVIOR OF NO3, NH4, AND SOLUBLE P IN BASE AND STORM
*     FLOW ARE PRESENTED AND EXPLAINED IN THE CONTEXT OF THE MODEL.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     GR04,403640,765443,UNKNOWN,MAHANTANGO CREEK
*     GR27,403916,764114,UNKNOWN,UPPER MAHANTANGO
*     GM27,403903,764127,UNKNOWN,PINE CREEK
*     WE38,403001,763528,UNKNOWN,THREE SQUARE MILE
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FLOW,CFS,NONE,AVERAGE STREAMFLOW
*     TNA,PPM,NONE,SODIUM CONCENTRATION
*     TK,PPM,NONE,POTASSIUM CONCENTRATION
*     TMG,PPM,NONE,MAGNESIUM CONCENTRATION
*     TCA,PPM,NONE,CALCIUM CONCENTRATION
*     TCL,PPM,NONE,CHLORIDES CONCENTRATION
*     TSO4,PPM,NONE,SULFATE CONCENTRATION
*     TN,PPM,NONE,NITROGEN CONCENTRATION
*     TPSOL,PPM,NONE,SOLUBLE PHOSPHORUS CONCENTRATION
*     NAOUT,#/ACRE,NONE,WATERSHED OUTPUT OF SODIUM
*     KOUT,#/ACRE,NONE,WATESHED OUTPUT OF POTASSIUM
*     MGOUT,#/ACRE,NONE,WATERSHED OUTPUT OF MAGNESIUM
*     CAOUT,#/ACRE,NONE,WATERSHED OUTPUT OF CALCIUM
*     CLOUT,#/ACRE,NONE,WATERSHED OUTPUT OF CHLORIDES
*     SO4OUT,#/ACRE,NONE,WATERSHED OUTPUT OF SULFATES
*     NO3OUT,#/ACRE,NONE,WATERSHED OUTPUT OF NITRATES
*     PSOLOUT,#/ACRE,NONE,WATERSHED OUTPUT OF SOLUBLE PHOSPHORUS
DATA NWRC.MAH;
 INPUT @1 STATION $4. @5 DATE YYMMDD6. @11 FLOW 4. @15 TNA 1. @16 TK 1. @17 TMG
       2. @19 TCA 2. @21 TCL 2. @23 TSO4 3. @26 TN 1. @27 TPSOL 5.3 @32 NAOUT
       5.3 @37 KOUT 5.3 @42 MGOUT 5.3 @47 CAOUT 6.3 @53 CLOUT 5.3
       @58 SO4OUT 6.3 @64 NO3OUT 5.3 @69 PSOLOUT 7.5;
 CARDS;
GM2769061700333115180412400.0030.1010.0310.39600.4770.12803.2310.0030.00008
GM2769062400252117220613900.0040.0580.0290.33900.4380.12502.7190.0020.00008
GM2769063000163118190514 10     0.0490.0190.23600.2500.06701.7870.003
GM2769070800173119130312000.0080.0470.0140.25500.1700.04201.5430.0030.00010
GM2769071500134120170312000.0060.0460.0110.21800.1860.04101.2540.0020.00006
GM2769072300174118150309600.0110.0650.0160.25500.2060.05301.2980.0030.00015
GM2769072801676105080900400.0120.8030.2070.66001.0361.19200.6210.0780.00155
GM2769080401327108090706200.0060.7780.1040.82300.9240.76306.4010.0510.00061
GM2769081300435112100410000.0110.1840.0470.42300.3420.15403.3710.0200.00037
GM2769081900325209080410300.0090.1440.0600.23100.2150.10602.5800.0150.00022
GM2769082600175015270302800.0040.0760.0110.20500.3610.05200.3750.0090.00005
GM2769090200325015260302800.0180.1320.0190.37500.6480.08200.7050.0000.00045
GM2769090900297105320710000.0060.1760.0270.11500.7370.16802.2760.0200.00014
GM2769091600174020310615810.0060.0600.0090.26800.4150.08402.0800.0200.00008
GM2769092300124019290515810.0110.0440.0070.18800.2830.05501.5320.0140.00011
GM2769100100174020320515810.0110.0550.0090.27300.4370.07102.1210.0150.00015
GM2769100700144025410614200.0100.0500.0090.27400.4510.07401.5580.0100.00011
GM2769101500114215290513600.0120.0430.0220.13700.2580.05001.2090.0040.00011
GM2769102100143216230418500.0090.0420.0240.17900.2560.04602.0120.0080.00010
GM2769102800124112200419400.0080.0370.0180.11200.1830.04501.7410.0080.00007
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GM2769110600605209180915510.0060.2680.1200.43600.8770.46207.2490.0840.00028
GM2769111200935103101008040.0020.4160.1300.27300.7830.77005.8040.2970.00014
GM2769111901895104120906040.0060.7760.2920.67801.8811.35208.8760.5870.00088
GM2769112501025105200808330.0020.4370.1110.45301.6190.64606.5820.2530.00016
GM2769120200554111220509610.0020.1940.0590.49800.9480.24004.0570.0800.00008
GM2769120902888111221309610.0022.0000.3312.65605.0032.92521.4170.2450.00045
GM2769121601625109190707320.0000.6620.1861.14202.4340.97709.2040.3130.00000
GM2769122300995008200609110.0010.4060.0720.65301.5690.51707.0050.1380.00008
GM2769123101676109210907310.0020.8920.1571.25702.7721.23809.4390.2200.00026
GM2770010601426110240907730.0000.7340.1641.15102.6481.05408.5680.3300.00000
GM2770011301236113260918420.0080.6580.1341.27502.4830.87917.6250.1910.00076
GM2770012001225115300813810.0040.5660.1151.49702.8650.80613.0980.1330.00038
GM2770012701749115281213810.0081.2370.1742.09303.7731.66918.6050.1480.00108
GM2770020306744204150704930.0052.5221.1432.15808.2653.88826.0832.0360.00261
GM2770021004117107181006320.0002.3420.4482.24405.8663.38520.1760.7000.00000
GM2770021701855109180705310.0020.7250.2021.35902.6421.01607.7110.2580.00029
GM2770022501674009200806530.0010.5350.1211.17902.6161.10008.4440.3880.00013
GM2770030301203109240612410.0250.3640.0980.92902.2590.59511.6380.1680.00233
GM2770031001054110250608710.0030.3380.1020.83402.0620.55007.1780.1550.00024
GM2770031700904012280711210.0010.2890.0650.89001.9690.49407.8680.1050.00007
GM2770032402755107201006220.0021.2220.2741.55104.3032.18613.2760.5100.00043
GM2770040107045106190805510.0022.7580.5543.71110.4854.44530.3720.8720.00109
GM2770040703723007180406010.0020.9270.2592.16905.2481.42917.4180.4320.00058
GM2770041501043108160407500.0040.5190.1761.28002.4710.69311.4140.1050.00060
GM2770042101623108170407800.0040.4330.1471.11402.1870.57809.8840.1000.00050
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GM2770050501994107170500000.0030.6390.1751.10802.7540.87600.0000.1240.00046
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GM2770051901374108160500000.0030.4620.1240.90101.7810.60000.0000.0740.00032
GM2770052600753110180310810.0020.2130.0660.59201.0690.22606.2670.0580.00012
GM2770060300543113190313900.0080.1540.0690.56900.8290.13305.8240.0250.00033
GM2770060800413112210312600.0060.1230.0390.39300.6720.11103.9760.0160.00019
GM2770061500723115290315200.0100.2060.0700.88501.5820.17908.5270.0170.00056
GM2770062200445112230712420.0020.1820.0630.41900.7930.24404.2820.0890.00007
GM2770062900474114230513800.0060.1760.0460.51400.8470.19405.0410.0290.00022
GM2770070601135115240615900.0070.4840.1241.32302.1280.59114.0360.0530.00061
GM2770071500885115200712210.0030.3600.1041.02501.3900.50608.3630.1160.00020
GM2770072000664114220515310.0050.2350.0680.75201.1470.29007.8590.0510.00026
GM2770072700394215210514900.0070.1400.0790.45900.6530.16204.5630.0240.00021
GM2770080300343114240416400.0060.1020.0360.39100.6290.11104.3130.0130.00016
GM2770081000233116260417500.0080.0660.0250.29700.4780.07603.1520.0090.00014
GM2770081800174117270318700.0060.0600.0170.23000.3530.05102.4500.0070.00008
GM2770082500213116230415100.0050.0630.0240.27100.3720.08002.4480.0050.00008
GM2770090100144119260417500.0050.0460.0190.21700.2950.05101.9480.0060.00006
GM2770090800114125300324100.0100.0380.0110.22500.2700.02802.1250.0040.00009
GM2770091400104123300319900.0090.0360.0140.18000.2310.02401.5050.0040.00007
GM2770092100095125300322300.0550.0380.0120.17700.2230.02201.5570.0060.00003
GM2770092900166214220512900.0060.0810.0320.18300.2810.07101.6230.0090.00003
GM2770100600094117300320600.0070.0340.0120.12600.2130.02701.4470.0050.00005
GM2770101200304122320320300.0100.1070.0460.46900.7550.08204.8580.0160.00023
GM2770102000626115280717000.0030.3110.0720.75201.3660.37708.2450.0240.00015
GM2770102600376111240911210.0020.1980.0430.32900.6960.28503.2410.0460.00006
GM2770110300336113300713400.0230.1640.0460.34100.7760.19003.4250.0200.00059
GM2770110901415113250713800.0040.6260.1401.45602.7490.81115.0620.0870.00044
GM2770111602745105170705420.0041.1700.3651.18603.6541.65411.6110.4240.00085
GM2770112501714109100607510.0060.5790.1711.22502.5510.79910.0640.2520.00080
GM2770120100854109190505310.0040.3030.0850.64801.2660.37303.5420.0920.00026
GM2770120300723013150512110.0020.2190.0440.78200.8860.31706.8010.0900.00011
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WE3870110300025205140700430.0110.2310.0850.20600.5730.30000.1930.1490.00044
WE3870110900055105120801760.0090.5500.1720.53501.2270.78001.6540.5840.00086
WE3870111600104206140901280.0160.9430.4491.37103.0411.89102.4631.7230.00328
WE3870112500054106110802080.0090.4030.1840.57201.0910.81801.9060.7940.00083
WE3870120100024105120701760.0140.2190.0870.24300.5550.33900.7860.3140.00064
WE3870120800025005060701660.0100.2600.0380.28100.3260.36700.8280.3350.00049
WE3870121400073106080801870.0190.5240.2410.81401.1001.09202.4451.0040.00254
WE3870122100053105120803970.0110.3100.1340.51401.0990.73303.5940.7010.00099
WE3870122900023104100602250.0110.1510.0450.18500.4360.27700.9070.2340.00045
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*TI: AN INVENTORY OF SUSPENDED SEDIMENT STATIONS AND TYPE OF DATA ANALYSIS FOR PENNSYLVANIA STREAMS
*DS: IN WATER SUPPLY PAPERS AND IN WATSTORE AND STORET
*PI: U.S. GEOLOGICAL SURVEY
*PO: WATER RESOURCES DIVISION
3RD AND WALNUT STS.
HARRISBURG, PA 17108
717-782-3468

CBP.REPORT29

*PR: ARTHUR N. OTT
ALLEN B. COMMINGS
*PE: 1947-1970
*GE: PENNSYLVANIA, LOWER SUSQUEHANNA RIVER BASIN
*AB: A COMPILATION OF THE LOCATION, PERIOD OF RECORD, SAMPLING FREQUENCY AND TYPE OF DATA SYNTHESIS FOR SUSPENDED SEDIMENT CARRIED BY PENNSYLVANIA STREAMS. ALL SEDIMENT DATA LISTED WERE COLLECTED BY THE USGS MAINLY IN COOPERATION WITH OTHER AGENCIES. THOSE STATIONS IN THE LOWER SUSQUEHANNA RIVER BASIN ARE LISTED IN THE FOLLOWING SECTION. THOSE STATIONS LISTED WITHOUT LATITUDES AND LONGITUDES WERE NOT LOCATED IN STORET.
*ST: STATION,LATITUDE,LONGITUDE,RIVER MILE,DESCRIPTION
01554000,405004,764937,?,SUSQUEHANNA RIVER @ SUNBURY PA
01554500,404837,763504,?,SHAMOKIN CREEK NEAR SHAMOKIN PA
01554530,?,?,?,SHAMOKIN CREEK AT PAXINOS PA
01555000,405200,770255,?,PENNS CREEK AT PENNS CREEK PA
01555250,404440,764728,?,MAHANOY CREEK AT DORNSIFE PA
01555500,403640,765444,?,EAST MAHANTANGO CREEK NEAR DALMATIA PA
01555570,?,?,?,WISCONISCO CREEK AT ELIZABETHVILLE PA
01556000,402747,781200,?,FRANKSTOWN BR JUNIATA R AT WILLIAMSBURG PA
01558000,403645,780927,?,LITTLE JUNIATA RIVER AT SPRUCE CREEK PA
01559000,402905,780109,?,JUNIATA RIVER AT HUNTINGDON PA
01560000,400418,782934,?,DUNNING CREEK AT BELDEN PA
01562000,401257,781556,?,RAYSTOWN BR JUNIATA RIVER AT SAXTON PA
01563000,402535,780147,?,RAYSTOWN BR JUNIATA RIVER NEAR HUNTINGDON PA
01564500,401245,775532,?,AUGHWICK CREEK NEAR THREE SPRINGS PA
01565000,403917,773500,?,KISHACOQUILLAS CREEK AT REEDSVILLE PA
01567000,402842,770746,?,JUNIATA RIVER AT NEWPORT PA
01567400,?,?,?,BIXLER RUN (AT KISTLER) NEAR LOYSVILLE PA
01567420,?,?,?,NORTH BR BIXLER RUN (AT PALMS) NEAR LOYSVILLE PA
01567440,?,?,?,NORTH BR BIXLER RUN (AT KISTLER) NEAR LOYSVILLE PA
01567460,?,?,?,EAST BR BIXLER RUN (NEAR KISTLER) NEAR LOYSVILLE PA
01567500,402215,772409,?,BIXLER RUN NEAR LOYSVILLE PA
01568000,401924,771009,?,SHERMAN CREEK AT SHERMAN DALE PA
01570000,401508,770117,?,CONODOGUINET CREEK NEAR HOGESTOWN PA
01570100,401727,765938,?,CONODOGUINET CREEK TRIB NO. 1 NEAR ENOLA PA
01570230,401744,765755,?,CONODOGUINET CREEK TRIB NO. 2A NEAR ENOLA PA
01570260,401747,765751,?,CONODOGUINET CREEK TRIB NO. 2B NEAR ENOLA PA
01570300,401805,765657,?,CONODOGUINET CREEK TRIB NO. 3 NEAR ENOLA PA
01570500,401517,765311,?,SUSQUEHANNA RIVER AT HARRISBURG PA
01571100,401641,764946,?,SPRING CREEK TRIB NEAR HARRISBURG PA
01571500,401329,765354,?,YELLOW BREECHES CREEK NEAR CAMP HILL PA
01571820,403450,762418,?,SWATARA CREEK AT RAVINE PA
01572000,403215,762240,?,LOWER LITTLE SWATARA CREEK AT PINE GROVE PA
01572500,?,?,?,SWATARA CREEK AT JONESTOWN PA
01572540,?,?,?,LITTLE SWATARA CREEK NEAR MT. AETNA PA
01572600,?,?,?,LITTLE SWATARA CREEK AT JONESTOWN PA
01573000,402409,763439,?,SWATARA CREEK AT HARPER TAVERN PA
01573097,?,?,?,QUITTAPAHILLA CREEK NEAR ANNVILLE PA
01573200,?,?,?,QUITTAPAHILLA CREEK AT SNYDER PA
01573550,?,?,?,MANADA CREEK NEAR SAND BEACH PA
01573570,?,?,?,SPRING CREEK AT UNION DEPOSIT PA
01573580,?,?,?,BEAVER CREEK AT HUMMELSTOWN PA
01573600,?,?,?,SWATARA CREEK AT MIDDLETOWN PA
01573880,400118,770855,?,LATIMORE CREEK TRIB NEAR YORK SPRINGS PA
01573890,400204,770833,?,NORTH FORK LATIMORE CR NEAR YORK SPRINGS PA
01574000,400456,764313,?,WEST CONEWAGO CREEK NEAR MANCHESTER PA

01574500,395243,765113,?,WEST BR CODORUS CK AT SPRING GROVE PA
01575000,395514,764457,?,SOUTH BR CODORUS CK NEAR YORK PA
01576500,400300,761639,?,CONESTOGA CK AT LANCASTER PA
01577500,394621,761858,?,MUDDY CREEK AT CASTLE FIN PA

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*TI:  PRIORITY WATER BODY SURVEY REPORT WATER QUALITY STANDARDS REVIEW
*DS:  DER.PWBSR84.a
*RR:  DER.PWBSR84.b
*PI:  PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
*PO:  BUREAU OF WATER QUALITY MANAGEMENT
*     11TH FLOOR FULTON BUILDING                    CBP.REPORT30A
*     3RD & LOCUST STS.
*     HARRISBURG, PA  17120
*PR:  DIVISION OF WATER QUALITY
*     ROBERT FRY 717-787-9633
*PE:  1983
*GE:  LOWER SUSQUEHANNA RIVER BASIN, THREE SPRINGS CREEK, GREAT TROUGH CREEK
*AB:  THE DER HAS DEVELOPED WATER QUALITY STANDARDS FOR  ALL OF THE SURFACE
*     WATERS IN THE STATE.  THESE STANDARDS, WHICH ARE DESIGNED TO SAFEGUARD
*     PENNSYLVANIA'S STREAMS, RIVERS AND LAKES, CONSIST OF BOTH USE
*     DESIGNATIONS AND THE CRITIERA NECESSARY TO PROTECT THESE USES.  THE
*     STANDARDS ARE DESIGNED TO PROTECT EXISTING STREAM USES AND USES OF THAT
*     WOULD BE POSSIBLE IF THERE WERE NO POLLUTION.  THE FIRST SET OF
*     INVESTIGATIONS BEGAN IN 1983 AND ARE CONTINUING AS THE RESULT OF SECTION
*     303 OF THE FEDERAL WATER POLLUTION CONTROL ACT.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     TSC1,401138,780141,?,THREE SPRINGS CK PRIVATE BRIDGE OFF RTE 994
*     TSC2,401136,775909,?,THREE SPRINGS CK 200' DWNSTRM OF RTE 994
*     TSC3,401321,780045,?,MOUNTAIN BRANCH @ BRIDGE ON T-353
*     TSC4,401140,775908,?,MOUNTAIN BRANCH 100' UPSTRM OF RTE 994 BRIDGE
*     TSC5,401133,775833,?,THREE SPRINGS CREEK @ BRIDGE ON RTE 994
*     TSC6,401153,775730,?,THREE SPRINGS CREEK @ HUNTINGDON CO. BRIDGE #6
*     TSC7,401239,775607,?,THREE SPRINGS CREEK @ BRIDGE ON T341
*     GTC1,401051,780708,?,GREAT TROUGH CK 0.25 MI UPSTRM OF RTE 913 BRIDGE
*     GTC2,401057,780651,?,GREAT TROUGH CK 100' DWNSTRM OF RTE 913 BRIDGE
*     GTC3,401230,780526,?,GREAT TROUGH CK 0.3 MI S-SW OF COOKS.
*     GTC4,401526,780224,?,GREAT TROUGH CK @ BRIDGE ON T-340
*     GTC5,401646,780254,?,GREAT TROUGH CK 1.25 MI UPSTRM OF LITTLE TROUGH CK
*     GTC6,401642,780410,?,GREAT TROUGH CK 0.9 DWNSTRM OF LITTLE TROUGH CK
*     GTC7,401557,780512,?,GREAT TROUGH CK 200'DWNSTRM OF SUGAR CREEK
*     GTC8,401916,780747,?,GREAT TROUGH CK @ SWINGING BRIDGE IN STATE PARK
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C.,NONE,WATER TEMPERATURE
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     PH,S.U.,NONE,PH IN FIELD
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTIVITY IN FIELD
*     TCLRES,PPB,7782505,TOTAL CHLORINE RESIDUAL
*     BOD5U,MG/L,NONE,BOD 5 DAY UNINHIBITED
*     BOD5I,MG/L,NONE,BOD 5 DAY INHIBITED
*     BOD20U,MG/L,NONE,BOD 20 DAY UNINHIBITED
*     BOD20I,MG/L,NONE,BOD 20 DAY INHIBITED
*     TP,MG/L,7723140,TOTAL PHOSPHORUS
*     TPSOL,MG/L,7723140,TOTAL SOLUBLE PHOSPHORUS
*     TORGC,MG/L,7440440,TOTAL ORGANIC CARBON
*     TNO3,MG/L,17778880,NITRATE NITROGEN
*     TNO2,MG/L,177788880,NITRITE NITROGEN
*     TAMMONIA,MG/L,17778880,AMMONIA NITROGEN
*     TKN,MG/L,17778880,TOTAL KJELDAHL NITROGEN
*     ALK,MG/L,NONE,ALKALINITY
*     HARD,MG/L,471341,HARDNESS
*     DSOLIDS,MG/L,NONE,TOTAL DISSOLVED SOLIDS
*     SSOLID,MG/L,NONE,TOTAL SUSPENDED SOLIDS
*     VSSOLID,MG/L,NONE,VOLATILE SUSPENDED SOLIDS
*     TCL,MG/L,NONE,TOTAL CHLORIDE
*     TSO4,MG/L,NONE,TOTAL SULFATE
*     PHLAB,SU,NONE,PH IN LAB
*     STREAM,CFS,NONE,INSTANTANEOUS FLOW
DATA DER.PWBSR83.A;
 INPUT @1 STATION $4. @5 DATE YYMMDD6. @11 TIME TIME5. @16 WTEMP 4.1
       @20 PH 4.2 @24 DO 4.1 @28 SCOND 3.0
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      @31 STREAM 6.2 @37 PHLAB 4.2 @41 ALK 5.1 @46 HARD 5.1
      @51 DSOLIDS 5.1 @56 TSO4 5.1 @61 TCL 5.1 @66 SSOLID 5.1
      @71 REMSSOLID $1. @72 VSSOLID 5.1 @79 REMVSSOLID $1.;
 CARDS;
TSC183092215:2010.57.5010.7095       7.10044.0047.0078.0020.0006.0005.0 002.0
TSC283092215:0015.08.1012.9305000.388.30130.0153.0204.0038.0008.0028.0 020.0
TSC383092215:3011.58.0010.6080       7.40056.0067.0098.0014.0004.0025.0 021.0
TSC483092215:0513.08.0011.4185001.498.00082.0098.0128.0023.0004.0015.0 013.0
TSC583092214:5013.07.9011.7235       8.00100.0123.0160.0030.0009.0013.0 006.0
TSC683092214:4512.07.9012.0210002.998.10112.0133.0178.0031.0006.0024.0 018.0
TSC783092214:3013.08.0012.6225       8.10116.0136.0180.0035.0006.0013.0 011.0
GTC183090715:00                      6.70112.0144.0356.0050.0050.0034.0
GTC283090713:5520.06.6004.1205000.077.10068.0090.0256.0075.0018.0032.0
GTC3830907      19.06.3007.0090
GTC483090714:0019.57.0005.0065       6.10005.0028.0084.0025.0003.0021.0
GTC583090713:3021.06.3006.8107       6.40010.0051.0123.0040.0002.0028.0
GTC683090712:3023.06.8006.3105       6.70028.0047.0118.0025.0004.0013.0
GTC783090713:0022.07.1007.4102000.846.80032.0049.0113.0025.0004.0005.0
GTC883090711:4520.07.3008.2092001.166.80030.0044.0151.0020.0004.0007.0
;
DATA DER.PWESR85.B;
 INPUT @1 STATION $4. @5 DATE YYMMDD6. @11 TIME TIME5. @16 BOD5U 5.1
      @21 REMBOD5U $1. @22 BOD5I 5.1 @27 REMBOD5I $1. @28 BOD20U 5.1
      @33 BOD20I 5.1 @38 REMBOD20I $1. @39 TORGC 4.1 @43 TKN 5.2
      @48 REMTKN $1. @49 TAMMONIA 5.2 @54 TNO2 6.4 @60 TNO3 4.2
      @64 TP 5.2 @69 TPSOL 5.2 @74 FECCOL 6.;
 CARDS;
TSC183090715:20000.4 000.5L001.0000.2 02.001.00 00.020.00600.2900.0300.02
TSC283090715:00000.8 000.2 003.4000.8 03.301.00L00.010.01801.2000.1400.10
TSC383090715:30                       02.7      00.010.00600.3500.0400.02
TSC483090715:05000.4 000.4L002.0000.4L01.301.00L00.010.00800.3700.0900.07
TSC583090714:50001.2 001.5L003.6001.0 02.901.00L     0.01600.5600.1200.09
TSC683090714:45000.4L000.4L003.4001.0 03.501.00L00.020.02200.3000.1300.10
TSC783090714:30000.6 000.6L002.3000.8 02.801.00L00.030.02000.5000.0700.06
GTC183090715:00005.2 004.7 030.0007.2 09.005.50 03.740.01800.2000.2000.03001000
GTC283090713:55002.0 001.5 037.0009.4 05.4      06.510.02800.0300.0600.12110000
GTC3830907
GTC483090714:00001.8 000.4 002.7000.2 01.500.40 00.010.00200.2000.0200.01000100
GTC583090713:30000.8 000.4 001.7000.6 01.300.60 00.010.00200.0600.0300.02
GTC683090712:30002.4 001.8 004.4002.3 02.100.60 00.030.00800.1500.0500.05000300
GTC783090713:00001.4 001.0 003.3001.5 02.500.40 00.020.00400.1600.0500.02
GTC883090711:45000.8 000.6 002.5000.9 01.900.60 00.040.00200.0600.0300.02
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*TI:  PRIORITY WATER BODY SURVEY REPORT WATER QUALITY STANDARDS REVIEW
*DS:  DER.PWBSR85.A
*RR:  DER.PWBSR85.B,DER.PWBSR85.C
*PI:  PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
*PO:  BUREAU OF WATER QUALITY MANAGEMENT
*     11TH FLOOR FULTON BUILDING
*     3RD & LOCUST STS.
*     HARRISBURG, PA  17120
*PR:  DIVISION OF WATER QUALITY
*     ROBERT FRY 717-787-9633
*PE:  1984
*GE:  LOWER SUSQUEHANNA RIVER BASIN, RAYSTOWN BRANCH JUNIATA RIVER,
*     BEAVER CREEK, DUNNING CREEK, CODORUS CREEK
*AB:  THE DER HAS DEVELOPED WATER QUALITY STANDARDS FOR ALL OF THE SURFACE
*     WATERS IN THE STATE.  THESE STANDARDS, WHICH ARE DESIGNED TO SAFEGUARD
*     PENNSYLVANIA'S STREAMS, RIVERS AND LAKES, CONSIST OF BOTH USE
*     DESIGNATIONS AND THE CRITERIA NECESSARY TO PROTECT THESE USES.  THE
*     STANDARDS ARE DESIGNED TO PROTECT EXISTING STREAM USES AND USES THAT
*     WOULD BE POSSIBLE IF THERE WERE NO POLLUTION.  THE FIRST SET OF
*     INVESTIGATIONS BEGAN IN 1983 AND ARE CONTINUING AS THE RESULT OF SECTION
*     303 OF THE FEDERAL WATER POLLUTION CONTROL ACT.
*     NOTE: REMARK CODES FOLLOW DATA VALUE. 'L' INDICATES  ACTUAL VALUE IS
*           LESS THAN VALUE GIVEN.
*ST:  STATION, LAT.,LONG.,RIVER MILE,DESCRIPTION
*     CDS1,395803,764351,?,CODORUS CK 0.1 MI UPSTRM OF N. GEORGE ST. BRIDGE
*     CDS2,395900,764327,?,CODORUS CK 50 YDS UPSTRM OF RTE 30 BRIDGE
*     CDS3,395951,764318,?,CODORUS CK1.0 MI DWNSTRM FROM RTE 30 BRIDGE
*     CDS4,400048,764248,?,CODORUS CK 0.5 MI DWNSTRM OF MUNDIS MILL RD. BRIDGE
*     CDS5,400108,764736,?,CODORUS CK IMMEDIATELY DWNSTRM OF RTE 24 BRIDGE
*     CDS6,400114,764106,?,CODORUS CK 1.0 MI DWNSTRM OF RTE 24 BRIDGE
*     CDS7,404308,763903,?,CODORUS CK 50 YDS UPSTRM OF BRIDGE @ CODORUS FURNACE
*     PHRN,?,?,?,POORHOUSE RUN AT CONFLUENCE TO CODORUS CK
*     MILL,?,?,?,MILL CREEK AT CONFLUENCE TO CODORUS CK
*     YSP1,?,?,?,CODORUS CK @ YORK STP DISCHARGE PIPE NUMBER ONE
*     YSP2,?,?,?,CODORUS CK @ YORK STP DISCHARGE PIPE NUMBER TWO
*     SSTP,?,?,?,CODORUS CK @ SPRINGETTSBURY SEWAGE TREATMENT PLANT
*     DUN1,400909,783357,?,DUNNING CREEK LR05060 SPUR A BRIDGE
*     BOB1,?,?,?,BOBS CREEK 100' UPSTRM OF LR05060 IN REYNOLDSVILLE
*     ADM1,?,?,?,ADAMS RUN UPSTRM OF LR05111 BRIDGE
*     DUN2,?,?,?,DUNNING CK JUNCTION OF T536 AND PA36
*     DUN3,?,?,?,DUNNING CK LR05052 BRIDGE
*     BEV1,395257,765842,?,BEAVER CK AT S-659 BRIDGE NR ABBOTTSTOWN
*     BEV2,395400,765903,?,BEAVER CK AT T-551 BRIDGE 650' EAST OF RTE 194
*     BEV3,395516,765807,?,BEAVER CK AT T-466 BRIDGE 200' DWNSTRM OF PARADISE
*     BUNT,?,?,?,UNNAMED TRIB. TO BEAVER CK @ T-659 BRIDGE NR RTE 30
*     RAY1,400030,782146,?,RAYSTOWN BR. JUNIATA 200 YDS UPSTRM OF EVERETT STP
*     RAY2,400104,782114,?,RAYSTOWN BR JUNIATA 1.5 MI DWNSTRM OF EVERETT STP
*     RAY3,400028,781900,?,RAYSTOWN BR JUNIATA 25' UPSTRM OF GREYS RUN
*     ESTP,?,?,?,RAYSTOWN BR JUNIATA @ EVERETT SEWAGE TREATMENT PLANT
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     WTEMP,DEG C,NONE,WATER TEMPERATURE
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     PH,S.U.,NONE,PH IN FIELD
*     SCOND,UMHOS/CM,NONE,SPECIFIC CONDUCTIVITY IN FIELD
*     TCLRES,PPB,7782505,TOTAL CHLORINE RESIDUAL
*     BODSU,MG/L,NONE,BOD 5 DAY UNINHIBITED
*     BODSI,MG/L,NONE,BOD 5 DAY INHIBITED
*     BOD200,MG/L,NONE,BOD 20 DAY UNINHIBITED
*     BOD201,MG/L,NONE,BOD 20 DAY INHIBITED
*     TP,MG/L,7723140,TOTAL PHOSPHORUS
*     TPSOL,MG/L,7723140,TOTAL SOLUBLE PHOSPHORUS
*     TORGC,MG/L,7440440,TOTAL ORGANIC CARBON
*     TNO3,MG/L,17779880,NITRATE NITROGEN
*     TNO2,MG/L,17778880,NITRITE NITROGEN
*     TAMMONIA,MG/L,17778880,AMMONIA NITROGEN
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CBP.REPORT30B

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*      TKN,MG/L,17778880,TOTAL KJELDAHL NITROGEN
*      ALK,MG/L,NONE,ALKALINITY
*      HARD,MG/L,471341,HARDNESS
*      DSOLIDS,MG/L,NONE,TOTAL DISSOLVED SOLIDS
*      SSOLID,MG/L,NONE,TOTAL SUSPENDED SOLIDS
*      VSSOLID,MG/L,NONE,VOLATILE SUSPENDED SOLIDS
*      TCL,MG/L,NONE,TOTAL CHLORIDE
*      TSO4,MG/L,NONE,TOTAL SULFATE
*      PHLAB,SU,NONE,PH IN LAB
*      STREAM,CFS,NONE,INSTATANEOUS FLOW
*      TCD,MG/L,7440439,TOTAL CADMIUM
*      TCR,MG/L,7440473,TOTAL CHROMIUM
*      TCU,MG/L,7440508,TOTAL COPPER
*      TFE,MG/L,7439896,TOTAL IRON
*      TPB,MG/L,7439954,TOTAL LEAD
*      TMN,MG/L,7439965,TOTAL MANGANESE
*      TNI,MG/L,7440020,TOTAL NICKEL
*      TZN,MG/L,7440666,TOTAL ZINC
*      TAL,MG/L,7429905,TOTAL ALUMINUM
*      PHENOL,MG/L,UNKNOWN,TOTAL PHENOL
*      COLOR,?,?,NONE,COLOR
DATA DER.PWBSR85.A;
 INPUT @1 STATION $4. @5 DATE YYMMDD6. @11 TIME TIME5. @16 WTEMP 4.1
       @20 PH 4.2 @24 DO 4.1 @28 SCOND 3.0
       @31 STREAM 6.2 @37 PHLAB 4.2 @41 ALK 5.1 @46 HARD 5.1
       @51 DSOLIDS 5.1 @56 TSO4 5.1 @61 TCL 5.1 @66 SSOLID 5.1
       @71 REMSSOLID $1. @72 VSSOLID 5.1 @79 REMVSSOLID $1.;
 CARDS;
CDS184072309:1524.07.3508.4650093.007.60070.0117.0382.0050.0092.0032.0 016.0
PHRN84072309:45                      8.20162.0208.0400.0055.0032.0010.0 010.0
MILL84072310:00                      8.00106.0129.0286.0040.0024.0016.0 012.0
CDS284072310:1524.08.0009.4550       7.70078.0123.0368.0050.0064.0034.0 010.0
YSP184072311:15                      7.90198.0234.0624.0128.0150.0260.0 022.0
YSP284072311:30                      6.80170.0262.0682.0065.0154.0012.0 012.0
CDS384072312:3025.0    06.7440       7.70062.0133.0398.0063.0097.0018.0 008.0
CDS484072313:3024.57.5005.6600       7.30086.0131.0388.0055.0094.0028.0 004.0
CDS584072314:4022.07.2004.7550174.407.30068.0135.0392.0055.0092.0032.0 004.0
SSTP84072513:00                      7.20158.0158.0390.0105.0097.0030.0 030.0
CDS684072513:3023.57.2005.3600       7.30098.0153.0400.0068.0110.0030.0 016.0
CDS784072514:1524.07.3006.3510189.207.40090.0145.0374.0068.0101.0032.0 012.0
BEV184101114:0015.57.4008.8140000.[illegible]9
BEV284101113:0017.58.0010.6200001.[illegible]5
BEV384101110:3016.07.4005.3180002.63
BEV184103109:10                      7.50074.0080.0144.0011.0007.0002.0L002.0L
BUNT84103109:30                      7.50088.0096.0164.0014.0012.0002.0L002.0L
BEV284103108:45                      7.60088.0104.0164.0016.0012.0002.0L002.0L
BEV384103110:00                      7.60094.0107.0190.0021.0014.0002.0L002.0L
DUN184080613:3022.07.2005.2170009.417.70054.0084.0170.0033.0009.0008.0 006.0
BOB184080613:4521.06.7006.9175029.588.10062.0088.0154.0026.0007.0010.0 008.0
ADM184080613:5024.57.3007.0165002.057.80064.0079.0128.0012.0005.0006.0 004.0
DUN284080614:1023.07.4005.1205       7.60062.0090.0164.0031.0007.0012.0 010.0
DUN384080614:2024.07.7008.5200037.658.00066.0096.0164.0033.0007.0008.0 006.0
RAY184080808:3021.57.4006.7275057.187.90100.0130.0224.0030.0012.0018.0 010.0
ESTP84080810:15                      6.80230.0176.0532.0039.0134.0068.0 058.0
RAY284080811:3023.87.7007.7288       7.90102.0128.0240.0027.0022.0014.0 010.0
RAY384080814:0023.58.7009.4290057.798.40100.0126.0240.0028.0016.0010.0 008.0
;
DATA DER.PWBSR85.B;
 INPUT @1 STATION $4. @5 DATE YYMMDD6. @11 TIME TIME5. @16 BOD5U 5.1
       @21 REMBOD5U $1. @22 BOD5I 5.1 @27 REMBOD5I $1. @28 BOD20U 5.1
       @33 BOD20I 5.1 @38 REMBOD20I $1. @39 TORGC 4.1 @43 TKN 5.2
       @48 TAMMONIA 5.2 @53 TNO2 6.4 @59 TNO3 4.2 @63 REMTNO3 $1.
       @64 TP 5.2 @69 TPSOL 5.2 @74 FECCOL 5.;
 CARDS;
CDS184072309:15000.2 001.4 004.8003.0 16.001.8000.080.02004.26 00.1200.0921000
PHRN84072309:45000.2 000.2 004.0000.2 14.800.2000.080.01004.93 00.0400.0402100
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MILL84072310:00000.2 000.2 000.2000.2 11.800.2000.060.02004.93 00.0200.0200840
CDS284072310:15000.2 000.4 003.0002.3 14.100.7000.030.02002.94 00.1100.0701900
YSP184072311:15000.5 000.5 002.0112.0 28.621.5107.850.07000.02 00.5900.1000100
YSP284072311:30000.5 000.5 029.0023.0 49.406.2002.750.01000.32 00.7700.5300200
CDS384072312:30000.2 000.6 016.8004.7 18.103.0001.650.04004.25 00.1800.1102900
CDS484072313:30000.2 000.6 007.8004.5 17.000.8000.750.07003.70 00.1600.0802200
CDS584072314:40000.2 000.2 006.4002.7 15.901.2000.410.08004.10 00.1800.0801900
SSTP84072513:00011.5 011.0 064.0001.0 27.514.4007.770.14000.80 01.32     11000
CDS684072513:30001.9 002.0 009.2002.2 15.102.0001.430.18004.00 00.25     01400
CDS784072514:15004.1 001.6 009.6005.4 13.401.2700.420.46004.16 00.24     00400
BEV184103109:10000.2L000.2L001.0000.4 04.300.2000.060.00801.56 00.0400.0400380
BUNT84103109:30000.2L000.2L004.2001.0 04.100.6000.310.07001.34 00.2200.2000250
BEV284103108:45000.2L000.2L002.0002.0 04.100.4400.090.03801.14 00.1700.1701500
BEV384103110:00000.2L000.2L001.8000.2L05.000.4000.070.01601.33 00.1000.1001500
DUN184080613:30000.2L000.2L002.3000.2L07.700.3800.060.02201.00 00.0400.0500720
BOB184080613:45000.2L000.2L001.9000.2L06.400.3400.050.02401.10 00.0200.0502400
ADM184080613:50000.2L000.2L000.9000.2L08.400.4700.050.01400.38 00.0400.0601300
DUN284080614:10000.2L000.2L001.7000.2L06.200.3700.080.02400.88 00.0700.0304200
DUN384080614:20000.2L000.2L001.5000.2L05.700.3600.070.02200.94 00.0200.0500820
RAY184080808:30001.6 001.4 004.0001.5 08.000.2800.010.01001.30 00.0500.0300500
ESTP84080810:15100.0 070.0 215.0110.0 49.836.0623.930.00480.02L10.2508.16
RAY284080811:30001.0 000.6 003.0000.9 08.300.3800.040.01603.17 00.0700.0401700
RAY384080814:00001.2 000.8 003.6001.7 00.800.3200.030.01401.28 00.0600.0400280
;
DATA DER.PWBSR85.C;
 INPUT @1 STATION $4. @5 YYMMDD6. @11 TIME5. @16 TCD 6.4 @22 REMTCD $1.
       @23 TCR 5.3 @28 RENTCR $1. @29 TCU 5.3 @34 REMTCU $1. @35 TFE 5.3
       @40 REMTFE $1. @41 TPB 5.3 @46 REMTPB $1. @47 TMN 5.3 @52 REMTMN $1.
       @53 TNI 5.3 @58 REMTNI $1. @59 TZN 5.3 @64 REMTZN $1.
       @65 TAL 5.3 @71 REMTAL $1. @72 PHENOL 5.3
 CARDS;
CDS184072309:150.0010 0.070 0.080 1.400 0.008 0.070 0.140 0.040 1.400 0.002
PHRN84072309:450.0002 0.070 0.080 0.130 0.004 0.050 0.140 0.030 0.100 0.000
MILL84072310:000.0002 0.070 0.080 0.330 0.004 0.050 0.140 0.020 0.100 0.001
CDS284072310:150.0010 0.070 0.080 1.360 0.009 0.070 0.140 0.030 0.900 0.002
YSP184072311:150.0010 0.070 0.080 1.060 0.011 0.080 0.140 0.060 0.300 0.002
YSP284072311:300.0002 0.070 0.080 0.680 0.010 0.090 0.140 0.060 0.300 0.005
CDS384072312:300.0020 0.070 0.080 0.990 0.046 0.070 0.140 0.040 0.700 0.002
CDS484072313:300.0008 0.070 0.080 1.560 0.014 0.100 0.140 0.020 0.700 0.001
CDS584072314:400.0010 0.070 0.080 1.560 0.016 0.100 0.140 0.020 1.400 0.000
SSTP84072513:000.0009 0.070 0.080 2.120 0.013 0.100 0.140 0.050 0.100 0.002
CDS684072513:300.0005 0.070 0.080 1.470 0.008 0.100 0.140 0.030 1.000 0.002
CDS784072514:150.0003 0.070 0.080 1.480 0.006 0.110 0.140 0.020 1.900 0.002
RAY184080808:300.0004 0.070L0.080L0.290 0.004L0.005L0.140L0.020 0.100
ESTP84080810:150.0010 0.070L0.090L0.920 0.008 0.130 0.140L0.090 0.200
RAY284080811:300.0005 0.070L0.080L0.240 0.004L0.050L0.140L0.010 0.200
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*TI: STREAM AND LAKE INVESTIGATIONS, PENNSYLVANIA
*OS: PAPER BASED FILE AVAILABLE FROM DER
*PI: PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
*PO: BUREAU OF WATER QUALITY MANAGEMEMT
* 11TH FLOOR FULTON BUILDING
* 3RD & LOCUST STREETS
* HARRISBURG, PA 17120

CBP.REPORT31

*PR: DIVISION OF WATER QUALITY
* ROBERT FRY 717-787-9633
*PE: VARIES FOR EACH REPORT
*GE: LOWER SUSQUEHANNA RIVER BASIN
*AB: INVESTIGATIONS CONDUCTED BY THE DER IN RESPONSE TO VARIOUS WATER QUALITY
* SURVEYS RANGING FROM BACKGROUND DATA TO INDUSTRIAL WASTES IN STREAMS.
* REPORTS ARE TWO TO FIVE PAGES WITH INFORMATION ON WATER QUALITY
* PARAMETERS BEING FROM A ONE POINT IN TIME GRAB SAMPLE. WATER QUALITY
* PARAMETERS ARE STANDARD BIOLOGICAL, PHYSICAL AND/OR CHEMICAL DEPENDING
* ON TYPE OF INVESTIGATION. STREAM INVESTIGATED, COUNTY, DATE, AND
* INVESTIGATION TYPE FOR EACH REPORT IS AS FOLLOWS:
* BOWERS RUN,ADAMS,4/14-15/74,BIGLERVILLE STP
* BOWERS RUN,ADAMS,7/9/80,AWT/AST
* GARDER RUN,ADAMS,10/22/80,GASOLINE SPILL
* OPOSSUM CREEK,ADAMS,4/8/74,DUFFY-MOTTS
* OPOSSUM CREEK,ADAMS,11/10/80,IW
* OPOSSUM CREEK,ADAMS,7/3/79,PESTICIDE
* U.T. CONEWAGO CREEK,ADAMS,6/20/72,IW-SEWAGE
* U.T. OPOSSUM CREEK,ADAMS,11/5/75,ADAMS SANITATION CO
* U.T. BOB'S CREEK,BEDFORD,9/29/93,PROPOSED STP
* CONESTOGA CREEK,BERKS,10/2-11/2/72
* CONESTOGA CREEK,BERKS,9/25/74,SEWAGE
* CONESTOGA RIVER,BERKS,5/27/75,GRACE MINES
* BEAVER BR JUNIATA RIVER,BLAIR,7/19/84,SEWAGE
* BEAVER DAM BR JUNIATA,BLAIR,7/15/71
* BLAIR GAP RUN,BLAIR,10/16/79,SEWAGE
* FRANKSTOWN BR JUNIATA R,BLAIR,8/19/82,IW
* FRANKSTOWN BR JUNIATA R,BLAIR,2/24-25/83,IW
* FRANKSTOWN BR JUNIATA R,BLAIR,10-19-83,IW
* HALTER CREEK,BLAIR,9/16/82,SEWAGE
* LITTLE JUNIATA,BLAIR,2/6/73,SEWAGE
* LITTLE JUNIATA & TRIBS,BLAIR,7/19/79,BASELINE DATA
* LITTLE JUNIATA R,BLAIR,7/20/83,BACKGRND-SEWAGE URBAN
* PLUM CREEK,BLAIR,7/18/84,SEWAGE
* SANDY RUN,BLAIR,7/17-18/75,HEAVY METALS
* SANDY RUN,BLAIR,7/16/79,METALS
* BALD EAGLE,CENTRE,6/23/71,
* LAUREL RUN,CENTRE,6/23/71,
* LAUREL RUN,CENTRE,12/5/72,SILTATION
* LAUREL RUN,CENTRE,3/27/72,SILTATION
* PENNS CREEK,CENTRE,8/9-11/72,
* PENNS CREEK,CENTRE,5/20/82,GYPSY MOTH SPRAYING
* SINKING SPRING,CENTRE/11/15/71,
* SPRING CREEK,CENTRE,6/7-8/71,
* BIG SPRING,CUMBERLAND,11/19/71,
* BIG SPRING,CUMBERLAND,1/25/73,DENDY STUDY
* BIG SPRING CREEK,CUMBERLAND,4/2/71,
* BIG SPRING CREEK,CUMBERLAND,4/30/71,
* BIG SPRING CREEK,CUMBERLAND,10/16/79,SEWAGE
* BIG SPRINGS,CUMBERLAND,2/2/72,FISH HATCH
* BIG SPRINGS,CUMBERLAND/3/16/72,FISH HATCH
* BIG SPIRNGS CREEK,CUMBERLAND,1/10/74,FISH HATCHERY
* CONODOGUINET CREEK,CUMBERLAND,7/31/79,LANDFILL
* GREEN SPRING,CUMBERLAND,10/20/81,AGRICULTURAL
* GREEN SPRING,CUMBERLAND,6/1/82,IW
* GREEN SPRING,CUMBERLAND,7/21/82,IW
* HOLTZ CREEK,CUMBERLAND,4/12/83,SEDIMENTATION
* HUNTERS RUN-MT. CREEK,CUMBERLAND,1/5/72,PESTICIDES

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*     LETORT,CUMBERLAND,5/28/81,AGRICULTURE
*     LETORT SPRING RUN,CUMBERLAND,5/26/82,IW
*     LETORT SPRING RUN,CUMBERLAND,7/19/82,IW
*     LETORT SPRING RUN,CUMBERLAND,8/10/82,IW
*     LETORT SPRING RUN,CUMBERLAND,7/1/83,IW
*     MIDDLE SPRING CREEK,CUMBERLAND,3/22/79,SEWAGE
*     MOUNTAIN CREEK,CUMBERLAND,4/21/80,IW
*     MOUNTAIN CREEK,CUMBERLAND,7/16/80,IW
*     MOUNTAIN CREEK,CUMBERLAND,1/12/81,IW
*     MOUNTAIN CREEK,CUMBERLAND,2/3-4/81,IW
*     MOUNTAIN CREEK,CUMBERLAND,4/2-6,81,IW & INSTREAM BIOASSAY
*     MOUNTAIN CREEK,CUMBERLAND,3/23/82,IW
*     OPOSSUM CREEK,CUMBERLAND,8/1/75,E. PENNSBORO LANDFILL
*     SUSQUEHANNA RIVER,CUMBERLAND,9/11/75,ENOLA YARDS
*     SUSQUEHANNA RIVER,CUMBERLAND,7/30/79,SEWAGE
*     TRINDLE SPRING,CUMBERLAND,8/2/73,SEWAGE
*     U.T. CONODOGUINET CREEK,CUMBERLAND,7/9/82,LANDFILL LEACHATE
*     U.T. YELLOW BREECHES,CUMBERLAND,1/10/72,IW-THERMAL
*     U.T. YELLOW BREECHES,CUMBERLAND,9/19/72,IW-THERMAL
*     YELLOW BREECHES CREEK,CUMBERLAND,9/4/79,ENCROACHMENT
*     CLARKS CREEK,DAUPHIN,5/2&5/30,BACKGROUND
*     GURDYS RUN,DAUPHIN,2/26/82,SEWAGE
*     LITTLE WICONISCO CREEK,DAUPHIN,11/21/74,FULK ROAD LANDFILL
*     PAXTON CREEK,DAUPHIN,10/20/71,
*     PAXTON CREEK,DAUPHIN,7/12/75,SUSQ. TWP LANDFILL
*     SPRING CREEK,DAUPHIN,3/25/74,HERSHEY FOODS
*     SPRING CREEK,DAUPHIN,4/1/75,SWATARA TWP. LANDFILL
*     SPRING CREEK,DAUPHIN,7/28/81,IW
*     SPRING CREEK,DAUPHIN,8/24/84,IW
*     SPRING CREEK-HERSHEY,DAUPHIN,5/24/72,
*      SPRING CREEK-SWATARA,DAUPHIN,5/25/72,
*     STONY CREEK,DAUPHIN,3/20/74,PUMP STORAGE
*     SUSQUEHANNA RIVER,DAUPHIN,8/27/79,SEWAGE
*     SWATARA CREEK,DAUPHIN,9/30-10/30/80,BACKGROUND
*     U.T. BEAVER CREEK,DAUPHIN,1/10/72,
*     U.T. BEAVER CREEK,DAUPHIN,7/31/75,LOWER PAXTON LANDFILL
*     U.T. BEAVER CREEK,DAUPHIN,4/15/81,LANDFILL
*     U.T. BEAVER CREEK,DAUPHIN,6/2/83,LANDFILL
*     U.T. KELLOCK RUN,DAUPHIN,6/5/84,IW(LANDFILL)
*     U.T. SPRING CREEK,DAUPHIN,6/11/75,HERSHEY STP
*     U.T. SWATARA,DAUPHIN,9/4/73,IW
*     U.T. WICONISCO CREEK,DAUPHIN,12/23/81,LANDFILL
*     U.T. WICONISCO CREEK,DAUPHIN,3/22/82,LANDFILL LEACHATE
*     WICONISCO CREEK,DAUPHIN,6/25/74,MINE DRAINAGE-SEWAGE
*     WICONISCO CREEK,DAUPHIN,4/9/81,MINING
*     WICONISCO CREEK,DAUPHIN,7/14/82,SEWAGE
*     CONODOGUINET CREEK,FRANKLIN,10/9/74,BENDER'S LANDFILL
*     MIDDLE SPRING CREEK,FRANKLIN,8/14/72,THERMAL
*     ROWE RUN,FRANKLIN,2/4/74,LETTERKENNY DISCHARGE
*     AUGWICK,HUNTINGDON,3/19/71,
*     DETWEILER RUN,HUNTINGDON,2/15-16/79,NONPOINT SOURCE POLLUTION
*     HILL VALLEY CREEK,HUNTINGDON,2/8/84,BACKGROUND
*     JUNIATA RIVER,HUNTINGDON,9/27/,SILTATION
*     LITTLE JUNIATA RIVER,HUNTINGDON,7/11/83,BACKGRND-SEWAGE URBAN
*     TUSCARORA CREEK,JUNIATA,5/31-6/1/71,BACKGRND
*     TUSCARORA CREEK,JUNIATA,7/28/72,FLOOD DMG
*     CANONY CREEK,LANCASTER,11/15/71,
*     CHICKIES CREEK,LANCASTER,8/17/72,
*     COCALICO CREEK,LANCASTER,8/20/79,SEWAGE
*     CONESTOGA CREEK,LANCASTER,10/24-11/2/72,
*     CONESTOGA RIVER,LANCASTER,4/22/75,LANCASTER STP
*     CONOY CREEK,LANCASTER,7/23/75,ELIZABETHTWN LANDFILL
*     CONOY CREEK,LANCASTER,3/31/81,IE
*     CONOY CREEK,LANCASTER,6/8/83,LANDFILL
*     EVANS RUN,LANCASTER,6/25/79,IW
*     LITITZ CREEK,LANCASTER,5/17/72,
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*     LITITZ RUN,LANCASTER,9/17/75,CONESTOGA SHERATON INN
*     LITITZ RUN,LANCASTER,3/28/79,SEWAGE
*     LITTLE MUDDY CREEK,LANCASTER,9/24/72,
*     LITTLE MUDDY CREEK,LANCASTER,7/21/83,SEWAGE
*     LITTLE MUDDY RUN,LANCASTER,7/17/79,IW & SEWAGE
*     MIDDLE CREEK,LANCASTER,7/20/79,WATER FOWL
*     MILL CREEK,LANCASTER,8/22/74,NEW HOLLAND STP
*     MILL CREEK,LANCASTER,7/27/79,SEWAGE
*     MILL CREEK,LANCASTER,3/18/82,LANDFILL LEACHATE
*     MUDDY CREEK,LANCASTER,3/16/72,
*     MCGRAN RUN,LANCASTER,2/21/80,IW
*     OCTORARO CREEK,LANCASTER,7/7-8/83,BACKGROUND AGRIC.
*     PEQUEA CREEK,LANCASTER,8/27-31/73,WATERSHED
*     S. FORK BOG BEAVER CREEK,LANCASTER,10/20/83,SEWAGE
*     SHAWNEE RUN,LANCASTER,7/31/84,IW
*     SHAWNEE RUN,LANCASTER,8/2/84,IW
*     SUSQUEHANNA RIVER,LANCASTER,8/23-25/83,IW (THERMAL)
*     SWARR RUN,LANCASTER,2/13&15/73,EUTROPHICATION
*     U.T. BOWERY RUN,LANCASTER,1/15/74,NAPHTHALENE SPILL
*     U.T. BOWERY RUN,LANCASTER,4/9/75,PENN CENTRAL DERAILMNT
*     U.T. COCALICO CREEK,LANCASTER,4/15/72,
*     U.T. CONESTOGA RIVER,LANCATER,4/7/83,MINING
*     U.T. HAMMER CREEK,LANCASTER,4/12/72,
*     U.T. LITTLE CONESTOGA,LANCASTER,6/20/73,IW-COOLING
*     U.T. CONESTOGA,LANCASTER,11/4/81,AGRICULTURE
*     U.T. PEQUEA CREEK,LANCASTER,6/20/84,BACKGROUND (SEWAGE)
*     BEACH RUN,LEBANON,10/27/71,
*     BECK CREEK,LEBANON,6/12/72,
*     DEEP RUN,LEBANON,10/27/71,
*     ELIZABETH RUN,LEBANON,10/27/71,
*     HAMMER CREEK,LEBANON,3/21-22/73,IW
*     HAMMER CREEK,LEBANON,12/5/74,PENNCO DISTILLERIES
*     KILLINGER CREEK,LEBANON,5/17/74,BETHLEHEM QUARRY
*     QUITTAPAHILLA CREEK,LEBANON,8/30-31/72,
*     QUITTAPAHILLA CREEK,LEBANON,9/3/80,IW & SEWAGE
*     QUITTAPAHILLA CREEK,LEBANON,8/22/84,IW/SEWAGE
*     QUITTAPAHILLA CREEK,LEBANON,4/13/71,
*     SNITZ CREEK,LEBANON,1/19/75,CORNWALL MINES
*     SNITZ CREEK,LEBANON,1/29/75,CORNWALL MINES
*     SNITZ CREEK,LEBANON,7/19/79,BACKGROUND
*     SNITZ CREEK,LEBANON,1/13/83,IW
*     SWATARA CREEK,LEBANON,9/30-10/30/80,BACKGROUND
*     U.T. GRINGRICH RUN,LEBANON,7/24/84,IW
*     U.T. HAMMER CREEK,LEBANON,4/30/74,BACKGROUND
*     U.T. MILL CREEK,LEBANON,6/3/82,IW
*     U.T. MILL CREEK,LEBANON,7/29/82,IW
*     U.T. SWATARA CREEK,LEBANON,4/12/73,SEWAGE-SILTATION
*     U.T. SWATARA CREEK,LEBANON,7/12/79,LANDFILL
*     HONEY CREEK,MIFFLIN,9/29/72,SEWAGE
*     HONEY CREEK,MIFFLIN,7/27/79,IW
*     JACKS CREEK,MIFFLIN,7/14-15/75,HVY METALS & LANDFILL
*     JACKS CREEK,MIFFLIN,4/25/84,IW (LANDFILL)
*     JUNIATA RIVER,MIFFLIN,8/23-24/71,
*     KISHACOQUILLAS CREEK,MIFFLIN,7/14-15/83/IW
*     KISHACOQUILLAS,MIFFLIN,6/19/75,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,6/1/71,
*     KISHACOQUILLAS CREEK,MIFFLIN,2/29/72,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,5/18/72,IW-DAIRY
*     KISHACOQUILLAS CREEK,MIFFLIN,8/2/72,IW-DAIRY
*     KISHACOQUILLAS CREEK,MIFFLIN,10/27/72,PROP STP
*     KISHACOQUILLAS CREEK,MIFFLIN,11/29/73,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,5/31/74,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,9/23/74,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,10/22/74,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,10/29/74,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,4/23-24/75,IW THERMAL OIL
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*     KISHACOQUILLAS CREEK,MIFFLIN,7/26/79,IW & SEWAGE
*     KISHACOQUILLAS CREEK,MIFFLIN,7/27/79,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,8/20-21/79,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,1/5/83,SEWAGE
*     KISHACOQUILLAS CREEK,MIFFLIN,11/9/83,IW
*     KISHACOQUILLAS CREEK,MIFFLIN,9/29/73,IW-THERMAL
*     KISHACOQUILLAS CREEK,MIFFLIN,4/23-24/75,IW
*     LAUREL CREEK,MIFFLIN,11/4/71,
*     LAUREL CREEK,MIFFLIN,3/28/72,SILTATION
*     LAUREL CREEK,MIFFLIN,6/27/79,FISH KILL
*     LAUREL RUN,MIFFLIN,5/13/71,
*     LAUREL RUN,MIFFLIN,11/4/71,
*     PENNS CREEK,MIFFLIN,5/20/82,GYPSY MOTH SPRAYING
*     MAHANOY CREEK,NORTHUMBERLAND,8/21/73,MINE DRAINAGE & SEWAGE
*     MILLERS RUN,MORTHUMBERLAND,6/30/82,COAL PROCESSING PLANT
*     MOUSE CREEK,NORTHUMBERLAND,12/17-19/73,FOOD PROCESSING WASTES
*     SUSQUEHANNA RIVER,NORTHUMBERLAND,5/19/82,POWER PLANT MONITORING
*     SUSQUEHANNA RIVER,NORTHUMBERLAND,7/13-15/82,POWER PLANT MONITORING
*     SUSQUEHANNA RIVER,NORTHUMBERLAND,7/19/82,BLACKFLY SPRAYING
*     SUSQUEHANNA RIVER,NORTHUMBERLAND,7/23/82,BLACKFLY SPRAYING
*     SWABER CREEK,NORTHUMBERLAND,12/17-19/73,FOOD PROCESSING WASTES
*     BAILEY RUN,PERRY,8/16/83,PROPOSED STP
*     BUFFALO CREEK,PERRY,11/13/80,IW
*     LITTLE BUFFALO CREEK,PERRY,8/17/73,CHLORINE
*     PANTHER CREEK,PERRY,10/26/83,AGRICULTURAL RUNOFF
*     SHERMANS CREEK,PERRY,6/6-8/72,BACKGRND
*     SHERMANS CREEK,PERRY,7/31/72,FLOOD DMG
*     U.T. LITTLE JUNIATA,PERRY,8/17/73,CHLORINE
*     U.T. CHERMANS CREEK,PERRY,8/17/73,CHLORINE
*     HANS YOST CREEK,SCHUYLKILL,6/1/72,
*     SWATARA CREEK,SCHUYLKILL,9/30-10/30/80,BACKGROUND
*     U.T. BEAR CREEK,SCHUYLKILL,4/26/74,INSECTICIDES
*     U.T. BEAR CREEK,SCHUYLKILL,5/21/74,INSECTICIDES
*     U.T. BEAR CREEK,SCHUYLKILL,5///22/74,INSECTICIDES
*     U.T. BEAR CREEK,SCHUYLKILL,5/29/74,INSECTICIDES
*     MIDDLE CREEK,SNYDER,1/16-18/73,WATERSHED
*     MIDDLE CREEK,SNYDER,1/16-19/73,SEWAGE
*     MIDDLE CREEK,SNYDER,6/25-26/79,STP
*     PENNS CREEK,SNYDER,8/9-11/72,
*     PENNS CREEK,SNYDER,11/9/73,SEWAGE
*     S. BR. MIDDLE CREEK,SNYDER/11/2/73,ORGANICS
*     SUSQUEHECKA CREEK,SNYDER,4/9/73,DREDGING
*     SUSQUEHANNA RIVER,SNYDER,2/19/73,THERMAL
*     SUSQUEHANNA RIVER,SNYDER,2/21/73,THERMAL
*     SUSQUEHANNA RIVER,SNYDER,8/30/73,HEATED WASTES
*     SUSQUEHANNA RIVER,SNYDER,1/19/73,HEATED WASTES
*     SUSQUEHANNA RIVER,SNYDER,3/21/73,HEATED WASTES
*     SUSQUEHANNA RIVER,SNYDER,8/30-31/73,HEATED WASTES
*     U.T. TUSCARORA CREEK,SNYDER,9/13/79,ORGANICS
*     COLD RUN,UNION,6/26/79,FISH KILL
*     PENNS CREEK,UNION,8/9-11/72,WATERSHED
*     SINKING & PENNS,UNION,7/2/71,
*     BLACK OUT CREEK,YORK,8/28/84,IW/SEWAGE
*     CODORUS CREEK,YORK,7/15/80,AWT/AST
*     CODORUS CREEK,YORK,9/29/79,SEWAGE
*     CODORUS CREEK,YORK,9/11/80,FISH KILL
*     CODOURS CREEK,YORK,9/24/80,HERBICIDE SPILL
*     DEE RUN,YORK,4/1/80,KEROSENE
*     DEER CREEK,YORK,6/13/72,
*     DEER CREEK,YORK,2/21/74,SEWAGE
*     DEER CREEK,YORK,5/30/74,SEWAGE
*     DEER CREEK,YORK,6/2-6,75,BIOASSAY
*     DEER CREEK,YORK,6/9/75,SEWAGE
*     DOE CREEK,YORK,4/15/71,
*     DOE RUN,YORK,3/13/79,IW
*     DOE RUN,YORK,4/28/82,IW
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* DOGWOOD RUN,YORK,11/26/74,DILLSBURG STP
* EBAUGHS CREEK,YORK,1/27/75,STRIP MINE SILTATION
* FISHING CREEK,YORK,6/20/80,IW
* FISHING CREEK,YORK,5/7/75,FLINCHBAUGH PRODUCTS
* FISHING CREEK,YORK,10/20/82,BACKGROUND
* FISHING CREEK,YORK,10/27/82,BACKGROUND
* FOX RUN,YORK,8/26/82,SEWAGE
* FOX RUN/LITTLE CONEWAGO,YORK,7/25/80,AWT/AST
* HARTMAN RUN,YORK,8/19/74,PP&L BRUNNER ISLAND
* HARTMAN RUN,YORK,8/28/84,IW/SEWAGE
* KREBS RUN,YORK,8/8/74,AMP METAL PLATING
* OIL CREEK,YORK,4/15/75,PENN TWP STP
* OIL CREEK,YORK,11/24/81,IW/SEWAGE
* PINE RUN,YORK,10/25/79,IW
* POORHOUSE RUN,YORK,5/1/79,IW & SEWAGE
* S. BR. CODORUS CREEK,YORK,1/26/82,BACKGROUND/PESTICIDES
* S. BR. CODORUS CREEK,YORK,6/2/82,BACKGROUND/PESTICIDES
* S. BR. CODORUS CREEK,YORK,6/5/81,SEWAGE
* SEAKS RUN,YORK,4/20/79,MANURE
* SUSQUEHANNA RIVER,YORK,8/31/81,IW
* SUSQUEHANNA RIVER,YORK,8/23-25/83,IW (THERMAL)
* TYLER RUN,YORK,3/25/81,IW
* U.T. BENNET RUN,YORK,3/14/83,IW
* U.T. BENNETT RUN,YORK,1/27/84,IW
* U.T. CODORUS CREEK,YORK,2/15/79,IW
* U.T. CONEWAGO CREEK,YORK,6/21/83,LANDFILL
* U.T. EBAUGHS CREEK,YORK/12/23/84,BACKGROUND (LANDFILL)
* U.T. KRENTZ CREEK,YORK,8/26-27/81,LANDFILL
* U.T. KRUNTZ CREEK,YORK,2/13/84,ACID SPILL
* U.T. OIL CREEK,YORK,4/20/82,IW
* U.T. OIL CREEK,YORK,8/30/84,IW
* U.T. RAMBO RUN,YORK,12/28/84,BACKGROUND (LANDFILL)
* U.T. S. BR. CODORUS CREEK,YORK,12/19/84,BACKGROUND (HOG FARM)
* U.T. S. BR. CODORUS CREEK,YORK,4/12/84,IW (LANDFILL)
* U.T. S. BR. CODORUS CREEK,YORK,7/15/75,SUMMERS CANNING PLANT
* U.T. S. BR. CODORUS CREEK,YORK,7/26/72,LANDFILL
* U.T. YELLOW BREECHES,YORK,1/22/74,GASOLINE SPILL
* U.T. YELLOW BREECHES,YORK,8/15/74,MEADOW BROOK MOBILE
* W. BR. CODORUS CREEK,YORK,7/20-21/81,IW
* W. BR. CODORUS CREEK,YORK,7/26-27/83,IW/SEWAGE
* W. BR. CODORUS CREEK,YORK,9/15/80,

*TI: WATER RESORUCES DATA FOR PENNSYLVANIA,VOLUME TWO,SUSQUEHANNA AND POTOMAC RIVER BASINS
*DS: IN STORET
*PI: U.S. GEOLOGICAL SURVEY
*PO: WATER RESOURCES DIVISION
P.O. BOX 1107
HARRISBURG, PA 17108
*PR: DISTRICT CHIEF, WATER RESOURCES DIVISION
*PE: 1964 TO PRESENT
*GE: SUSQUEHANNA RIVER BAISN, POTOMAC RIVER BASIN
*AB: AN ANNUALLY PRINTED REPORT OF APPROXIMATELY 350 STATIONS FROM WHICH DATA ARE COLLECTED. MOST MONITOR STREAM DISCHARGE, TEMPERATURE, SPECIFIC CONDUCTIVITY, AND DISSOLVED OXYGEN. DETAILED DATA ON PHYSICAL, CHEMICAL, AND BIOLOGICAL WATER QUALITY PARAMETERS ARE AVAILABLE. COMPUTER DATA AVAILABLE ON THE USGS WATSTORE SYSTEM AND STORET SYSTEM.

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*TI:  CONESTOGA HEADWATERS RURAL CLEAN WATER PROGRAM (RCWP)
*     COMPREHENSIVE MONITORING PLAN-OCTOBER 1982
*     PROGRESS REPORT 1984
*     PROGRESS REPORT 1985
*DS:  IN STORET AND WATSTORE
*PI:  U.S. DEPARTMENT OF AGRICULTURE, AGRICULTURAL STABILIZATION
*     AND CONSERVATION SERVICE.
*PO:  FEDERAL BUILDING
*     ROOM 760
*     HARRISBURG, PA 17108
*     717-782-4547
*PR:  EUGENE F. THOMPSON, ASCS STATE EXECUTIVE DIRECTOR
*PE:  1982-PRESENT
*GE:  LOWER SUSQUEHANNA RIVER BASIN, CONESTOGA RIVER BASIN,
*     LANCASTER COUNTY
*GL:  MAX LAT 402000 LONG 762900
*     MIN LAT 395300 LONG 754700
*AS:  THE STUDY MONITORS WATER QUALITY IN THE SURFACE WATER AND GROUND WATER AT
*     SELECTED BMP SITES IN THE COENSTOGA HEADWATERS BASIN.  MOINTORING IS
*     BEING CONDUCTED BEFORE AND AFTER BMP'S IMPLEMENTATION TO DETERMINE THE
*     EFFECTS OF BMP'S ON THE MOVEMENT OF NUTRIENTS, PESTICIDES, AND COLIFORM
*     BACTERIA.  MONITORING SCALES CONSIST OF A REGIONAL NETWORK, A SMALL
*     WATERSHED AND TWO FIELD SITES.  THE NATIONAL WATER QUALITY EVALUATION
*     PROJECT CENTER AND NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NC, SERVES
*     AS A REPOSITORY FOR ALL RCWP MONITORING PROGRAM INFORMATION.  ALL DATA
*     ARE STORED UNDER NEWLY ESTABLISHED STATION NUMBERS UNDR THE WATSTORE AND
*     STORET SYSTEMS.
*     USGS SEDIMENT LABORATORY HARRISBURG, PA FOR SUSPENDED SEDIMENT AND
*     PARTICLE SIZE ANALYSIS
*     PADER BUREAU OF LABORATORIES HARRISBURG, PA FOR CHEMICAL ANALYSIS
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     015760823,400742,755840,?,AG. FIELD RUNOFF SITE #1 NR CHURCHTOWN PA
*     015760831,400942,755514,?,LITTLE CONESTOGA CK SITE 1 NR MORGANTOWN PA
*     015760832,400906,755504,?,LITTLE CONESTOGA CK SITE 2 NR MORGANTOWN PA
*     015760835,400858,755506,?,LITTLE CONESTOGA CK SITE 2A NR MORGANTOWN PA
*     015760833,400850,755524,?,LITTLE CONESTOGA CK SITE 3 NR MORGANTOWN PA
*     015760835,400847,755537,?,LITTLE CONESTOGA CK SITE 3A NR MORGANTOWN PA
*     015760839,400820,755814,?,LITLE CONESTOGA CK SITE 9 NR MORGANTOWN PA
*     015760835,400841,755920,?,LITTLE CONESTOGA CK NEAR CHURCHTOWN PA
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     SEDSUS,MG/L,NONE,SUSPENDED SEDIMENT
*     SCOND,UMHOS,NONE,SPECIFIC CONDUCTANCE
*     PH,S.U.,NONE,PH
*     ALK,?,NONE,ALKALINITY
*     DO,MG/L,7782447,DISSOLVED OXYGEN
*     FECCOL,COL/100ML,?,FECAL COLIFORM
*     FECSTR,COL/100ML,?,FECAL STREPTOCCI
*     DSOLIDS,MG/L,NONE,DISSOLVED SOLIDS
*     TCA,MG/L,7440702,CALCIUM
*     TNA,MG/L,7440235,SODIUM
*     TK,MG/L,7440097,POTASSIUM
*     TMG,MG/L,7439954,MAGNESIUM
*     TCL,MG/L,7782505,CHLORIDE
*     TSO4,MG/L,14808798,SULFATE
*     TN,MG/L,17778880,TOTAL NITROGEN
*     TKN,MG/L,17778880,TOTAL KJELDAHL NITROGEN
*     TAMMONIA,MG/L,17778880,AMMONIA-N
*     TNO2,MG/L,17778880,TOTAL NITRITE-N
*     TNO3,MG/L,17778880,TOTAL NITRATE-N
*     DN,MG/L,17778880,DISSOLVED NITROGEN
*     TP,MG/L,7723140,TOTAL PHOSPHOROUS
*     DP,MG/L,7723140,DISSOLVED PHOSPHORUS
*     DORTHOP,MG/L,7723140,DISSOLVED ORTHOPHOSPHATE
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*     ATRZ,MG/L,1912249,ATRAZINE
*     SIMAZINE,MG/L,122349,SIMAZINE
*     ALACHLOR,MG/L,15972608,ALACHLOR (LASSO)
*     METALA,UG/L,?,METOLACHLOR (DUAL)
*     CYANAZINE,UG/L,21725462,CYANAZINE (BLADEX)
*     TOXPHNE,UG/L,8001352,TOXAPHENE
*     STREAM,CFS,NONE,INSTATANEOUS DISCHARGE
*     DNO23,MG/L,17778880,DISSOLVED NITRATE + NITRITE
*     TNO23,MG/L,17778880,TOTAL NITRATE + NITRITE
*     DNO2,MG/L,17778880,DISSOLVED NITRITE
*     DNO3/MG/L,17778880,DISSOLVED NITRATE
*     DAMMONIA,MG/L,17778880,DISSOLVED AMMONIA
*     PROPAZNE/UG/L,139402,PROPAZINE
*     SEPDISC,TONS/DAY,NONE,SEDIMENT DISCHARGE
*     SSED.062,%,NONE,SUSPENDED SEDIMENT % (C.062MM
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*TI:  "STRONTIUM ISOTOPES IN SELECTED STREAMS WITHIN THE SUSQUEHANNA RIVER
*     BASIN" WATER RESOURCES RESEARCH VOL. 12 NO. 5 OCT. '76
*DS:  WRR.OCT76
*PI:  R. STEPHEN FISHER AND ALAN M. STUEBER                    CBP.REPORT34
*PO:  R. STEPHEN FISHER                ALAN M. STUEBER
*     DEPT. OF GEOLOGICAL SCIENCES     DEPT. OF GEOLOGY
*     NORTHWESTERN UNIVERSITY          MIAMI UNIVERSITY
*     EVANSTON, ILLINOIS 60201         OXFORD, OHIO  45056
*PE:  2 DAY INTERVAL IN JULY 1974
*GE:  LOWER SUSQUEHANNA RIVER BASIN
*AB:  THE CONCENTRATION AND ISOTOPIC COMPOSITION OF STRONTIUM IN WATER SAMPLES
*     IN THE SUSQUEHANNA RIVER AND ITS MAJOR TRIBUTARIES BETWEEN NORTHUMBER-
*     LAND, PA AND THE CHESAPEAKE BAY HAVE BEEN DETERMINED TO INVESTIGATE THE
*     USEFULNESS OF THE 87SR/86SR RATIO AS A TRACER IN HYDROLOGIC STUDIES.
*     RATIOS ARE DETERMINED BY LOCAL BEDROCK TYPE AND AQUIFER CHARACTERISTICS.
*     IN THE NORTHERN HALF OF THE STUDY AREA, THE RATIOS INDICATE INCOMPLETE
*     MIXING OF TRIBUTARY AND MAIN STREAM WATERS.  TRIBUTARIES WERE SAMPLED
*     AT THEIR MOUTHS AND THE SUSQUEHANNA RIVER SAMPLED ABOVE AND BELOW THE
*     POINT AT WHICH A TRIBUTARY ENTERS IT.
*
*     STRONTIUM WATER CONCENTRATION WAS DETERMINED ON A PERKIN-ELMER MODEL 303
*     ATOMIC ABSORPTION SPECTROPHOTOMETER ACCORDING TO A METHOD OF FISHMAN AND
*     DOWS, 1966 USGS WATER SUPPLY PAPER 1540-C, 23-45.
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     TSR,MG/L,7440246,TOTAL STRONTIUM
*     SRRATIO,NONE,NONE,87SR/86SR RATIO NORMALIZED TO
*                       88SR/86SR=8.375
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     S02,,,,SUSQUEHANNA RIVER
*     S01,,,,WEST BR SUSQUEHANNA RIVER
*     S03,,,,SUSQUEHANNA RIVER
*     S04,,,,SHAMOKIN CREEK
*     S05,,,,SUSQUEHANNA RIVER
*     S06,,,,PENN CREEK
*     S07,,,,SUSQUEHANNA RIVER
*     S08,,,,MAHANOY CREEK
*     S09,,,,SUSQUEHANNA RIVER
*     S10,,,,WEST MAHANTANGO CREEK
*     S11,,,,SUSQUEHANNA RIVER
*     S12,,,,EAST MAHANTANGO CREEK
*     S13,,,,SUSQUEHANNA RIVER
*     S14,,,,WICONISCO CREEK
*     S15,,,,SUSQUEHANNA RIVER
*     S16,,,,POWELL CREEK
*     S17,,,,SUSQUEHANNA RIVER
*     S18,,,,JUNIATA RIVER
*     S19,,,,SUSQUEHANNA RIVER
*     S20,,,,SHERMAN CREEK
*     S21,,,,SUSQUEHANNA RIVER
*     S22,,,,CONODOGUINET CREEK
*     S23,,,,SUSQUEHANNA RIVER
*     S24,,,,YELLOW BREECHES CREEK
*     S25,,,,SUSQUEHANNA RIVER
*     S26,,,,SWATARA CREEK
*     S27,,,,SUSQUEHANNA RIVER
*     S28,,,,WEST CONEWAGO CREEK
*     S29,,,,SUSQUEHANNA RIVER
*     S30,,,,CODORUS CREEK
*     S31,,,,CHICKIES CREEK
*     S32,,,,SUSQUEHANNA RIVER
*     S33,,,,CONESTOGA CREEK
*     S34,,,,PEQUEA CREEK
*     S36,,,,SUSQUEHANNA RIVER
*     S37,,,,MUDDY CREEK
*     S38,,,,BROAD CREEK
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*      S39,,,,SUSQUEHANNA RIVER
*      S40,,,,OCTORARO CREEK
*      S41,,,,DEER CREEK
*      S42,,,,SUSQUEHANNA RIVER
*      S35,,,,CHESAPEAKE BAY
DATA WRR.OCT76;
 INPUT @1 STATION $3. @4 MONTH 2.0 @6 YEAR 2.0 @8 TSR 4.2 @12 SRRATIO 6.4;
 CARDS;
S0207740.210.7126
S0107740.200.7114
S0307740.170.7140
S0407740.390.7165
S0507740.20
S0607740.390.7091
S0707740.310.7090
S0807741.330.7156
S0907740.630.7129
S1007740.530.7091
S1107740.470.7150
S1207740.090.7160
S1307740.280.7154
S1407740.120.7154
S1507740.280.7148
S1607740.030.7166
S1707740.27
S1807740.330.7093
S1907740.32
S2007740.570.7092
S2107740.350.7095
S2207740.250.7098
S2307740.29
S2407740.160.7099
S2507740.25
S2607740.170.7124
S2707740.270.7103
S2807740.140.7121
S2907740.25
S3007740.130.7134
S3107740.230.7106
S3207740.200.7132
S3307740.240.7107
S3407740.110.7143
S3607740.150.7125
S3707740.040.7151
S3807740.050.7218
S3907740.130.7121
S4007740.080.7188
S4107740.060.7187
S4207740.110.7141
S3507740.130.7125
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*TI:  MONITORING OF THE UPPER CHESAPEAKE BAY FOR THE SYMMETRICAL TRAZINE
*     HERBICIDES ATRAZINE AND SIMAZINE
*DS:  AUSTIN.JOHN
*PI:  ENVIRONMENTAL PROTECTION AGENCY
*PO:  ANNAPOLIS FIELD OFFICE
*     REGION III
*     ANNAPOLIS SCIENCE CENTER
*     ANNAPOLIS, MD  21401   (301)224-2740
*PR:  JOHN J. AUSTIN, JR., CHEMIST
*PE:  JUNE 1977 TO JUNE 1978
*GE:  LOWER SUSQUEHANNA RIVER BASIN, HARRISBURG, PA., CITY ISLAND BRIDGE
*AB:  EPA MONITORED AMBIENT LEVELS OF ATRAZINE (AATREX AND SIMAZINE (PRINCEP)
*     FROM THE UPPER BAY, POTOMAC RIVER ESTUARY, AND THE SUSQUEHANNA RIVER AT
*     HARRISBURG, PA.  ALL SAMPLES AT HARRISBURG WERE DEPTH INTEGRATED
*     COMPOSITES TAKEN BY THE USGS AT THE CITY ISLAND BRIDGE.  SAMPLES WERE
*     COLLECTED BOTH IN THE WEST AND EAST RIVER CHANNELS AROUND THE
*     SAMPLES WERE RETURNED TO THE EPA, ANNAPOLIS FIELD OFFICE FOR ANALYSIS
*     USING THE METHOD FOR TRAZINE PESTICIDES IN INDUSTRIAL EFFLUENTS; FEDERAL
*     REGISTER 38, NO. 75, PT. II.
*
*     THIS WORK AND SUBSEQUENT STUDIES OF MARYLAND WATER SUPPLIES FOUND THAT
*     TRAZINE HERBICIDES ARE NOT REMOVED BY WATER TREATMENT PROCEDURES AND
*     DISSIPATE IN THE ENVIRONMENT PRIMARILY BY DILUTION BOTH IN STREAMS AND
*     IN THE SOIL COLUMN.  THE MOVEMENT OF TRAZINE THROUGH THE SOIL COLUMN HAS
*     ALSO RESULTED IN GROUND WATER CONTAMINATIONS.
*
*     NOTE:  A REMARK CODE OF L FOLLOWING A VALUE INDICATES THE CRITICAL LIMIT
*            OR THAT THE ACTUAL VALUE IS LESS THAN "(", THE NUMBER INDICATED.
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     01570500,401517,765311,RM68,SUSQUEHANNA R. @ HARRISBURG
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     GAGE,FT.,NONE,GAGE HEIGHT
*     STREAM,CFS,NONE,INSTANTANEOUS DISCHARGE
*     FLOW,CFS,NONE,AVERAGE DAILY DISCHARGE
*     CONC,MG/L,NONE,SEDIMENT CONCENTRATION
*     MSED CONC,MG/L,NONE,MEAN SEDIMENT CONCENTRATION
*     MSEDLOAD,TONS/DAY,NONE,MEAN SEDIMENT LOAD
*     ATRZ.E, PPB,1912249,ATRAZINE EAST CHANNEL
*     ATRZ.W,PPB,1912249,ATRAZINE WEST CHANNEL
*     SIM.E, PPB,122349,SIMAZINE EAST CHANNEL
*     SIM.W,PPB,122349,SIMAZINE WEST CHANNEL
DATA AUSTIN.JOHN;
 INPUT @1 STATION 8. @9 DATE YYMMDD6. @15 TIME TIME5. @20 GAGE 5.2
      @25 STREAM 6. @31 FLOW 6. @37 CONC 3. @47 MSEDCONC 3. @50 MSEDLOAD 6.
      @56 ATRZ.E 4.2 @60 REMATRZE $1. @61 ATRZ.W 4.2 @65 REMATRZW $1.
      @66 SIM.E 4.2 @70 REMSIME $1. @71 SIM.W 4.2 @75 REMSIMW $1.;
 CARDS;
01570500770608 15:4003.53009690009880011013000347 0.16 0.30 0.04L0.16
01570500770610 14:0003.68011900011500016018000559 0.19 0.37 0.04L0.20
01570500770617 11:5503.55009970009770012012000317 0.18 0.25 0.04L0.20
01570500770624 14:4003.49009120009200011011000273 0.27 0.32 0.06 0.22
01570500770630 13:5003.83014100014400020020000778 0.64 1.21 0.16 0.25
01570500770708 14:1503.77013200013800042045009470 0.54 0.18 0.15 0.05
01570500770714 13:4504.50024900026100134090006340 0.55 0.96 0.20 0.28
01570500770715 09:2004.65027500026800077075005430 0.24 0.44 0.06 0.16
01570500770719 09:4503.92015500015600020024001010 0.26 0.27 0.04 0.15
01570500770721 12:0004.19019800019100030033001700 0.27 0.62 0.06 0.31
01570500770726 11:0004.22020300020500049045002490 0.15 0.24 0.04 0.14
01570500770804 14:3003.66011600011600015015000470 0.13 0.17 0.06 0.11
01570500770812 13:4504.04017400017500027025007180 0.10 0.12 0.04 0.07
01570500770825 15:2403.65011400011600014012000376 0.08 0.12 0.04L0.07
01570500770929 15:3008.43102000106000102108030900 0.09 0.06 0.04L0.04
01570500770930 15:0007.11074300077500084086018000 0.07 0.06 0.04L0.04L
01570500771003 14:3005.91050400050100050055007440 0.06 0.08 0.04L0.07
01570500771007 14:1505.52043100043700029030003540 0.07 0.06 0.04L0.05
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015705007710111 4:3005.550436000427000380420048400.06 0.11 0.04L0.10
015705007710171 4:2006.100541000637000700590108000.06 0.05 0.04L0.04L
015705007710181 4:1010.301440001350001561390525000.07 0.09 0.04L0.04L
015705007710191 5:0011.381700001680001671790814000.07 0.07 0.04L0.04L
015705007710201 4:3010.621520001540001101140474000.07 0.04 0.04L0.04L
015705007711011 3:3004.790299000300000110110008910.05 0.09 0.04L0.05
015705007711071 5:0008.320999000528002011430235000.02 0.07 0.16 0.04L
015705007711081 4:0009.761320000923001511620404000.22 0.30 0.09 0.08
015705007711101 4:0010.211420001430000920930359000.25 0.35 0.04 0.04L
015705007711111 4:0010.301440001420001301250479000.10 0.28 0.04L0.06
015705007711141 1:3009.031160001170000690680215000.17 0.16 0.04L0.04L
015705007711161 4:0006.910702000723000180190037100.12 0.12 0.04L0.04
015705007711181 4:3006.090539000545000180180026500.05 0.11 0.04L0.04L
015705007711231 3:0005.520431000434000130130015200.03L0.03L0.04L0.04L
015705007711251 3:3005.280386000389000120120012600.03L0.08 0.04L0.04L
015705007712021 4:1506.590638000630000690640109000.07 0.15 0.04L0.14
015705007712041 3:30      099000098900044049013 1000.05 0.12 0.04L0.04L
015705007712151 3:1505.060347000355000140150014500.03L0.41 0.04L0.04L
015705007712161 4:1008.531040000876000760700194000.08 0.10 0.04L0.04L
015705007712200 9:4509.391230001230000560530176000.05 0.11 0.04L0.04L
015705007712231 4:0008.170966000987000330320085300.03 0.08 0.04L0.04L
015705007803211 5:0008.250984000977000790820215000.04 0.09 0.04L0.04L
015705007803221 4:3009.771320001280001161140404000.04 0.11 0.04L0.04L
015705007803231 4:0013.672260002130002332351390000.04 0.10 0.04L0.04L
015705007803271 3:10      193000197000097106057600 0.04 0.06 0.04L0.04L
015705007803281 1:45      240000236000172175111 0000.05 0.07 0.04L0.04L
015705007803301 4:0012.551980002020000940920502000.03 0.05 0.04L0.04L
015705007804101 4:0009.201190001220000360340112000.03 0.03 0.04L0.04L
015705007804211 4:0005.600446000442000220250029800.03L0.10 0.04L0.04L
015705007804271 3:3005.330396000400000120100010800.03L0.11 0.04L0.04
015705007805041 4:3004.480246000248000040040002680.03L0.15 0.04L0.04
015705007805111 3:3005.010338000337000110120010900.06 0.11 0.04L0.04L
015705007805161 4:3012.713020002050001311380764000.17 0.83 0.04 0.23
015705007805171 5:1512.311920001940001251250655000.25 0.54 0.06 0.17
015705007805181 0:3012.121880001870001201130571000.23 0.42 0.07 0.13
015705007805191 4:0011.921830001830000720750371000.15 0.25 0.05 0.07
015705007805221 3:52      091500093200063064016 1000.07 0.13 0.04L0.10
015705007805251 3:3007.220766000730000770740146000.03 0.50 0.09 0.13
015705007805261 3:4507.030727000732000650660130000.17 0.35 0.06 0.14
015705007805311 3:3005.170366000373000420440044300.10 0.15 0.04L0.08
015705007806081 0:3004.420236000239000260250016100.12 0.34 0.05 0.13
015705007806151 4:1004.230204000252000150170011600.83 0.24 0.17 0.05
015705007806201 4:1004.170195000198000220220011800.24 0.25 0.06 0.11
015705007806301 1:4503.870147000146000200200007880.31 2.15 0.10 0.52
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*TI: NATIONAL PESTICIDE MONITORING PROGRAM: ORGANOCHLORINE RESIDUES
*    IN FRESHWATER FISH, 1976-1979
*DS: NPMP.76-79A                                    CBP.REPORT36
*RR: NPMP.76-79B
*PI: U.S. FISH AND WILDLIFE SERVICE
*PO: COLUMBIA NATIONAL FISHERIES RESEARCH LABORATORY
*    ROUTE ONE
*    COLUMBIA, MISSOURI 65201
*PR: CHISTOPHER J. SCMITT, NCBP COORDINATOR, CNFRL
*PE: 1976-1979
*GE: LOWER SUSQUEHANNA RIVER BASIN, CONOWINGO DAM
*GL:
*AB: AS PART OF THE NATIONAL PESTICIDE MONITORING PROGRAM, THE U.S. FISH
*    AND WILDLIFE SERVICE MEASURED ORGANOCHLORINE RESIDUES IN WHOLE FISH
*    SAMPLES COLLECTED NATIONWIDE.  RESIDUES OF DDT AND ITS HOMOLOGS AVERAGED
*    SIGNIFICANTLY LOWER THAN THEY DID BEFORE 1975.  DIELDRIN RESIDUES
*    DECLINED SOMEWHAT NATIONALLY. PCB RESIDUES WERE MORE WIDELY DISTRIBUTED,
*    BUT DECLINED IN AREAS OF HIGH CONCENTRATION. TOXAPHENE RESIDUES WERE
*    VIRTUALLY UBIQUITOUS.
*    THE SUSQUEHANNA RIVER STATION @ CONOWINGO DAM, MD IS ONE STATION OVER
*    100 STATIONS NATIONWIDE IN THE PROGRAM.  THE STATION HAS BEEN OPERATING
*    SINCE 1979. RESULTS OF THE ANNUAL DATA COLLECTIONS ARE AVAILABLE FROM THE
*    STATE COLLEGE, PA FIELD OFFICE OF THE U.S. FISH AND WILDLIFE SERVICE.
*    THE FISH SAMPLES WERE ANALYZED AT THE WISCONSIN ALUMNI RESEARCH
*    FOUNDATION (WARF).
*ST: STATION05,?,?,?,SUSQUEHANNA RIVER @ CONOWINGO DAM, MD
*PA: PARAMETER,UNITS,CAS CODE,LABEL
*    DDE,PPM,72559,DDE
*    DDD,PPM,72548,DDD
*    DDT,PPM,50293,DDT
*    AROC1242,PPM,53469219,AROCLOR1242 PCB AUG 42% CHLORINE BY WEIGHT
*    AROC1248,PPM,12672296,AROCLOR1248 PCB AUG 48% CHLORINE BY WEIGHT
*    AROC1254,PPM,11097691,AROCLOR1254 PCB AUG 54% CHLORINE BY WEIGHT
*    AROC1260,PPM,11096825,AROCLOR1260 PCB AUG 60% CHLORINE BY WEIGHT
*    TOXPHNE,PPM,8001352,TOXAPHENE
*    BHC-A,PPM,319846,BENZENE HEXACHLORIDE BHC
*    BHC-G,PPM,58899,BENZENE HEXACHLORIDE BHC; LINDANE
*    DACTHAL,PPM,1861321,DIMETHYL TETRACHLOROTEREPHTHALATE
*    HCB,PPM,118741,HEXACHLOROBENZENE
*    DDRIN,PPM,60571,DIELDRIN
*    EDRIN,PPM,72208,ENDRIN
*    HEPCLR,PPM,76448,HEPTACHLOR
*    CLRDNEC,PPM,5103719,CIS-CHLORDANE
*    CLRDNET,PPM,5103742,TRANS-CHLORDANE
*    NONCLRC,PPM,29555473,CIS-NONACHLOR
*    NONCLORT,PPM,3734494,TRANS-NONACHLOR
*    OXCLRDNE,PPM,26880488,OXYCLORDANE
*    MOIST,%,NONE,PERCENT MOIST
*    LIPID,%,NONE,PERCENT LIPIDS
*    FISHW,KG,NONE,MEAN FISH WEIGHT KG
*    FISHL,CM,NONE,MEAN FISH LENGTH CM
*    ALDRN,PPM,309002,ALDRIN
*    HEPEDOX,PPM,1024573,HEPTACHLOR EPONIDE
*    METHOXCHL,PPM,72435,METHOXYCHLOR
*    MIREX,PPM,2385855,MIREX
*    PCA,PPM,1825214,PENTACHLOROANISOLE
*    FISH,TYPE,NONE,FISH TYPE
*         WP-WHITE PERCH:MORONE AMERICANA
*         CA-COMMON CARP:CYPRINUS CARPIO
*         CC-CHANNEL CATFISH:ICHTALURUS PUNCTATUS
DATA NPMP.76-79A;
 INPUT @1 STATION $9. @10 YEAR 2.0 @12 FISH $2. @14 FISHL 4.1 @18 FISHW 3.1
       @21 LIPID 4.1 @24 MOIST 4.1 @28 DDE 4.2 @32 DDD 4.2 @36 DDT 4.2
       @40 AROC1242 3.1 @43 AROC1248 3.1 @46 AROC1254 4.2 @50 AROC1260 3.1
       @53 TOXPHNE 4.2 @57 BHC-A 4.2 @61 BHC-G 4.2 @65 DACTHAL 4.2
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      @69 HCB 4.2 @73 SAMPLE 2.0;
 CARDS;
STATION0577CA42.20.904.369.90.300.160.010.00.50.801.70.000.010.00    0.0001
STATION0577CA42.40.904.972.60.280.200.000.00.00.001.80.000.000.00    0.0002
STATION0577CC27.20.205.470.10.300.160.040.00.50.602.00.000.010.00    0.0003
STATION0577WP16.00.005.071.30.200.090.050.00.30.501.40.000.000.00    0.0004
STATION0579CA32.80.908.273.90.280.150.01 - 0.01.001.40.000.010.000.020.0105
STATION0579CA42.91.002.679.00.150.080.00 . 0.00.800.00.000.000.000.000.0006
STATION0579WP19.30.107.371.30.200.120.04   0.00.801.20.000.000.000.020.0207
;
DATA NPMP.76-79B;
 INPUT @1 STATION $9. @10 YEAR 2.0 @12 FISH $2. @14 DDRIN 4.2 @18 EDRIN 4.2
      @22 HEPCLR 4.2 @26 CLRDNEC 4.2 @30 CLRDNET 4.2 @34 NONCLRC 4.2
      @38 NONCLRT 4.2 @42 DXCLRDNE 4.2 @46 SAMPLE 2.0;
 CARDS;
STATION0577CA0.060.000.020.090.070.040.09    01
STATION0577CA0.060.000.000.130.080.030.10    02
STATION0577CC0.050.000.000.080.040.030.08    03
STATION0577WP0.070.000.000.070.020.030.07    04
STATION0579CA0.050.000.020.140.050.050.100.0105
STATION0579CA0.020.000.000.060.030.020.040.0006
STATION0579WP0.050.010.040.160.040.030.100.0107
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*TI:  NATIONAL PESTICIDE MONITORING PROGRAM:  RESIDUES OF ORGANOCHLORINE
*     CHEMICALS IN FRESHWATER FISH, 1980-81
*DS:  NPMP.80-81A
*RR:  NPMP.80-81B
*PI:  U.S. FISH & WILDLIFE SERVICE
*PO:  COLUMBIA NATIONAL FISHERIES RESEARCH LABORATORY
*     ROUTE 1
*     COLUMBIA, MISSOURI  65201
*PR:  CHRISTOPHER J. SCHMITT, NCBP COORDINATOR, CNFRL
*PE:  1980-1981
*GE:  LOWER SUSQUEHANNA RIVER BASIN, CONOWINGO DAM MARYLAND
*AB:  AS PART OF THE NATIONAL PESTICIDE MONITORING PROGRAM, THE U.S. FISH
*     & WILDLIFE SERVICE MEASURED ORGANOCHLORINE RESIDUES IN WHOLE FISH
*     SAMPLES COLLECTED FROM OVER 100 STATIONS NATIONWIDE.  THE SUSQUEHANNA
*     RIVER STATION AT CONOWINGO DAM, MARYLAND (STATION 5) IS ONE OF THE
*     STATIONS OPERATING SINCE 1967.  RESULTS OF ANNUAL DATA FROM THIS STATION
*     IS AVAILABLE FROM THE STATE COLLEGE, PA. FIELD OFFICE OF THE U.S. FISH
*     & WILDLIFE SERVICE. LAB ANALYSIS CONDUCTED BY WISCONSIN ALUMNI RESEARCH
*     FOUNDATION (WARF).
*ST:  STATION,LAT,LONG,RIVER MILE,DESCRIPTION
*     STATION05,?,?,?,SUSQUEHANNA RIVER @ CONOWINGO DAM MARYLAND
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     DDE,PPM,72559,DDE
*     DDD,PPM,72548,DDD
*     DDT,PPM,50293,DDT
*     AROC1248,PPM,12672296,AROCLOR1248 PCB AUG 48% CHLORINE BY WEIGHT
*     AROC1254,PPM,11097691,AROCLOR1254 PCB AUG 54% CHLORINE BY WEIGHT
*     AROC1260,PPM,11096825,AROCLOR1260 PCB AUG 60% CHLORINE BY WEIGHT
*     TOXPHNE,PPM,8001352,TOXAPHENE
*     BHC-A,PPM,319846,BENZENE HEXACHLORIDE BHC
*     BHC-G,PPM,58899,BENZENE HEXACHLORIDE BHC; LINDANE
*     HCB,PPM,118741,HEXACHLOROBENZENE
*     DDRIN,PPM,60571,DIELDRIN
*     EDRIN,PPM,72208,ENDRIN
*     HEPCLR,PPM,76448,HEPTACHLOR
*     CLRDNEC,PPM,5103719,CIS-CHLORDANE
*     CLRDNET,PPM,5103742,TRANS-CHLORDANE
*     NONCLRC,PPM,29555473,CIS-NONACHLOR
*     NONCLRT,PPM,3734494,TRANS-NONACHLOR
*     OXCLRDNE,PPM,26880488,OXYCLORDANE
*     MOIST,%,NONE,PERCENT MOIST
*     LIPID,%,NONE,PERCENT LIPIDS
*     PCA,PPM,1825214,PENTACHLOROANISOLE
*     FISH,TYPE,NONE,FISH TYPE
*                    WP-WHITE PERCH:MORONE AMERICANA
*                    CA-COMMON CARP:CYPRINUS CARPIO
*                    CC-CHANNEL CATFISH:ICHTALURUS PUNCTATUS
NPMP.80-81A;
 INPUT @1 STATION $9. @10 YEAR 2.0 @12 FISH$2.
       @14 DDE 4.2 @18 DDD 4.2 @22 DDT 4.2
       @26 AROC1248 3.1 @29 AROC1254 3.1 @32 AROC1260 3.1
       @35 DDRIN 4.2 @39 EDRIN 4.2 @43 HEPCLR 4.2
       @47 CLRDNEC 4.2 @51 CLRDET 4.2 @55 NONCLRC 4.2 @59 NONCLRT 4.2
       @63 OXCLRDNE 4.2 @67 TOXPHNE 3.1 @70 SAMPLE 2.0;
 CARDS;
STATION0581CA0.220.120.000.00.51.50.010.000.000.050.030.040.090.000.101
STATION0581CA0.240.140.000.10.30.80.010.000.000.060.030.030.060.000.102
STATION0581WP0.160.090.030.10.30.80.020.000.000.050.010.030.070.000.303
;
DATA NPMP.80-81B;
 INPUT @1 STATION $9. @10 YEAR 2.0 @12 FISH $2.
       @14 BHC-A 4.2 @18 BHC-G 4.2 @22 HCB 4.2
       @26 METHOXCHL 4.2 #30 MIREX 4.2 @34 DACTHAL 4.2
       @38 PCA 4.2 @42 LIPID 4.1 @46 MOIST 4.1 @50 SAMPLE;
 CARDS;
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STATION0581CA0.000.000.000.000.010.000.002.776.801
STATION0581CA0.000.000.000.000.000.000.006.970.802
STATION0581WP0.000.000.000.000.000.010.008.069.103
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CBP.REPORT38

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*TI:  ORGANOCHLORINE RESIDUES IN FISH: NATIONAL PESTICIDE MONITORING PROGRAM,
*     1970-1974
*OS:  NPMP.70-74
*RR:  NONE
*PI:  U.S. FISH AND WILDLIFE SERVICE
*PO:  COLUMBIA NATIONAL FISHERIES RESEARCH LABORATORY
*     ROUTE 1
*     COLUMBIA, MISSOURI  65201
*PR:  CHRISTOPHER J. SCHMITT, NCBP COORDINATOR, CNFRL
*PE:  1970-1974
*GE:  LOWER SUSQUEHANNA RIVER BASIN, CONOWINGO DAM, MD
*AB:  AS PART OF THE NATIONAL PESTICIDE MONITORING PROGRAM, THE U.S. FISH AND
*     WILDLIFE SERVICE MEASURED ORGANOCHLORINE RESIDUES IN WHOLE FISH SAMPLES
*     COLLECTED FROM OVER 100 STATIONS NATIONWIDE.  THE SUSQUEHANNA RIVER
*     STATION AT CONOWINGO DAM, MD (STATION 5) IS ONE OF THE STATIONS
*     OPERATING SINCE 1967.  RESULTS OF ANNUAL DATA FROM THIS STATION IS
*     AVAILABLE FROM THE STATE COLLEGE, PA FIELD OFFICE OF THE U.S. FISH AND
*     WILDLIFE SERVICE. LAB ANALYSIS COMPLETED BY WISCONSIN ALUMNI RESEARCH
*     FOUNDATION (WARF).
*ST:  STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*     STATIONC5,?,?,?,SUSQUEHANNA RIVER AT CONOWINGO DAM
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     DDE,PPM,72559,DDE
*     DDD,PPM,72548,DDD
*     DDT,PPM,50293,DDT
*     AROC1242,PPM,53469219,AROCLOR 1242 PCB AVG 42% CHLORINE BY WEIGHT
*     AROC1248,PPM,12672296,AROCLOR 1248 PCB AVG 48% CHLORINE BY WEIGHT
*     AROC1254,PPM,11097691,AROCLOR 1254 PCB AVG 54% CHLORINE BY WEIGHT
*     AROC1260,PPM,11096825,AROCLOR 1260 PCB AVG 60% CHLORINE BY WEIGHT
*     TOXPHNE,PPM,8001352,TOXAPHENE
*     BHC-A,PPM,319846,BENZENE HEXAGLORIDE BHCD
*     DDRIN,PPM,60571,DIELDRIN
*     EDRIN,PPM,72208,ENDRIN
*     HEPCLR,PPM,76448,HEPTACHLOR
*     LIPID,%,NONE,PERCENT LIPIDS
*     FISHW,LBS,NONE,MEAN FISH WEIGHT
*     FISHL,INCNES,NONE,MEAN FISH LENGTH
*     FISH,TYPE,NONE,FISH TYPE
*          WP-WHITE PERCH:  MOROME AMERICANA
*          CA-COMMON CARP:  CYPRINUS CARPIO
*          CC-CHANNEL CATFISH:  ISHTALURUS PUNCTATUS
*          YP-YELLOW PERCH: PERCA FLAVESCENE
DATA NPMP.70-74;
 INPUT @1 STATION $9. @10 YEAR 2.0 @12 FISH $2. @14 FISHL 4.1 @18 FISHW 3.1
       @21 LIPID 4.1 @24 DDE 4.2 @29 DDD 4.2 @33 DDT 4.2 @37 AROC1242 3.1
       @40 AROC1248 3.1 @43 AROC1254 4.2 @47 AROC1260 3.1 @50 DDRIN 4.2
       @54 EDRIN 4.2 @58 HEPCLR 4.2 @62 TOXPHNE 4.2
       @66 BHC-A 4.2 @70 SAMPLE 2.0;
 CARDS;
STATION0570CA21.65.007.90.520.650.23      2.60   0.230.000.00    0.0601
STATION0570CC12.10.607.40.240.290.18      1.77   0.160.000.00    0.0602
STATION0570YP08.80.301.40.430.310.25      2.19   0.120.000.00    0.0203
STATION0570YP07.90.202.00.430.390.31      2.60   0.130.000.00    0.0904
STATION0571CA18.03.005.40.230.180.09      0.80   0.070.010.000.00    05
STATION0571CA18.93.308.50.200.210.07      0.59   0.110.010.000.00    06
STATION0571CC15.21.109.60.240.200.10      0.92   0.090.010.000.00    07
STATION0571CC15.41.309.60.340.300.12      1.01   0.080.010.000.00    08
STATION0571YP08.60.002.70.180.140.11      0.95   0.070.010.000.00    09
STATION0571YP08.40.302.50.190.140.11      0.95   0.060.010.000.00    10
STATION0572CA14.91.701.40.190.230.00      2.00   0.040.000.000.00    11
STATION0572CC13.10.804.50.570.310.07      4.50   0.110.000.000.00    12
STATION0572YP07.50.202.90.290.050.00      1.90   0.120.000.000.00    13
STATION0572YP07.50.302.70.230.130.02      2.00   0.140.000.000.00    14
STATION0573CA14.91.608.90.280.000.000.0   0.000.60.000.000.000.00    15
STATION0573CC16.11.409.30.000.000.000.4   0.002.00.000.000.000.00    16
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STATION0573WP07.60.201.20.160.000.000.0   0.000.70.040.000.000.00   17
STATION0573WP07.50.204.90.100.000.000.0   0.000.50.000.000.000.00   18
STATION0574CA16.72.304.90.370.130.000.0   0.001.10.070.000.000.00   19
STATION0574CC13.21.113.11.507.600.000.0   0.005.93.300.000.000.00   20
STATION0574CC13.40.812.70.520.510.000.0   0.002.90.180.000.000.00   21
STATION0574WP05.80.107.20.540.280.090.0   0.003.20.230.000.000.00   22
STATION0574WP06.30.907.20.540.210.080.0   0.003.10.200.000.000.00   23
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*TI:  NATIONAL CONTAMINANT BIOMONITORING PROGRAM:  CONCENTRATIONS OF SEVEN
*     ELEMENTS IN FRESHWATER FISH, 1978-1981
*DS:  NCBP78-81
*PI:  U.S. FISH & WILDLIFE SERVICE
*PO:  COLUMBIA NATIONAL FISHERIES RESEARCH LABORATORY
*     ROUTE 1
*     COLUMBIA, MISSOURI  65201
*PR:  T.P. LOWE
*PE:  1978-1981
*GE:  LOWER SUSQUEHANNA RIVER BASIN, CONOWINGO DAM MARYLAND
*AS:  AS A CONTINUING PART OF THE NATIONAL CONTAMINANT BIOMONITORING PROGRAM,
*     THE U.S. FISH & WILDLIFE SERVICE COLLECTED FRESHWATER FISH @ 112 MONI-
*     TORING STATIONS IN 1978-1979 AND 1980-1981.  THREE COMPOSITE SAMPLES OF
*     THREE TO FIVE FISH WERE COLLECTED AT EACH OF ABOUT HALF OF THE STATIONS
*     WITH ODD-NUMBERED YEARS AND AT THE OTHER HALF, IN EVEN-NUMBERED YEARS,
*     AND ANALYZED FOR LEAD, MERCURY, CADMIUM, ARSENIC, SELENIUM, COPPER, AND
*     ZINC.  THE SUSQUEHANNA RIVER STATION @ CONOWINGO DAM IS ONE OF THE STA-
*     TIONS SAMPLED NATIONWIDE.
*ST:  STATION,LAT,LONG,RIVER MILE,DESCRIPTION
*     STATION05,?,?,?,SUSQUEHANNA RIVER @ CONOWINGO DAM
*PA:  PARAMETER,UNITS,CAS CODE,LABEL
*     FISH,NONE,NONE,FISH TYPE
*                    CA-COMMOM CARP: CYPRINUS CARPIO
*                    WP-WHITE PERCH: MORONE AMERICANA
*     FISHL,CM,NONE,MEAN FISH LENGTH
*     FISHW,KG,NONE,MEAN FISH WEIGHT
*     LIPID,%,NONE,PERCENT LIPIDS
*     MOIST,%,NONE,PERCENT MOISTURE
*     TPB,PPM,7439921,TOTAL LEAD
*     TCD,PPM,7440439,TOTAL CADMIUM
*     THG,PPM,7439976,TOTAL MERCURY
*     TAS,PPM,7440382,TOTAL ARSENIC
*     TSE,PPM,7782492,TOTAL SELENIUM
*     TCU,PPM,7440508,TOTAL COPPER
*     TZN,PPM,7440666,TOTAL ZINC
DATA NCBP78-81;
 INPUT @1 STATION $9 @10 YEAR 2.0 @12 FISH $2. @14 FISHL 4.1 @18 FISHW 3.1
       @21 LIPID 3.1 @24 MOIST 4.1 @28 TPB 4.2 @32 TCD 4.2 @36 THG 4.2
       @40 TAS 4.2 @32 TCD 4.2 @36 THG 4.2 @40 TAS 4.2 @44 TSE 4.2 @48 TCU 4.1
       @52 TZN 4.1 @56 SAMPLE 2.0;
 CARDS;
STATION0579CA12.92.08.273.90.100.050.050.160.5401.471.001
STATION0579CA16.92.32.679.00.310.070.090.560.4700.882.502
STATION0579WP07.60.37.371.30.200.020.050.421.5938.724.803
STATION0581CA14.41.62.776.80.260.060.080.060.5900.957.304
STATION0581CA14.11.76.970.70.170.060.110.160.4500.978.005
STATION0581WP07.90.38.069.10.220.030.050.501.0824.124.006
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CBP.REPORT39

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*TI: PEACH BOTTOM ATOMIC POWER STATION PREOPERATIONAL AND POSTOPERATIONAL
*    REPORTS ON THE ECOLOGY OF CONOWINGO POND
*DS: DATA SENT VIA MAGNETIC TAPE SEPARATE FROM THIS DOCUMENTATION
*RR: NONE
*PI: ICHTHYOLOGICAL ASSOCIATES, INC.                    CBP.REPORT40
*    RMC - MUDDY RUN ECOLOGICAL LABORATORY
*PO: PHILADELPHIA ELECTRIC COMPANY
*    N2-1, 2301 MARKET ST.
*    PHILADELPHIA, PA 19101
*PR: DR. DILIP MATHUR, RMC
*PE: 1967-1985
*GE: LOWER SUSQUEHANNA RIVER BASIN, CONOWINGO POND, PEACH BOTTOM
*GL:
*AB: THE DATA PRESENTED SUMMARIZES THE ECOLOGICAL CONDITIONS IN THE
*    CONOWINGO POND AND MUDDY RUN STORAGE POND. THE DATA SET CONTAINS INFOR-
*    MATION ON WATER QUALITY AND THE DISTRIBUTION OF AQUATIC BIOTA.  THE
*    REPORTS ARE AVAILABLE SEMI-ANNUALLY AND THE METHODS UTILIZED ARE
*    OUTLINED IN THE REPORTS.  THE DATA INCLUDES A LIST OF 145,062 OBSER-
*    VATIONS WITH NINE VARIABLES FOR EACH OBSERVATION. THE DATA SET IS
*    LISTED AS RECEIVED FROM RMC-MUDDY RUN ECOLOGICAL LABORATORY. THE DATA
*    FILE CONSISTS OF THE FOLLOWING:
*
*    COLUMNS:            VARIABLE:
*     1- 4               STATION
*     5-12               DATE
*    13-17               TIME
*    18-19               NUMERIC PARAMETER CODE
*    20-44               PARAMETER NAME
*    45-47               DEPTH OF SAMPLE
*    48-49               SAMPLE REPLICATE NUMBER
*    50-57               UNITS
*    58-64               MEASURED VALUE
*
*PA: THE PARAMETES COLLECTED INCLUDE THE FOLLOWING:
*    WATER TEMPERATURE          DISSOLVED OXYGEN        PH
*    CONDUCTIVITY               BICARBONATE             CARBONATE
*    SODIUM                     POTASSIUM               CALCIUM
*    MAGNESIUM                  CHLORIDES               SULFATE
*    NITRATE                    NITRITE                 DISSOLVED IRON
*    REACTIVE SILICA            PHOSPHATE               SESTON
*    SECCHI                     CHLORAPHYLL-B           CHLORAPHYLL-C
*    TOTAL CHLORAPHYLL-A        REACTIVE CHLORAPHYLL-A  FLOW
*
*ST:STATION,LATITUDE,LONGITUDE,RIVER MILE, DESCRIPTION
*   630,?,?,?,CONOWINGO POND @ HOLTWOOD HYDRO STATION PIPE FOR PUMP 17-3
*   601,?,?,?,CONOWINGO POND @ MID-POND OFF MOUTH OF FISHING CK.
*   602,?,?,?,CONOWINGO POND @ POINT OFF DORSEY ROAD NORTH OF POWER STATION
*   603,?,?,?,CONOWINGO POND @ MID-POINT BELOW DOUBLE TOWERS SOUTH OF
*             MT. JOHNSON ISLAND
*   604,?,?,?,CONOWINGO POND @ POINT ON EAST SHORE SOUTH OF MT. JOHNSON IS.
*   605,?,?,?,CONOWINGO POND @ POINT JUST BELOW SOUTH END OF DISCHARGE CANAL
*   606,?,?,?,CONOWINGO POND @ MID-POND OFF MOUTH OF PETERS CREEK
*   607,?,?,?,CONOWINGO POND @ JUST ABOVE MOUTH OF PETERS CREEK
*   608,?,?,?,CONOWINGO POND @ WEST SHORE JUST NORTH OF WILLIAMS TUNNEL
*   609,?,?,?,CONOWINGO POND BETWEEN WEST SHORE AND MID-POND OFF MICHAEL RUN
*   610,?,?,?,CONOWINGO POND @ MID-POND OFF BROAD CREEK
*   611,?,?,?,CONOWINGO POND @ MID-POND OFF HOPKINS COVE
*   640,?,?,?,CONOWINGO HYDRO STATION - OUTLET PIPE FOR UNIT ONE
*   861,?,?,?,MUDDY RUN PUMP STORAGE POND @ MID-POND UNDER TRANSMISSION LINES
*   868,?,?,?,MUDDY RUN PUMP STORAGE POND @ 100 YARDS OFF EAST SHORE UNDER
*             TRANSMISSION LINES
*   761,?,?,?,MUDDY RUN RECREATION LAKE @ POINT 100 YARDS OFF DAM
*   767,?,?,?,MUDDY RUN RECREATION LAKE @ POINT 150 YARDS SOUTH OF BOAT RAMP
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*TI: WATER QUALITY OF THE SWATARA CREEK NEAR THE PROPOSED SWATARA CREEK
* RESERVOIR, LEBANON AND SCHUYKILL COUNTIES
*DS: IN STORET, AGENCY CODE: 112WRD
*RR: NONE
*PI: U.S. GEOLOGICAL SURVEY
*PO: FEDERAL BUILDING
* 4TH FLOOR
* HARRISBURG, PA 17108
*PR: DAVE FISHEL
*PE: JULY 1981 - SEPT. 1984
*GE: LOWER SUSQUEHANNA RIVER BASIN, SWATARA CREEK
*GL:
*AB: THE WATER QUALITY OF THE SWATARA CREEK WAS STUDIED FROM JULY 1981
* THROUGH SEPTEMBER 1984 TO DETERMINE THE IMPACT OF COAL MINNING ACTIVITIES
* ON THE WATER QUALITY OF A PLANNED 10,500 ACRE-FOOT RESERVOIR. THE
* PROJECT WAS DESIGNED TO (A) MEASURE SURFACE WATER INFLOWS AND OUTFLOW IN
* THE PROPOSED IMPOUNDMENT AREA, AND MEASURE THE CONCENTRATION OF
* SUSPENDED SEDIMENT, NUTRIENTS, AND CONSTITUENTS COMMON TO ACID MINE
* DRAINAGE IN THESE FLOWS, (B) DETERMINE THE DISCHARGE OF THE ABOVE
* CONSTITUENTS TO THE PLANNED RESERVOIR DURING A YEAR OF AVERAGE STREAMFLOW,
* (C) DETERMINE THE NUTRIENT AND METAL CONCENTRATIONS IN BOTTOM MATERIAL
* IN THE VICINITY OF THE IMPOUNDMENT, AND (D) ESTIMATE THE FUTURE WATER
* QUALITY IN AND DOWNSTREAM FROM THE PLANNED RESERVOIR. THE THREE STATIONS
* LISTED BELOW ARE ALL SPECIFIC TO THE PROJECT.
*ST: STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
* 01571919,403243,762251,?,SWATARA CK ABOVE RTE 895 @ PINE GROVE
* 01572000,403215,762240,?,LOWER LITTLE SWATARA CK @ PINE GROVE
* 01572200,403838,763136,?,SWATARA CK @ INWOOD
*PA: OVER 90 PARAMETERS COLLECTED INCLUDES PHYSICAL DATA, SEDIMENT DATA,
* METALS DATA, AND BOTTOM MATERIAL CHEMISTRY AND PARTICLE SIZE DISTRIBUTION

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*TI: WATER QUALITY MONITORING NETWORK OF INTERSTATE STREAMS IN THE
*    SUSQUEHANNA RIVER BASIN.
*OS: IN STORET AGENCY CODE - 42SRBCWQ
*RR: NONE
*PI: SUSQUEHANNA RIVER BASIN COMMISSION
*PO: 1721 NORTH FRONT STREET
*    HARRISBURG, PA 17102
*    (717) 238-0423
*PR: CARL P. MCMORRAN
*PE: APRIL 1968 - PRESENT
*GE: LOWER SUSQUEHANNA RIVER BASIN, PA-MD BORDER
*AB: THE WATER QUALITY MONITORING NETWORK CONSISTS OF A SERIES OF SURFACE WATER
*    QUALITY STATIONS WHICH ARE PERIODICALLY SAMPLED FOR BIOLOGICAL AND WATER
*    QUALITY CONDITIONS. THE DATA IS REVIEWED TO DETERMINE IF INTERSTATE WATER
*    QUALITY STANDARDS ARE BEING COMPROMISED.  THIS SAMPLING PROGRAM ALLOWS
*    THE INVESTIGATION OF SMALLER INTERSTATE STREAMS ASSUMED TO HAVE GOOD WATER
*    QUALITY. THIS MONITORING NETWORK ENHANCES THE ABILITY FOR SRBC STAFF TO
*    REVIEW PROJECTS THAT MAY RESULT IN A SIGNIFICANT INTERSTATE EFFECT ON THE
*    WATER RESOURCES IN THE BASIN.
*ST: STATION,LAT.,LONG.,RIVER MILE,DESCRIPTION
*    EBAU1.5,?,?,1.5,EBAUGH'S CREEK NEAR STEWARTSTOWN PA.
*    DEER44.2,?,?,44.2,DEER CREEK NEAR STEWARTSTOWN PA.
*    SUSQ44.5,?,?,44.5,SUSQUEHANNA RIVER @ MARIETTA PA.
*    OCTO8.6,?,?,8.6,OCTORARO CREEK NEAR CAMP HORSESHOE PA.
*    CNWG4.4,?,?,4.4,CONOWINGO CREEK NEAR PLEASANT GROVE PA.
*    SUSG5.0,?,?,5.0,SUSQUEHANNA RIVER NEAR HARVE DE GRACE MD.
*PA: PARAMETER,UNITS,CAS CODE,LABEL
*    WTEMP,DEG C,NONE,WATER TEMPERATURE
*    DO,MG/L,7782447,DISSOLVED OXYGEN
*    SCOND,UOHMS,NONE,SPECIFIC CONDUCTIVITY
*    PH,S.U.,NONE,PH
*    ALK,MG/L,NONE,ALKALINITY
*    ACID,MG/L,NONE,ACIDITY AS CACO3
*    TURBID,S.U.,NONE,TURBIDITY
*    BOD5,MG/L,NONE,BIOCHEMICAL OXYGEN DEMAND 5-DAY
*    DSOLIDS,MG/L,NONE,DISSOLVED SOLIDS
*    TAMMONIA,MG/L,17778880,TOTAL AMMONIA
*    TNO2,MG/L,17778880,TOTAL NITRITE
*    TNO3,MG/L,17778880,TOTAL NITRATE
*    TPO4,MG/L,14265442,TOTAL PHOSPHATE
*    TCA,MG/L,7440702,TOTAL CALCIUM
*    TMG,MG/L,7439954,TOTAL MAGNESIUM
*    TCL,MG/L,16887006,TOTAL CHLORIDES
*    TSO4,MG/L,14808798,TOTAL SULFATE
*    TFE,MG/L,7439896,TOTAL IRON
*    TMN,MG/L,7439956,TOTAL MANGANESE
*    TAL,MG/L,7429905,TOTAL ALUMINUM
*    FECCOL,COL/100ML,?,FECAL COLIFORM
*    FECSTR,COL/100ML,?,FECAL STREP
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