U.S.D.A. Soil Conservation Service

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Economic/Environmental Policy Modeling Project, Texas A&M University System

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Reservoir Sedimentation Survey Information System -- RESIS

Database Descriptive Overview[a]

by

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INTRODUCTION

This report provides a descriptive overview of the database titled RESIS, the Reservoir Sedimentation Survey Information System. This is a relational database consisting of 14 tables. It is programmed in INFORMIX. The database contains records on 1,819 reservoirs and 3,940 individual sedimentation surveys.

EXECUTIVE SUMMARY

Sedimentation surveys of existing reservoirs have provided the basic data that engineers and scientists have used historically to determine rates of sediment accumulation in unmeasured areas. Large reservoirs trap almost all the sediment delivered to the pool so, over time, average annual rates (volume per year) of sediment accumulation can be determined by periodically measuring the changes in storage capacity of the reservoir. These rates can be compared to the watershed drainage area to develop a volume per year per square mile relationship. Historically, this information has been used to estimate sedimentation rates in other, similar areas.

The value of reservoir sedimentation information led federal agencies to develop standardized procedures and data collection forms. The Soil Conservation Service, U.S. Department of Agriculture, was selected as the lead agency to collect the data sheets from all other agencies and publish them periodically. Analyses of the sediment data was difficult due to the format and bulk of the data as hard copy.

The first attempt to convert the paper copies of the data sheets into an electronic format to facilitate analysis was made in 1972. The conversion to magnetic tape on a dedicated central processing unit (Gould Computer) made some data analysis possible but the data was not easily transportable to other systems so few researchers attempted to use it.

Meetings of staff working on various studies as part of the Third Resources Conservation Act in 1992 resulted in a collaborative effort between SCS and the Blackland Experiment Station out of Texas A & M University to convert the magnetic tape data to a file format compatible with the INFORMIX database management system. The conversion to INFORMIX was completed in January, 1994 and numerous queries were run to develop trends in reservoir sedimentation as part of the Sedimentation Subtopic in the Third Resources Conservation Act studies.

The reservoir sedimentation database is currently being used, maintained and managed by the Soil Conservation Service. A number of tasks need to be completed prior to the release of the database to other public and private entities. A users guide needs to be developed. The database needs to be error-checked and missing latitude and longitude information needs to be added. Data input and output screens, or tables, also need to be prepared. Future location, responsible agency and public use has not been determined at this date.

BACKGROUND

Reservoir Sediment Surveys

Reservoir Sediment Data Summary (Form 34)

RESERVOIR SEDIMENT DATA SUMMARY

Old Hickory
NAME OF RESERVOIR

DATA SHEET NO. (18010)

DAM						
1. OWNER Corps of Engineers				2. River Cumberland		3. STATE Tennessee
4. SEC.	TWP.	RANGE		5. NEAREST P.O.		6. COUNTY Davidson/Sumner
7. LAT 36° 17' 48" LONG. 86° 39' 21"			8. TOP OF DAM ELEVATION 455.0		9. SPILLWAY CREST ELEV 447.0	

RESERVOIR	10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
	a. FLOOD CONTROL	447.0	24,500	47,000	467,000	
	b. MULTIPLE USE					11 Jun 54
	c. POWER	445.0	22,500	63,000	420,000	
	d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
	e. IRRIGATION					
	f. CONSERVATION					
	g. INACTIVE	442.0	19,600	357,000	357,000	14 Jun 54

WATERSHED				
17. LENGTH OF RESERVOIR 97.3	MILES, AV. WIDTH OF RESERVOIR 0.39			MILES
18. TOTAL DRAINAGE AREA 11,674	SQ. MI	22. MEAN ANNUAL PRECIPITATION 51		INCHES
19. NET SEDIMENT CONTRIBUTING AREA 1404	SQ. MI	23. MEAN ANNUAL RUNOFF 21		INCHES
20. LENGTH 97 MILES, AV. WIDTH 22.2	MILES	24. MEAN ANNUAL RUNOFF 13,100,000		AC.-FT.
21. MAX. ELEV. 4,150 MIN. ELEV. 372		25. ANNUAL TEMP. MEAN 59°F RANGE 37-79°F		

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCUL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I RATIO, AC.-FT. PER AC.-FT.
June 1954	0	0	Range	65	24,400	467,000	3/
June 1965	11	11	Range (Detailed)	62	24,400	454,100	
Sept 1980	15.25	26.25	Range (Detailed	66	24,400	441,500	
Sept 1985	.5	31.25	Range (Detailed)	66	24,360	441,400	

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO-DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
June 1965	51.1	12,651,151	18,491,863	151,813,809	12,651,151	151,813,809
Sept 1980	51.1	15,844,260	20,426,522	225,780,707	14,384,553	377,594,516
Sept 1985	51.8	11,988,465	15,150,577	59,942,323	21,606,757	437,536,239

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI. YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI. YEAR
June 1965	12,900	1,170	3/	12,900	1,170	3/
Sept 1980 4/	12,600	826		25,500	970	
Sept 1985	100	20		25,600	819	

26. DATE OF SURVEY	39. AV. DRY WGT. LBS. PER CU. FT.	40. SED. DEP. TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
			NOT COMPUTED				

26. DATE OF SURVEY	43	DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION												
		66-56	56-46	46-36	36-26	26-16	16-6	6-Crest						
		PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												
June 1965		3.2	13.7	19.5	16.8	22.2	17.9	6.7						
Sept 1980		3.6	14.3	22.0	20.7	19.4	14.2	5.8						
Sept 1985		3.1	12.7	19.0	17.7	18.5	16.9	12.1						

26. DATE OF SURVEY	44	REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
		PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
June 1965		15.9	16.4	25.5	21.9	10.4	4.4	5.1	2.4	-0.2	-1.8	[5]				
Sept 1980		19.4	20.2	27.9	22.8	8.7	4.0	3.1	-.3	-1.8	-4.0					
Sept 1985		20.1	20.2	27.4	23.1	6.3	3.0	2.6	1.1	-1.1	-2.7					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
	SEE ATTACHMENT 1.						

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
385	0	0	425	7,700	126,000			
390	650	1,500	430	9,300	169,000			
395	1,300	6,100	435	12,800	223,000			
400	2,000	14,300	440	17,300	297,000			
405	2,800	26,100	445	22,300	396,000			
410	3,800	42,600	450	27,500	519,400			
415	5,200	64,400						
420	6,100	92,200						

47. REMARKS AND REFERENCES

[1] Spillway crest at elevation 406.0 surmounted by 6 tainter gates, 41 feet high and 45 feet wide.

[2] Closure of cofferdam and completion of lock for temporary use. Full power plant use not effective until December 1957.

[3] Six projects are upstream of Old Hickory Reservoir. Trap efficiencies are unknown.

[4] Uncontrolled drainage area was 2,776 square miles until Cordell Hull Dam closure in October 1967. After which uncontrolled drainage area became 1404 square miles.

[5] Negative sediment indicates scour.

48. AGENCY MAKING SURVEY U S Army Corps of Engineers

49. AGENCY SUPPLYING DATA U S Army Corps of Engineers   50. DATE August 1987

ATTACHMENT 1

Range in Old Hickory
Reservoir Operation
Water Years 1966-1985

WATER YEAR	MAXIMUM ELEVATION	MINIMUM ELEVATION	INFLOW AC-FT
1955	455.4	413.6	14,745,954
1956	436.0	407.9	14,244,902
1957	447.5	435.0	15,123,692
1958	445.3	441.5	16,456,346
1959	445.1	442.3	9,619,967
1960	445.1	442.2	15,062,571
1961	446.0	442.9	13,515,124
1962	449.6	443.6	13,491,573
1963	446.0	443.4	12,076,107
1964	446.7	443.3	10,067,472
1965	445.6	442.8	14,734,271
1966	446.4	443.5	7,816,338
1967	445.5	442.3	15,475,473
1968	445.2	443.0	15,592,797
1969	445.3	443.0	9,513,062
1970	446.3	442.0	13,277,533
1971	445.4	442.8	14,450,470
1972	445.4	443.0	16,613,534
1973	447.2	442.0	20,400,639
1974	448.9	442.9	19,390,378
1975	450.1	442.7	20,426,522
1976	447.1	442.6	13,550,144
1977	445.7	443.1	10,792,576
1978	446.0	442.1	14,620,793
1979	447.7	442.8	18,525,005
1980	447.3	443.2	15,047,840
1981	445.9	442.5	6,562,202
1982	446.5	442.3	13,613,673
1983	446.1	442.8	15,150,577
1984	450.0	442.6	14,975,512
1985	445.1	443.0	11,988,465

U.S. Department of Agriculture Miscellaneous Publications

SUBCOMMITTEE ON SEDIMENTATION (ICWR)

INSTRUCTIONS FOR COMPILING THE RESERVOIR
SEDIMENT DATA SUMMARY FORM

Prepared by the following agencies represented on the
Subcommittee on Sedimentation
Inter-Agency Committee on Water Resources

DEPARTMENT OF AGRICULTURE
    Agricultural Research Service
    Forest Service
    Soil Conservation Service

DEPARTMENT OF COMMERCE
    Bureau of Public Roads
    Environmental Science Services
      Administration

DEPARTMENT OF DEFENSE
    Corps of Engineers
    Naval Oceanographic Office

DEPARTMENT OF HEALTH, EDUCATION
    AND WELFARE
      Water Pollution Control
      Administration

DEPARTMENT OF THE INTERIOR
    Bureau of Mines
    Bureau of Reclamation
    Geological Survey

FEDERAL POWER COMMISSION

TENNESSEE VALLEY AUTHORITY

Foreword

(REVISED MARCH 1966)

The following instructions were prepared by members of the Subcommittee
as a guide for use in the completion of Reservoir Sediment Data Summary
forms. The purpose of the summary form is to provide for the uniform
compilation and dissemination of pertinent basic data obtained from
reservoir sedimentation surveys. A summary is desired for each reservoir
on which one or more sedimentation surveys have been made. New sum-
maries should be prepared when additional sedimentation surveys are made
and should carry forward the results of previous surveys, as indicated
in the instructions. A typed copy of each new summary in condition suit-
able for offset printing should be furnished for publication. After a
summary is prepared it will be reproduced by the Subcommittee in suf-
ficient numbers to meet the needs of each agency represented on the Sub-
committee. This will permit each agency to maintain a file of basic
data prepared in a uniform manner suitable for analysis and interpre-
tation. The Subcommittee recognizes that all items of data provided
for on the summary will not be readily available for every reservoir.
The early compilation and dissemination of available data is preferable
to postponement until all items can be completed. However, it is im-
portant that every item be filled out for which data are obtainable.
The following instructions are based on the instructions issued by the
Subcommittee on Sedimentation in 1961 but are revised to apply to the
new summary form.

General Notes

A. In all cases where data are estimated or assumed, insert an asterisk, and show an asterisk with the word "assumed" at the bottom of the front page of the form.

B. Where other information is presented that needs clarification, footnotes should be used and shown by numbers, as 1/, 2/, etc. All footnotes are to be explained in the space provided under Item 47.

C. All data should be shown to at least three significant figures, if available, and if accuracy of the survey warrants. However, it is common practice and permissible to show all items of data to the nearest whole number, even though the accuracy of the survey may not give significance to the last one or two whole numbers. For example, for Item 14: 167,624, 16,762, 1676, 168, 16.8, 1.68.

D. Items 31, 32, 33, 37, 38, 40, 41.
Where the sedimentation survey of a multiple-purpose reservoir has covered only the pool level or levels used for storage most of the year (as irrigation, power, inactive) and has not covered the flood-control pool above such levels, the data should be shown for the pool levels surveyed. However, any data obtained concerning sedimentation in the controllable flood-control pool (not including surcharge storage) should be shown under the above items with a footnote reference of explanation under Item 47.

E. Use continuation sheets when all data cannot be placed on one sheet.

Specific Items

Name of Reservoir: Give the official or most commonly used name. If the dam has another name, give it in parentheses, i.e., Lake Mead (Hoover Dam).

Data Sheet No.: The Data Sheet Number is composed of two parts, the first being the river basin map number as shown in the hydrologic atlas compiled under the auspices of the Subcommittee on Hydrology, ICWR, and the second is the sheet reference number supplied by the Subcommittee on Sedimentation periodically when data are compiled for publication. If the map number for the river basin in which the reservoir is located is available, it should be shown here. The data sheet reference number will be supplied later by the Subcommittee on Sedimentation.

Item

1. The name of the person or the organization that owns or operates the structure. If a Federal or State government, give both the department and agency having supervision or control over the operation of the dam. (Abbreviate as necessary).

For example, "Trib. of Rock R."

3. If the dam lies in two states, both states should be given, the first state being that in which the headquarters for operation of the dam are located.

4. Give the location of the dam by section, township and range.

5. Give the name of the nearest post office. If space permits, adding the distance in miles and direction of the dam from the nearest post office helps to pinpoint the location of the dam, as Tulsa 2 SE.

6. Give the county in which the dam is located. If the dam is in two counties, the first-named county should be the one in which headquarters for operation of the dam are located, followed by a hyphen and the name of the second county.

7. Give the latitude and longitude of the dam in degrees and minutes (seconds, if known).

In Items 8, 9 and 21, if no actual sea level datum elevation is available, an assumed elevation or local datum plane should be given for these items wherever possible, so that the height of the dam and the spillway above stream bed can be determined. (Observe A under General Notes, page 2.)

8. The elevation of the top of the dam which is equal to the highest spillway elevation (Item 9) plus freeboard.

9. This is the elevation of the highest spillway. If the spillway is topped by movable gates, give the elevation of the top of the gates in closed position, with an explanatory footnote in Item 47, "REMARKS AND REFERENCES." (See B under General Notes, page 2.)

10-14. All data corresponding to storage allocations 10a-g refer to original storages in the reservoir, if these data are available, or otherwise, to the first accurate capacities determined after the beginning of storage. Show revisions of the initial storages if recent surveys yield more accurate data than the early surveys.

10a-b. These items designate the purpose of storage space allocation. Multiple use storage space (Item 10b) refers to that which is purposely varied, seasonally or alternately, as required to serve two or more purposes. Use a footnote to explain the specific uses in Item 47.

10c. This item ordinarily refers to storage for hydroelectric or direct power development. However, storage developed or allocated specifically for cooling purposes in steam power plant operation should be listed under this item with a footnote explanation in Item 47.

10d. This item refers to water supply for municipal, industrial, domestic or livestock use, and fire protection.

10e. This item refers to storage space allocated specifically for water used to irrigate agricultural land.

10f. This item refers to storage allocated for regulation of low-water flow of streams, navigation pools, recharge of ground water, recreation, fish and wildlife, etc. Specify by footnote.

10g. This refers to storage below the lowest outlet in the dam which cannot be withdrawn for any consumptive or beneficial use and is not generally considered to be of significant value for any purposes listed under Item 10f, "Conservation". This pool elevation in small reservoirs generally is considered by the Department of Agriculture to be the sediment pool elevation. It is the level below which sediment is generally continually submerged and above which the sediment deposits tend to be more compacted due to periodic exposure to the air.

11a-g. These elevations should correspond to the top of pools listed under Item 10, in terms of mean sea level, if known. Otherwise, an assumed elevation or local datum should be given, as relative elevation to the streambed level, the top of the dam or the spillway crest. If regulation schedules provide for variation (seasonal or otherwise) in the top-of-pool levels the maximum elevation should be shown with a reference to the footnote explanation of the other pertinent pool levels.

12a-g. Give the original surface area in acres at the elevation at the top of each pool shown in Item 11.

13a-g. Give the original storage capacity in acre-feet in each allocation.

14a-g. Give the total original accumulated storage in acre-feet from the bottom of the reservoir to the top of each pool elevation indicated. Thus, the uppermost item recorded should be the original capacity of the reservoir below the spillway crest elevation shown in Item 9.

15. Give the date when water was first impounded (month, day, and year, if possible).

16. Give the date (month, day, and year, if possible) that the initial operation for any function started.

17. Give the length of the reservoir, from the dam to the head of the backwater of the contributing stream. If the reservoir is composed of two or more principal arms, give the sum of the lengths and specify the length of each main arm in a footnote in Item 47. Give the average width by dividing the surface area by the summation of the lengths.

18. Give the entire flow-contributing drainage area above the dam.

19. Give the drainage area exclusive of the surface area of the reservoir at the spillway crest elevation (Item 9) and exclusive of the up-

20. Give the length of the total drainage area along the center line of the main stream valley. The average width is the area in Item 18 divided by the length in Item 20.

21. The maximum elevation would be the highest point of the watershed boundary. The minimum elevation of the watershed should be the lowest original stream-bed elevation at the axis of the dam. This elevation is used to determine the height of the dam.

22-24. Give the longest available recorded mean value. If known, include in parentheses the number of years of record.

22. Give the average annual precipitation value for the total drainage area. If the mean annual precipitation varies widely for different parts of the watershed, record the range of values, for example, "18-35".

23. Mean annual runoff in inches may be obtained from direct measurement; from published reports such as USGS Water Supply Papers; by transposing known data from similar adjacent watersheds; or from average annual runoff maps such as USGS Circular 52. The source of data may be shown by footnote with explanation under Item 47.

24. The mean annual runoff in acre-feet may be obtained by multiplying Item 23, mean annual runoff in inches, by Item 18, total drainage area in sq. mi., times the conversion factor 53.33.

25. The mean annual temperature and the average annual range in temperature should be given in degrees Fahrenheit.

26. Give the date of the beginning of storage, if used to compute sedimentation, or the average date (month, day, and year) of the first reservoir survey, and of all succeeding surveys used in computing sedimentation. The original data from which the sedimentation record begins and the subsequent data should be given under Items 26, 29, 30, 31, 32, and 33, but the original data should not be repeated under Item 26 below or in parallel boxes from Item 34 through Item 42, inclusive.

27. Give the elapsed period between the beginning of storage or the first survey used to compute sedimentation (whichever is the more recent date), and the succeeding survey and between the average dates of each succeeding sedimentation survey. Compute to the nearest 0.1 year. If computations have been carried out to the nearest 0.01 year, two decimal places may be shown.

28. Give the accumulative period from the beginning of storage or the first survey used to compute the sedimentation (whichever is the more recent date) to each succeeding sedimentation survey. Compute to the nearest 0.01 year, two decimal places may be shown.

29. Indicate "Range" or "Contour" and "Detailed" or "Reconnaissance" as applicable. Detailed may be shown by the symbol "(D)"; reconnaissance by "(R)". A detailed range survey is defined as one in which instrumental control of all sounding and spudding positions in the lake was maintained. Where this was not done, the survey should be labeled as "(R)". In a few cases, where instrumental control was not maintained, but the number of ranges and observations per range were substantially the same as those made on a detailed survey the designation "Semi-Detailed" may be used. The symbol for this should be "(S)". A contour survey to be labeled "(D)" should conform with at least standards of third order accuracy for topographic mapping (1 in 5000). If the contouring was of a sketchy or very generalized nature, designation should be "(R)". All contouring done with Kelsh Plotters and similar equipment shall be considered "(D)", but sketching of contours with portable stereoscope shall be considered "(R)".

30. Give the number of ranges or the contour interval. If a reconnaissance survey, give the number of individual measurements. The letter "(M)" should follow to indicate that they are measurements and not ranges. Where a combination range and contour survey is made the symbol "(R)" should follow the number of ranges and "(CI)" should follow the contour interval.

31. The surface area at the spillway crest elevation (use the elevation of Item 9 to obtain the first entry). If the areas of different allocated storages have been determined each should be referenced with a footnote to be shown in Item 47.

32. The first figure entered should be the original capacity (below the spillway crest elevation, Item 9). If the capacities for different allocated storages have been determined these should be shown and each referenced with a footnote in Item 47. If the original capacity was not determined, give the first accurate capacity determined after the beginning of storage and note the date.

33. Capacity-Inflow ratio. C/I = Item 32 ÷ Item 24. Use the maximum capacity for the date (Item 32) for which the C/I ratio is being calculated and divide by the mean annual runoff in acre-feet (Item 24). This ratio should be adjusted if there are one or more upstream reservoirs that have a significant trap efficiency and control a substantial part of the drainage area (usually more than 25 percent).

34. Give the mean annual precipitation over the drainage area for each period of years given in Item 27. If there is a substantial variation in precipitation for different parts of the drainage area, give the range as "10-23".

35. In 35a give the average annual water inflow to the reservoir, in acre-feet, for each period of years given in Item 27. The high-

annual for each period, in acre-feet, is to be given in Item 35b, and the total for each period is given in Item 35c.

36. Give the water inflow, in acre-feet, to the reservoir for the accumulated periods of years given in Item 28.

37. In Item 37a, give the volume of capacity loss below crest (Item 9) for the periods of years given in Item 27. Item 37b is obtained by dividing the volume given in Item 37a by the corresponding period of years shown in Item 27. Item 37c is obtained by dividing the value in 37b by the net sediment contributing area shown in Item 19.

38. In Item 38a give the accumulative total sediment deposits below crest for the period or periods of years given in Item 28. Item 38b is obtained by dividing the value of Item 38a by the corresponding accumulative years shown in Item 28. Item 38c is determined by dividing Item 38b by the net sediment contributing area shown in Item 19. If the above-crest deposits exist and are measured, add their volume to the below-crest deposits in Items 38a, b, and c. and also give these total values just under the other values. Where above-crest deposits are included, they should be referenced with a footnote and explained in Item 47, REMARKS AND REFERENCES. (See Notes C and D).

39. Weighted average dry weight in pounds per cubic foot of sediment in place in the reservoir. Since the dry weight of deposits tends to increase with time due to compaction, an average dry weight for the total deposit should be measured or estimated at the time of each survey. If assumed values are used, indicate by asterisk. (See Note A).

40. Compute the values as follows:

Item 40a = for first survey, Item 38c x Item 39 x 21.78

Item 40a = for subsequent surveys:

$$\frac{\left[\left(\begin{array}{c}\text{Item 38a} \\ \text{for latest} \\ \text{survey}\end{array} \times \begin{array}{c}\text{Item 39} \\ \text{for latest} \\ \text{survey}\end{array}\right) - \left(\begin{array}{c}\text{Item 38a} \\ \text{for preced-} \\ \text{ing survey}\end{array} \times \begin{array}{c}\text{Item 39} \\ \text{for preced-} \\ \text{ing survey}\end{array}\right)\right] \, 21.78}{(\text{Item 27 for latest period}) \times (\text{Item 19})}$$

It is imperative that samples of the sediment representative of the entire period of sediment accumulation be obtained at the time of each survey. *This eqn could gives negative sed. deposition if most recent period density is greater than previous period density. Only use*

Item 40b = Item 38c *interval data* x Item 39 x 21.78 *not total data!*

41. Compute the values as follows:

$$\text{Item 41a} = \frac{\text{Item 38b} \times 100}{\text{Item 14}} \quad (\text{Maximum value in item})$$

Item 41b = $\dfrac{\text{Item 38a} \times 100}{\text{Item 14 (Maximum value in item)}}$

42. Compute as follows:

Item 42a = $\dfrac{\text{Item 40a} \times \text{Item 27} \times \text{Item 19} \times 10^6}{\text{Item 35c} \times 1359}$ = PPM by weight

Item 42b = $\dfrac{\text{Item 38a} \times \text{Item 39} \times 1{,}000{,}000}{\text{Item 36b} \times 62.4}$ = PPM by weight

43. If elevation-capacity curves are developed, select the appropriate intervals in feet below and above the crest. Give the percentage of the total sediment deposits located within each depth designation (elevation zone). For example:

$\dfrac{\text{(depth range)}}{\text{(\% of sed't)}} = \dfrac{122\text{-}100}{4} \quad \dfrac{100\text{-}85}{5} \quad \dfrac{85\text{-}70}{6} \quad \dfrac{70\text{-}60}{7} \quad \dfrac{60\text{-}50}{7} \quad \dfrac{50\text{-}40}{9} \quad \dfrac{40\text{-}30}{10}$

$\dfrac{30\text{-}20}{12} \quad \dfrac{20\text{-}10}{15} \quad \dfrac{10\text{-Crest}}{18} \quad \dfrac{\text{Crest-}+15}{5} \quad \dfrac{+15\text{-}+25}{2}$

44. The sediment distribution in percent according to distance from the dam. The reach designation is the percent of the distance from the dam to the maximum upstream extent of the spillway-crest contour at the elevation given in Item 9 at the date of the beginning of storage. Thus, 20 percent would be 1/5 of the distance from the dam to the head of backwater at the original crest stage.

45. List the maximum and minimum water elevations and the total inflow in acre-feet for each water year of record.

46. Give data from the elevation-capacity curve for the latest survey shown on Item 26. Be sure to label each survey date on the form. If space permits, give data from the elevation-capacity curve for the original survey.

47. List here all published and unpublished reports on sedimentation surveys of this reservoir. All footnote explanations are to be shown in this space. Also note and give any pertinent data, including dates of abnormal operational occurrences, such as reservoir evacuation; sluicing out sediment; releasing density currents; extreme floods and droughts; changes in spillway-crest elevation; use of flash boards; and the installation of upstream control structures. Briefly describe the sediment and any available textural analyses. If needed, use continuation sheets.

48. Give the department, agency, and division, branch, or field office responsible for each survey.

49. Give the agency and department reporting the data.

50. Give the date this form was prepared by the office listed in the

RESERVOIR SEDIMENT
DATA SUMMARY
SCS-34 Rev. 6-66

Six Mile Creek, Site No. 3
NAME OF RESERVOIR

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

23-
DATA SHEET NO.

DAM

1. OWNER Enlo Conserv. District
2. STREAM Six Mile Creek
3. STATE New State
4. SEC. 25 TWP. 2N RANGE 4W
5. NEAREST P.O. 2 mi. E of Nebo
6. COUNTY Carroll
7. LAT. 37° 17'24"N LONG. 87° 34' 15"W
8. TOP OF DAM ELEVATION 131.0
9. SPILLWAY CREST ELEV. 123.0

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY. ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	123.0	198.0	2091.9	3584.9	April 18, 1946
b. MULTIPLE USE					
c. POWER					
d. WATER SUPPLY	111.0	124.8	1002.0	1493.0	
e. IRRIGATION					16. DATE NORMAL OPER. BEGAN
f. CONSERVATION					
g. INACTIVE 1/	97.0	60.2	491.0	491.0	April 22, 1948

17. LENGTH OF RESERVOIR 1.34 MILES, AV. WIDTH OF RESERVOIR 0.23 MILES

WATERSHED

18. TOTAL DRAINAGE AREA 10.14 SQ. MI.
22. MEAN ANNUAL PRECIPITATION 25.13 (25 yr) INCHES
19. NET SEDIMENT CONTRIBUTING AREA 9.83 SQ. MI.
23. MEAN ANNUAL RUNOFF 1.6 (12 yr) INCHES
20. LENGTH 5.17 MILES AV. WIDTH 1.96 MILES
24. MEAN ANNUAL RUNOFF 865 (12 yr) AC.-FT.
21. MAX. ELEV. 398.0 MIN. ELEV. 76.0
25. ANNUAL TEMP.: MEAN 58°F RANGE -3° to 100°F

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
4-18-48	–	–	–	–	60.2 1/ 198.0 2/	491.0 1/ 3584.9 2/	4.14
6-23-64	16.18	16.18	Range-Contour(D)	21 R 2 CI	50.3 1/ 198.0 2/	293.2 1/ 3322.4 2/	3.84

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
6-23-64	24.81	860	1033	13,930	860	13,930

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
6-23-64	197.80 1/ 262.44 2/	12.22 1/ 16.22 2/	1.24 1/ 1.65 2/	197.80 1/ 262.44 2/	12.22 1/ 16.22 2/	1.24 1/ 1.65 2/

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW. PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
6-23-64	67.4 (8)	1820 1/ 2422 2/	1820 1/ 2422 2/	2.48 1/ 0.45 2/	40.28 1/ 7.32 2/	20,350	20,350

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	123-120	120-116	116-112	112-108	108-104	104-100	100-97	97-96	96-92	92-88	88-84	84-76
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
6-23-64				1	6	19	19	4	10	12	25	4

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
	2	17	19	14	17	10	9	7	10	5					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1949	123	111	1011	1957	115	83	694
50	120	113	863	58	117	92	912
51	118	112	996	59	119	96	892
52	123	111	1024	60	123	112	1033
53	123	108	989	61	123	111	943
54	119	106	1002	62	119	109	862
55	114	97	868	63	123	109	834
56	117	84	623				

46. ELEVATION–AREA–CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
Original	Capacity	- 1948	96	58.0	442.3	112	127.4	1587.0
123	198.0	3584.9	92	45.7	330.0	108	104.5	1125.0
120	178.4	2832.0	88	32.1	265.7	104	83.4	750.9
116	151.8	2394.2	84	21.3	170.0	100	62.1	461.6
112	128.9	1679.0	80	11.7	73.0	97	50.3	293.2
108	109.0	1228.3	1964	Capacity		96	43.1	247.0
104	94.2	931.9	123	198.0	3322.4	92	26.4	109.6
100	75.3	658.0	120	167.5	2774.8	88	17.2	23.2
97	60.2	491.0	116	150.5	2140.8	84	1.27	0.0

47. REMARKS AND REFERENCES

1/ Sediment pool only

2/ Total reservoir below crest elevation (123.0')

Land Use in Watershed: 21 percent Woodland; 47 percent Pasture; 18 percent Cropland; 6 percent Idle; 8 percent Residential.

Geology: 25 percent Chaco shale; 18 percent Thomas ls.; 57 percent Orville ss.

Reservoir Sedimentation Computer System (SEDRE)

Reservoir Sedimentation Survey Information System (RESIS)

GENERAL DATABASE STRUCTURE

Table 1. Overview of the reservoir sediment database tables.

Table	Description
rsed01_descrip	Details the ownership, location, elevation, dates of operation, drainage area, and climatic characteristics of the reservoir and associated dam.
rsed02_respurp	Gives the pool elevations, surface area, and associated capacities of the reservoir by purpose of operation.
rsed03_period	For each survey date on each reservoir, the elapsed time since the previous survey is stored.
rsed04_surv-def	For each survey date on each reservoir, the survey method and scope is detailed.
rsed05_precflow	Precipitation and water inflow for each survey period are recorded for each reservoir.
rsed06_deposits	Aerated, submerged, and total sediment deposit quantity, sample number, and average dry weight estimates are given by reservoir and survey.
rsed07_depth_def	Defines the reservoir pool layers, denoted by distance above or below the spillcrest elevation for assigning sediment location (may vary by survey date).
rsed08_depth_sed	For each survey date, gives the percentage of the sediment deposits occuring in each depth layer.
rsed09_reach_sed	For each survey date, gives the percentage of the sediment deposits occuring by distance segment and reach for each reservoir.
rsed10_range_opr	Water inflow and the maximum and minimum elevations are given by water year for each reservoir.
rsed11_elev_cap	For each reservoir, the storage capacity by elevation stage is given (may have multiple survey dates).
rsed12_remarks	For each reservoir, the footnotes and other remarks recorded by the surveyors are recorded here.
rsed13_agency	The agencies recording data and the agencies preparing the SCS Form 34 are recorded for each survey date.
rsedrca_reg	For each reservoir the associated county, Major Land Resource Area (mlra), and 4-digit hydrologic unit area are recored for use in 3rd RCA queries.

Figure 1. Join relationships in the reservoir sediment database.
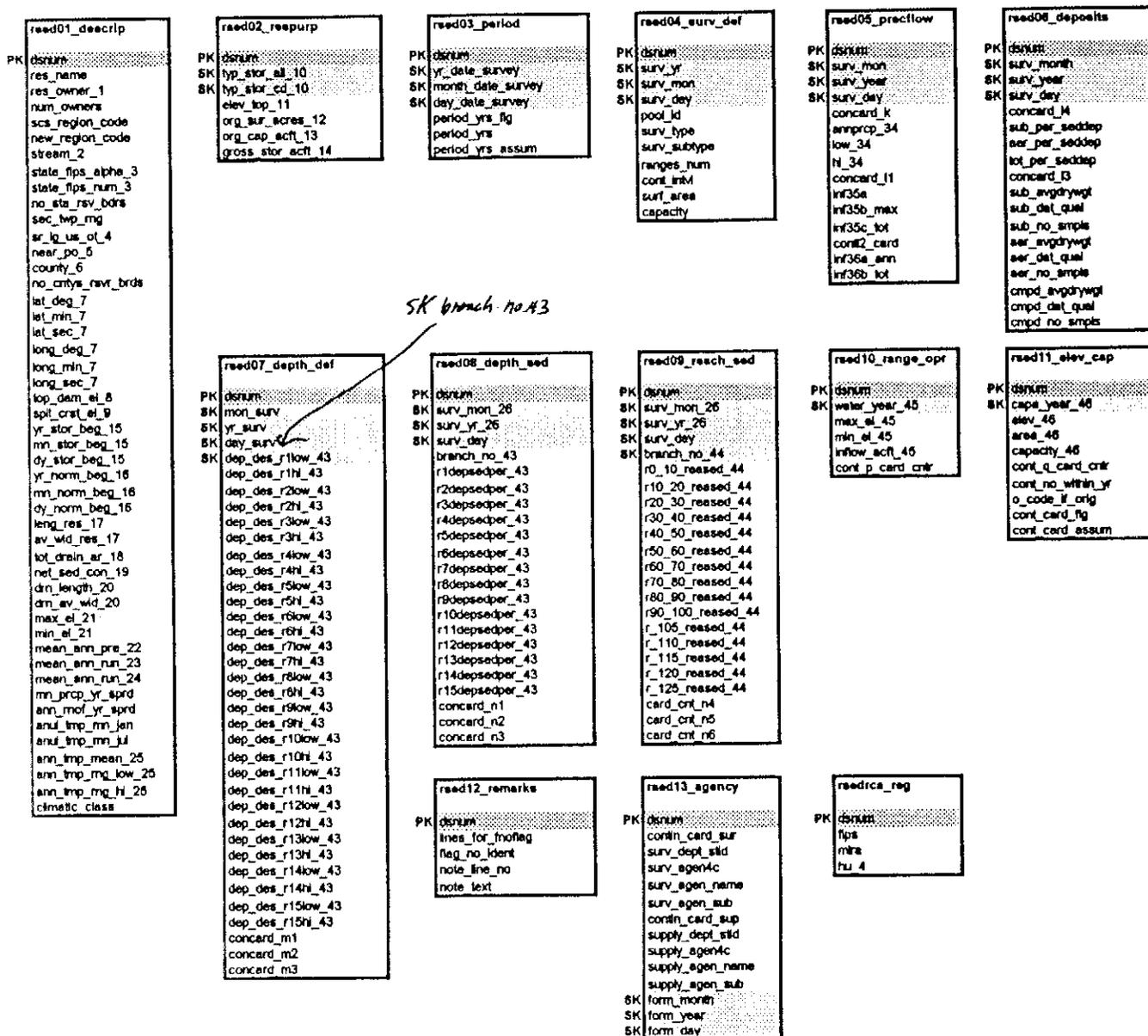
Note: PK = primary key; SK = secondary key.
Variables duplicated 3 times in table with "a_", "f_", "u_" prefixes indicating if data is assumed, a footnote identifier and English or Metric units.

DATABASE TABLE DESCRIPTIONS

table : rsed01_descrip

```
DATE       October 4, 1993
ROW #            1819
ROW SIZE         502
COLUMN #         118
UNIQUE PK        1819
Index on dsnum
```

Keys	Column*	Column Type	Description
PK	dsnum	integer	Unique data sheet number identifying the reservoir.
	res_name	char(60)	Name of reservoir.
	res_owner_1	char(60)	Owner of reservoir.
	num_owners	smallint	Number of owners of reservoir.
	scs_region_code	char(1)	SCS area code (n, m, s, w).
	new_region_code	smallint	New region code (1-10).
	stream_2	char(45)	Name stream on which dam is erected.
	state_fips_alpha_3	char(2)	Two letter postal code for state dam in.
	state_fips_num_3	char(2)	FIPS numeric code for state dam in.
	no_sta_rsv_bdrs	smallint	Number of states reservoir boarders on or spreads into.
	sec_twp_rng	char(24)	
	sr_lg_us_ot_4	char(2)	sr, lg, us, ot.
	near_po_5	char(30)	Nearest town or post office.
	county_6	char(20)	County within state.
	no_cntys_rsvr_brds	char(1)	Number of county reservoir boarders on or spreads into.
	lat_deg_7	smallint	Latitude - deg.
	lat_min_7	smallint	Latitude - min.
	lat_sec_7	smallint	Latitude - sec.
	long_deg_7	smallint	Longitude - deg.
	long_min_7	smallint	Longitude - min.
	long_sec_7	smallint	Longitude - sec.
	top_dam_el_8	smallfloat	Top dam elevation.
	spil_crst_el_9	smallfloat	Spillway crest elevation.
	yr_stor_beg_15	smallint	Year storage began.
	mn_stor_beg_15	char(2)	Month storage began.
	dy_stor_beg_15	char(2)	Day storage began.
	yr_norm_beg_16	smallint	Year normal operation began.
	mn_norm_beg_16	char(2)	Month normal operation began.
	dy_norm_beg_16	char(2)	Day normal operation began.
	leng_res_17	smallfloat	Length of reservoir.
	av_wid_res_17	smallfloat	
	tot_drain_ar_18	float	Average width of total drainage area.
	net_sed_con_19	float	Net sediment contributing area.
	drn_length_20	smallfloat	Length of total drainage area.
	drn_av_wid_20	smallfloat	
	max_el_21	smallfloat	Maximum elevation.
	min_el_21	smallfloat	Minimum elevation.
	mean_ann_pre_22	smallfloat	Mean annual precipitation.
	mean_ann_run_23	smallfloat	Mean annual runoff.
	mean_ann_run_24	float	
	mn_prcp_yr_sprd	float	Mean annual precip. year spread.
	ann_rnof_yr_sprd	float	Mean annual runoff years spread.
	anul_tmp_mn_jan	float	Annual temp. mean for January.
	anul_tmp_mn_jul	float	Annual temp. mean for July.
	ann_tmp_mean_25	smallfloat	Annual temp. mean for year.
	ann_tmp_rng_low_25	smallfloat	Annual temp. range low value.
	ann_tmp_rng_hi_25	smallfloat	Annual temp. range high value.
	climatic_class	char(11)	Climatic classification.

at the front of the name which hold footnote flags, a "*" if the data is assumed, and "E" or "M" indicating English or Metric units.

table: rsed02_respurp

DATE   October 4 1993
ROW #   ~~12576~~ 12579
ROW Size   62
COLUMN #   17   1814
Unique PK   ~~1818~~ 1814
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	integer	Unique data sheet number identifying reservoir.
SK	typ_stor_all_10	char(15)	A use for which a "pool" of the reservoir may have an identified capacity. Note that pools are separate entities stacked on top of each other.
SK	typ_stor_cd_10	char(1)	A single letter code for use:
			a=FLOOD CONTROL
			b=MULTIPLE USE
			c=POWER
			d=WATER SUPPLY
			e=IRRIGATION
			f=CONSERVATION
			g=INACTIVE
	elev_top_11	smallfloat	Elevation at top of the designated pool.
	org_sur_acres_12	float	Original surface acres at top of the pool.
	org_cap_acft_13	float	Reservoir capacity in this pool (not cumulative over underlying pools).
	gross_stor_acft_14	float	Calculated value, sum of pools, starting from g and increasing through a. This variable generally null in database.

----

*Numbers in column name correspond to cell numbers from Form SCS-34.
 Table may include 3 additional duplicates of each of these columns
 with names with the additional characters of "f_", "a_", or "u_"
 at the front of the name which hold footnote flags, a "*" if the data is
 asssumed, and an "E" or "M" indicating English or Metric units.

```
table : rsed03_period

DATE      October 8, 1993
ROW #            5894
ROW SIZE         30
COLUMN #         7
UNIQUE PK        1787
Index on dsnum

Keys Column*              Column Type  Description
____ _____  _____  _____
PK   dsnum               char(5)      Unique data sheet number identifying the
                                      reservoir.
SK   yr_date_survey      integer      Year (date of survey).
SK   month_date_survey   integer      Month (date of survey).
SK   day_date_survey     integer      Day (date of survey).
     period_yrs          float        Period of years.
_____

*Numbers in column name correspond to cell numbers from form SCS-34.
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at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.
```

table : rsed04_surv_def

DATE   October 8, 1993
ROW #   6607
ROW SIZE   94
COLUMN #   24
UNIQUE PK   1819
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
SK	surv_yr	smallint	Year (date of survey).
SK	surv_mon	smallint	Month (date of survey).
SK	surv_day	smallint	Day (date of survey).
SK	pool_id	char(1)	Pool i.d.
	surv_type	char(20)	Type of survey.
	surv_subtype	char(20)	Survey sub type (r, d, s).
	ranges_num	smallfloat	Number of ranges.
	cont_intvl	smallfloat	Contour interval.
	surf_area	float	Surface area.
	capacity	float	Capacity.

*Numbers in column name correspond to cell numbers from form SCS-34.
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with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed05_precflow

DATE   October 11, 1993
ROW #   2418
ROW SIZE   81
COLUMN #   39
UNIQUE PK   794
Index of dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
SK	surv_mon	smallint	Month (date of survey).
SK	surv_year	smallint	Year (date of survey).
SK	surv_day	smallint	Day (date of survey).
	concard_k	smallint	Continuation card counter for k card type.
	annprcp_34	smallfloat	Period annual precipitation avg. value.
	low_34	smallfloat	Period annual percip. low range value.
	hi_34	smallfloat	Period annual percip. high range value.
	concard_11	smallint	Continuation counter for 11 type cards.
	inf35a	smallfloat	Period water inflow mean annual.
	inf35b_max	smallfloat	Period water inflow max annual.
	inf35c_tot	smallfloat	Period total.
	cont12_card	smallint	Continuation counter for 12 type cards.
	inf36a_ann	smallfloat	Water inflow to date mean annual.
	inf36b_tot	smallfloat	Water inflow to date, total to date.

*Numbers in column name correspond to cell numbers from form SCS-34.
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with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed06_deposits

DATE   October 11, 1993
ROW #   4128
ROW SIZE   101
COLUMN #   36
UNIQUE PK   1814
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	integer	Unique data sheet number identifying the reservoir.
SK	surv_month	smallint	Survey month.
SK	surv_year	smallint	Survey year.
SK	surv_day	smallint	Survey day.
	concard_14	smallint	Continuation counter for 14 type cards.
	sub_per_seddep	float	Submerged period sediment deposits.
	aer_per_seddep	float	Aerated period sediment deposits.
	tot_per_seddep	float	Total period sediment deposits.
	concard_13	smallint	Continuation counter for 13 type cards.
	sub_avgdrywgt	float	Average dry weight submerged.
	sub_dat_qual	char(1)	Data qualifier.
	sub_no_smpls	integer	No. of samples for avg. dry weight submerged, if any exists.
	aer_avgdrywgt	float	Average dry weight aerated.
	aer_dat_qual	char(1)	Data qualifier.
	aer_no_smpls	integer	No. of samples for avg. dry weight aerated, if any exists.
	cmpd_avgdrywgt	float	Avg. dry weight compounded.
	cmpd_dat_qual	char(1)	Data qualifier.
	cmpd_no_smpls	integer	No. of samples for avg. dry weight compounded, if any exists.

----

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assumed, and "E" or "M" indicating English or Metric units.

```
table : rsed07_depth_def

DATE      October 11, 1993
ROW #           340
ROW SIZE        144
COLUMN #        42
UNIQUE PK       315
Index on dsnum


Keys Column*               Column Type  Description
____ _____   _____  _____

PK   dsnum                 char(5)      Unique data sheet number identifying the
                                        reservoir.
SK   mon_surv              smallint     Month (date of survey).
SK   yr_surv               smallint     Year (date of survey).
SK   day_surv              smallint     Day (date of survey).
     dep_des_r1low_43      smallfloat   Low range 1.
     dep_des_r1hi_43       smallfloat   High range 1.
     dep_des_r2low_43      smallfloat   Low range 2.
     dep_des_r2hi_43       smallfloat   High range 2.
     dep_des_r3low_43      smallfloat   Low range 3.
     dep_des_r3hi_43       smallfloat   High range 3.
     dep_des_r4low_43      smallfloat   Low range 4.
     dep_des_r4hi_43       smallfloat   High range 4.
     dep_des_r5low_43      smallfloat   Low range 5.
     dep_des_r5hi_43       smallfloat   High range 5.
     dep_des_r6low_43      smallfloat   Low range 6.
     dep_des_r6hi_43       smallfloat   High range 6.
     dep_des_r7low_43      smallfloat   Low range 7.
     dep_des_r7hi_43       smallfloat   High range 7.
     dep_des_r8low_43      smallfloat   Low range 8.
     dep_des_r8hi_43       smallfloat   High range 8.
     dep_des_r9low_43      smallfloat   Low range 9.
     dep_des_r9hi_43       smallfloat   High range 9.
     dep_des_r10low_43     smallfloat   Low range 10.
     dep_des_r10hi_43      smallfloat   High range 10.
     dep_des_r11low_43     smallfloat   Low range 11.
     dep_des_r11hi_43      smallfloat   High range 11.
     dep_des_r12low_43     smallfloat   Low range 12.
     dep_des_r12hi_43      smallfloat   High range 12.
     dep_des_r13low_43     smallfloat   Low range 13.
     dep_des_r13hi_43      smallfloat   High range 13.
     dep_des_r14low_43     smallfloat   Low range 14.
     dep_des_r14hi_43      smallfloat   High range 14.
     dep_des_r15low_43     smallfloat   Low range 15.
     dep_des_r15hi_43      smallfloat   High range 15.
     concard_m1            smallint     Continuation counter for m1 type cards.
     concard_m2            smallint     Continuation counter for m2 type cards.
     concard_m3            smallint     Continuation counter for m3 type cards.
_____

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at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.
```

```
table : rsed08_depth_sed

DATE      October 11, 1993
ROW #         1818
ROW SIZE       83
COLUMN #       25
UNIQUE PK     319
Index on dsnum


Keys  Column*           Column Type Description
----  --------------    ----------- -----------------------------------------
PK    dsnum             char(5)     Unique data sheet number identifying the
                                    reservoir.
SK    surv_mon_26       smallint    Month (date of survey).
SK    surv_yr_26        smallint    Year (date of survey).
SK    surv_day          smallint    Day (date of survey).
SK    branch_no_43      smallint    Branch number in reservoir.
      r1depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #1.
      r2depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #2.
      r3depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #3.
      r4depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #4.
      r5depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #5.
      r6depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #6.
      r7depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #7.
      r8depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #8.
      r9depsedper_43    smallfloat  % total sediment located w/in depth
                                    designation #9.
      r10depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #10.
      r11depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #11.
      r12depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #12.
      r13depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #13.
      r14depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #14.
      r15depsedper_43   smallfloat  % total sediment located w/in depth
                                    designation #15.
      concard_n1        smallint    Continuation counter for n1 type cards.
      concard_n2        smallint    Continuation counter for n2 type cards.
      concard_n3        smallint    Continuation counter for n3 type cards.
----------
```

*Numbers in column name correspond to cell numbers from form SCS-34.
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at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed09_reach_sed

DATE   October 11, 1993
ROW #   627
ROW SIZE   83
COLUMN #   25
UNIQUE PK   291
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
SK	surv_mon_26	smallint	Month (date of survey).
SK	surv_yr_26	smallint	Year (date of survey).
SK	surv_day	smallint	Day (date of survey).
SK	branch_no_44	smallint	Branch number in reservoir.
	r0_10_reased_44	smallfloat	% total sediment located w/in reach designation #1.
	r10_20_reased_44	smallfloat	% total sediment located w/in reach designation #2.
	r20_30_reased_44	smallfloat	% total sediment located w/in reach designation #3.
	r30_40_reased_44	smallfloat	% total sediment located w/in reach designation #4.
	r40_50_reased_44	smallfloat	% total sediment located w/in reach designation #5.
	r50_60_reased_44	smallfloat	% total sediment located w/in reach designation #6.
	r60_70_reased_44	smallfloat	% total sediment located w/in reach designation #7.
	r70_80_reased_44	smallfloat	% total sediment located w/in reach designation #8.
	r80_90_reased_44	smallfloat	% total sediment located w/in reach designation #9.
	r90_100_reased_44	smallfloat	% total sediment located w/in reach designation #10.
	r_105_reased_44	smallfloat	% total sediment located w/in reach designation #11.
	r_110_reased_44	smallfloat	% total sediment located w/in reach designation #12.
	r_115_reased_44	smallfloat	% total sediment located w/in reach designation #13.
	r_120_reased_44	smallfloat	% total sediment located w/in reach designation #14.
	r_125_reased_44	smallfloat	% total sediment located w/in reach designation #15.
	card_cnt_n4	smallint	Continuation counter for n4 type cards.
	card_cnt_n5	smallint	Continuation counter for n5 type cards.
	card_cnt_n6	smallint	Continuation counter for n6 type cards.

*Numbers in column name correspond to cell numbers from form SCS-34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed10_range_opr

DATE   October 11, 1993
ROW #   4676
ROW SIZE   43
COLUMN #   16
UNIQUE PK   265
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
SK	water_year_45	smallint	Water year.
	max_el_45	smallfloat	Max elevation.
	min_el_45	smallfloat	Minimum elevation.
	inflow_acft_45	decimal(16)	Water inflow, total yearly inflow.
	cont_p_card_cntr	integer	Continuation card counter for p type cards.

*Numbers in column name correspond to cell numbers from form SCS-34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed11_elev_cap

DATE   October 11, 1993
ROW #   10630
ROW SIZE   56
COLUMN #   17
UNIQUE PK   430
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
SK	capa_year_46	integer	Capacity year.
	elev_46	float	Elevation.
	area_46	float	Area.
	capacity_46	float	Capacity.
	cont_q_card_cntr	integer	Continuation counter for q type cards.
	cont_no_within_yr	smallint	Continuation and no., within year.
	o_code_if_orig	char(1)	o - if original capacity.
	cont_card_flg	smallint	Flag for continuation card.
	cont_card_assum	char(1)	* - if continuation card is assumed.

*Numbers in column name correspond to cell numbers from form SCS-34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

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table : rsed12_remarks

DATE      October 11, 1993
ROW #          11410
ROW SIZE       71
COLUMN #       5
UNIQUE PK      1631
Index on dsnum
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Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
	lines_for_fnoflag	smallint	Card order number within comment flag.
	flag_no_ident	char(2)	Continuation counter for r type cards.
	note_line_no	smallint	Flag to match ones on any preceeding a – r.
	note_text	char(60)	Remarks and references.

*Numbers in column name correspond to cell numbers from form SCS–34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsed13_agency

DATE   October 11, 1993
ROW #   1842
ROW SIZE   213
COLUMN #   15
UNIQUE PK   1819
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	char(5)	Unique data sheet number identifying the reservoir.
	f_form_48_50	smallint	
	contin_card_sur	smallint	Continuation.
	surv_dept_stid	char(4)	Dept. or state i.d..
	surv_agen4c	char(4)	
	surv_agen_name	char(45)	Agency.
	surv_agen_sub	char(45)	Location of sub-unit making survey.
	contin_card_sup	smallint	Continuation.
	supply_dept_stid	char(4)	Dept. or state i.d..
	supply_agen4c	char(4)	
	supply_agen_name	char(45)	Agency.
	supply_agen_sub	char(45)	Location of sub-unit supplying survey data.
SK	form_month	smallint	Month this form was prepared.
SK	form_year	smallint	Year this form was prepared.
SK	form_day	smallint	Day this form was prepared.

*Numbers in column name correspond to cell numbers from form SCS-34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

table : rsedrca_reg

DATE   October 12, 1993
ROW #   1787
ROW SIZE   18
COLUMN #   4
UNIQUE PK   1787
Index on dsnum

Keys	Column*	Column Type	Description
PK	dsnum	integer not null	Unique data sheet number identifying the reservoir.
	fips	integer	Five digit code, first two digits identify the state, the last three identify the county within the state.
	mlra	char(5)	Major land resource area.
	hu_4	char(5)	4-digit hydrologic unit area.

*Numbers in column name correspond to cell numbers from form SCS-34.
Table may include 3 additional duplicates of each of these columns
with names with the additional characters of "f_", "a_", or "u_"
at the front of the name which hold footnote flags, a "*" if the data is
assumed, and "E" or "M" indicating English or Metric units.

RESIS OUTPUT OPTIONS