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Sediment Data Collection and Analysis for Five Stations on the Colorado River from Lees Ferry to Diamond Creek

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Sediment data were collected at five sampling stations in the 225-mile reach of the Colorado River below Glen Canyon Dam. The data were used to define sand load rating curves, which were developed from computations of sediment transport using the Modified Einstein Method. The sand load rating curves provide a method to compute, for short reaches of river, the volume of sand either deposited or scoured in the main channel of the Colorado River under different flow release patterns at Glen Canyon Dam.

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SEDIMENT DATA COLLECTION AND ANALYSIS FOR FIVE STATIONS ON THE COLORADO RIVER FROM LEES FERRY TO DIAMOND CREEK

By

Ernest L. Pemberton

Glen Canyon Environmental Studies

January 27,1987

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SEDIMENT DATA COLLECTION AND ANALYSIS FOR FIVE STATIONS ON THE COLORADO RIVER FROM LEES FERRY TO DIAMOND CREEK

BY
ERNEST L. PEMBERTON
January 27, 1987

INTRODUCTION

Sediment transport studies on the Colorado River below Glen Canyon Dam were initiated under the Glen Canyon Environmental Studies to evaluate the short and long term impacts of sediment movement on recreation, fisheries, vegetation, and beach erosion of the Colorado River through Grand Canyon National Park. The U.S. Geological Survey, under an agreement with the U.S. Bureau of Reclamation collected the field data, provided laboratory facilities for the bed material analyses, completed discharge measurements with rating curve development, and assisted in developing and analyzing the basic data requirements used in the sediment transport computations. The Bureau of Reclamation was responsible for suspended sediment laboratory analyses and for completion of the sediment transport computations described in this report. To provide data for the evaluation, five sediment sampling stations were strategically located on the Colorado River in the Grand Canyon reach of river below Glen Canyon Dam.

The sampling program at each of the five stations included collecting data on suspended sediment, bed material, and channel hydraulics for computations of total load. It was recognized that much of the sand size sediment considered most critical in replenishing the beaches is transported near or on the streambed of the river and cannot be measured under the normal suspended sediment sampling program. The total sand load was derived from the sand load portion of the total sediment load computed by the Modified Einstein Method. Total sand load rating curves (discharge versus sand load) at each of the five sampling locations served two purposes; one, as a control point on the river for verification of the STARS (Sediment Transport and River Simulation Model) (Orvis and Randle, 1986) developed by the Bureau of Reclamation and the other to test several of the sediment transport equations to see which is most applicable to the Colorado River.

The U.S. Geological Survey, Arizona District Office in Tucson, Arizona was responsible for the installation of equipment and the collection of data at the five Colorado River sampling locations. The sampling period ran in two phases; Phase 1 was from June 30, 1983 to December 13, 1983 with the second phase from October 1, 1985 to February 2, 1986. Phase 1 was limited to the high discharge range because of the high runoff and operation of the river

outlets and spillway at Glen Canyon Dam beginning in June 1983. The high flow releases from Glen Canyon Dam prevailed until October 1985. Sampling under Phase 2 or more nearly the normal operation of Glen Canyon Dam Powerplant with fluctuating discharges ran for about four months beginning on October 1, 1985.

Phase 1, the 1983 sediment data collection and analysis program is described in the report, "Review Report, Sediment Data Collection" by Ernest L. Pemberton dated December 5, 1984. The material contained in this Phase 1 report along with the Phase 2 data from the 1985-86 period are combined with a complete description of the data collection and analysis presented in this report.

SEDIMENT SAMPLING PROGRAM

The location of these stations as shown in Figure 1 divides the river into four subreaches. The subreaches allow for the separation of sediment originating from the large tributaries such as the Paria River, Little Colorado River, and Kanab Creek. This subdivision into four reaches permits a better evaluation of sediment transport through the approximate 225 miles of river from Lees Ferry to Diamond Creek.

The five sampling sites on the Colorado River identified in Figure 1 utilized two existing gages "at Lees Ferry" and "near Grand Canyon". The other three main river stations required installation of a low level cable from which a cable car was hung for use in obtaining the field data. In addition to the main river stations, suspended samples were collected in 1983 at the three major tributaries, Paria River, Little Colorado River, and Kanab Creek. Sediment data had been collected at gages on these three tributaries in previous years which provided a check of 1983 data with data from the earlier years. Sediment load computations for the tributaries and resulting supply to the Colorado River is described in detail in the report by Randle and Pemberton, 1987.

Sampling procedures adopted by the Geological Survey in 1983 involved teams of two people stationed at each gage for the sampling period. The sampling periods which varied due to delays in installation and getting observers to the site are given below:

Station Number	Location	Sampling Period
1	at Lees Ferry	June 29, to December 11, 1983
3	ab Little Colorado River	July 12, to December 13, 1983
4	nr Grand Canyon	July 1, to December 14, 1983
5	ab National Canyon	July 15, to December 7, 1983
6	ab Diamond Creek	August 6, to December 19, 1983

Suspended sediment samples on the tributaries covered the period July 1 to December 3, 1983 for Paria River at

Lees Ferry, July 27 to November 3, 1983 for Little Colorado River at Cameron, and August 2 to December 13, 1983 for Kanab Creek near Fredonia.

The logistics for the 1983 program for collecting data at the five sampling stations involved two people spending ten days at each sampling site before moving on to another station. With a few exceptions the data collection schedule was as follows:

Day	Phase 1 Description of Activity
1	First day for every 10-day crew rotation 1. Suspended sediment - 20 to 25 verticals (EWI or Equal-Width-Increment Method) 2. Bed Material - 20 to 25 verticals
2 to 10	Alternate from day to day First day - Discharge measurement Suspended sample (10 to 15 verticals by EWI Method) Alternate day - Two sets of suspended samples (10 to 15 verticals - EWI Method)

Several changes were made in the data collection program for the 1985 to 1986 period primarily due to the fluctuating flows from Glen Canyon Dam Powerplant releases. In order to adequately sample the peaks, troughs, rising, and falling stages of the flow hydrograph a schedule was developed for continuous sampling for a 4-day period at each station. Two boat crews consisting of 6 people started down the river with stops of four days at each sampling location. Two sampling people per shift would sample on 8-hour shifts for the 4-day period before moving on to the next location. For the four month period from October 5, 1985 to February 2, 1986 each of the two crews made four trips down the river collecting eight sets of 4-day samples at each sampling site. The only exception to this schedule was at the Lees Ferry sampling location where about one-third of the samples collected at the other sampling stations were taken because of clear water releases and sediment concentrations were extremely low. An example of the sampling schedule at Location 4, Colorado River near Grand Canyon (Figure 2) shows the typical 1985-86 4-day sampling.

Sampling equipment used throughout the data collection period included the P-61 sampler for most of the suspended sediment samples with a D-77 used in the early part of 1983. A Price AA Current Meter was used for velocity measurements. In 1985-86 the cablecar was equiped with lights for night-time operation and included a special power package for moving along the cable. The BM-54 was used to collect bed materialsamples and the Helley-Smith for bed load samples.

One advantage with the time between sampling periods permitted an adjustment in the sampling procedure for 1985-86 based on experience gained from the 1983 data

analysis. Bed material samples in 1983 showed a consistent pattern of streambed material across the cross section, with only minor changes with time during the sampling period. Because of this, the bed material samples in 1985-86 were taken less frequently but on a regular interval with more samples in the cross section to better define the variation across the sampling section. Discharge measurements in 1985-86 were made closer in time with the suspended sediment samples. With the faster changes in stage and discharge during the rising and falling portions of the flow hydrograph the current meter was piggy-backed with the sediment sampler for computed discharges more applicable to the actual time of sediment sampling.

BASIC DATA

Suspended sediment (EWI) samples were transmitted to Denver,Colorado and analyzed for concentration and size analyses (Guy, 1969) in the Bureau of Reclamation Interregional Soil and Water Laboratory. All other samples such as bed material and the Helley-Smith samples were analyzed in the U.S. Geological Survey, Arizona District Laboratory, Tucson, Arizona. All data collected in the field such as discharge measurements and depth soundings were input to the computer by the Geological Survey Tucson Office.

In all laboratory work the location numbers used to identify the sampling stations were as follows:

Location Number	Station
1	Colorado River at Lees Ferry
2	Paria River at Lees Ferry
3	Colorado River above Little Colorado River
4	Colorado River near Grand Canyon
5	Colorado River above National Canyon
6	Colorado River above Diamond Creek
7	Little Colorado River at Cameron
8	Kanab Creek near Fredonia
9	Little Colorado River near mouth

To avoid transporting large volumes of water samples from the field to the Denver laboratory, the sand portion of the sample was run through a 230 (.062 mm) sieve size screen and retained for transmittal to the laboratory. The clay and silt portion of the sample was run through a churn splitter in the field and then the split sample was either transmitted on a filter or 500 ml bottle to the laboratory. Many problems were encountered with the filter either by contamination, sticking together, or filter breaking into pieces. These problems were eliminated in 1985-86 by use of the bottle. In 1983 each sample sent to the laboratory consisted of (3) three 500 ml. size bottles each containing a split portion of the clay and silt sizes (<0.062 mm) of the total sample, and a 50 ml. size bottle containing the total sand particles (>0.062 mm). In 1985-86 only (2) two

bottles containing the clay and silt size fraction were sent to the laboratory. Early in the 1983 laboratory procedures all of the (3) three bottles containing the clay and silt material were analyzed to test the reliability of the churn splitter. These tests showed less than a 10% variation in the results which was within the accuracy of the splitting procedure; therefore, during the late part of 1983 and for all of 1985-86 only (1) one bottle was analyzed.

Other problems normal to any sediment data collection program were encountered throughout the sampling period. There were suspended sediment samples where it was obvious that the nozzle dipped into the bed of the stream as indicated by unusually high sediment concentrations in addition to abnormal size distribution. Other samples arrived at the laboratory with no total weights or with omission of the sand sample. One problem that occurred in 1983 and again in 1985-86 was evidenced by pieces of glass chips found in the sand material. For the above reasons a few of the samples were not analyzed or could not be used in the sediment transport computations. During 1983 sampling period, 1,115 suspended sediment samples, and in 1985-86 828 samples were received in the Denver Interregional Soil and Water Laboratory for analysis. A list of the results of all the suspended sediment sample analyses used in the sediment transport computations is shown in Table 1.

Table 2 is a list of all the discharge measurements (874 given) utilized in the sediment transport computations. The measurements made in 1983 at the sampling stations were schedule for every other day but because of gaps due to crew changes this schedule was not always possible. In 1985-86 more discharge measurements were taken to aid in defining the channel hydraulics for use in the sediment transport computations.

There were 976 bed material samples taken in the 1983 and in 1985-86 periods which were used in developing average bed material sizes for the sediment transport computations. Some of the samples collected did not have sufficient quantity of material to be considered in determining an average. Examples of the bed material samples taken on July 12, 1983 and December 6, 1985 at the "Above Little Colorado River" sampling station are shown in Figure 3 and 4, respectively. A tabulation of the bed material size gradations used in the sediment transport computations is shown in Table 3.

A list of the number of samples or measurements taken in the two sampling periods and used in the computations described in this report is given below.

Item	Number of Samples or Measurements		
	1983		1985-86
	Main Channel	Tributaries	Main Channel
Suspended Sediment	814	261	777
Bed Material	684		292
Discharge Measurements	259		615

SEDIMENT TRANSPORT COMPUTATIONS

The Mofified Einstein Method (Colby and Hembree, 1955) that relies on discharge measurements, suspended load samples, and bed material samples is standard procedure for computing the total sand in transport at a sampling station. The results of the Modified Einstein computations provided data to develop total sand load rating curves at the five sampling locations and to test several of the many different predictive sediment transport equations for applicability to the Colorado River. The data needed for the Modified Einstein Method are stream discharge Q, mean velocity V, cross-sectional area A, stream width b, mean depth of cross section applicable to the EWI sampling verticals d, the measured sediment discharge concentration C, size distribution of the suspended load, size distribution of the bed material at the cross section, and water temperature. The predictive equation computations use the same data except for the suspended sediment load measurements. Total sediment transport was computed using five applicable predictive transport equations:

Ackers and White (Ackers and White,1973)
Meyer-Peter and Muller (Meyer-Peter and Muller,1948; Randle,1984)
Toffaleti (Toffaleti,1969)
Velocity-Xi Adjusted Einstein, Bureau of Reclamation, (Einstein,1950; Pemberton,1972)
Yang (Yang,1973)

The linking of several different types of data together from discharge measurements, suspended sediment samples, and bed material samples was necessary to make one sediment transport computation for a given location and time. A computerized data management system was developed to combine the tremendous variety and volume of data for computations of sand load at each of the five sampling stations and for different transport equations. The data management system developed in the Sedimentation and River Hydraulics Section, Bureau of Reclamation, Denver, Colorado made it possible to sort and plot the data in a variety of ways. It also eliminated tedious hand computations and the need for reentry of data for use with various programs. Without the aid of the data management system the amount of work accomplished would have been both time and cost prohibitive.

Computations by the Meyer-Peter and Muller equation were limited to the 1983 data because the results were found to be from 10% to 20% less than values shown by the other

equations and thus not applicable to the Colorado River as indicated in my report dated December 5, 1984.

BED MATERIAL

The first step in the sediment transport computations was developement of a method for determining the appropriate bed material for use with the channel hydraulics (Table 2) and suspended sediment sample results (Table 1). The plotting of all the bed material size gradation for each sample revealed some drastic changes (Figure 3 and 4) in bed material sizes ranging from sand to gravels and cobbles across the section at the five Colorado River sampling stations. However, consistencies did exist in certain portions of each measuring cross section with some minor changes with time during the sampling period. For use in the sediment transport computations bed material samples were composited by averaging data representing a predetermined portion of the cross section and time period. In the procedure for determining the composite or average bed material size, the plotted cross sections defined by the discharge measurements were used to locate changes in bed material within the channel cross section. Each bed material composite was applicable to a particular river gage, cross section limits, and time period with up to four bed material composites in a cross section. Table 3 shows all of the bed material composites developed from the 976 samples. The plots of these composites are shown in Figure 5 through Figure 18. Figures 19 through 32 show the change in bed material size gradation at a typical cross section plot for each of the composite bed material sizes given in Table 3. As noted in Table 3 and the plotted size gradation, bed material composites could apply to separated portions of the cross section.

A problem was encountered in the sampling if the BM-54 sampler, when contacting gravel or cobble size material, would close on contact with the bed and no material was collected. When this occurred it was identified as a "no return" or "NR"sample. In some cases, samples were collected near the interface where the bed material was changing from sand to gravel material, and these samples had a few particles of coarse gravel and a small amount of sand. Some of the bimodal type samples were not used in computing a composite size gradation.

CHANNEL HYDRAULICS

Since the suspended sediment samples were not taken at or near the same time as the discharge measurements, especially in 1983, a method was developed for computing hydraulic parameters for use in the transport computations. A subdivision of the channel section was made with the same cross section distance limits as defined by the bed material composites. Subdivision of the section was accomplished by selecting a discharge measurement closest in time and gage height and adjusting the cross sectional area to time of

sampling by a change in gage heights. No change in velocity shown in the discharge measurement was made within a specified portion of the cross section. This technique provided a computed discharge for the suspended sample that could be subdivided into segments as defined by the change in bed material.

The selection of a discharge measurement that could be adjusted for gage height and then subdivided for segmental discharge at time of suspended sampling worked better for the 1985-86 data with the additional discharge measurements.

SUSPENDED SAMPLES

The suspended sediment concentration and size gradation represented the results of an EWI (Equal-Width-Increment) (U.S. Geological Survey, 1978) Method of sampling. This permitted the compositing of all verticals sampled into one sample for laboratory analysis with the results given in Table 1.

MODIFIED EINSTEIN METHOD

The computations of total sand load were computed by parts because of significant variations in bed material across the sampling station. Hydraulic parameters such as discharge, area, velocity, top width, and wetted perimeter were computed for each subsection (See Figures 19 to 32). The bed material composites are tabulated in Table 3 and plotted in Figures 5 through 18. The results of the Modified Einstein total load computation were used to develop a sand load rating curve at each sampling station as well as provide a check on the best predictive equation. The method used is the Bureau of Reclamation's version of the Modified Einstein Method (Lara, 1966; Stevens, 1985) whereby "Z" values are computed for at least two sand sizes with sufficient material found both in suspension and in the bed. The "Z" value represents the slope of the sediment concentration curve from water surface to the streambed. After computing the "Z" values for two or more reference sizes, the "Z" values for all other sizes are computed by extrapolation from a least square correlation with fall velocity from the computed "Z" values. The "Z" slopes of the reference sizes are then used in computing the sediment transport rather than a value from the correlation.

For all five of the Colorado River sampling stations the first run for the Modified Einstein Method was made with "Z" slopes computed for the referenced size fractions having 1% or greater material in both suspension and bed material. After the first run this percentage was sometimes changed in order to complete a computation and/or to have a better correlation for extrapolation purposes.

In the Modified Einstein computations, the suspended sediment load was subdivided within the cross section as identified by the type of bed material. The suspended

sediment samples were composited from the EWI Method as sampled over the entire cross section width. The suspended sediment concentration and size was assumed to be the same in each subdivision of the water discharge and corresponding bed material. This assumption is considered good because of the interaction within the cross section caused by irregular bed forms, channel velocities, and turbulence. The meander pattern of the channel and variation of bed materials created by the meander in the vicinity of the five sampling stations also support the one composited suspended sediment sample as the same over all portions of the channel cross section.

An example of the output for a Modified Einstein computation is shown in Tables 4, 5, and 6 for Colorado River at Lees Ferry on July 9, 1983. The cross section for July 9, 1983 is shown in Figure 19 with the appropriate subdivision of the section for the different bed material composition. The bed material size analysis used in the Modified Einstein computations is shown in Figure 5. The discharge used in the computations was for July 9, 1983, at Time 1130 with a gage height of 14.58 and measured discharge of 53,500 cubic feet per second. The computed discharge for the suspended sediment sample taken on July 9, 1983, at Time 1710 with a gage height of 14.55 was 53,435 cubic feet per second. Table 7 shows the subdivision of the total discharge in appropriate segments for the transport computation. All data used in the computations are shown in Tables 4, 5, and 6. Table 7 also shows the hydraulics for the "No Return" portion of the channel assumed to have a cobble or larger size bed material. The suspended load over each segment of the cross section is proportioned according discharge.

The "Z" values shown in Tables 4, 5, and 6 are computed for the reference sizes in which the percent of material in suspension and bed is 1% or greater. The fitted "Z" values represent a least squares correlation and are only used for computing total load if there is no computed "Z".

The sand load portion of the Modified Einstein total load computation for each suspended sediment sample (example shown in Table 7) was plotted using a log-log scale of discharge in cubic feet per second versus sand load in tons per day. Thus sand load rating curves for each of the five sampling stations were developed. The plotted points and rating curves are given on Figures 33 through 37. Data points are plotted for the 1983 as well as the 1985-86 sampling periods. Examination of the plots for 1983 and 1985-86 show the overlap in discharges for the two periods in the vicinity of about 20,000 cubic feet per second. The range in discharges for which sand loads were computed in the two sampling periods is shown in Table 8.

MODIFIED EINSTEIN SAND LOAD REGRESSION CURVES

Total sand loads computed by the Modified Einstein Method and plotted in Figures 33 through 37 were used to develop rating curves by a least squares regression analysis (Chow V.T.,1964). The data scatter is quite noticeable in the Modified Einstein data points and appears extreme. However, the computed equation will provide a representative average. The scatter in data points occurs at all five sampling stations (Figures 33 through 37) and can be traced back to extremes in the suspended sediment sample results. Extremes in suspended sediment samples on the Colorado River are not unusual because of tributary or side drainage inflow of sediment in addition to filaments of sediment movement in suspension caused by sand dune or sand bars influencing instantaneous samples. The natural factors given above that create fluctuations in channel hydraulics and sediment transport parameters have a direct influence on variations in computed sand loads by the Modified Einstein Method. Although some of the scatter in data points about the regression lines shown in Figures 33 through 37 may be attributed to errors in sampling, laboratory analyses, or computations, a much larger deviation about the mean is a natural phenonamen inherit in the measured sand load. The adjusted regression lines in Figures 33 through 37 should be disregarded since the plotting software was an existing Bureau of Reclamation program that in addition to a regression line developed an adjusted line for which the sum of residuals equals zero. The adopted equations for the regression lines for the five sampling stations are given on Figure 33 through 37 and listed in Table 9.

In developing the regression equations several conditions were noted that influenced the selection of the final adopted equations shown in Table 9. In arriving at these final equations one of the critical conditions was that the regression lines for any station have some continuity when compared to the sand load curves at the other sampling stations. In this comparison the extrapolation of the equations beyond the discharges measured at a particular station was a concern. To aid in evaluating inluences of other stations and problems of extrapolation, the sand load rating curves for all stations are shown on Figure 38. A comparison of the sand load rating curves show a slight break in slope or change in the exponent or power of water discharge above a discharge of about 25,000 cu.ft./sec. for all curves except for above Little Colorado River that breaks at about 40,000 cu.ft./sec. This break in slope is not unusual because many river channels have rating curves for suspended load that have a similar break due to several reasons such as adjustment in channel hydraulics or limit in sediment supply. A station by station description of conditions considered in the final equations is given in subsequent paragraphs.

At Lees Ferry, the data indicated two different equations, one for above and one for below discharges of 25,000 cubic feet per second. The equation for below 25,000 cubic feet per second was influenced by relatively high suspended concentrations of sand size sediments. These points were disregarded by extrapolation of the regression line below 25,000 cubic feet per second parallel to the curves for downstream stations which had more data for computing a line (Figure 33).

Above Little Colorado River, the break in data with discharges was moved up to 40,000 cubic feet per second. This was done by examining the highest discharges and extended up to match the 100,000 cubic feet per second rating curve at Lees Ferry (Figure 34).

Near Grand Canyon data provided the most information at high discharges for extrapolating the equations for Above National Canyon and Above Diamond Creek. Because of the need for the extrapolation and the extremely close comparison of the sand load rating curves at all three stations the data for all three stations were combined to compute rating curve equations for above and below the 25,000 cubic feet per second (Figure 35).

Above National Canyon sand load rating curves (Figure 36) for above and below 25,000 cubic feet per second are identical to that developed for the three sampling stations at Location 4, 5, and 6.

Above Diamond Creek sand load rating curves (Figure 37) for above and below 25,000 cubic feet per second are determined by combining data from Locations 4, 5, and 6.

The Modified Einstein sand load rating curves derived by combining all of the data for 1983 and 1985-86 for Locations 4, 5, and 6 are shown on Figure 39.

ERROR ANALYSIS

The Modified Einstein equations (tables 9 and 10) represent total sand loads with many natural variations or errors in the data that could influence the results. These variations or possible errors involve the following: suspended sediment samples, bed material samples, discharge measurements, and laboratory analyses of suspended and bed material samples. Without tests of errors in all of the above for the Colorado River in the Grand Canyon (and more specifically at the sampling sites), all uncertainty caused by either errors or extremes in data are plus or minus and would, in general, cancel each other. Data from streams having medium to fine sand size bed material show variations in error ranging from + or - 4 percent for discharge measurements to + or - 20 percent error in Modified Einstein computations. For the Colorado River, average relationships were developed which should help cancel the errors involved in all possible factors. Modified Einstein results can vary

from the computed regression lines due to time variations in sediment loads. Many of the apparent errors or variations are caused by natural factors that create fluctuations in the parameters used in the channel hydraulics or sediment parameters.

PREDICTIVE EQUATIONS

Upon completion of the Modified Einstein computations, the same bed material size analyses and hydraulic parameters were used to compute the transport by five different predictive equations. For each computation by a predictive equation the results were presented in tables similar to Table 7, with the composites added together for total sand transport. The only exception was in the application of the Meyer-Peter and Muller equation which was used with the 1983 data, but the equation gave consistently low sand loads and was not used when the 1983 and 1985-86 data were combined.

The regression curves for sand load computed by the four predictive transport equations at each of the five sampling stations are shown in Figures 40 through 59. The predictive equations were also applied to the combined data for Locations 4, 5, and 6 and shown on Figures 60 through 63. The predictive equations, in general, showed much less scatter and a better correlation coefficient when compared with the Modified Einstein results, because of reliance solely on bed material size gradation and channel hydraulic properties. Unfortunately the 1985-86 data and especially at the station Above Little Colorado River had a major change in bed material within the cross section which resulted in two parallel sets of data points. The parallel lines are caused by a reduction of gravel-cobble bed material and increase in sand size material within the cross section. Because the predictive equation results are very sensitive to bed material size, any change from gravel-cobble streambed to sand size sediments within the cross section would drastically influence the computed sand loads. With similar number of data points in each set of parallel lines the average line as computed was considered adequate. The regression line equations for the predictive equations as well as the Modified Einstein equation at the five sampling stations are listed in Table 10.

A comparison was made of the rating curves for all sand transport computations for the five sampling stations and the combined Location 4, 5, and 6 as shown in Figures 64 through 69. The result of this comparison would indicate that any one of the final four equations (excluding the Meyer-Peter and Muller) gives sand loads that agree favorably with the Modified Einstein sand loads.

In comparing the Toffaleti and Velocity-Xi equations, loads are computed by size fractions which considers a hiding factor, while the sand loads computed by Ackers and White and Yang equations are based on a mean size bed material with no hiding factor. There is a distinct

advantage using either the Velocity-Xi(adjusted Einstein) or the Toffaleti equation in the STARS model on the Colorado River because the potential exists for armoring of the streambed with a sand-gravel mixture and these equations account for armoring with a hiding factor. Other equations require an additional armoring analysis.

SUMMARY

This report presents a description of the steps involved in completing the sediment transport computations for data collected in 1983 and in 1985-86 at the five (5) Colorado River sampling stations. It documents the basic data that were used in the sediment computations and by example shows the parameters used such as; bed material size, channel cross section from discharge measurements, variation of bed materials in the section, and suspended sediment concentration and size analysis. Examples are given on the transport computations and method for compositing the subdivided sections into a total transport (Table 7).

The assumptions are described that are critical for completing the sediment transport computations. Although problems arose during the processing and analyzing of the data, the development of the data base and data management system by Tim Randle of the Denver Office of the Bureau of Reclamation provided an efficient and reliable method to complete the transport computations and present the results.

The sand load rating curves derived for all five sampling stations by the Modified Einstein Method and the other predictive equations as illustrated in Figures 33 through 69 represent the completion of Sediment Data Collection And Analysis Program.

RECOMMENDATIONS

Sand load rating curves at the five sampling locations recommended for use as control points in the STARS sediment routing model are given in Table 9. Based on comparison of sand load rating curves for the predictive equations any one of the four equations was found to adequately check the sand load computed by the Modified Einstein Method at all of the five sampling stations.

Either the Velocity-Xi(adjusted Einstein) or Toffaleti equations that rely on a hiding factor would be more applicable for computing sand load transport in the STARS model. It is recommended that selection of either of these two equations for use in the STARS model be based on the least amount of computer time to reduce costs.

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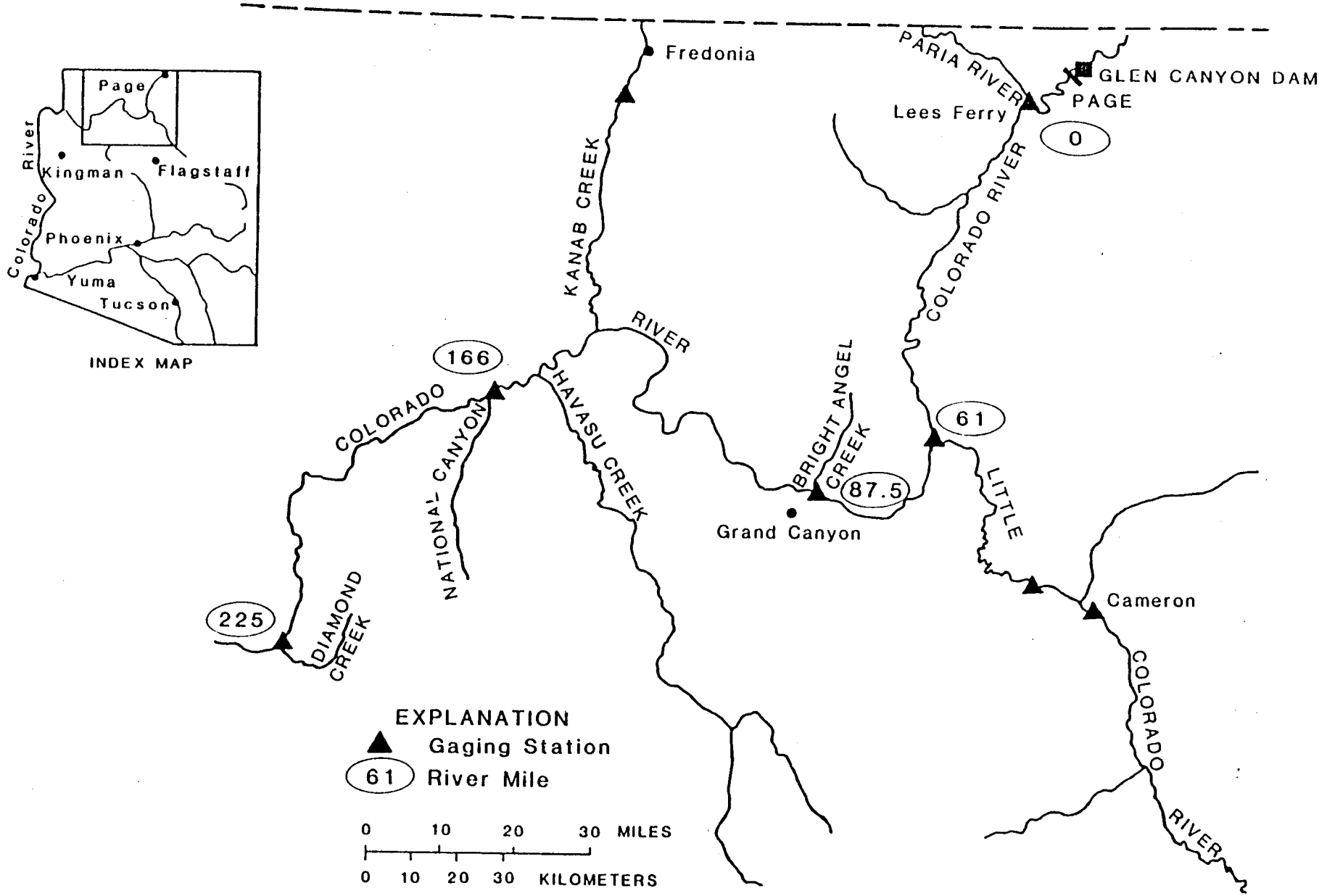
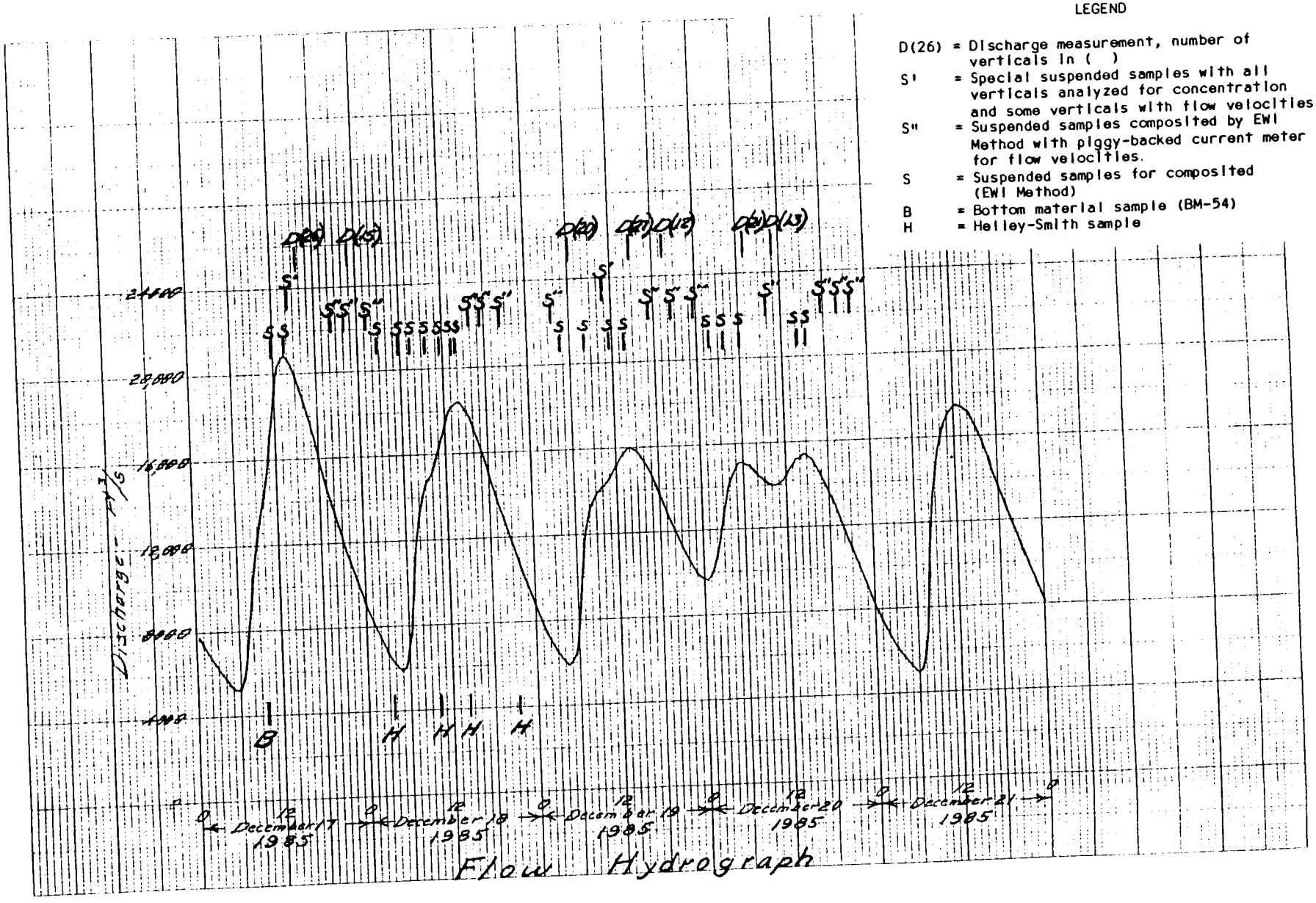


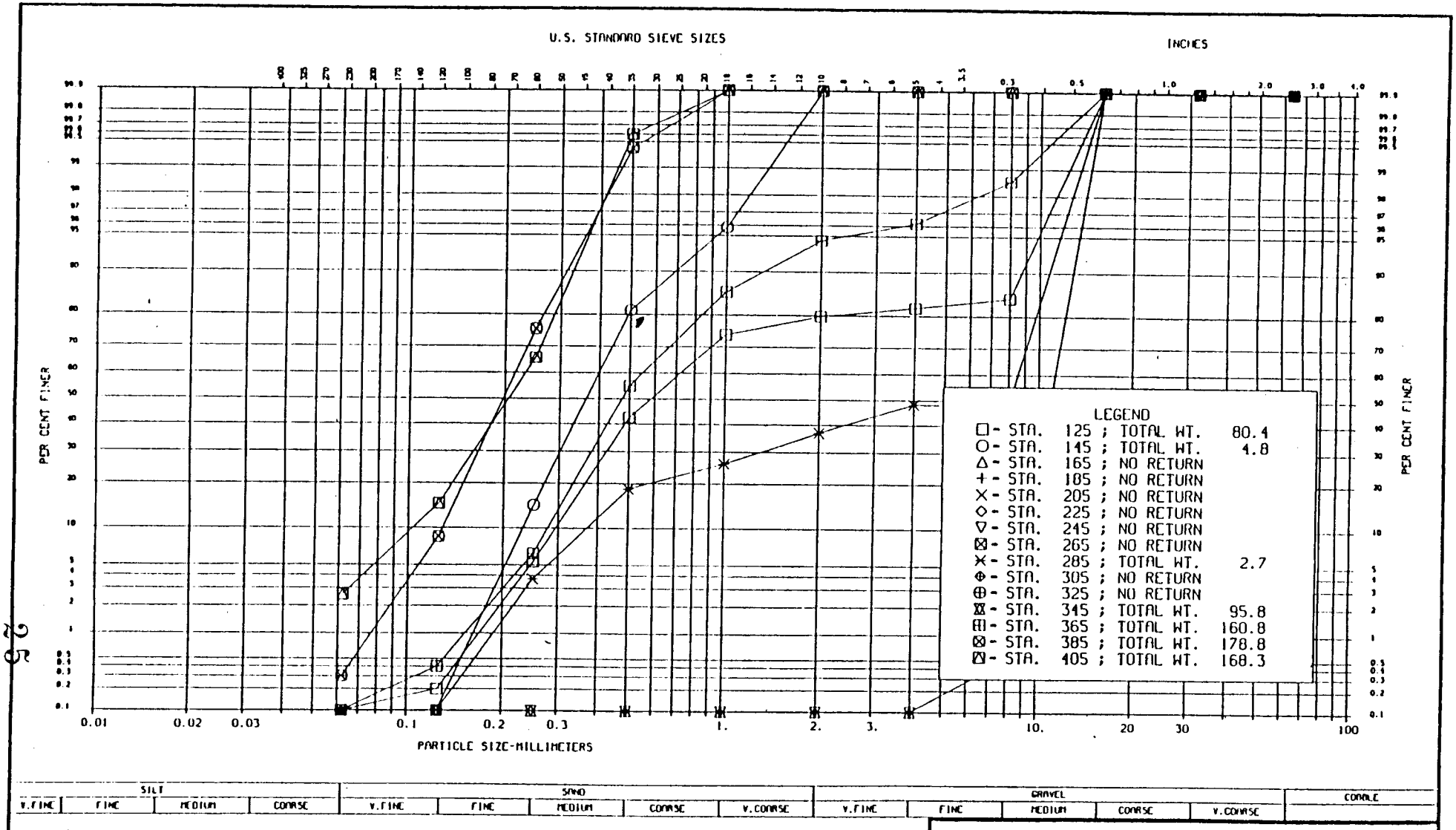
LOCATION MAP
COLORADO RIVER SEDIMENT TRANSPORT STUDY

Figure 1



TYPICAL SEDIMENT SAMPLING SCHEDULE
Colorado River near Grand Canyon
October 1985 to February 1986

Figure 2



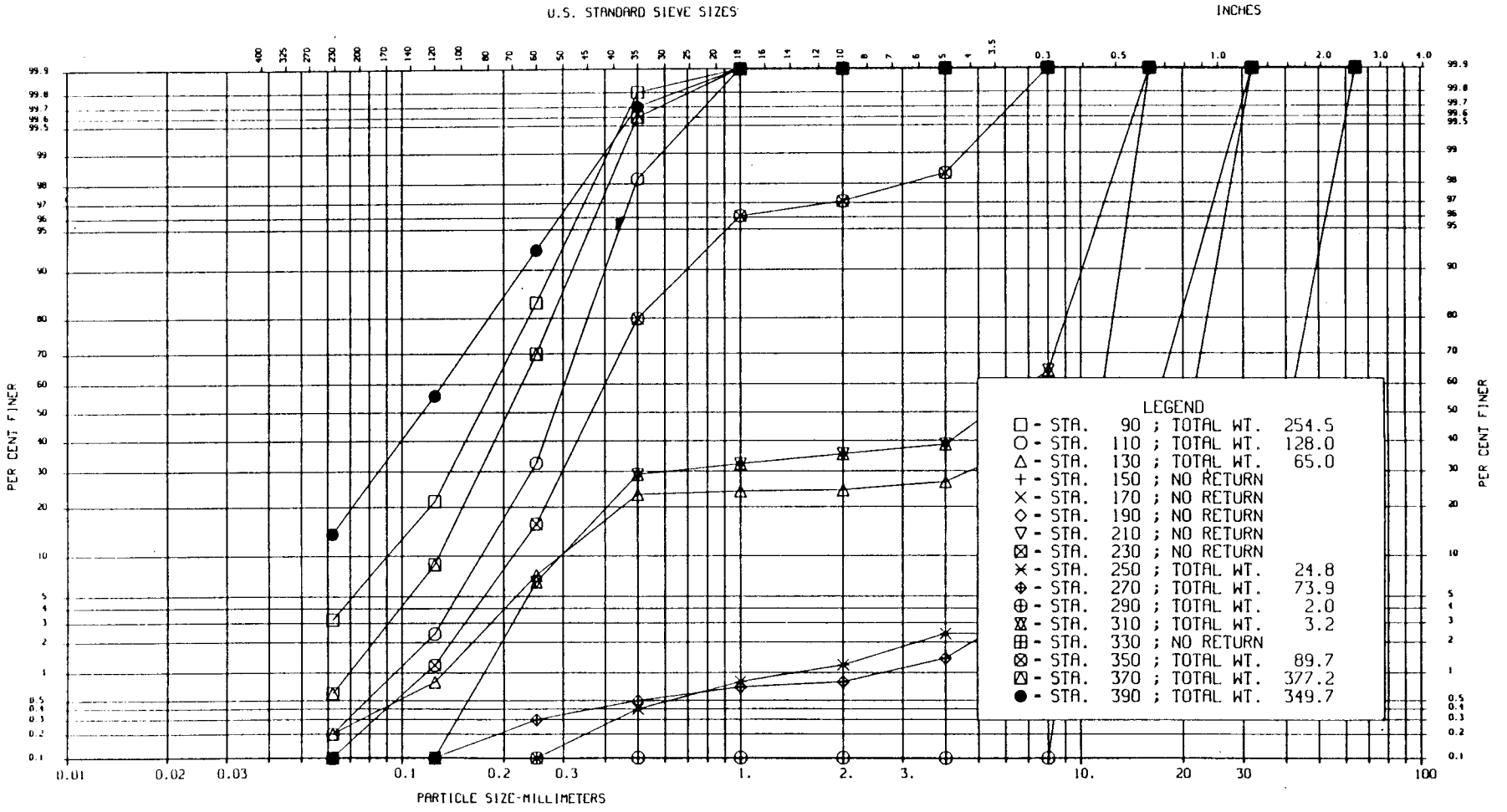
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

SAMPLES COLLECTED ON 7/12/83

BED MATERIAL SIZE ANALYSIS
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE LITTLE COLORADO RIVER

U. S. GEOLOGICAL SURVEY, ARIZONA DISTRICT LAB, TUCSON, ARIZ

Figure 3



AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

SAMPLES COLLECTED ON 12/ 6/85

BED MATERIAL SIZE ANALYSIS
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE LITTLE COLORADO RIVER

U. S. GEOLOGICAL SURVEY, ARIZONA DISTRICT LAB, TUCSON, ARIZ

Figure 4

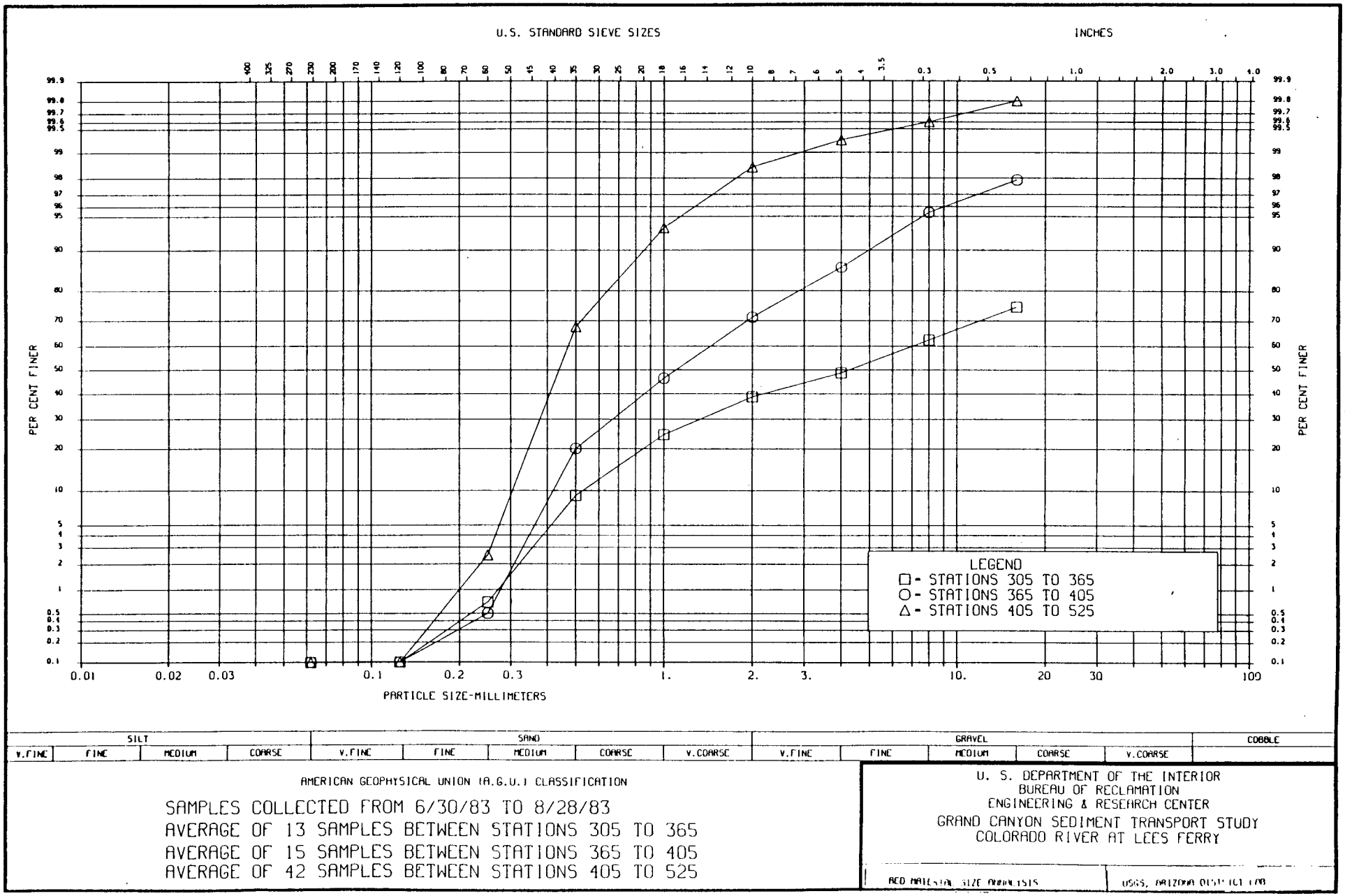
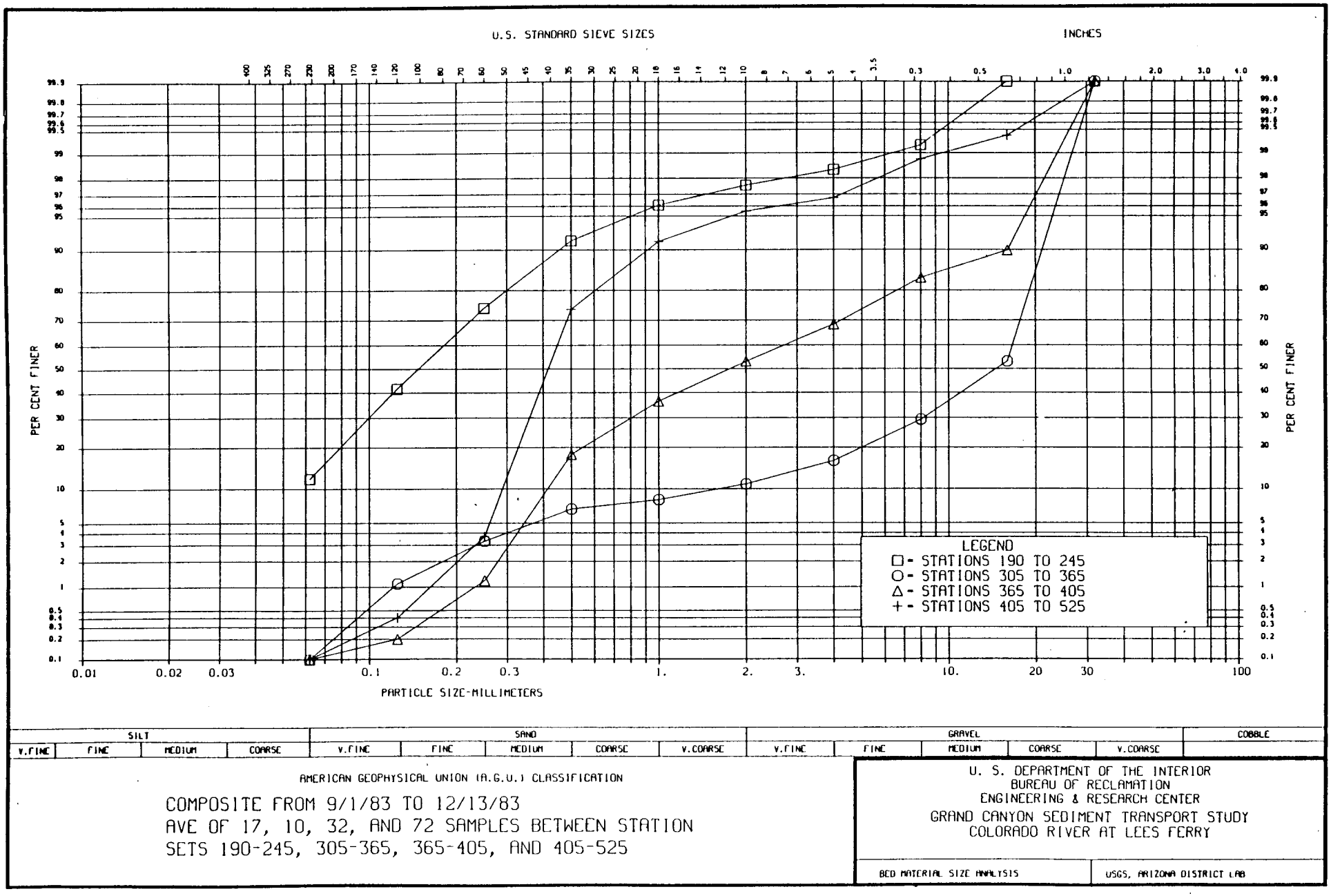

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 305 TO 365
○- STATIONS 365 TO 405
△- STATIONS 405 TO 525
SILT
V.FINE
FINE
MEDIUM
COARSE
SAND
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
GRAVEL
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
COBBLE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
SAMPLES COLLECTED FROM 6/30/83 TO 8/28/83
AVERAGE OF 13 SAMPLES BETWEEN STATIONS 305 TO 365
AVERAGE OF 15 SAMPLES BETWEEN STATIONS 365 TO 405
AVERAGE OF 42 SAMPLES BETWEEN STATIONS 405 TO 525
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER AT LEES FERRY
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 5



AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITE FROM 9/1/83 TO 12/13/83
AVE OF 17, 10, 32, AND 72 SAMPLES BETWEEN STATION
SETS 190-245, 305-365, 365-405, AND 405-525

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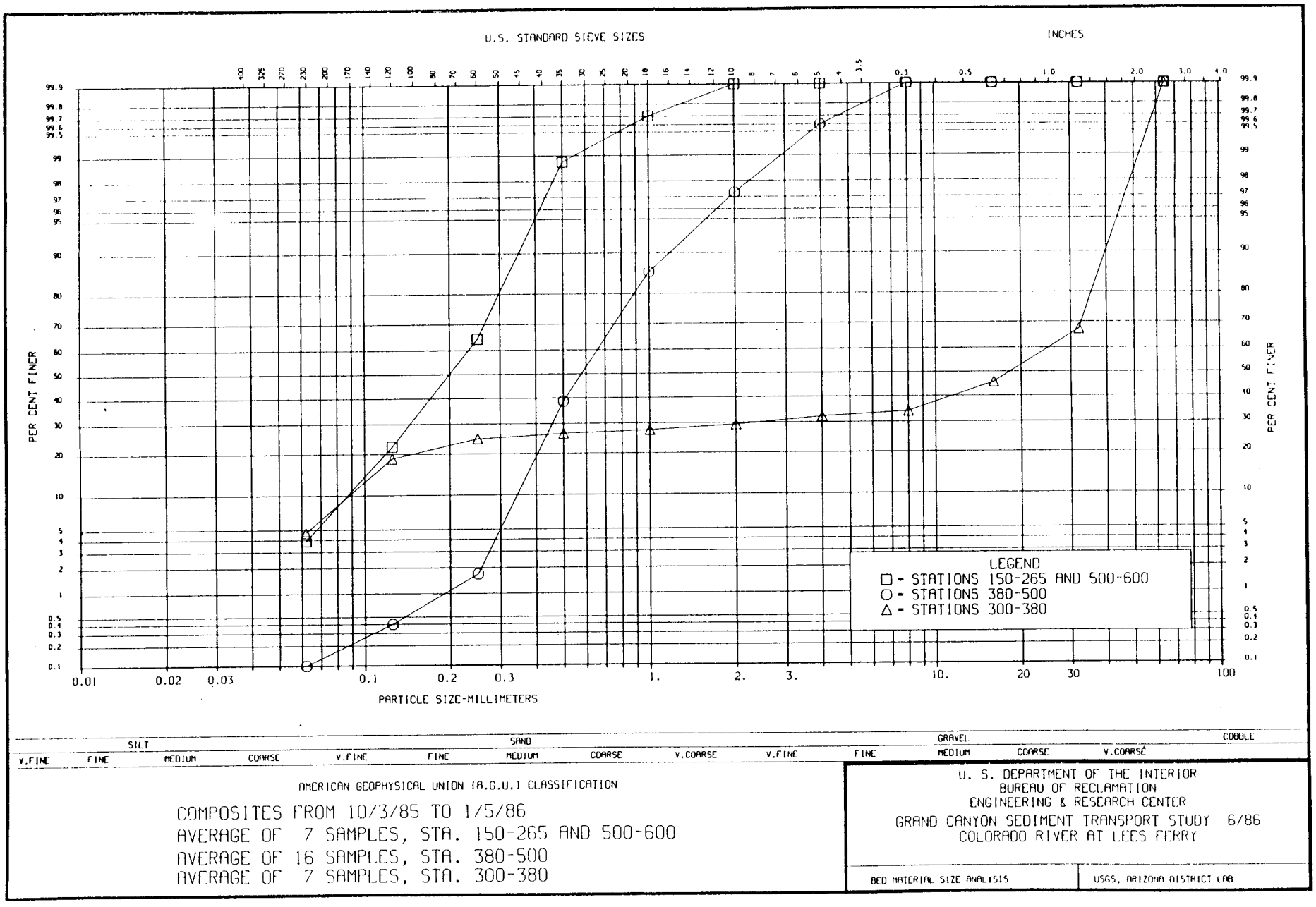
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER AT LEES FERRY

BED MATERIAL SIZE ANALYSIS	USGS, ARIZONA DISTRICT LAB

Figure 6


U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□ - STATIONS 150-265 AND 500-600
○ - STATIONS 380-500
△ - STATIONS 300-380
SILT
SAND
GRAVEL
COBBLE
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITES FROM 10/3/85 TO 1/5/86
AVERAGE OF 7 SAMPLES, STA. 150-265 AND 500-600
AVERAGE OF 16 SAMPLES, STA. 380-500
AVERAGE OF 7 SAMPLES, STA. 300-380
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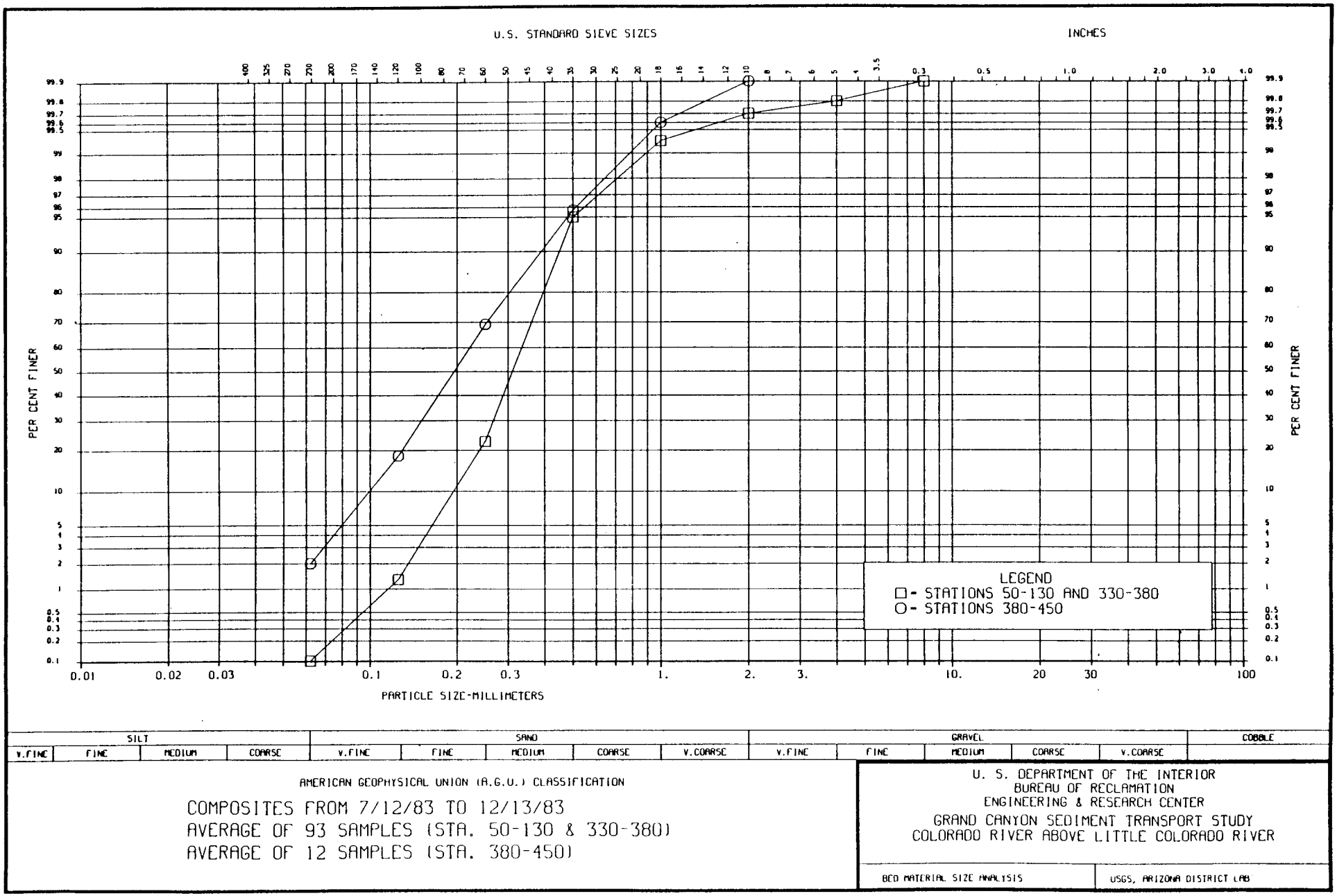
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER AT LEES FERRY
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 7



AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITES FROM 7/12/83 TO 12/13/83
AVERAGE OF 93 SAMPLES (STA. 50-130 & 330-380)
AVERAGE OF 12 SAMPLES (STA. 380-450)

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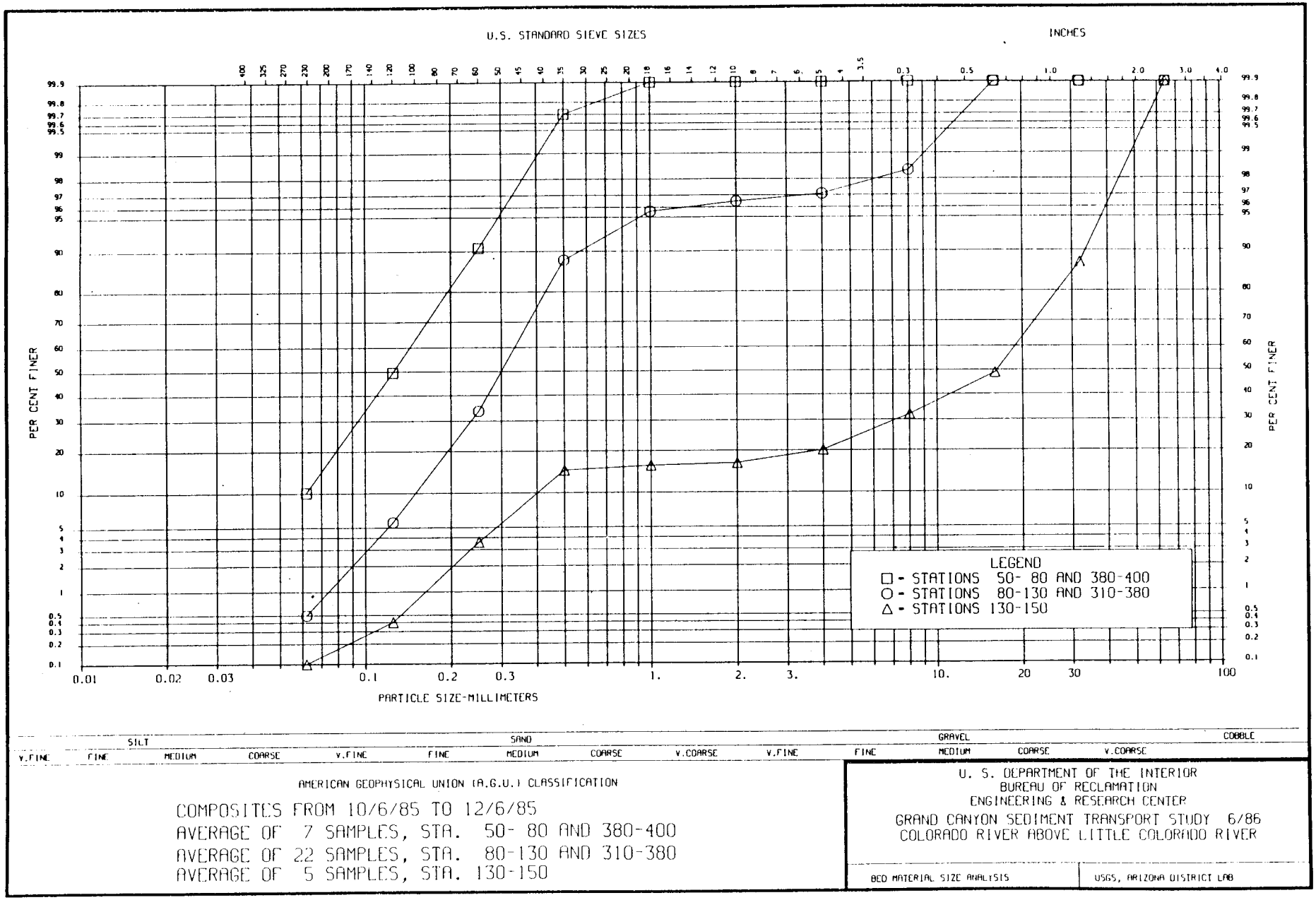
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE LITTLE COLORADO RIVER

BED MATERIAL SIZE ANALYSIS | USGS, ARIZONA DISTRICT LAB

Figure 8



AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITES FROM 10/6/85 TO 12/6/85
AVERAGE OF 7 SAMPLES, STA. 50- 80 AND 380-400
AVERAGE OF 22 SAMPLES, STA. 80-130 AND 310-380
AVERAGE OF 5 SAMPLES, STA. 130-150

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ENGINEERING & RESEARCH CENTER

GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER ABOVE LITTLE COLORADO RIVER

BED MATERIAL SIZE ANALYSIS | USGS, ARIZONA DISTRICT LAB

Figure 9

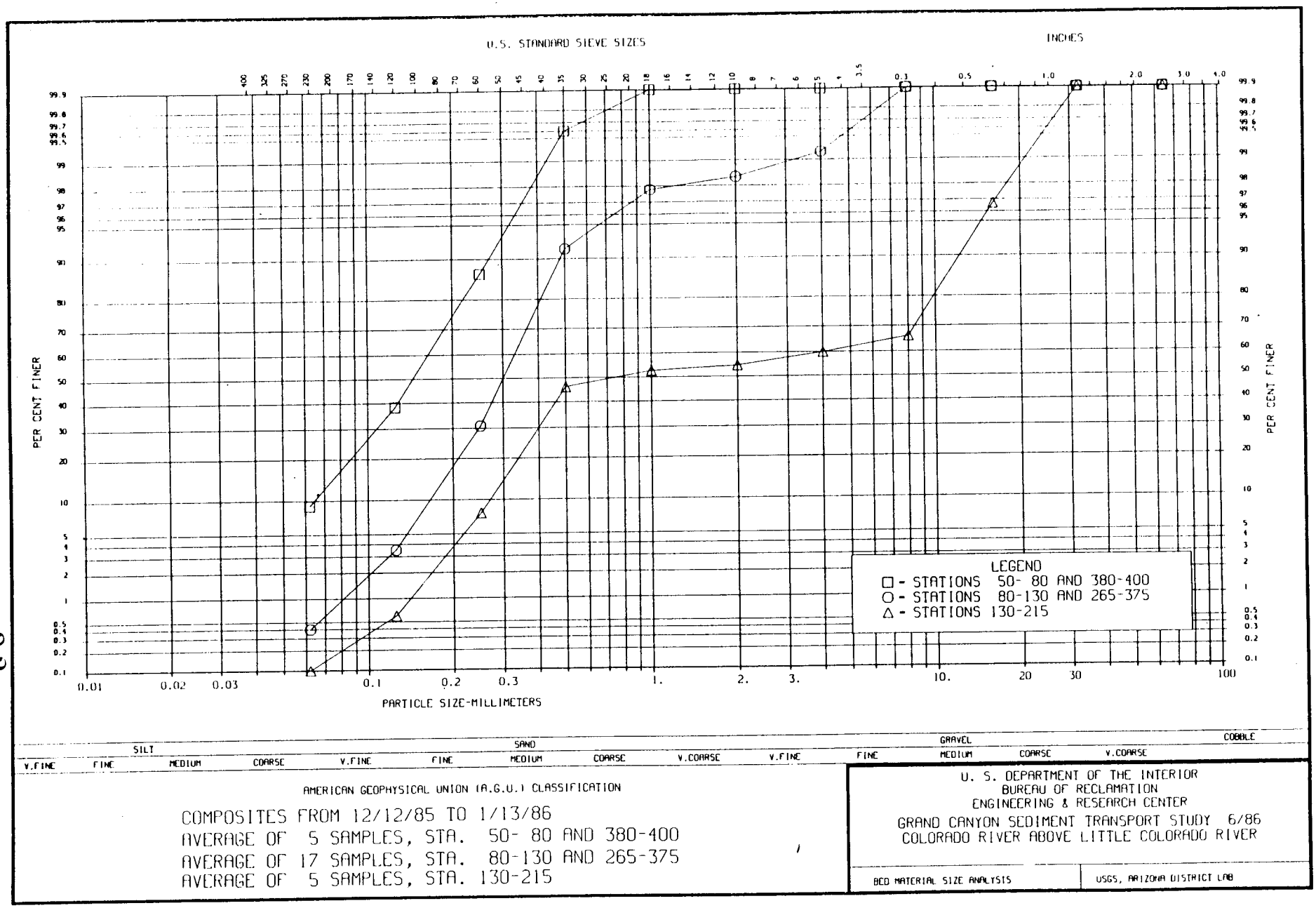

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□ - STATIONS 50- 80 AND 380-400
○ - STATIONS 80-130 AND 265-375
△ - STATIONS 130-215
SILT
SAND
GRAVEL
COBBLE
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITES FROM 12/12/85 TO 1/13/86
AVERAGE OF 5 SAMPLES, STA. 50- 80 AND 380-400
AVERAGE OF 17 SAMPLES, STA. 80-130 AND 265-375
AVERAGE OF 5 SAMPLES, STA. 130-215
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER ABOVE LITTLE COLORADO RIVER
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 10

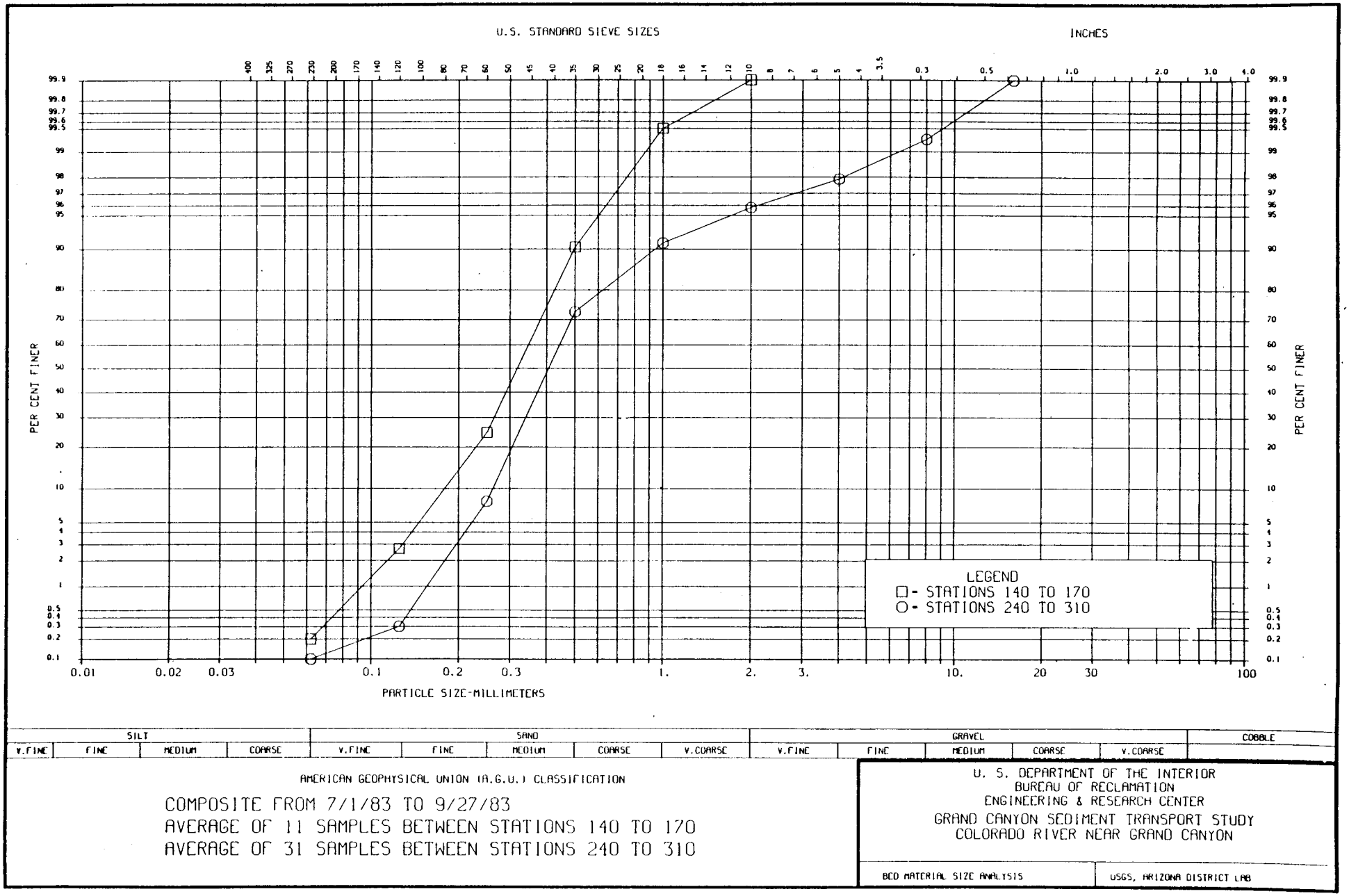

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 140 TO 170
○- STATIONS 240 TO 310
SILT
v.FINE
FINE
MEDIUM
COARSE
SAND
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
GRAVEL
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
COBBLE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITE FROM 7/1/83 TO 9/27/83
AVERAGE OF 11 SAMPLES BETWEEN STATIONS 140 TO 170
AVERAGE OF 31 SAMPLES BETWEEN STATIONS 240 TO 310
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER NEAR GRAND CANYON
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 11

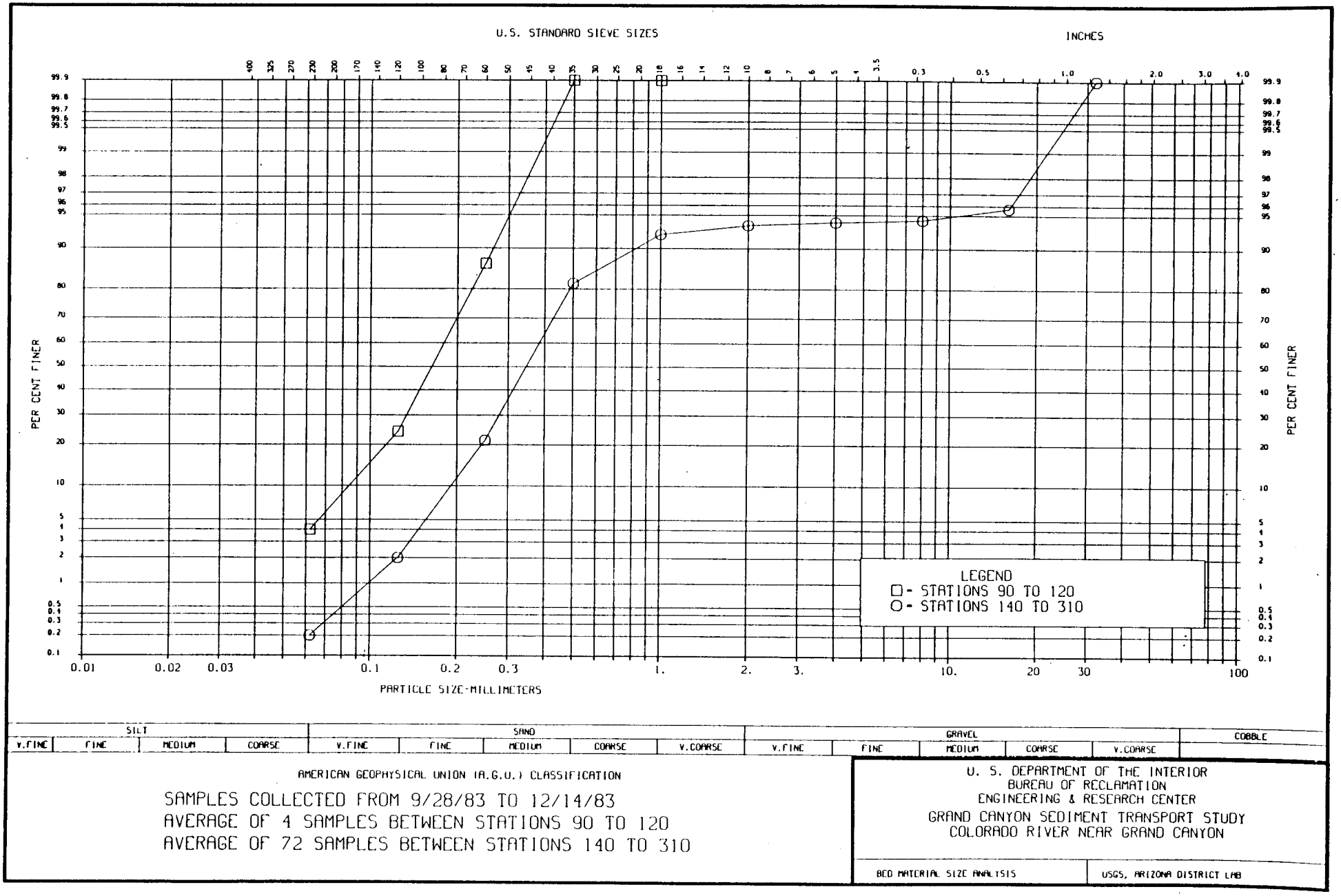
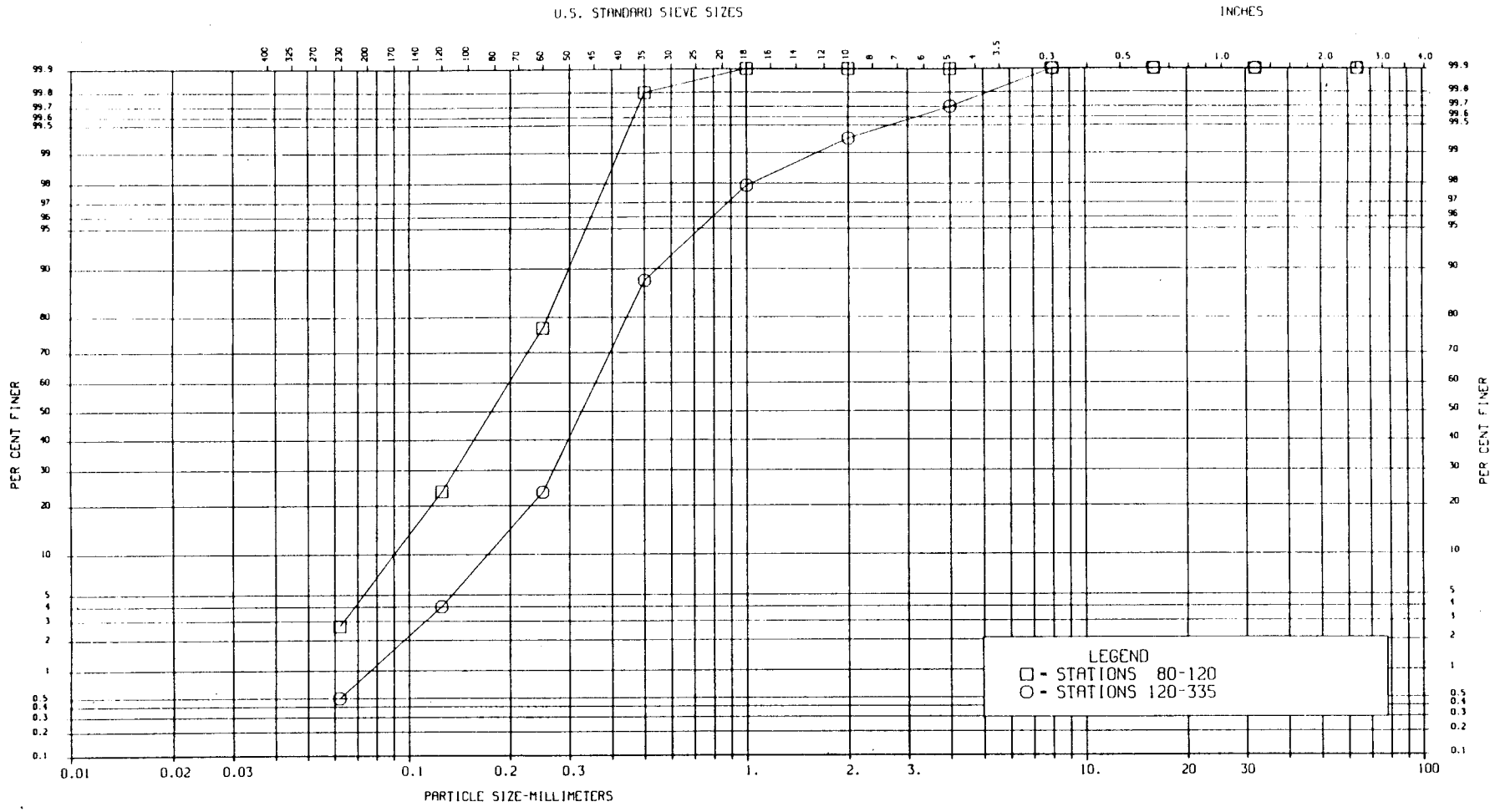

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 90 TO 120
○- STATIONS 140 TO 310
SILT
V.FINE
FINE
MEDIUM
COARSE
SAND
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
GRAVEL
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
COBBLE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
SAMPLES COLLECTED FROM 9/28/83 TO 12/14/83
AVERAGE OF 4 SAMPLES BETWEEN STATIONS 90 TO 120
AVERAGE OF 72 SAMPLES BETWEEN STATIONS 140 TO 310
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER NEAR GRAND CANYON
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 12



AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITES FROM 10/10/85 TO 1/21/86
AVERAGE OF 7 SAMPLES, STA. 80-120
AVERAGE OF 53 SAMPLES, STA. 120-335

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ENGINEERING & RESEARCH CENTER

GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER NEAR GRAND CANYON

BED MATERIAL SIZE ANALYSIS | USGS, ARIZONA DISTRICT LAB

Figure 13

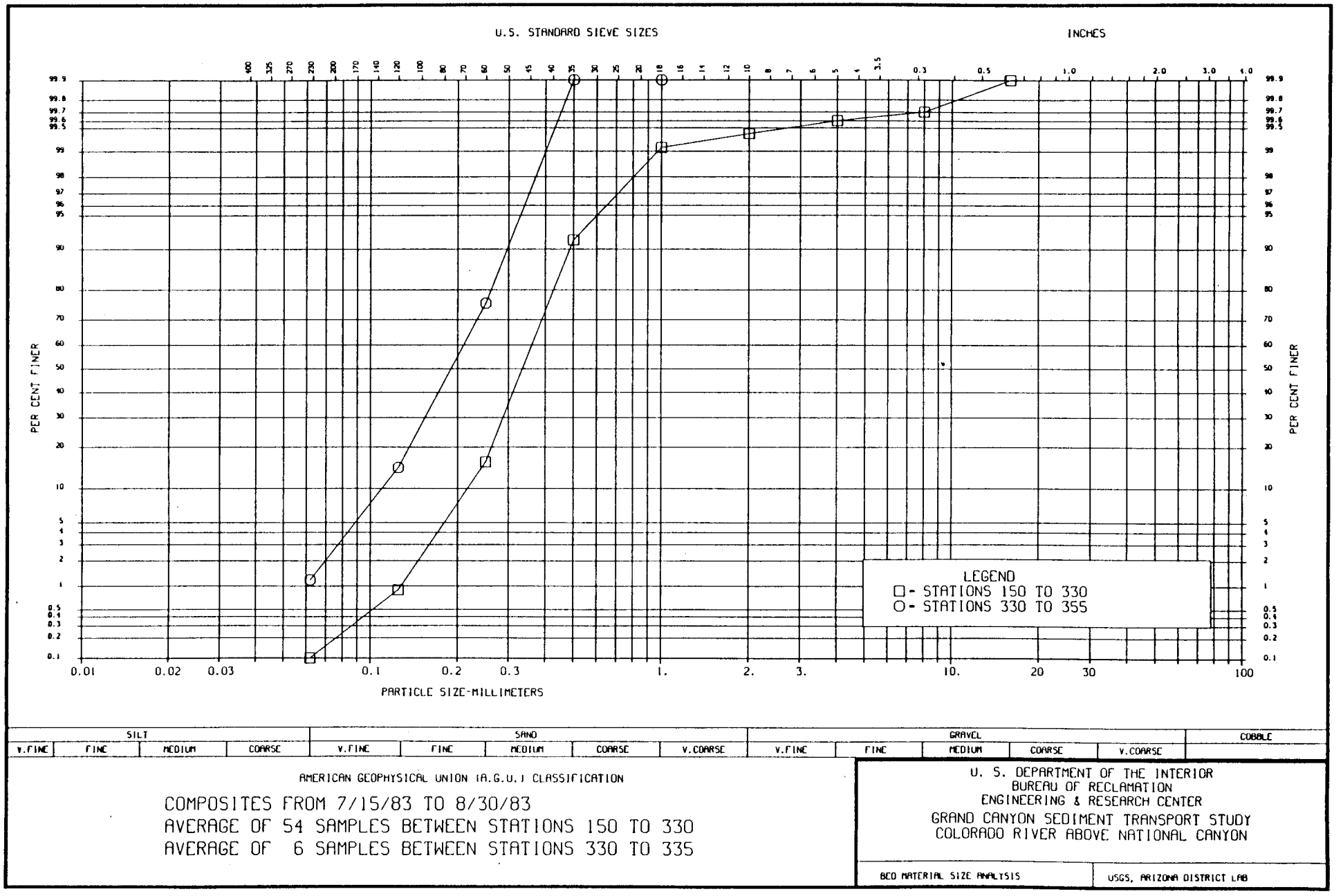

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 150 TO 330
○- STATIONS 330 TO 355
SILT
v.FINE
FINE
MEDIUM
COARSE
SAND
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
GRAVEL
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
COBBLE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITES FROM 7/15/83 TO 8/30/83
AVERAGE OF 54 SAMPLES BETWEEN STATIONS 150 TO 330
AVERAGE OF 6 SAMPLES BETWEEN STATIONS 330 TO 335
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE NATIONAL CANYON
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 14

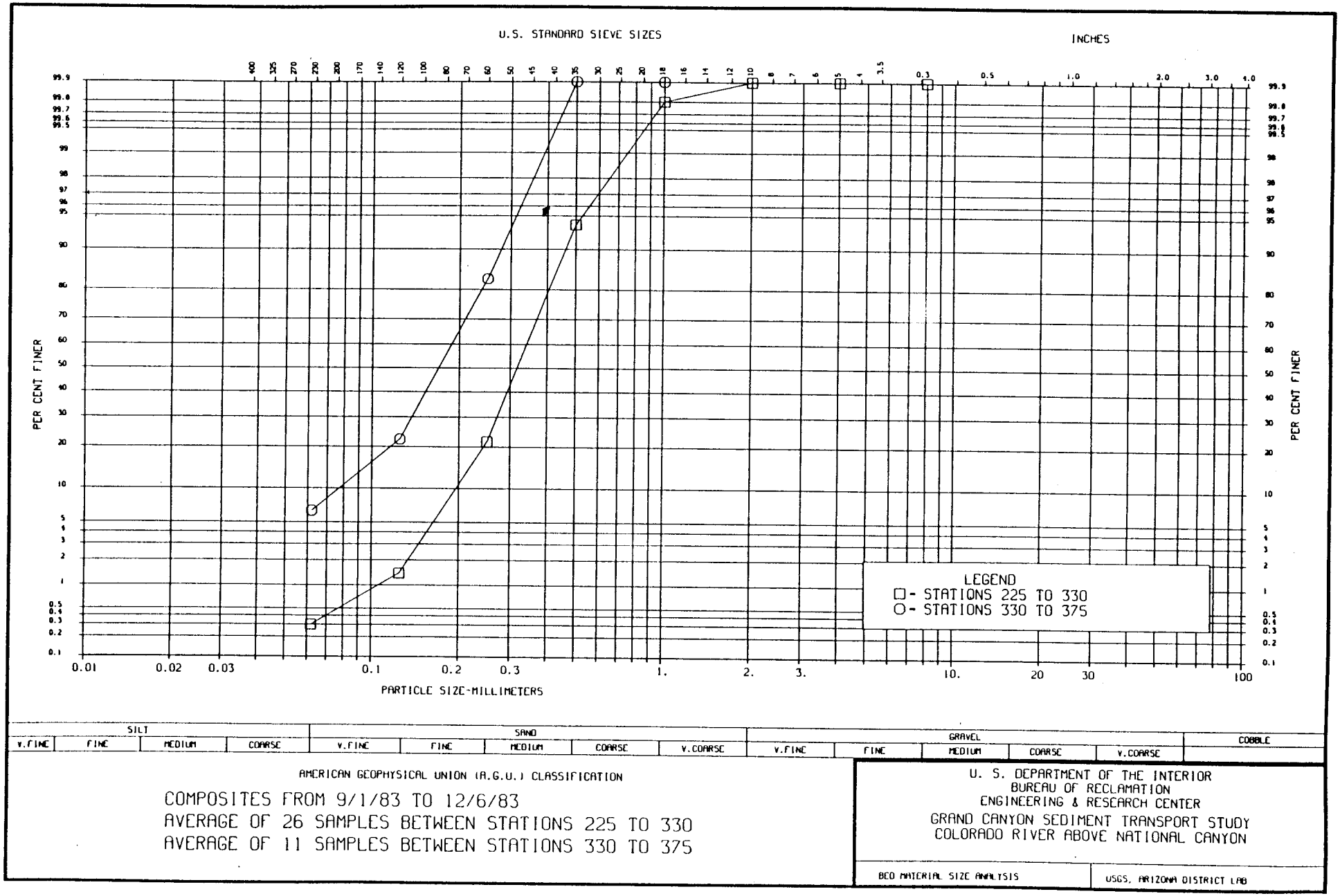
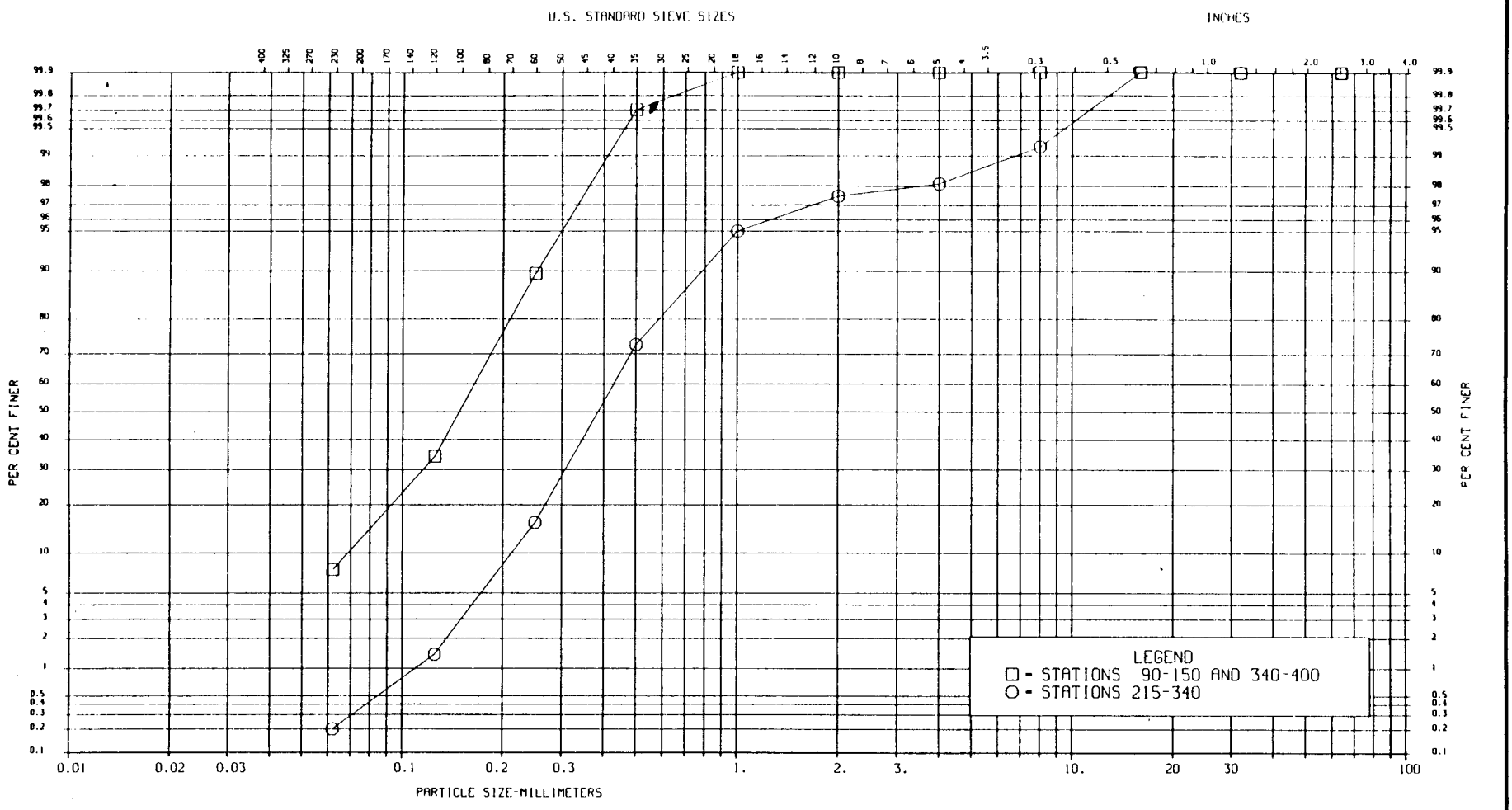

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 225 TO 330
○- STATIONS 330 TO 375
SILT
v.FINE
FINE
MEDIUM
COARSE
SAND
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
GRAVEL
v.FINE
FINE
MEDIUM
COARSE
v.COARSE
COBBLE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITES FROM 9/1/83 TO 12/6/83
AVERAGE OF 26 SAMPLES BETWEEN STATIONS 225 TO 330
AVERAGE OF 11 SAMPLES BETWEEN STATIONS 330 TO 375
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE NATIONAL CANYON
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 15



SILT				SAND					GRAVEL				COBBLE
V.FINE	FINE	MEDIUM	COARSE	V.FINE	FINE	MEDIUM	COARSE	V.COARSE	V.FINE	FINE	MEDIUM	COARSE	V.COARSE

AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITES FROM 10/18/85 TO 1/25/86
AVERAGE OF 26 SAMPLES, STA. 90-150 AND 340-400
AVERAGE OF 28 SAMPLES, STA. 215-340

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER ABOVE NATIONAL CANYON

BED MATERIAL SIZE ANALYSIS	USGS, ARIZONA DISTRICT LAB

Figure 16

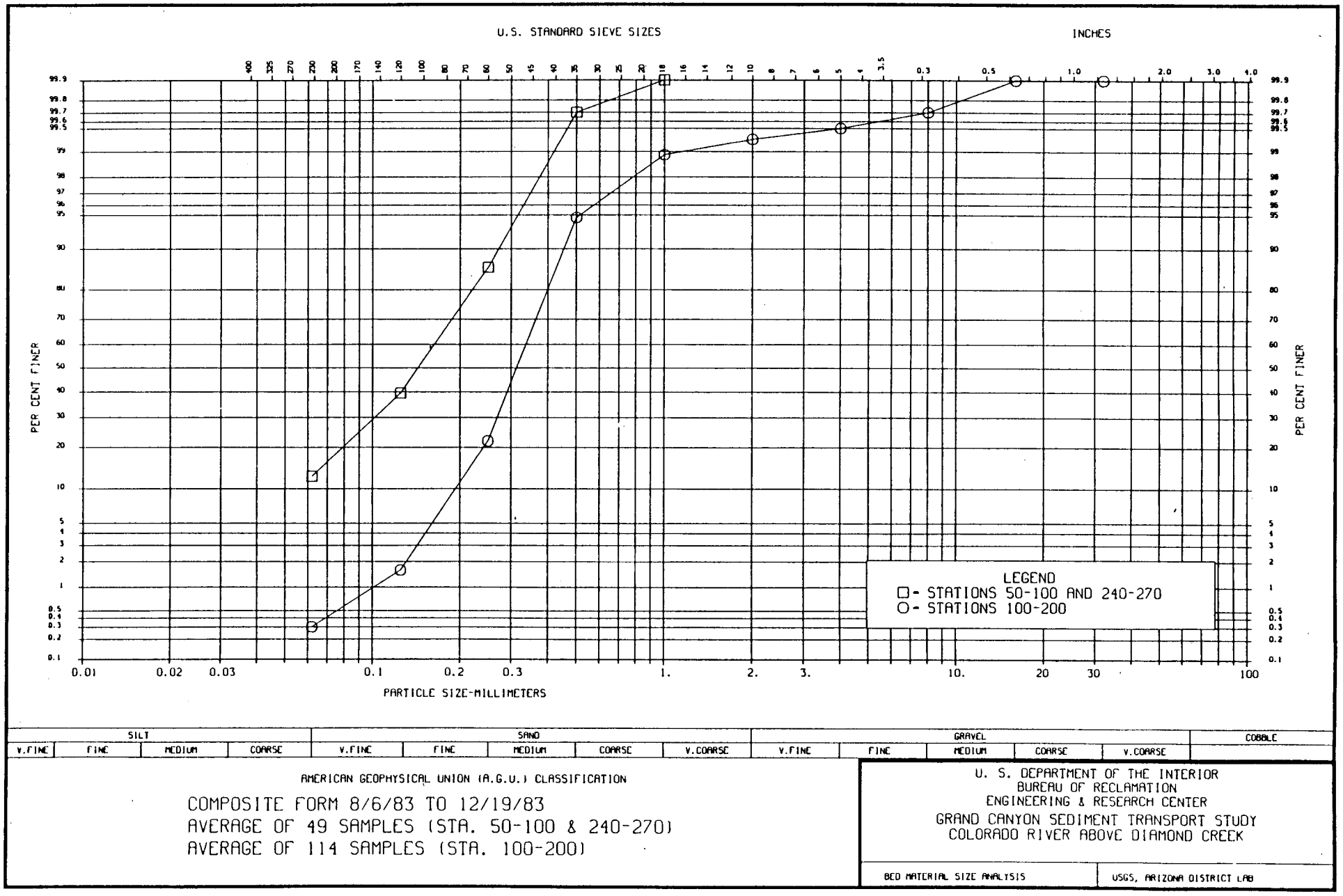
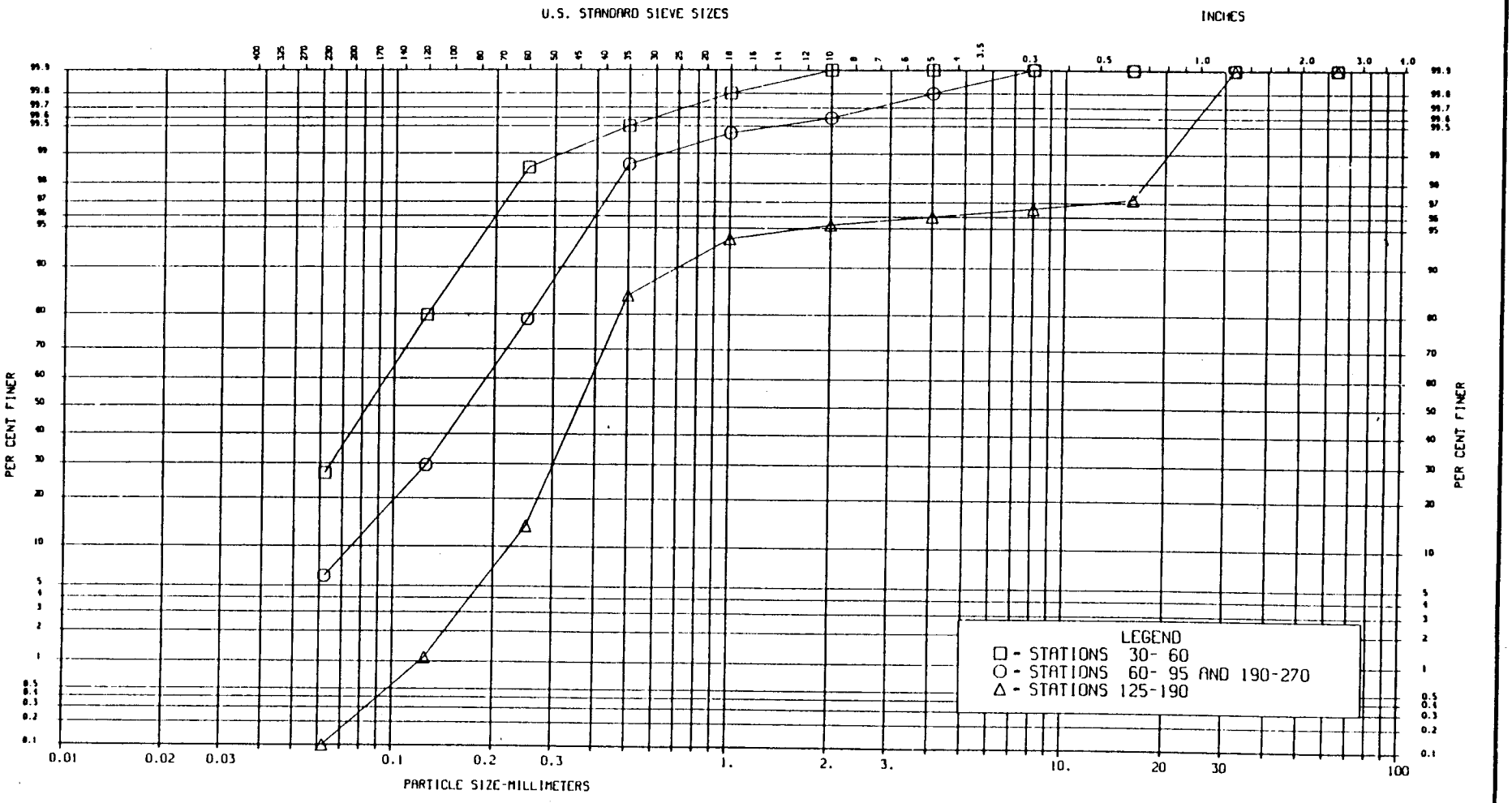

U.S. STANDARD SIEVE SIZES
INCHES
PER CENT FINER
PARTICLE SIZE-MILLIMETERS
LEGEND
□- STATIONS 50-100 AND 240-270
○- STATIONS 100-200
SILT
SAND
GRAVEL
COBBLE
V.FINE
FINE
MEDIUM
COARSE
V.COARSE
AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION
COMPOSITE FORM 8/6/83 TO 12/19/83
AVERAGE OF 49 SAMPLES (STA. 50-100 & 240-270)
AVERAGE OF 114 SAMPLES (STA. 100-200)
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY
COLORADO RIVER ABOVE DIAMOND CREEK
BED MATERIAL SIZE ANALYSIS
USGS, ARIZONA DISTRICT LAB

Figure 17



SILT				SAND					GRAVEL					COBBLE
V.FINE	FINE	MEDIUM	COARSE	V.FINE	FINE	MEDIUM	COARSE	V.COARSE	V.FINE	FINE	MEDIUM	COARSE	V.COARSE	

AMERICAN GEOPHYSICAL UNION (A.G.U.) CLASSIFICATION

COMPOSITES FROM 10/23/85 TO 1/30/86
AVERAGE OF 8 SAMPLES, STA. 30- 60
AVERAGE OF 41 SAMPLES, STA. 60- 95 AND 190-270
AVERAGE OF 38 SAMPLES, STA. 125-190

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ENGINEERING & RESEARCH CENTER
GRAND CANYON SEDIMENT TRANSPORT STUDY 6/86
COLORADO RIVER ABOVE DIAMOND CREEK

BED MATERIAL SIZE ANALYSIS | USGS, ARIZONA DISTRICT LAB

Figure 18

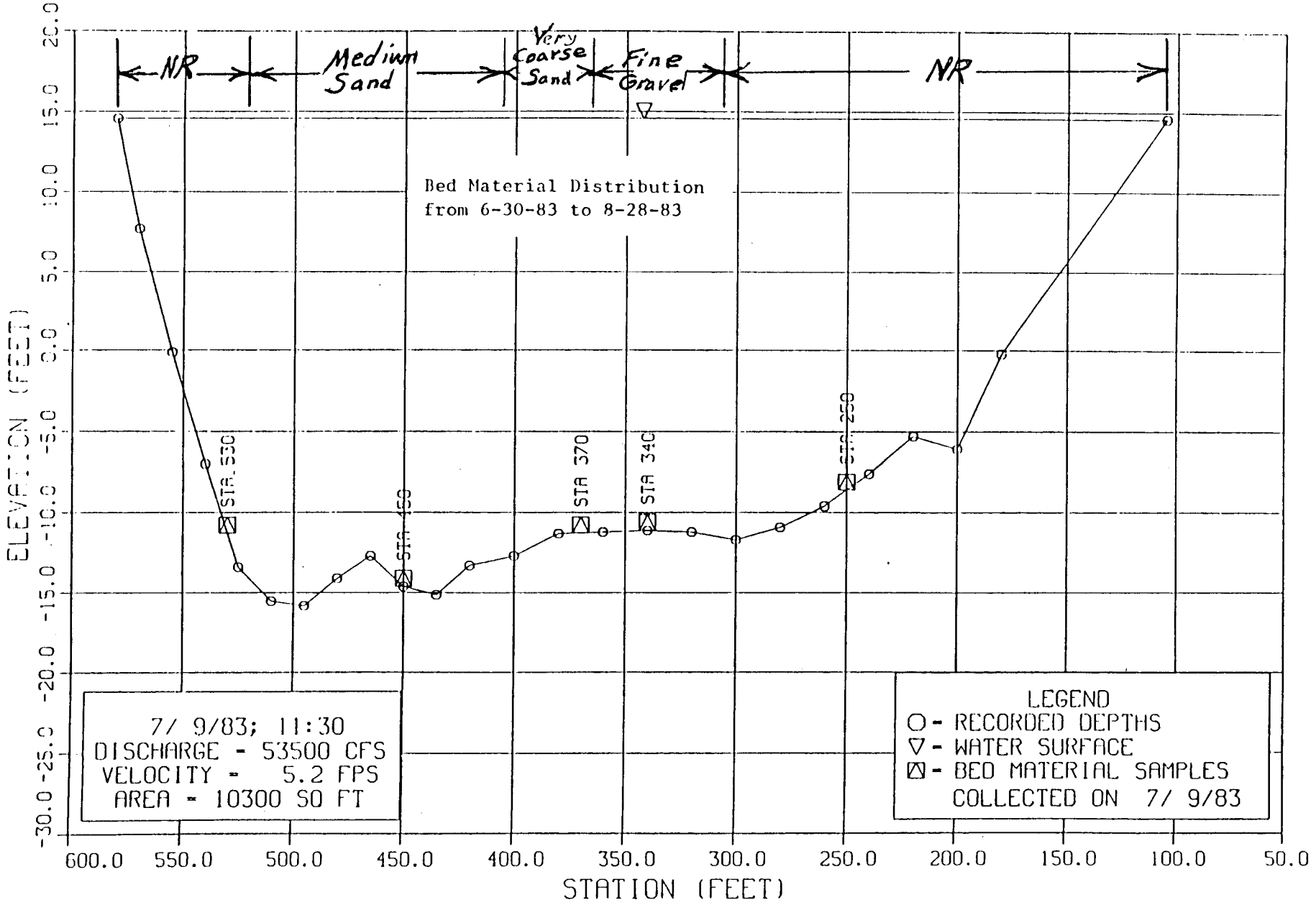

COLORADO RIVER AT LEES FERRY
NR
Medium Sand
Very Coarse Sand
Fine Gravel
NR
Bed Material Distribution
from 6-30-83 to 8-28-83
STA 530
STA 450
STA 370
STA 340
STA 250
ELEVATION (FEET)
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
600.0
550.0
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
STATION (FEET)
7/ 9/83; 11:30
DISCHARGE - 53500 CFS
VELOCITY - 5.2 FPS
AREA - 10300 SQ FT
LEGEND
O - RECORDED DEPTHS
▽ - WATER SURFACE
⊠ - BED MATERIAL SAMPLES
COLLECTED ON 7/ 9/83

Figure 19

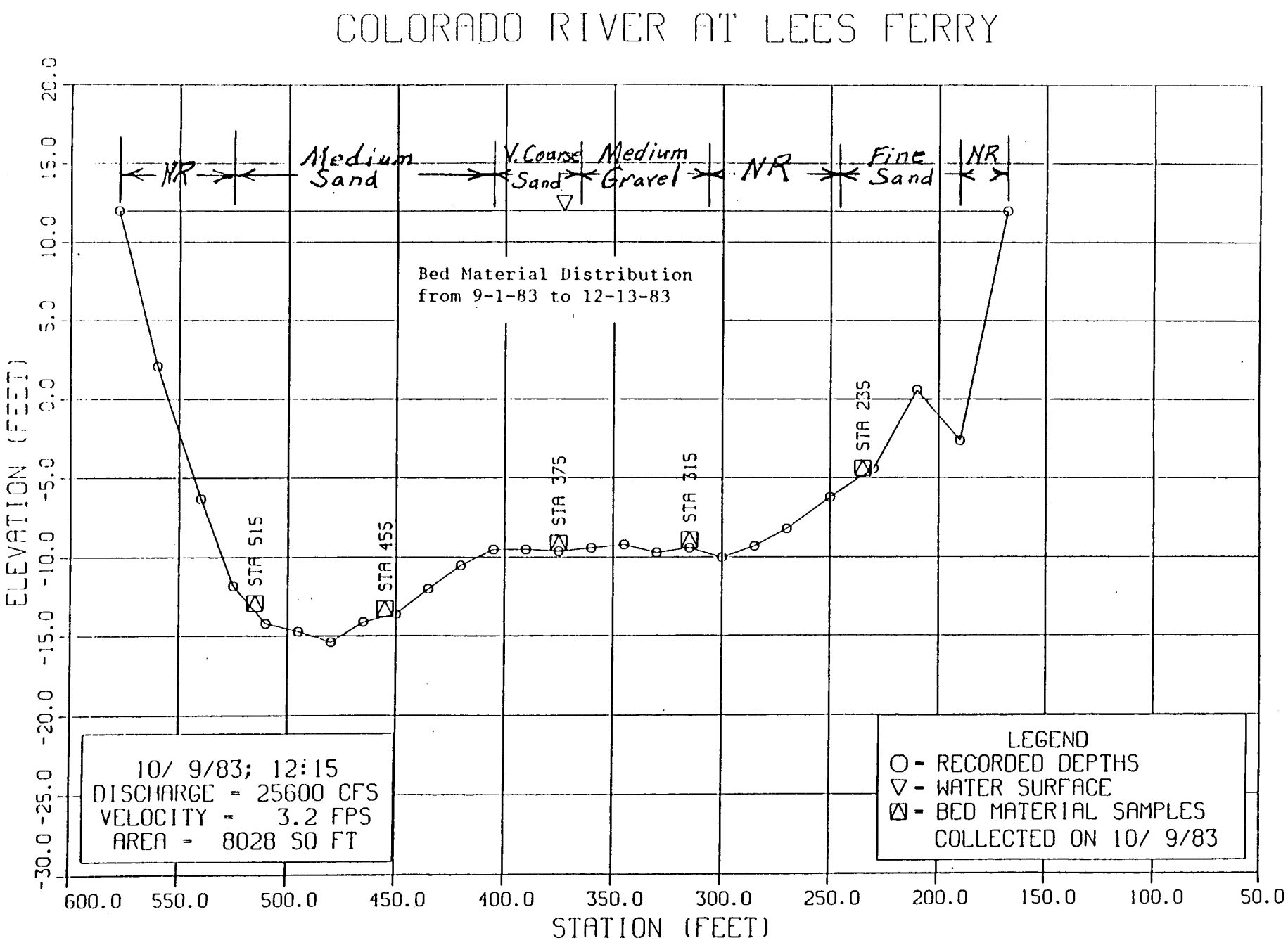

COLORADO RIVER AT LEES FERRY
NR
Medium Sand
V.Coarse Sand
Medium Gravel
NR
Fine Sand
NR
Bed Material Distribution
from 9-1-83 to 12-13-83
STA 515
STA 455
STA 375
STA 315
STA 235
ELEVATION (FEET)
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
600.0
550.0
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
STATION (FEET)
10/ 9/83; 12:15
DISCHARGE = 25600 CFS
VELOCITY = 3.2 FPS
AREA = 8028 SQ FT
LEGEND
O - RECORDED DEPTHS
▽ - WATER SURFACE
⊠ - BED MATERIAL SAMPLES
COLLECTED ON 10/ 9/83

Figure 20

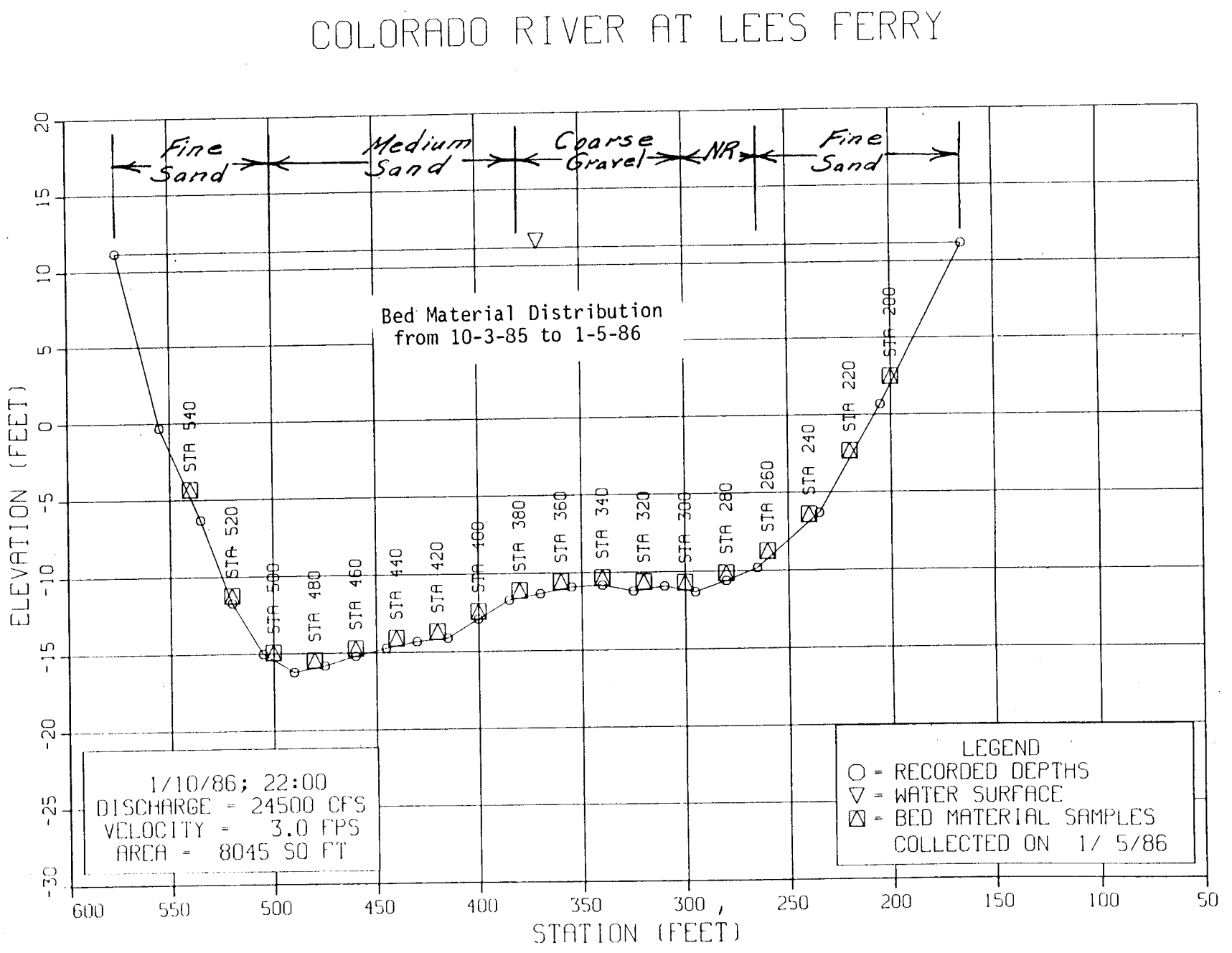

COLORADO RIVER AT LEES FERRY
Fine Sand
Medium Sand
Coarse Gravel
NR
Fine Sand
Bed Material Distribution
from 10-3-85 to 1-5-86
ELEVATION (FEET)
STATION (FEET)
STA 540
STA 520
STA 500
STA 480
STA 460
STA 440
STA 420
STA 400
STA 380
STA 360
STA 340
STA 320
STA 300
STA 280
STA 260
STA 240
STA 220
STA 200
1/10/86; 22:00
DISCHARGE = 24500 CFS
VELOCITY = 3.0 FPS
AREA = 8045 SQ FT
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 1/ 5/86

Figure 21

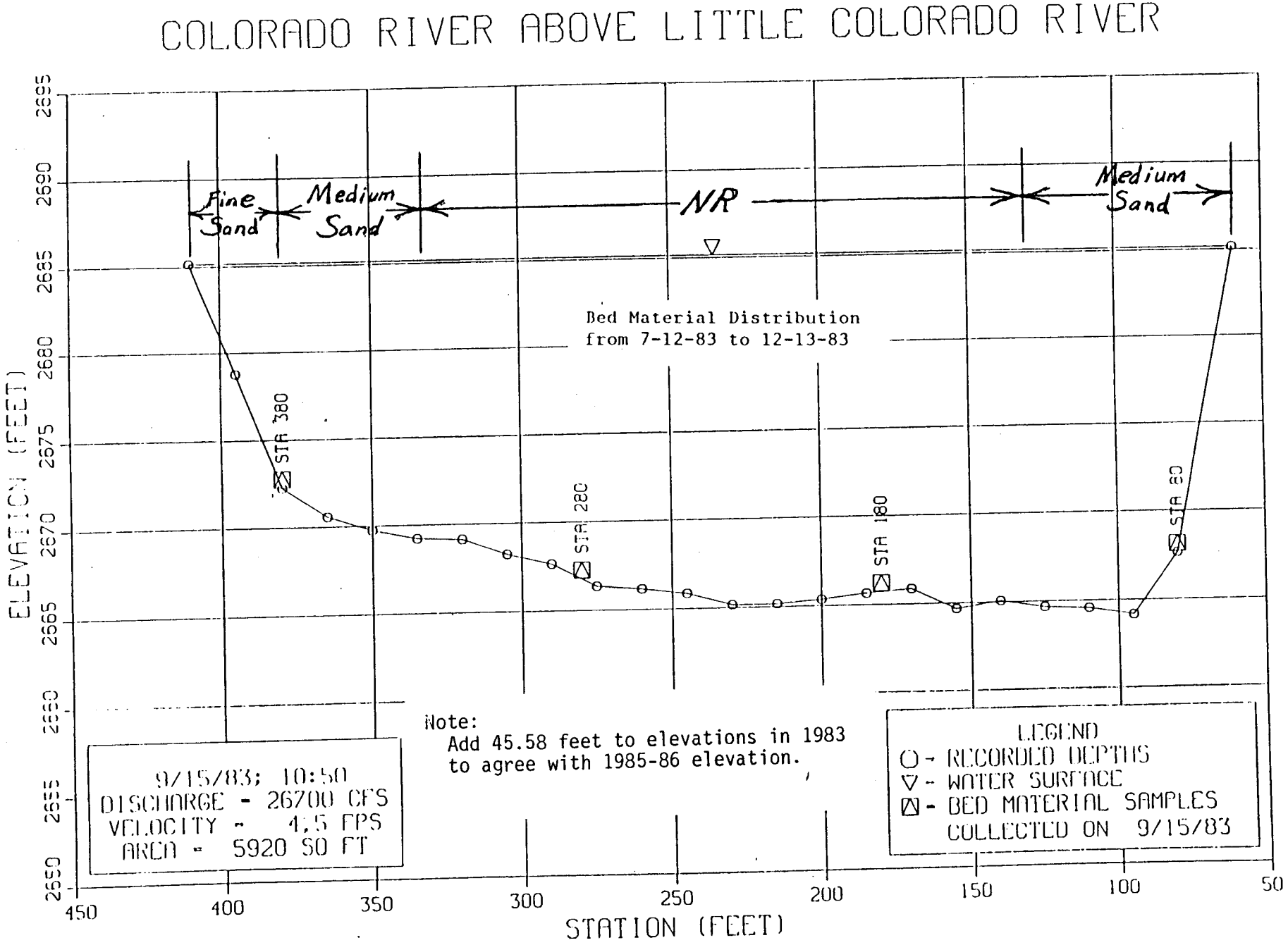

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
Fine Sand
Medium Sand
NR
Medium Sand
Bed Material Distribution
from 7-12-83 to 12-13-83
STA 380
STA 280
STA 180
STA 80
ELEVATION (FEET)
2695
2690
2685
2680
2675
2670
2665
2660
2655
2650
450
400
350
300
250
200
150
100
50
STATION (FEET)
9/15/83; 10:50
DISCHARGE - 26700 CFS
VELOCITY - 4.5 FPS
AREA - 5920 SQ FT
Note:
Add 45.58 feet to elevations in 1983
to agree with 1985-86 elevation.
LEGEND
○ - RECORDED DEPTHS
▽ - WATER SURFACE
⊠ - BED MATERIAL SAMPLES
COLLECTED ON 9/15/83

Figure 22

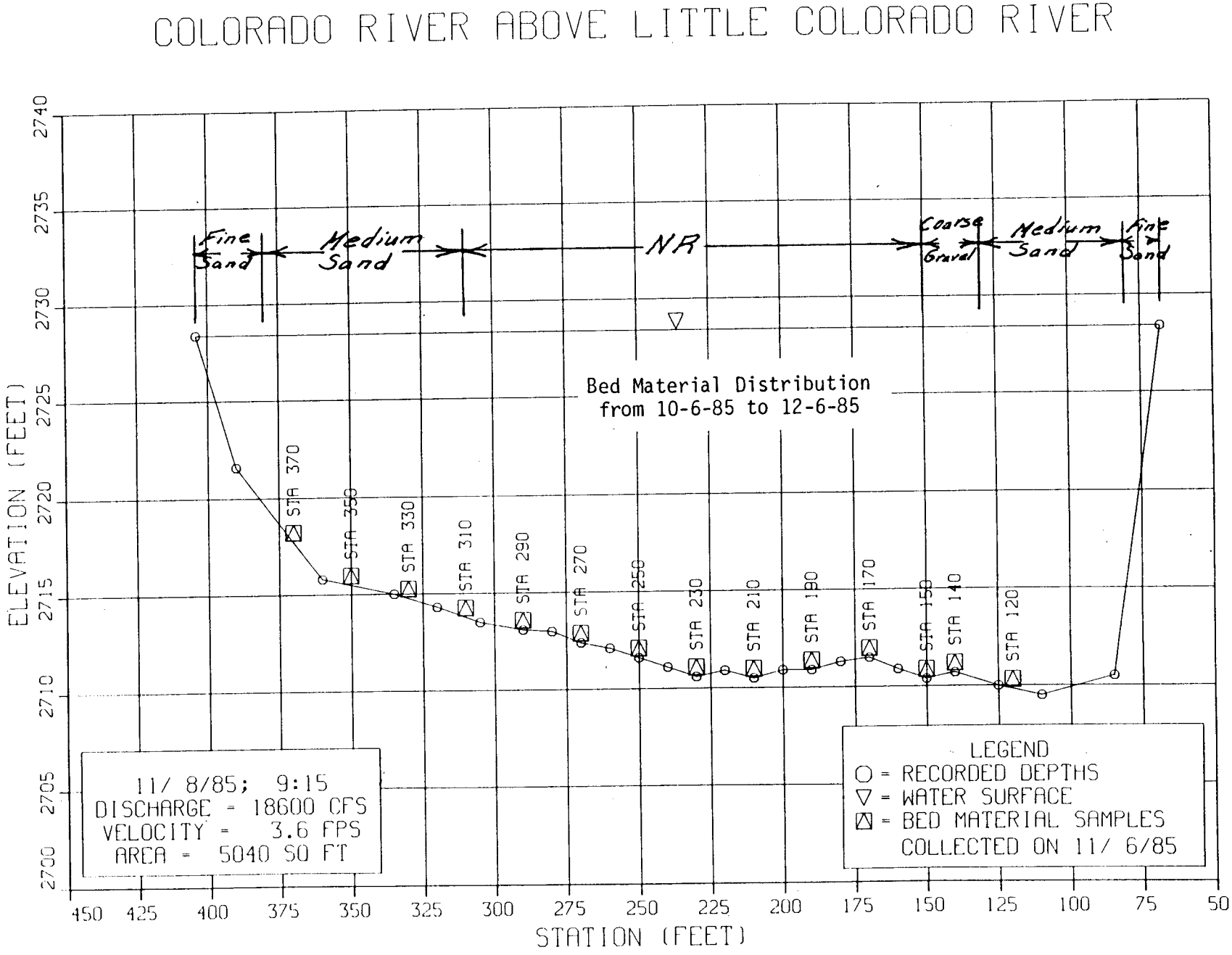

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
Fine Sand
Medium Sand
NR
Coarse Gravel
Medium Sand
Fine Sand
Bed Material Distribution
from 10-6-85 to 12-6-85
STA 370
STA 350
STA 330
STA 310
STA 290
STA 270
STA 250
STA 230
STA 210
STA 190
STA 170
STA 150
STA 140
STA 120
11/ 8/85; 9:15
DISCHARGE = 18600 CFS
VELOCITY = 3.6 FPS
AREA = 5040 SQ FT
LEGEND
O = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 11/ 6/85
ELEVATION (FEET)
2740
2735
2730
2725
2720
2715
2710
2705
2700
450 425 400 375 350 325 300 275 250 225 200 175 150 125 100 75 50
STATION (FEET)

Figure 23

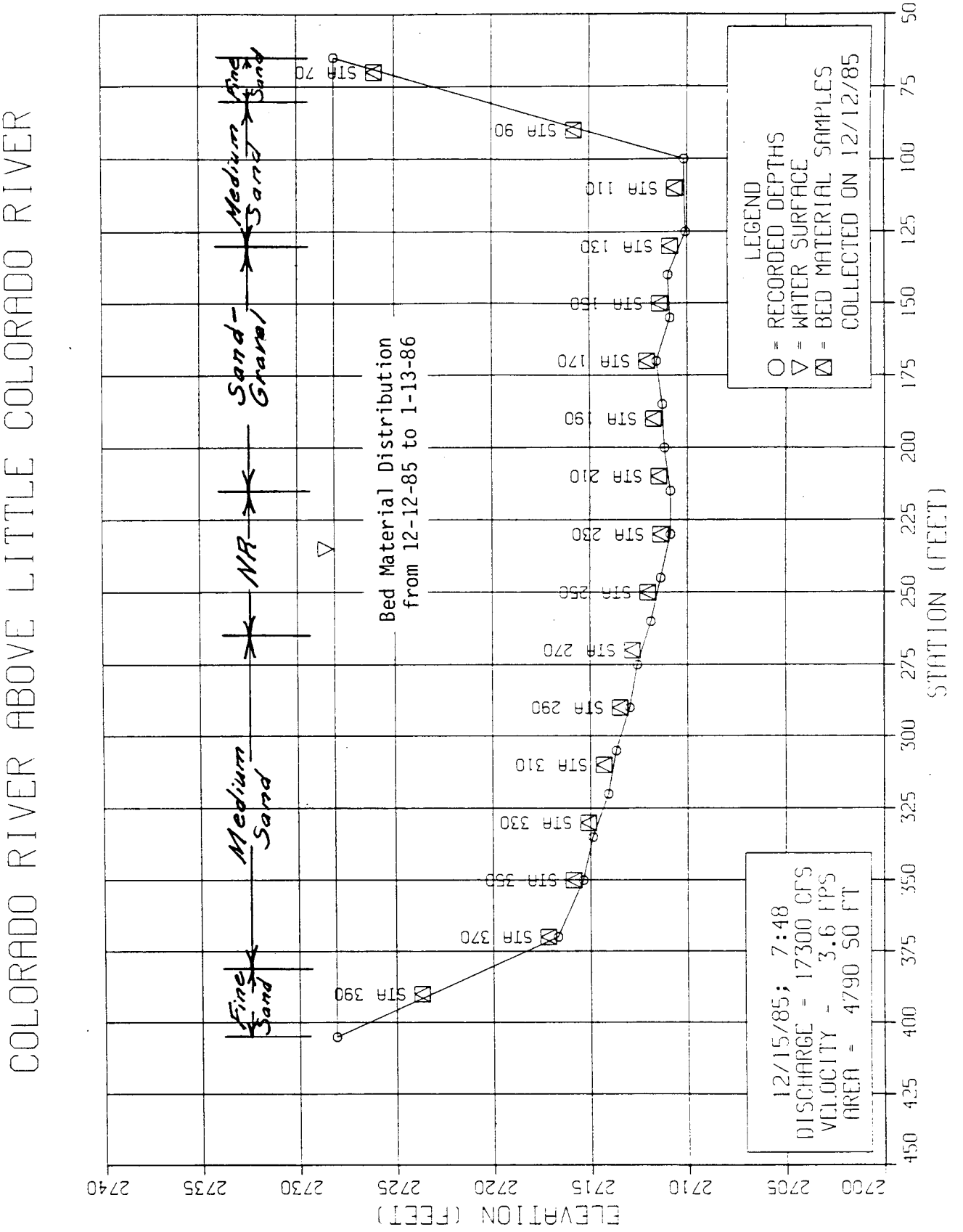

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
Bed Material Distribution
from 12-12-85 to 1-13-86
LEGEND
O = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 12/12/85
12/15/85; 7:48
DISCHARGE = 17300 CFS
VELOCITY = 3.6 FPS
AREA = 4790 SQ FT
Fine Sand
Medium Sand
NR
Sand-Gravel
Medium Sand
STA 70
STA 90
STA 110
STA 130
STA 150
STA 170
STA 190
STA 210
STA 230
STA 250
STA 270
STA 290
STA 310
STA 330
STA 350
STA 370
STA 390
ELEVATION (FEET)
STATION (FEET)

Figure 24

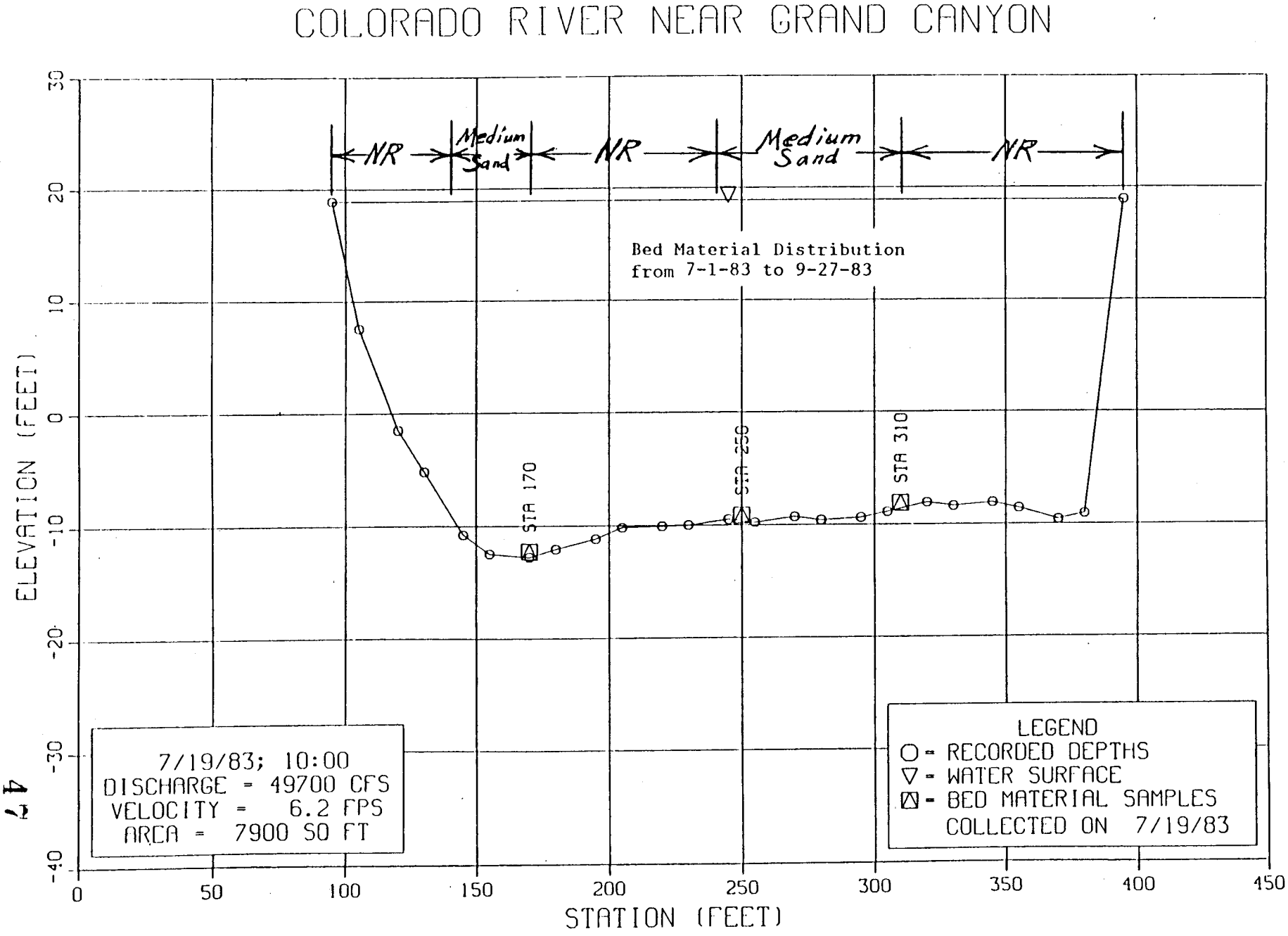

COLORADO RIVER NEAR GRAND CANYON
NR
Medium Sand
NR
Medium Sand
NR
Bed Material Distribution
from 7-1-83 to 9-27-83
STA 170
STA 250
STA 310
ELEVATION (FEET)
30
20
10
0
-10
-20
-30
-40
0
50
100
150
200
250
300
350
400
450
STATION (FEET)
7/19/83; 10:00
DISCHARGE = 49700 CFS
VELOCITY = 6.2 FPS
AREA = 7900 SQ FT
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 7/19/83

Figure 25

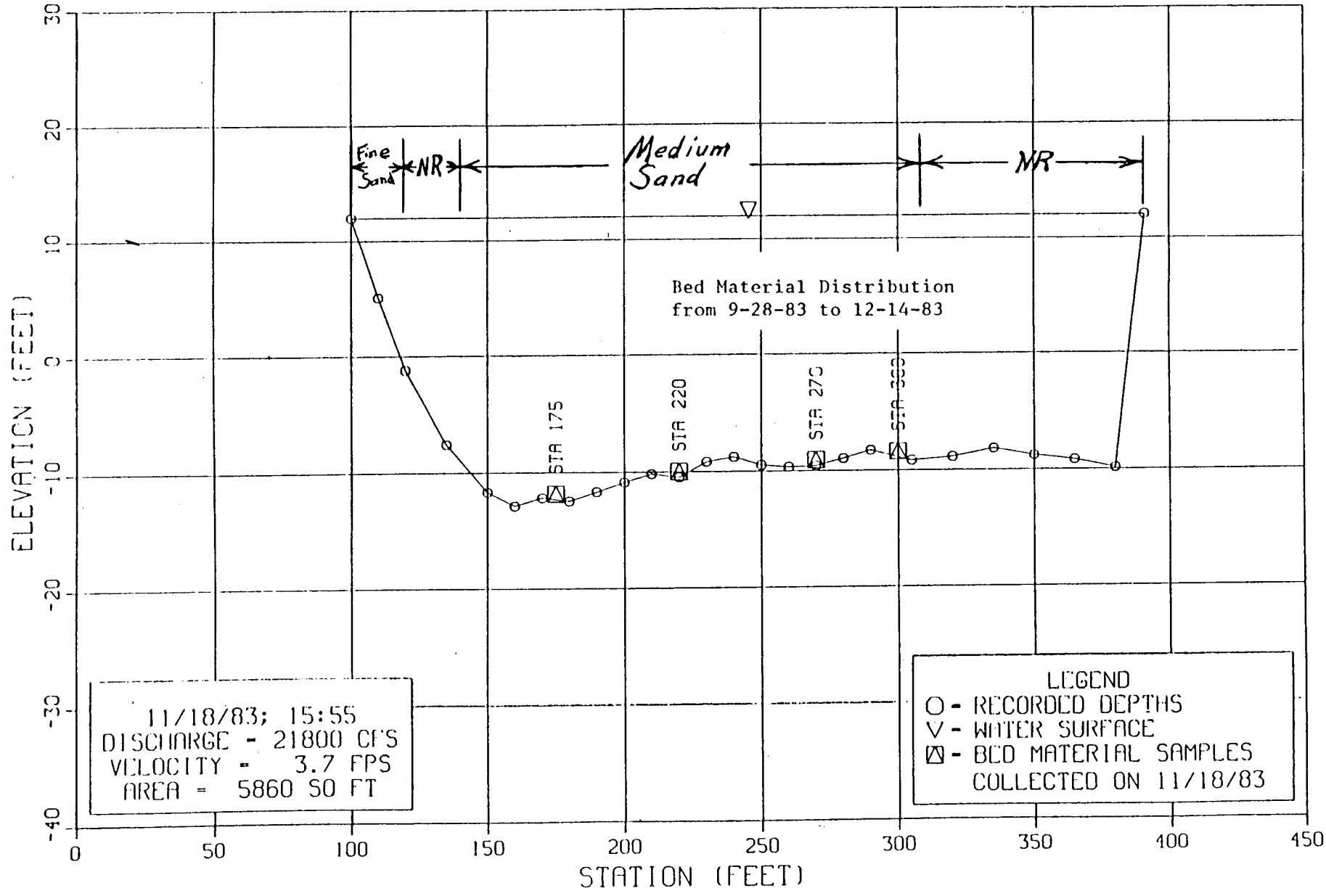

COLORADO RIVER NEAR GRAND CANYON
Fine Sand
NR
Medium Sand
NR
Bed Material Distribution
from 9-28-83 to 12-14-83
STA 175
STA 220
STA 275
STA 333
11/18/83; 15:55
DISCHARGE - 21800 CFS
VELOCITY - 3.7 FPS
AREA - 5860 SQ FT
LEGEND
O - RECORDED DEPTHS
V - WATER SURFACE
BED MATERIAL SAMPLES
COLLECTED ON 11/18/83
ELEVATION (FEET)
STATION (FEET)
30
20
10
0
-10
-20
-30
-40
0
50
100
150
200
250
300
350
400
450

Figure 26

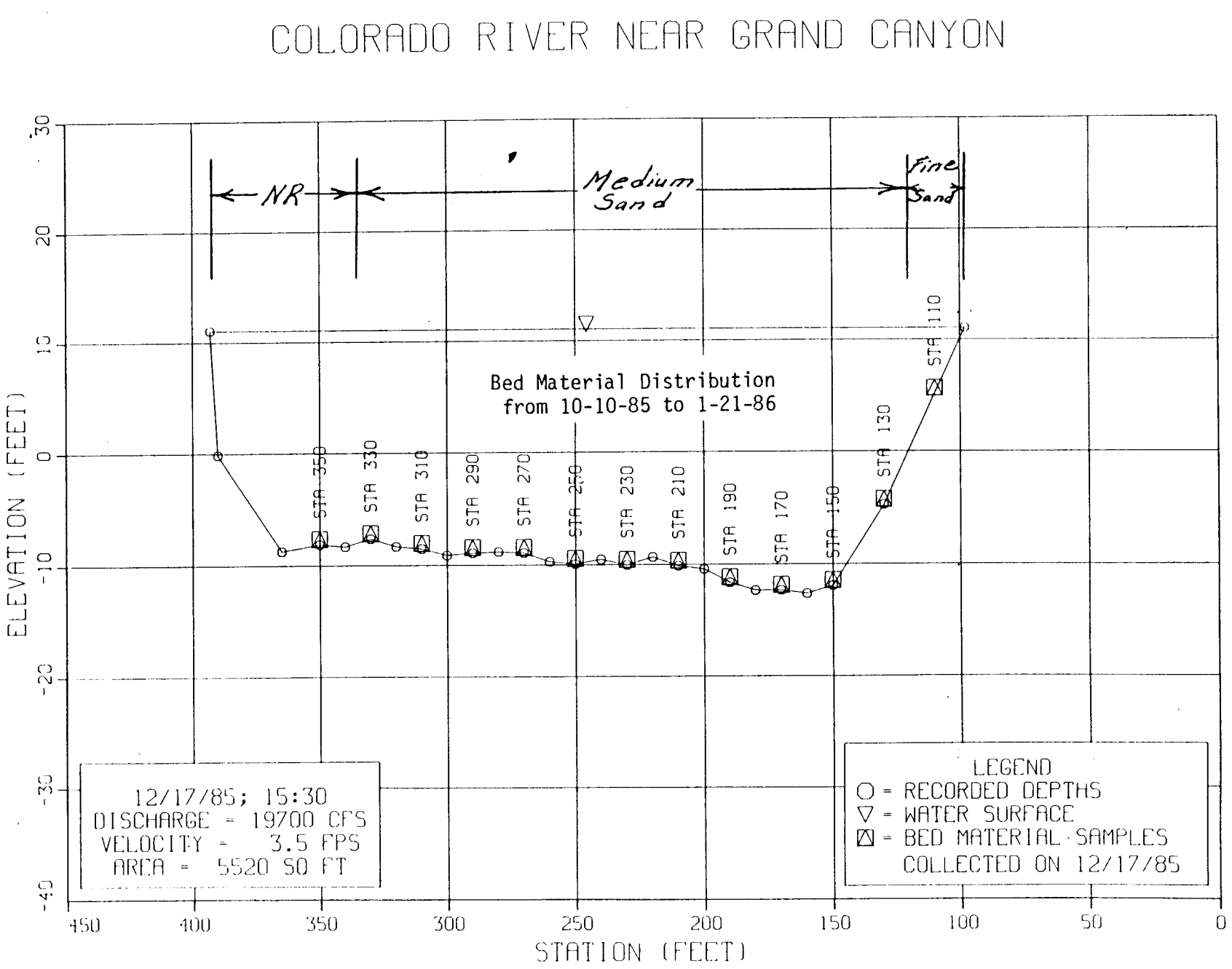

COLORADO RIVER NEAR GRAND CANYON
NR
Medium Sand
Fine Sand
Bed Material Distribution
from 10-10-85 to 1-21-86
STA 350
STA 330
STA 310
STA 290
STA 270
STA 250
STA 230
STA 210
STA 190
STA 170
STA 150
STA 130
STA 110
ELEVATION (FEET)
30
20
10
0
-10
-20
-30
-40
450
400
350
300
250
200
150
100
50
0
STATION (FEET)
12/17/85; 15:30
DISCHARGE = 19700 CFS
VELOCITY = 3.5 FPS
AREA = 5520 SQ FT
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 12/17/85

Figure 27

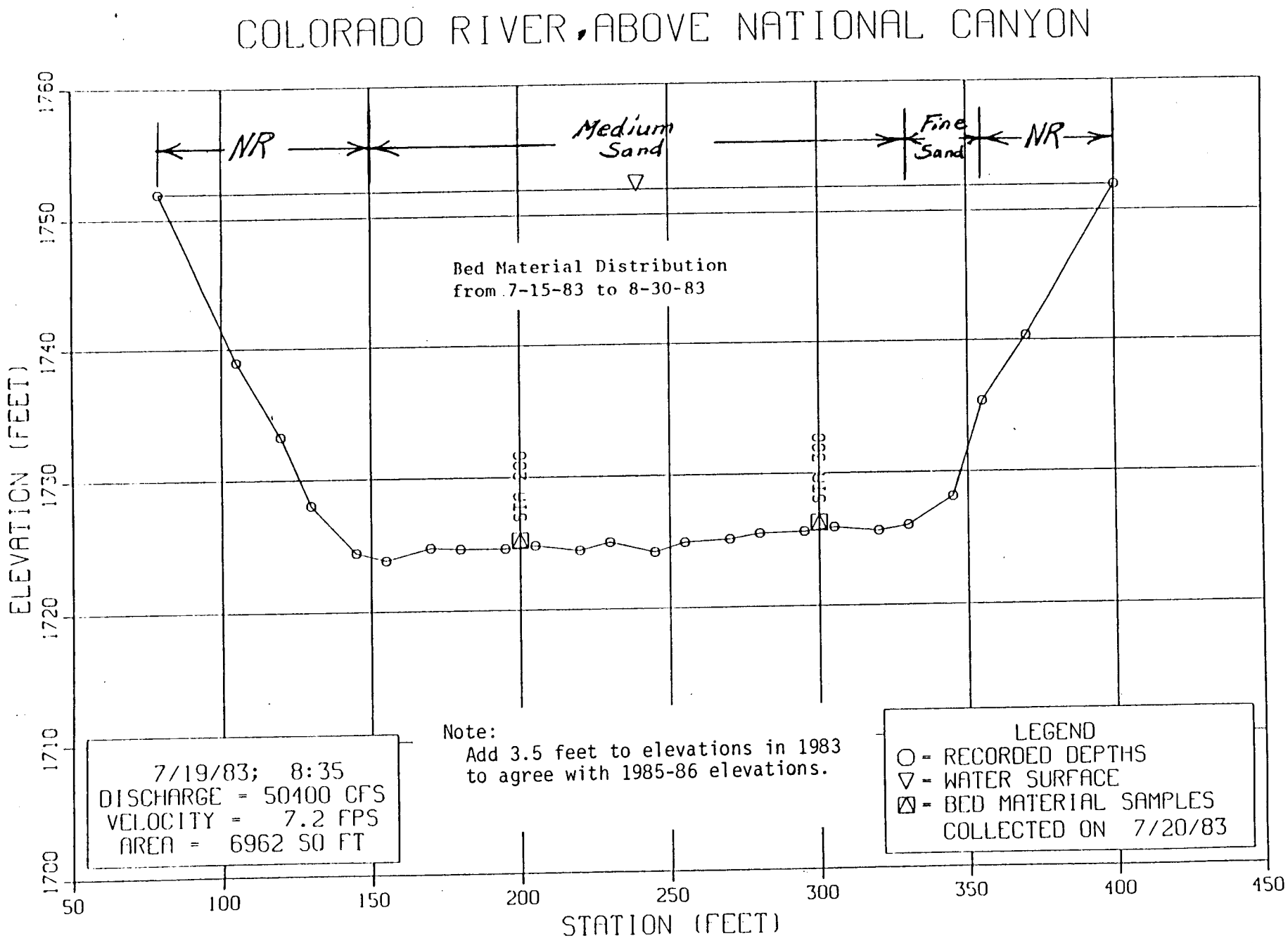

COLORADO RIVER, ABOVE NATIONAL CANYON
NR
Medium Sand
Fine Sand
NR
Bed Material Distribution
from 7-15-83 to 8-30-83
STA. 200
STA. 300
ELEVATION (FEET)
1760
1750
1740
1730
1720
1710
1700
50
100
150
200
250
300
350
400
450
STATION (FEET)
7/19/83; 8:35
DISCHARGE = 50100 CFS
VELOCITY = 7.2 FPS
AREA = 6962 SQ FT
Note:
Add 3.5 feet to elevations in 1983
to agree with 1985-86 elevations.
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
▨ = BED MATERIAL SAMPLES
COLLECTED ON 7/20/83

Figure 28

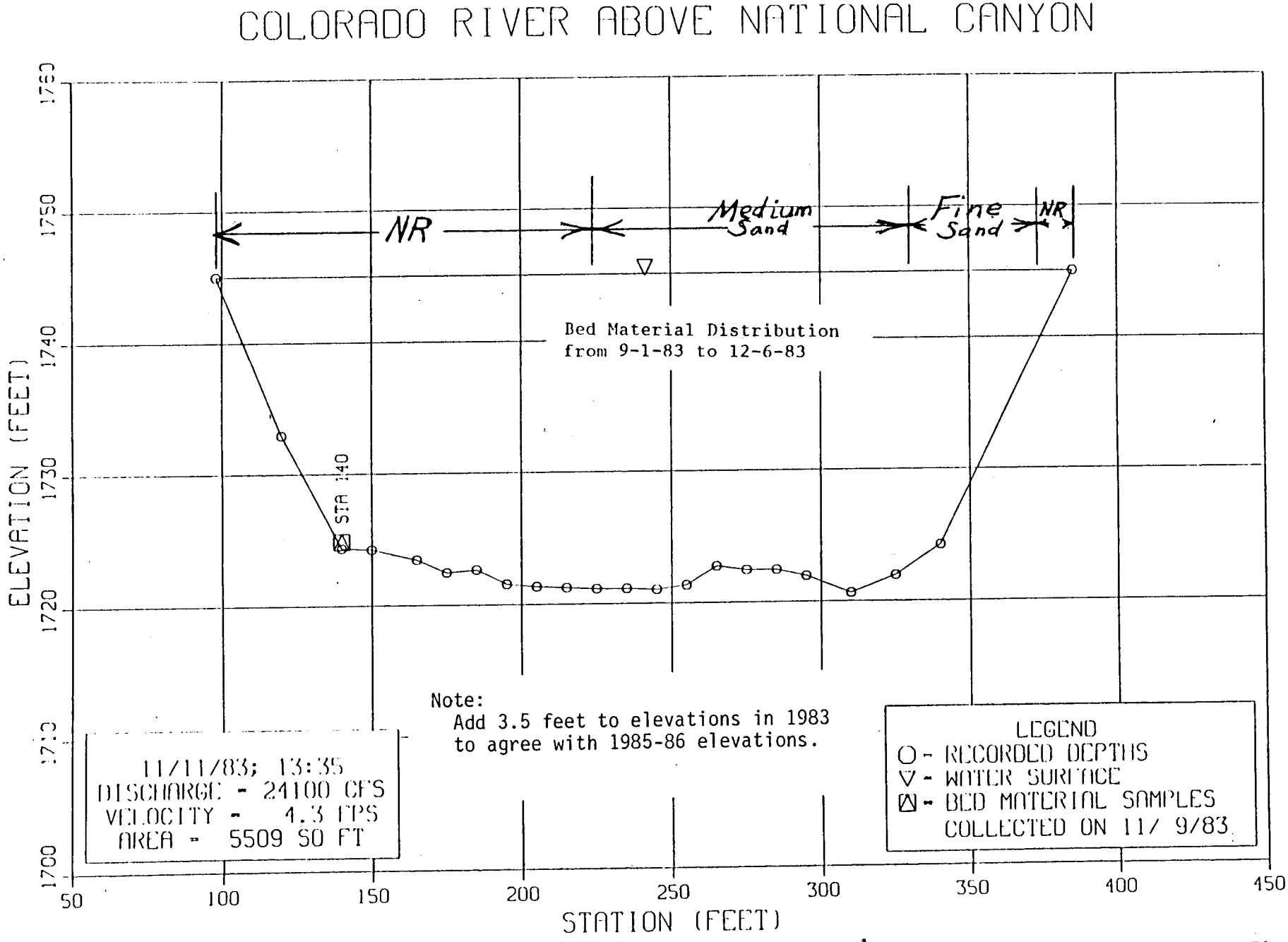

COLORADO RIVER ABOVE NATIONAL CANYON
NR
Medium Sand
Fine Sand
NR
Bed Material Distribution
from 9-1-83 to 12-6-83
STA 140
ELEVATION (FEET)
1750
1740
1730
1720
1700
50
100
150
200
250
300
350
400
450
STATION (FEET)
Note:
Add 3.5 feet to elevations in 1983
to agree with 1985-86 elevations.
11/11/83; 13:35
DISCHARGE - 24100 CFS
VELOCITY - 4.3 FPS
AREA - 5509 SQ FT
LEGEND
O - RECORDED DEPTHS
▽ - WATER SURFACE
⊠ - BED MATERIAL SAMPLES
COLLECTED ON 11/ 9/83

Figure 29

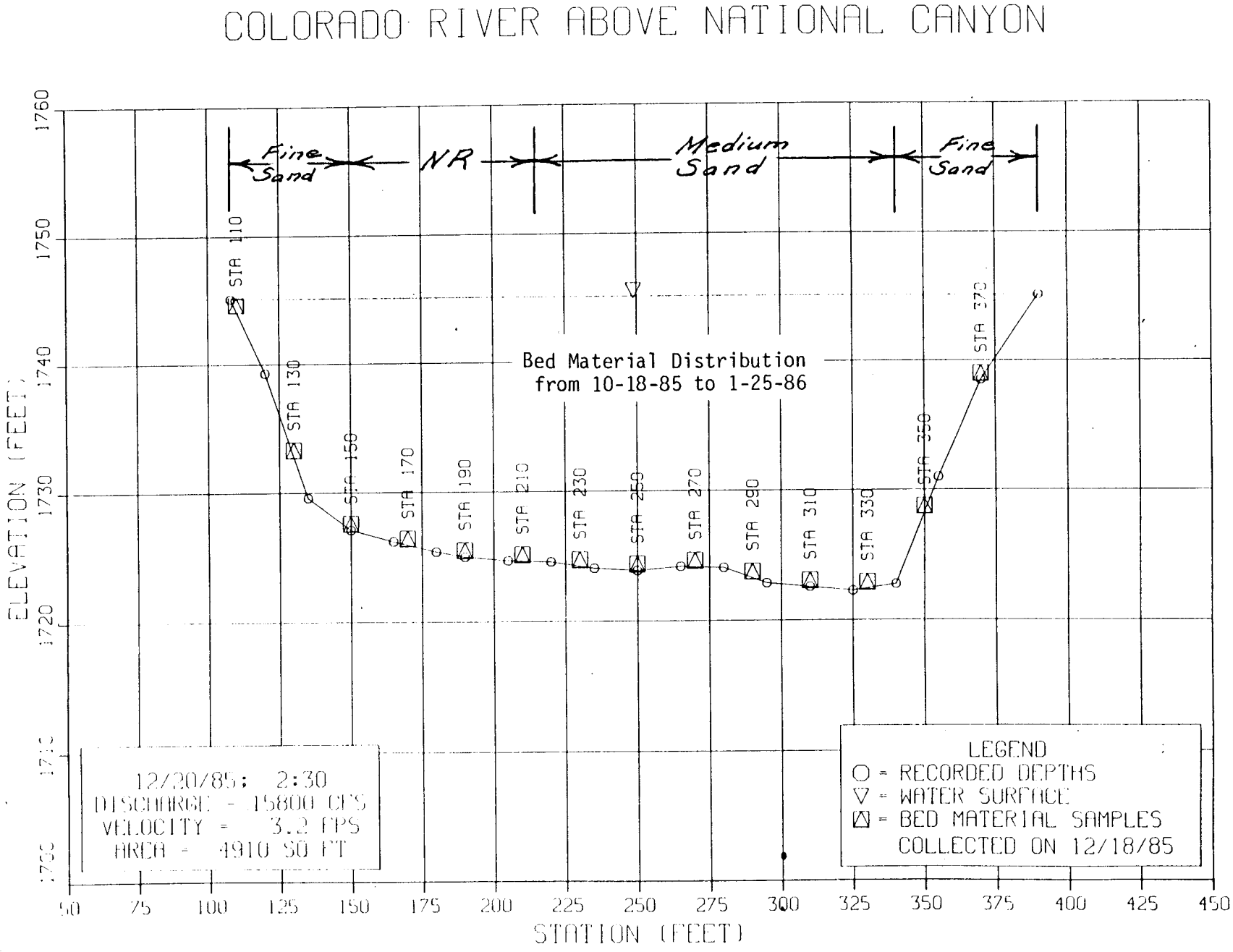

COLORADO RIVER ABOVE NATIONAL CANYON
Fine Sand
NR
Medium Sand
Fine Sand
Bed Material Distribution
from 10-18-85 to 1-25-86
STA 110
STA 130
STA 150
STA 170
STA 190
STA 210
STA 230
STA 250
STA 270
STA 290
STA 310
STA 330
STA 350
STA 370
ELEVATION (FEET)
1760
1750
1740
1730
1720
1710
1700
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
STATION (FEET)
12/20/85: 2:30
DISCHARGE = 15800 CFS
VELOCITY = 3.2 FPS
AREA = 4910 SQ FT
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 12/18/85

Figure 30

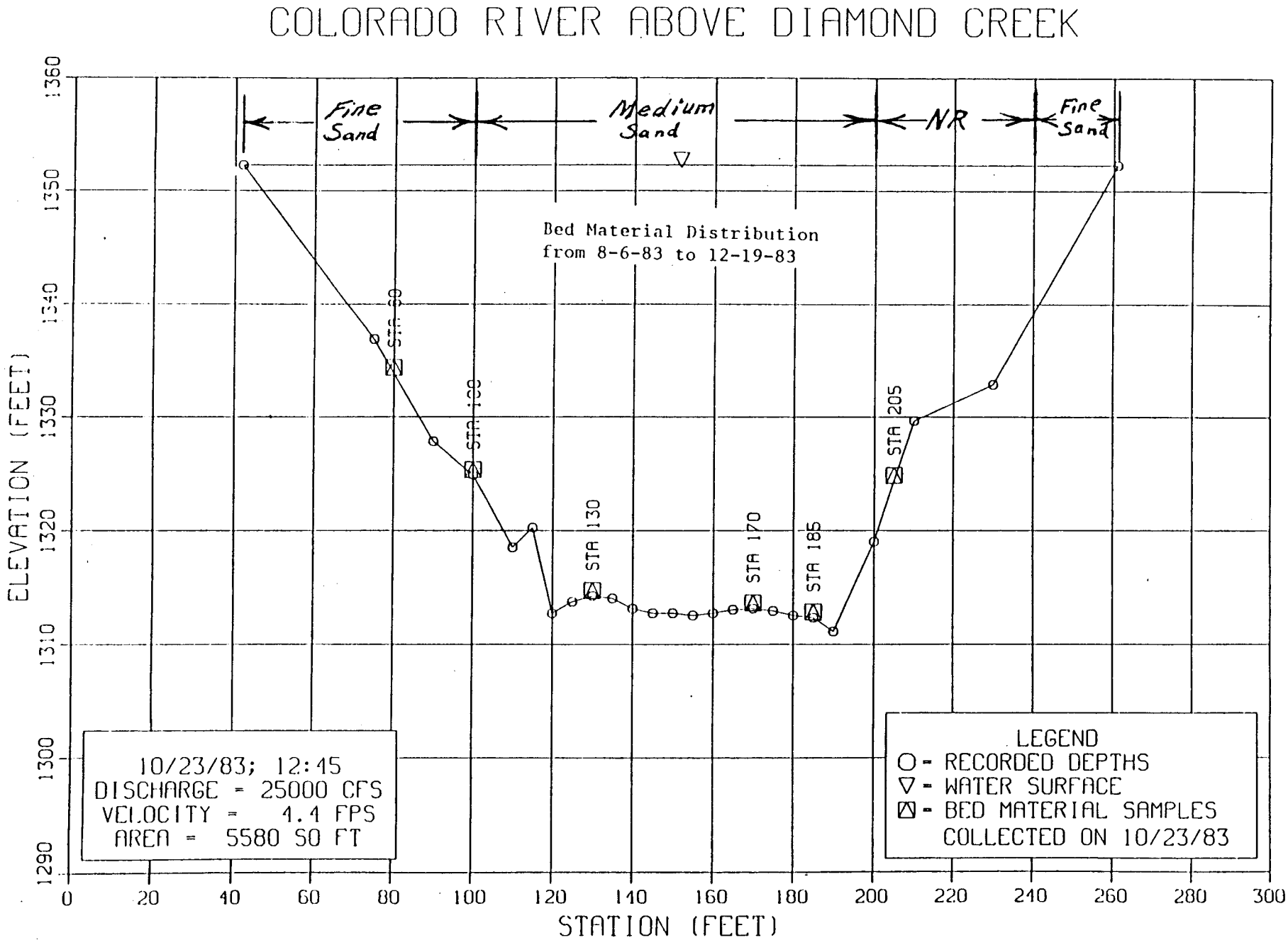

COLORADO RIVER ABOVE DIAMOND CREEK
Fine Sand
Medium Sand
NR
Fine Sand
Bed Material Distribution
from 8-6-83 to 12-19-83
STA 80
STA 100
STA 130
STA 170
STA 185
STA 205
ELEVATION (FEET)
1360
1350
1340
1330
1320
1310
1300
1290
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
STATION (FEET)
10/23/83; 12:45
DISCHARGE = 25000 CFS
VELOCITY = 4.4 FPS
AREA = 5580 SQ FT
LEGEND
O - RECORDED DEPTHS
▽ - WATER SURFACE
⊠ - BED MATERIAL SAMPLES
COLLECTED ON 10/23/83

Figure 31

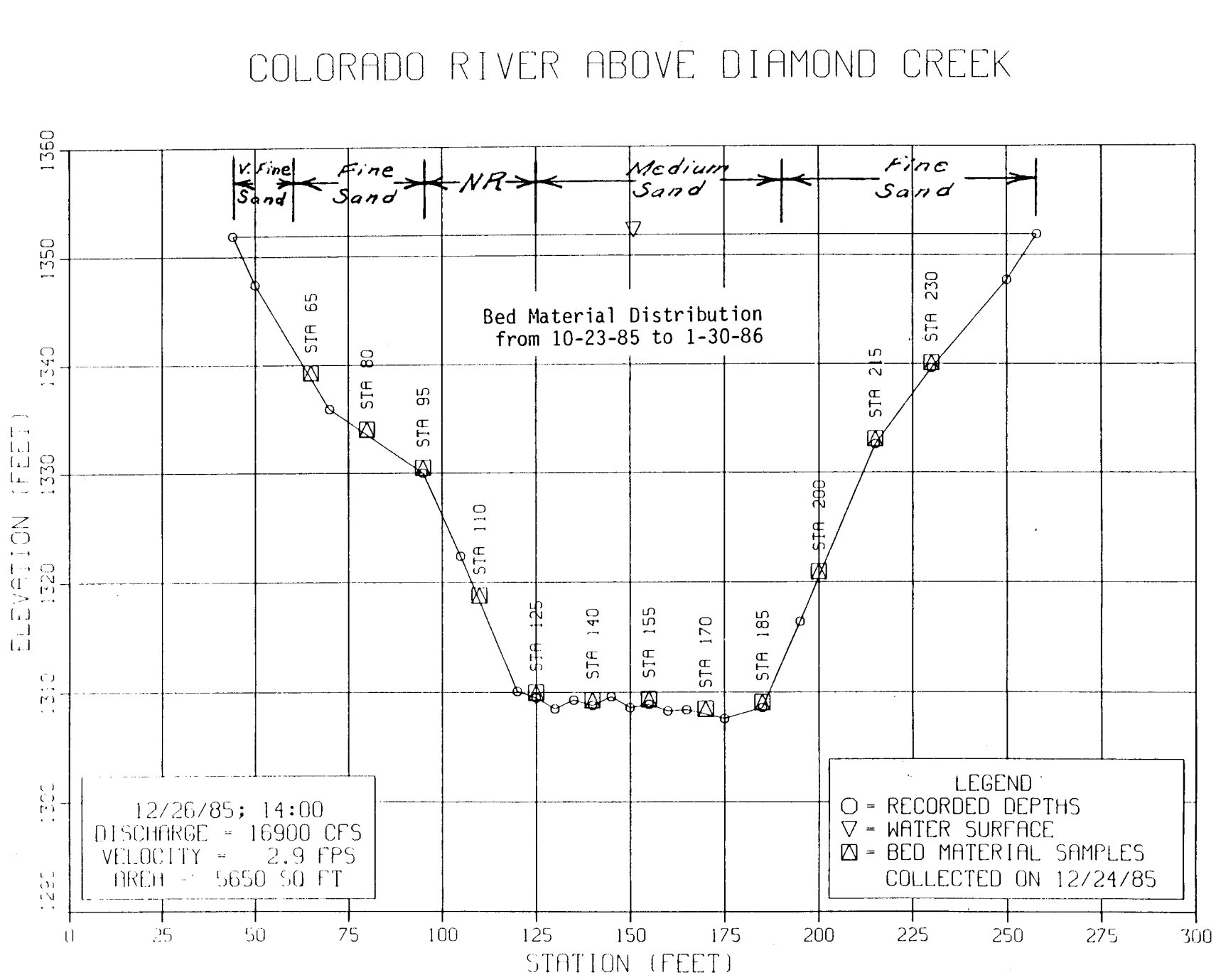

COLORADO RIVER ABOVE DIAMOND CREEK
V. Fine Sand
Fine Sand
NR
Medium Sand
Fine Sand
Bed Material Distribution
from 10-23-85 to 1-30-86
STA 65
STA 80
STA 95
STA 110
STA 125
STA 140
STA 155
STA 170
STA 185
STA 200
STA 215
STA 230
ELEVATION (FEET)
1360
1350
1340
1330
1320
0
25
50
75
100
125
150
175
200
225
250
275
300
STATION (FEET)
12/26/85; 14:00
DISCHARGE = 16900 CFS
VELOCITY = 2.9 FPS
AREA = 5650 SQ FT
LEGEND
○ = RECORDED DEPTHS
▽ = WATER SURFACE
⊠ = BED MATERIAL SAMPLES
COLLECTED ON 12/24/85

Figure 32

COLORADO RIVER AT LEES FERRY

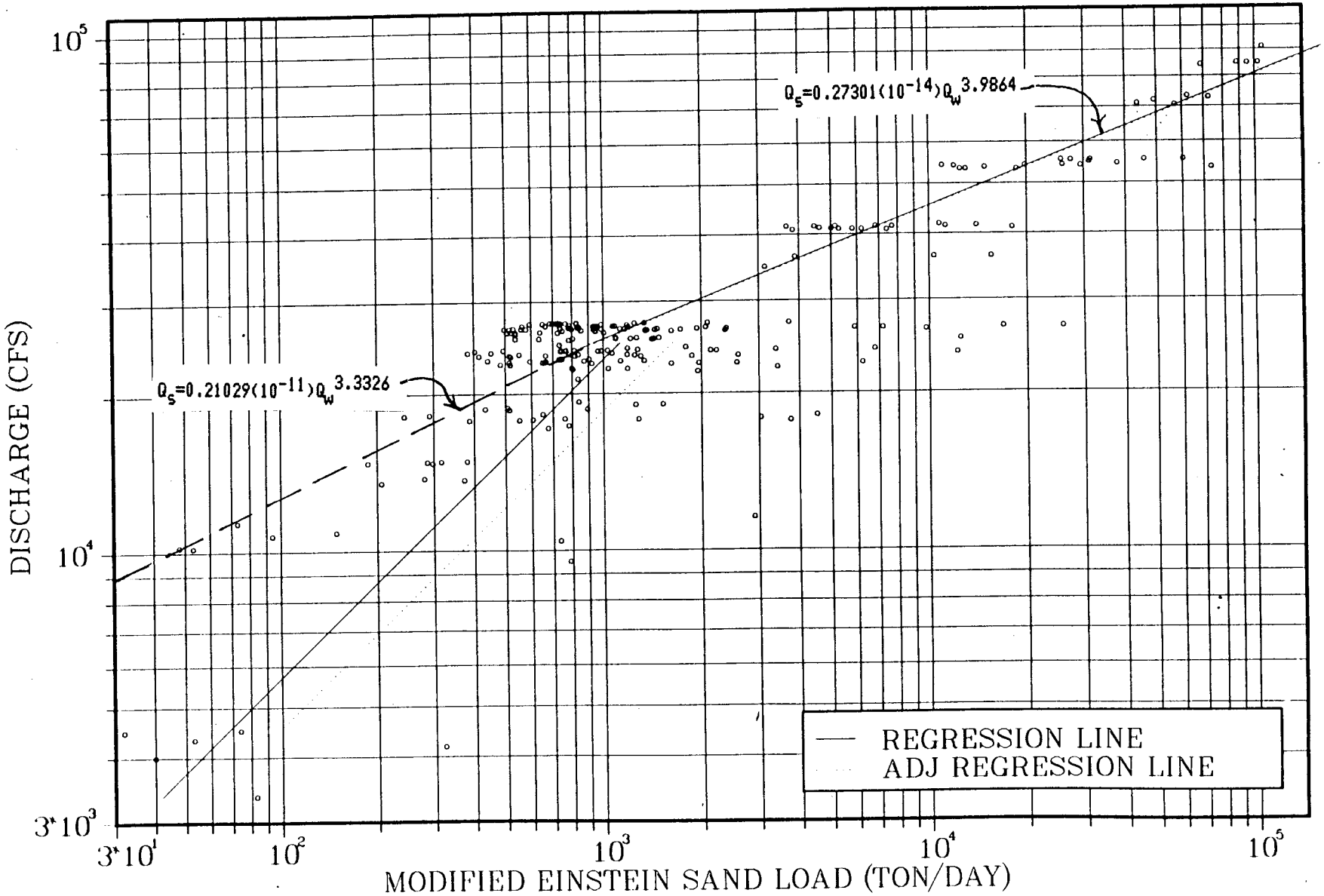


Figure 33

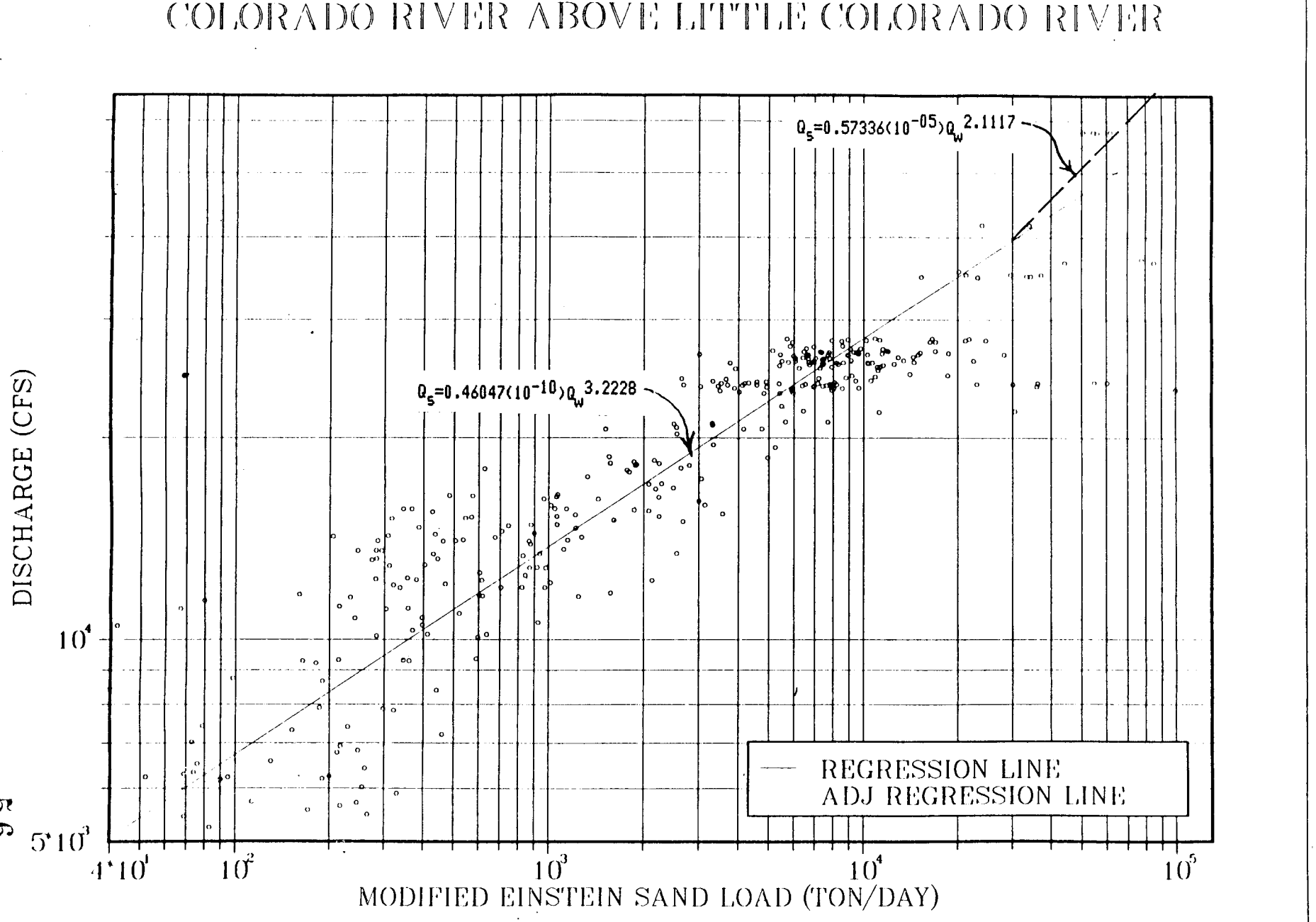

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
$Q_s=0.57336(10^{-05})Q_w^{2.1117}$
$Q_s=0.46047(10^{-10})Q_w^{3.2228}$
REGRESSION LINE
ADJ REGRESSION LINE
DISCHARGE (CFS)
10^4
$5*10^3$
$4*10^1$
10^2
10^3
10^4
10^5
MODIFIED EINSTEIN SAND LOAD (TON/DAY)

Figure 34

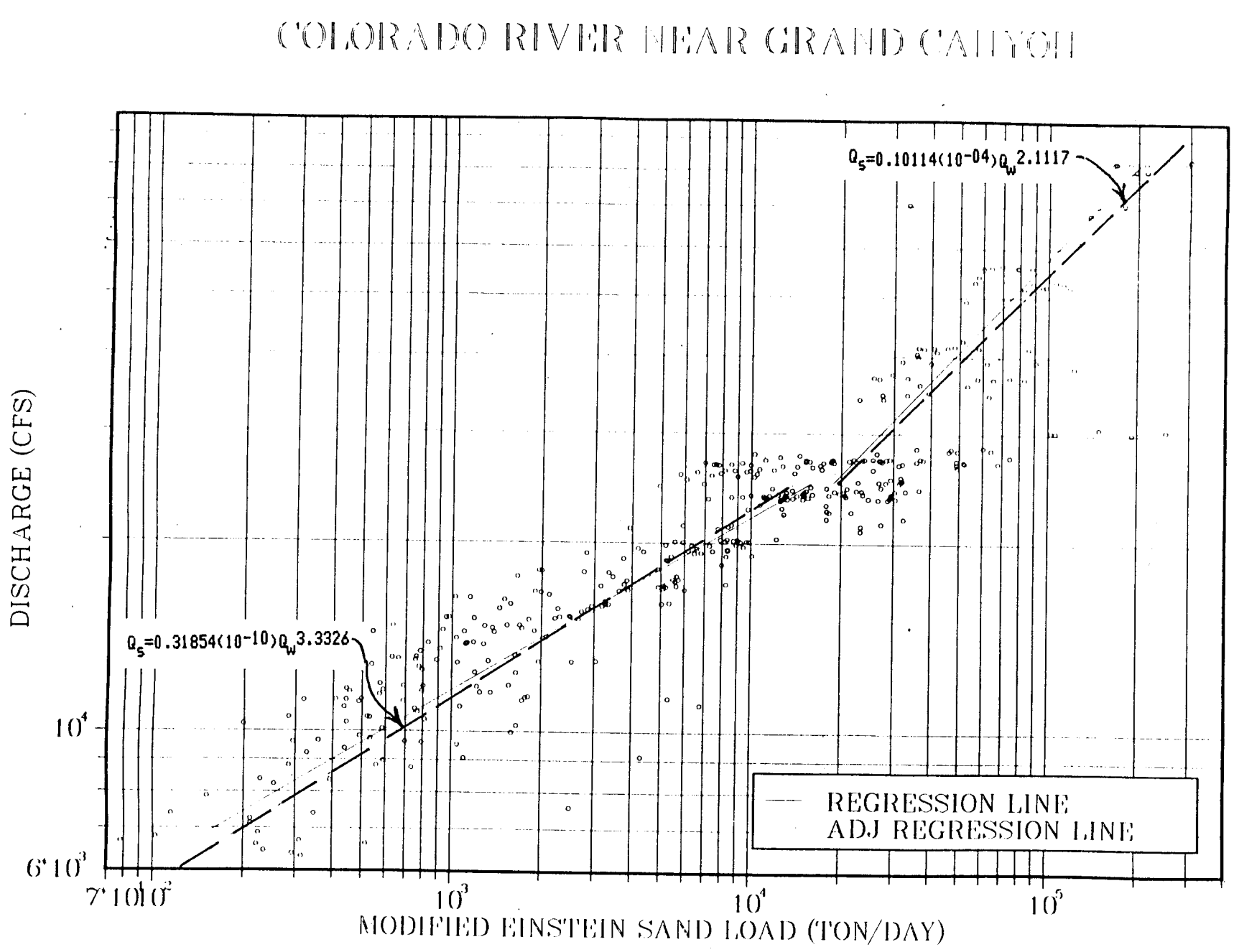

COLORADO RIVER NEAR GRAND CANYON
$Q_s=0.10114(10^{-04})Q_w^{2.1117}$
$Q_s=0.31854(10^{-10})Q_w^{3.3326}$
REGRESSION LINE
ADJ REGRESSION LINE
DISCHARGE (CFS)
$6*10^3$
10^4
$7*10^2$
10^3
10^4
10^5
MODIFIED EINSTEIN SAND LOAD (TON/DAY)

Figure 35

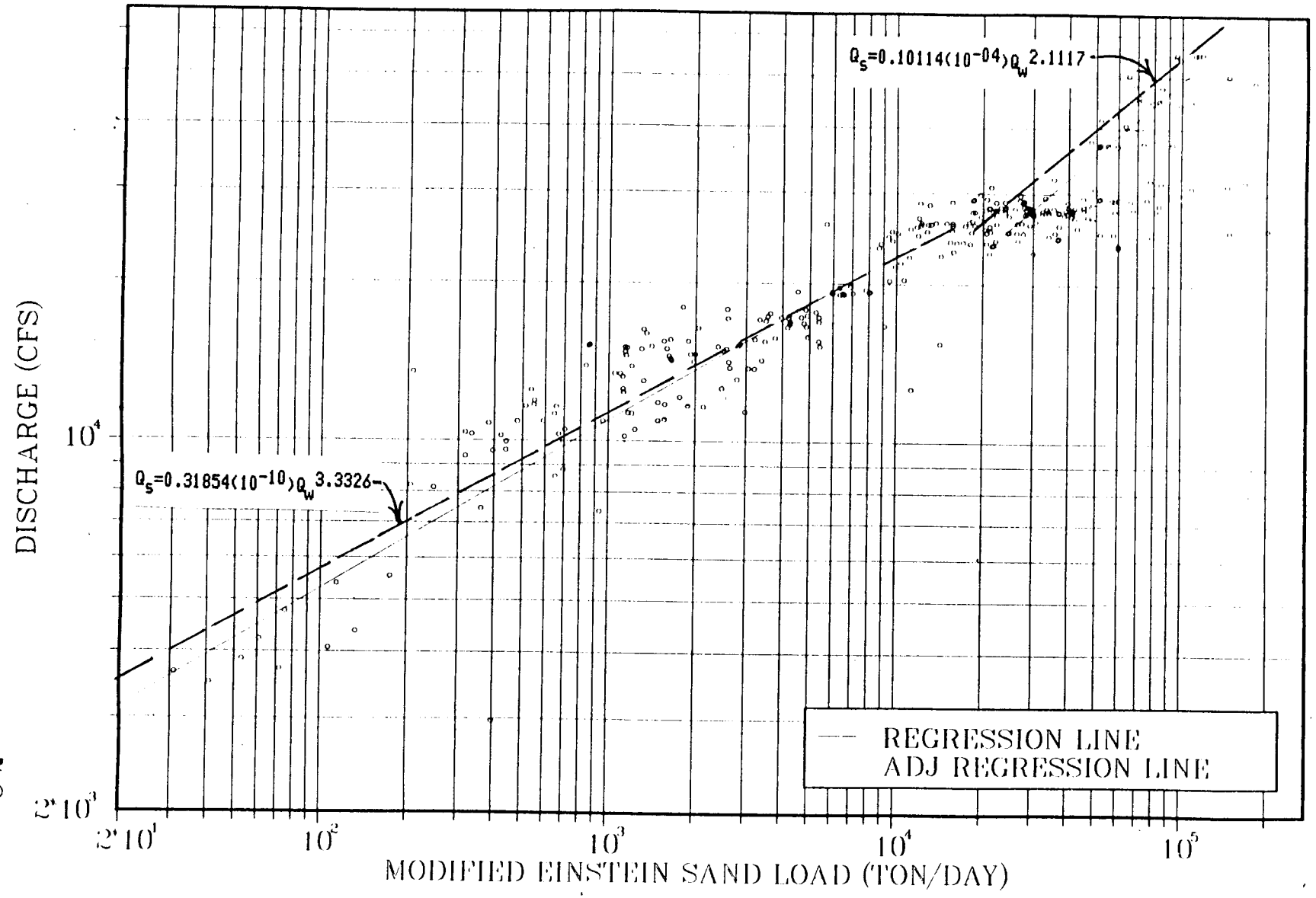

COLORADO RIVER ABOVE NATIONAL CANYON
$Q_s=0.10114(10^{-04})Q_w^{2.1117}$
$Q_s=0.31854(10^{-10})Q_w^{3.3326}$
REGRESSION LINE
ADJ REGRESSION LINE
DISCHARGE (CFS)
MODIFIED EINSTEIN SAND LOAD (TON/DAY)
$2*10^3$
10^4
$2*10^1$
10^2
10^3
10^4
10^5

Figure 36

COLORADO RIVER ABOVE DIAMOND CREEK

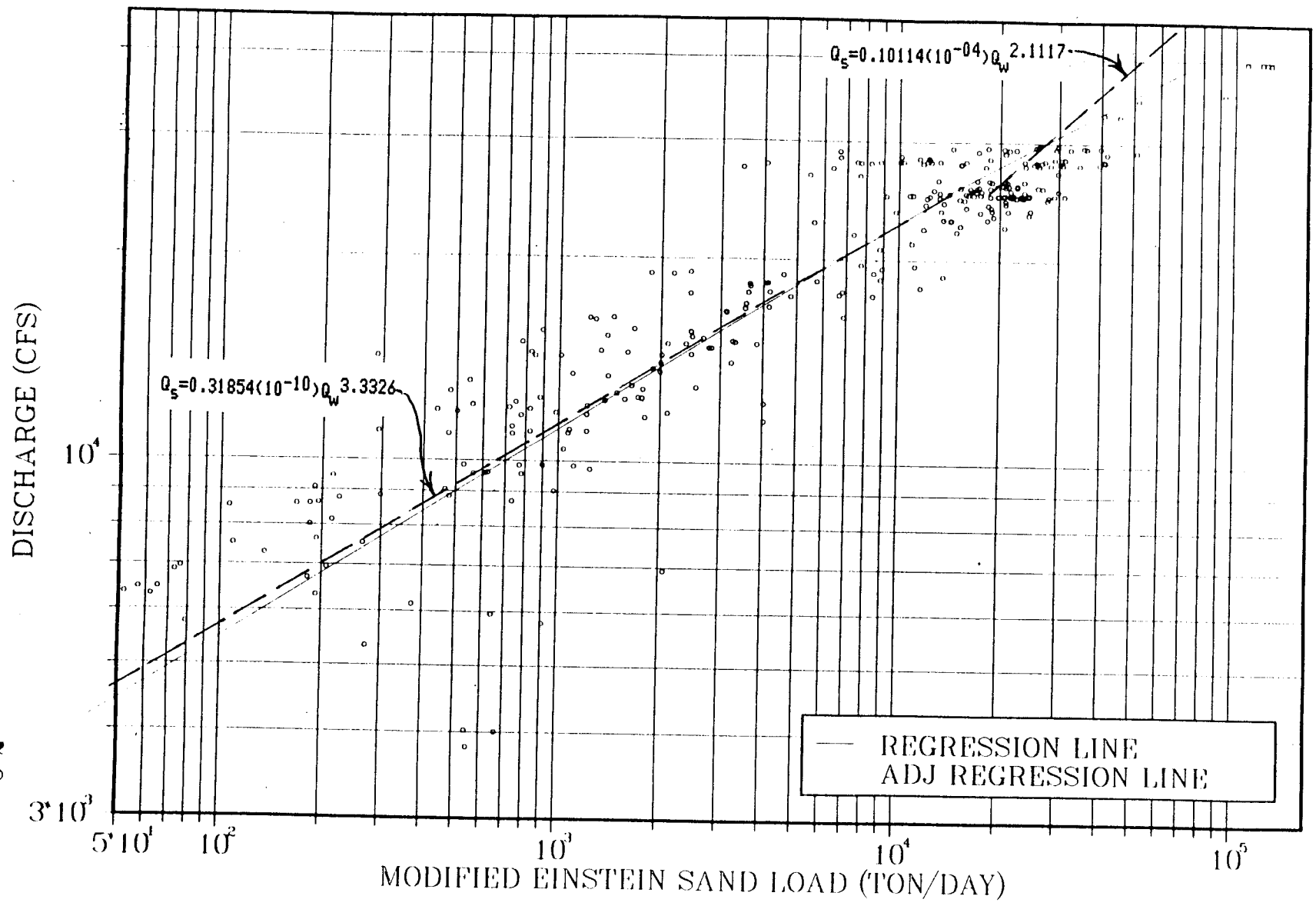
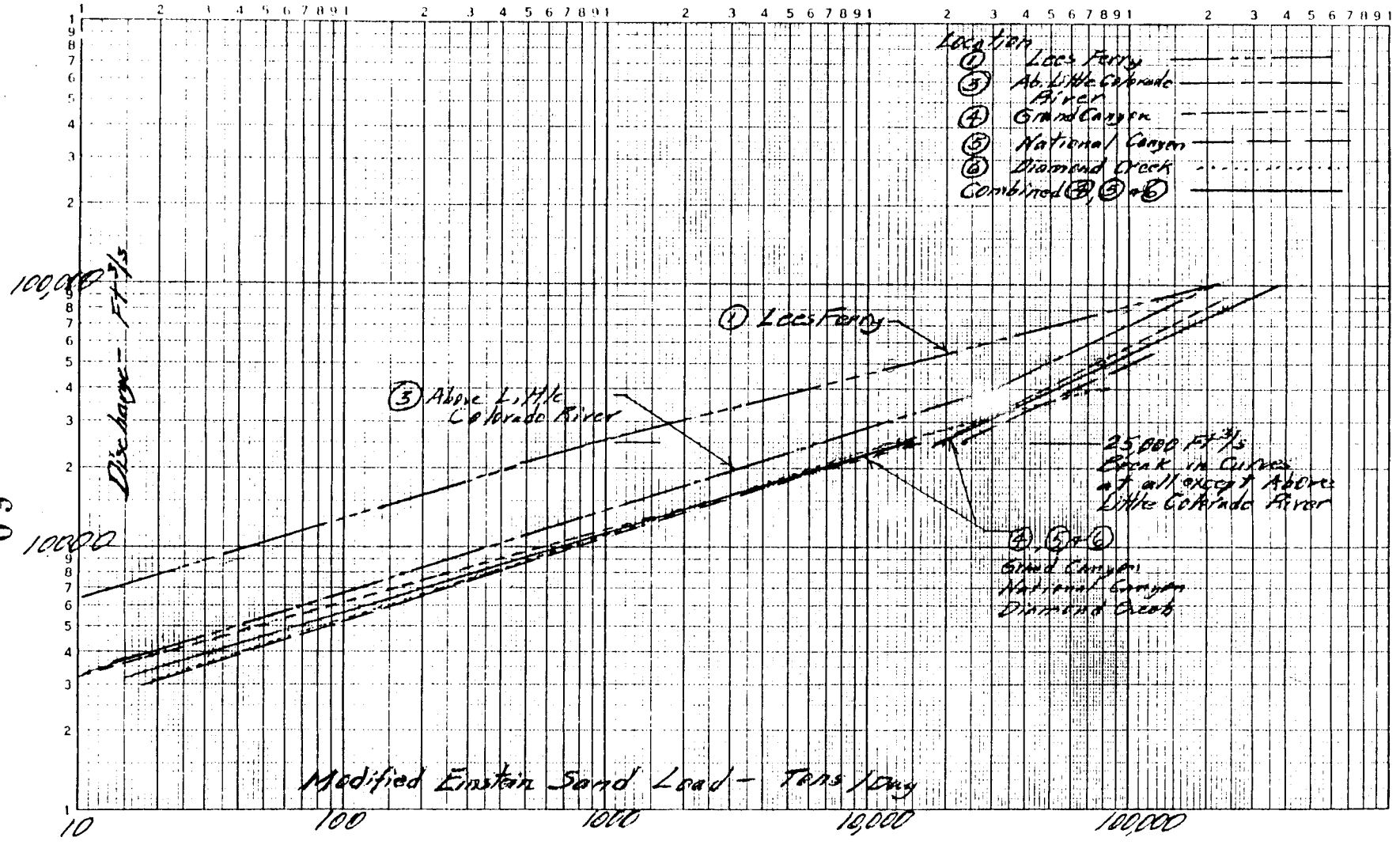


Figure 37



MODIFIED EINSTEIN
SAND LOAD RATING CURVES
Colorado River - Grand Canyon

Figure 3

COLORADO RIVER COMBINED LOCATIONS 4, 5 AND 6

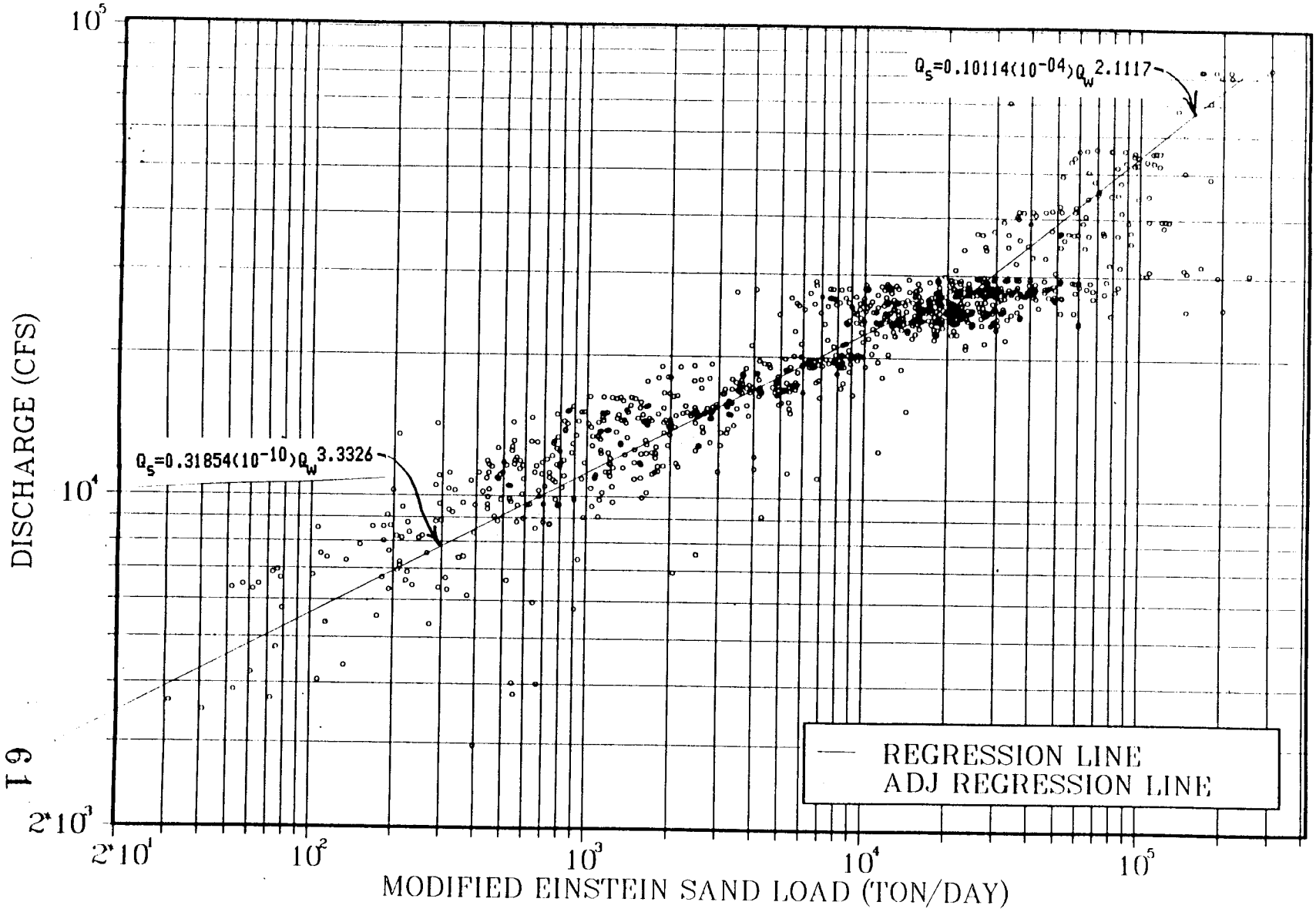


Figure 39

COLORADO RIVER AT LEES FERRY

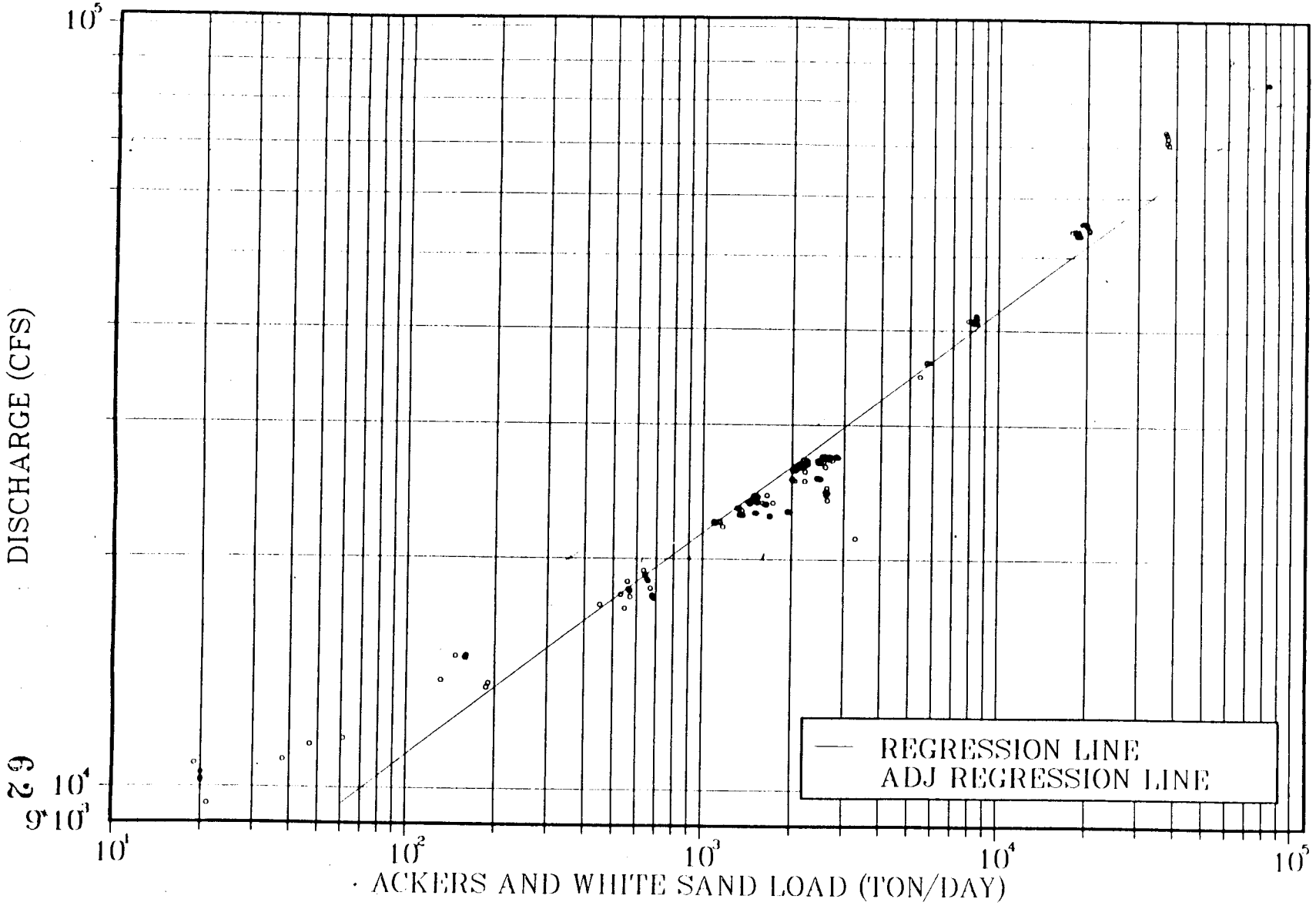


Figure 40

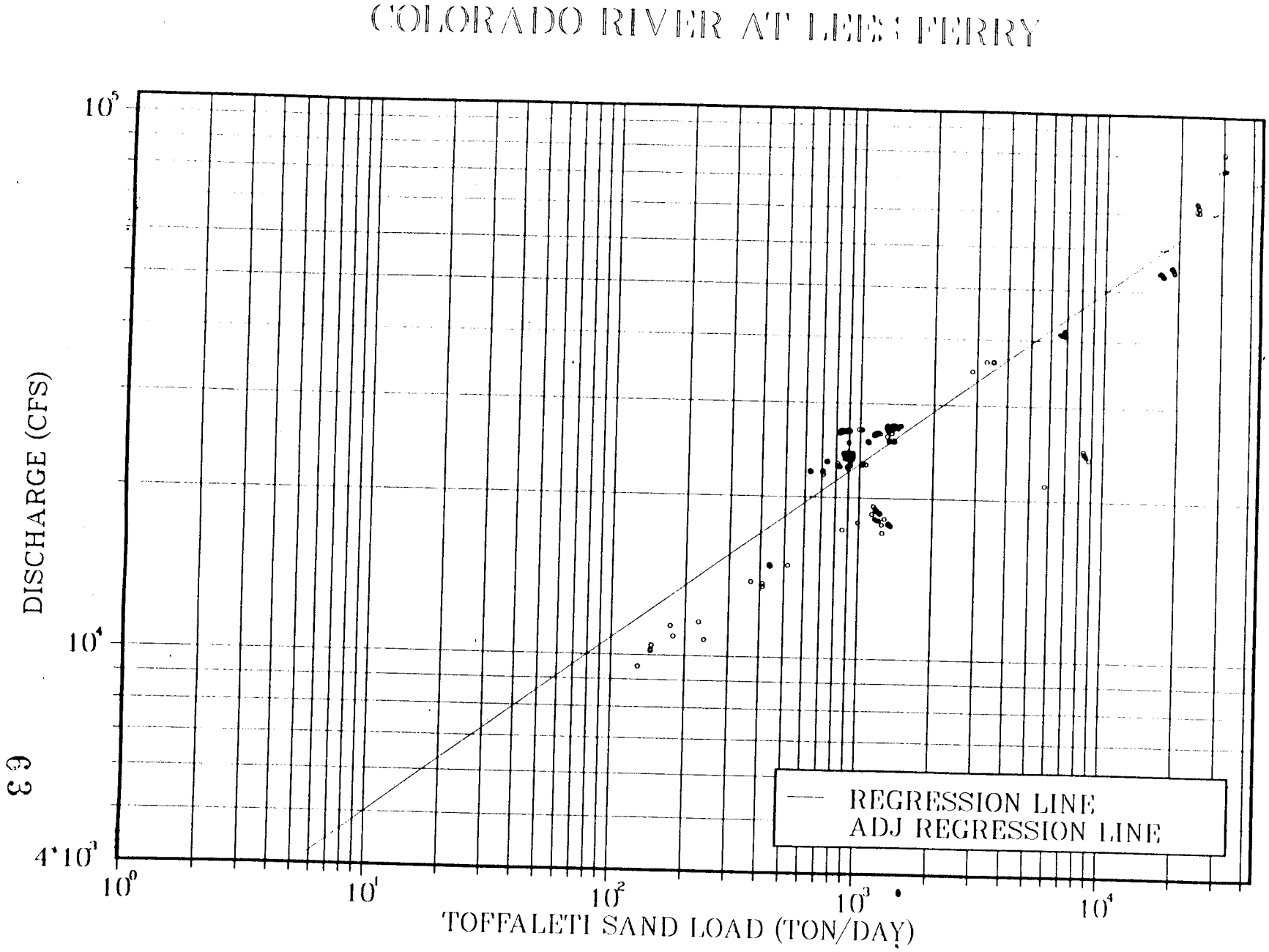

COLORADO RIVER AT LEES FERRY
DISCHARGE (CFS)
10^5
10^4
$4*10^3$
10^0
10^1
10^2
10^3
10^4
TOFFALETI SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 41

COLORADO RIVER AT LEES FERRY

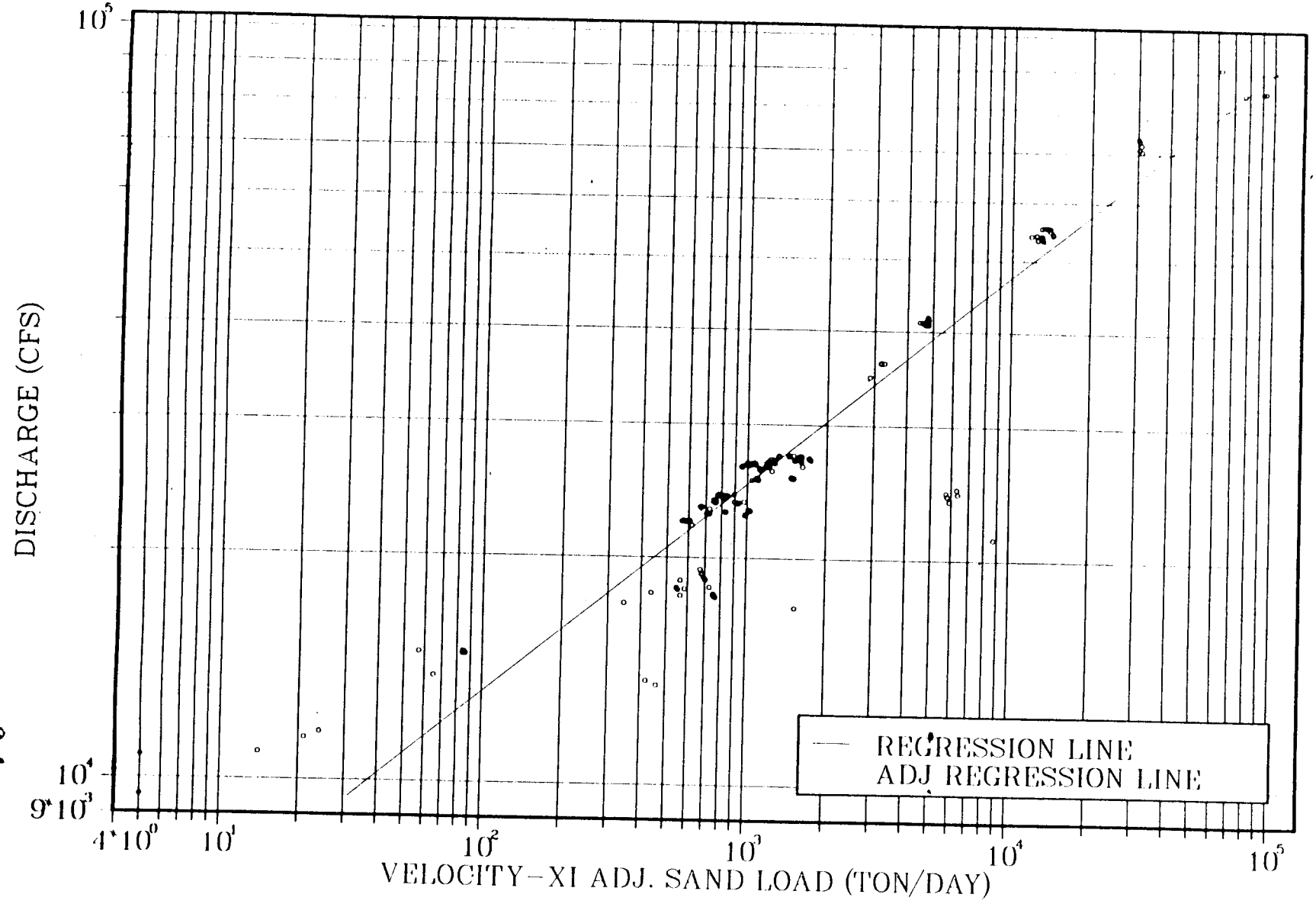


Figure 42

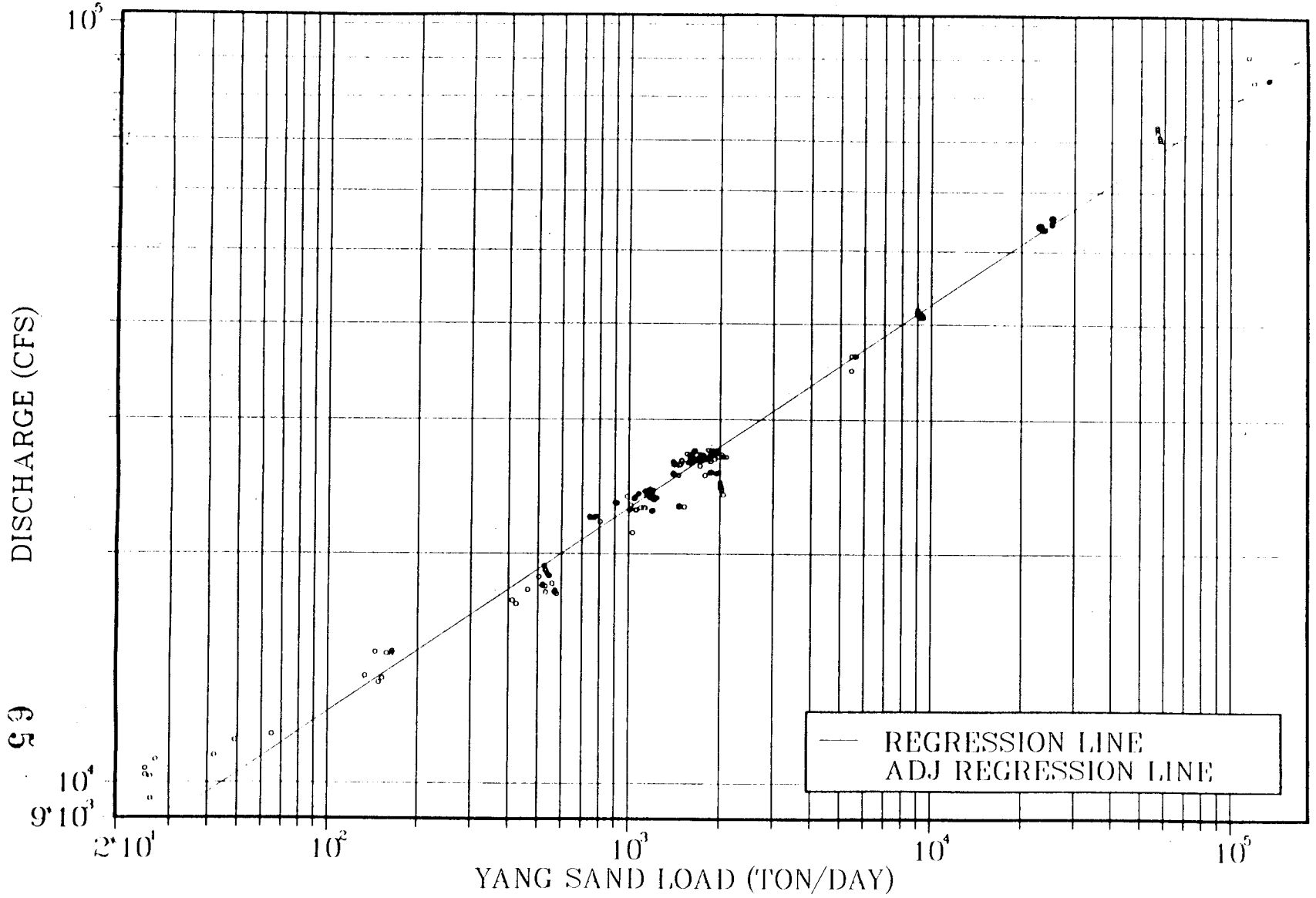

COLORADO RIVER AT LEES FERRY
DISCHARGE (CFS)
10^5
10^4
$9*10^3$
$2*10^4$
10^2
10^3
10^4
10^5
YANG SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 43

COLORADO RIVER ABOVE LITTLE COLORADO RIVER

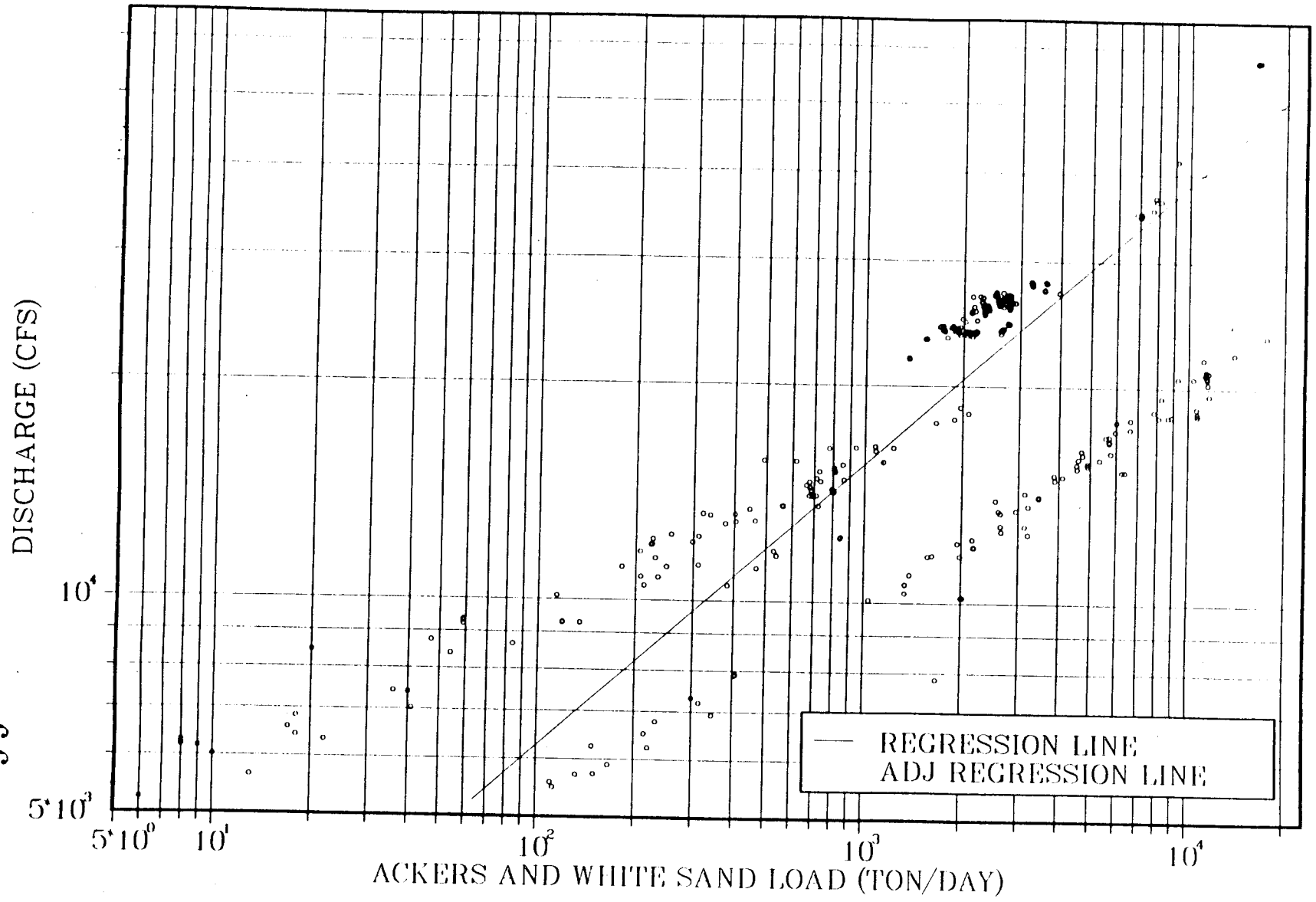


Figure 44

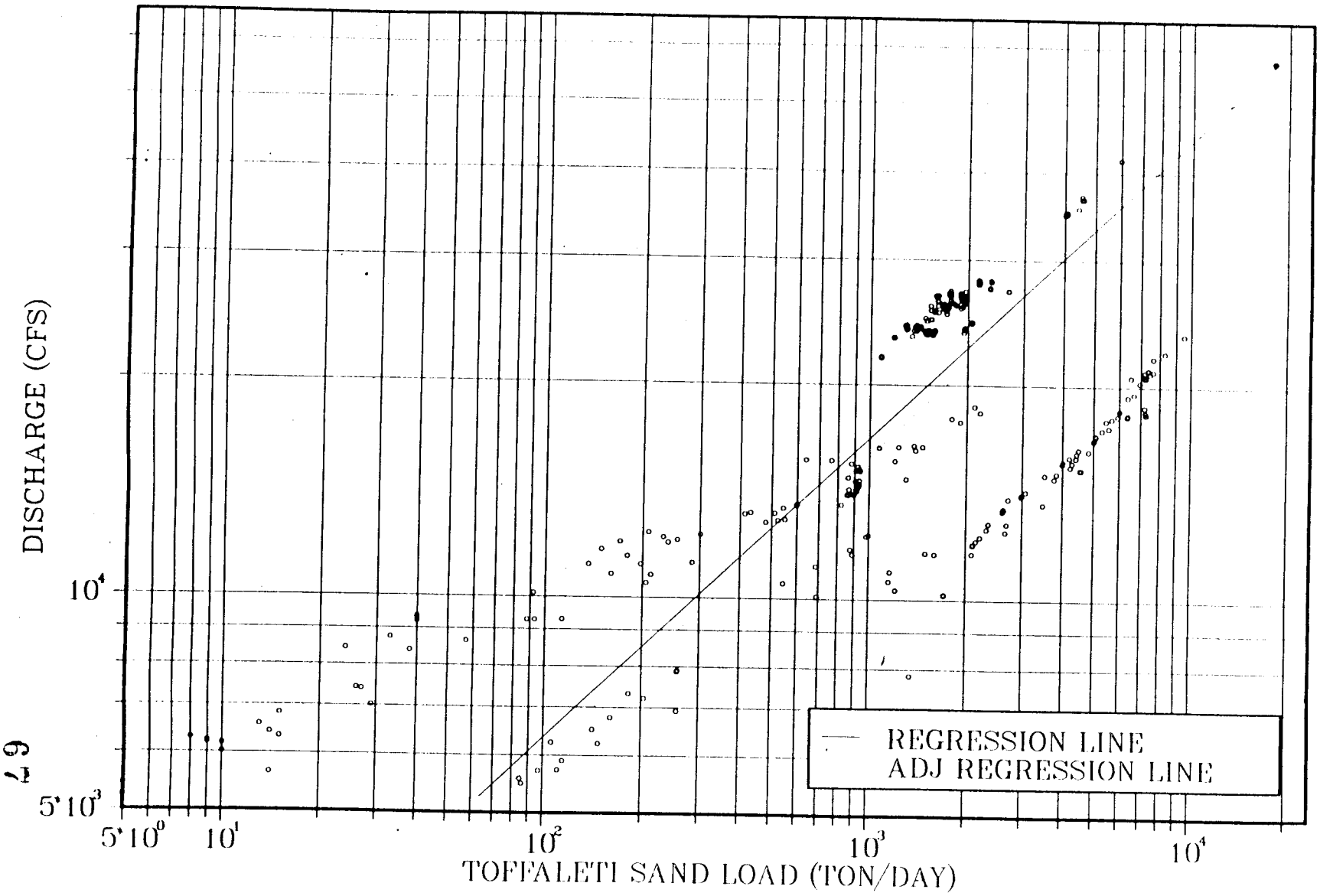

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
DISCHARGE (CFS)
10^4
$5*10^3$
$5*10^0$
10^1
10^2
10^3
10^4
TOFFALETI SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 45

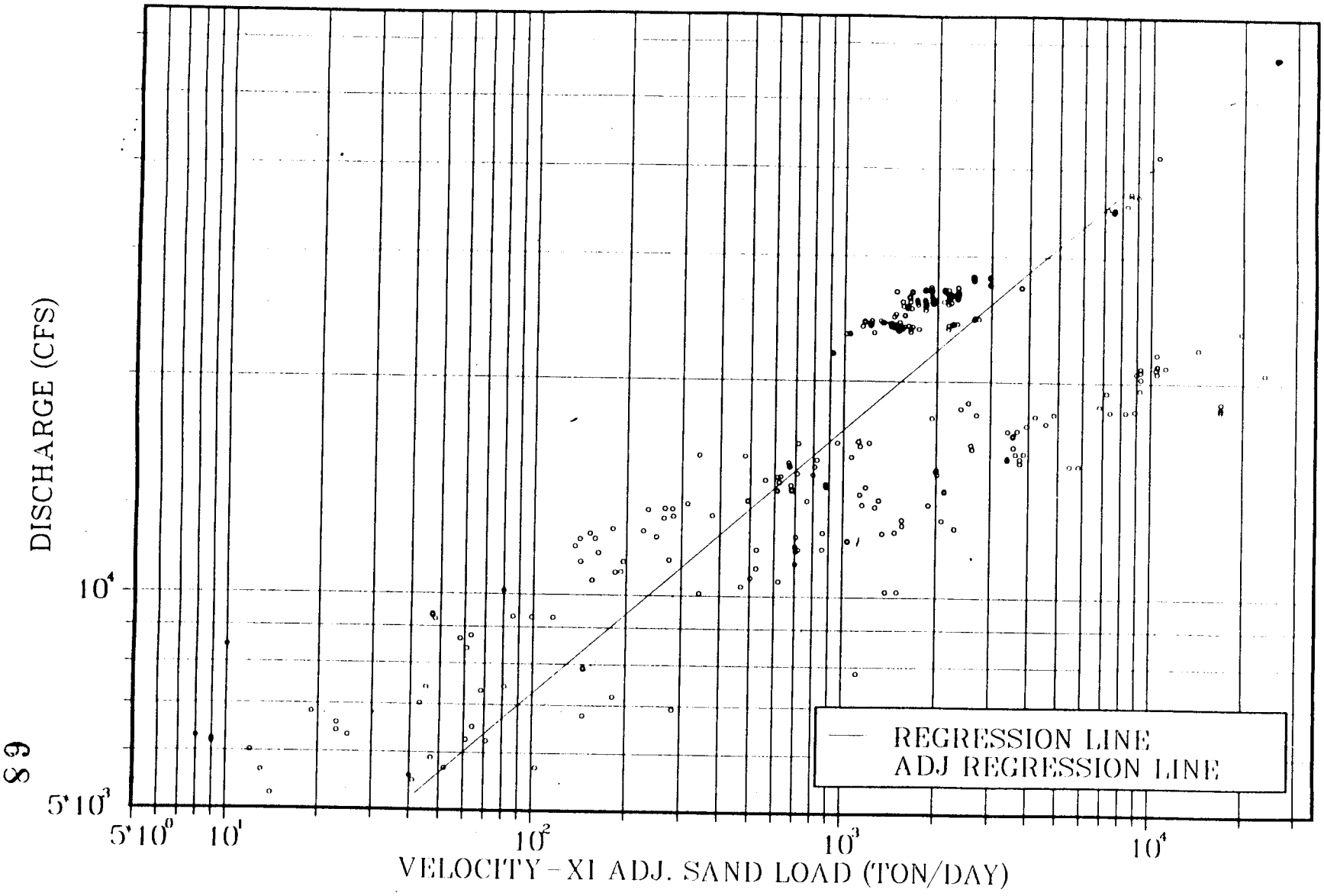

COLORADO RIVER ABOVE LITTLE COLORADO RIVER
DISCHARGE (CFS)
10^4
$5*10^3$
$5*10^0$
10^1
10^2
10^3
10^4
VELOCITY - XI ADJ. SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 46

COLORADO RIVER ABOVE LITTLE COLORADO RIVER

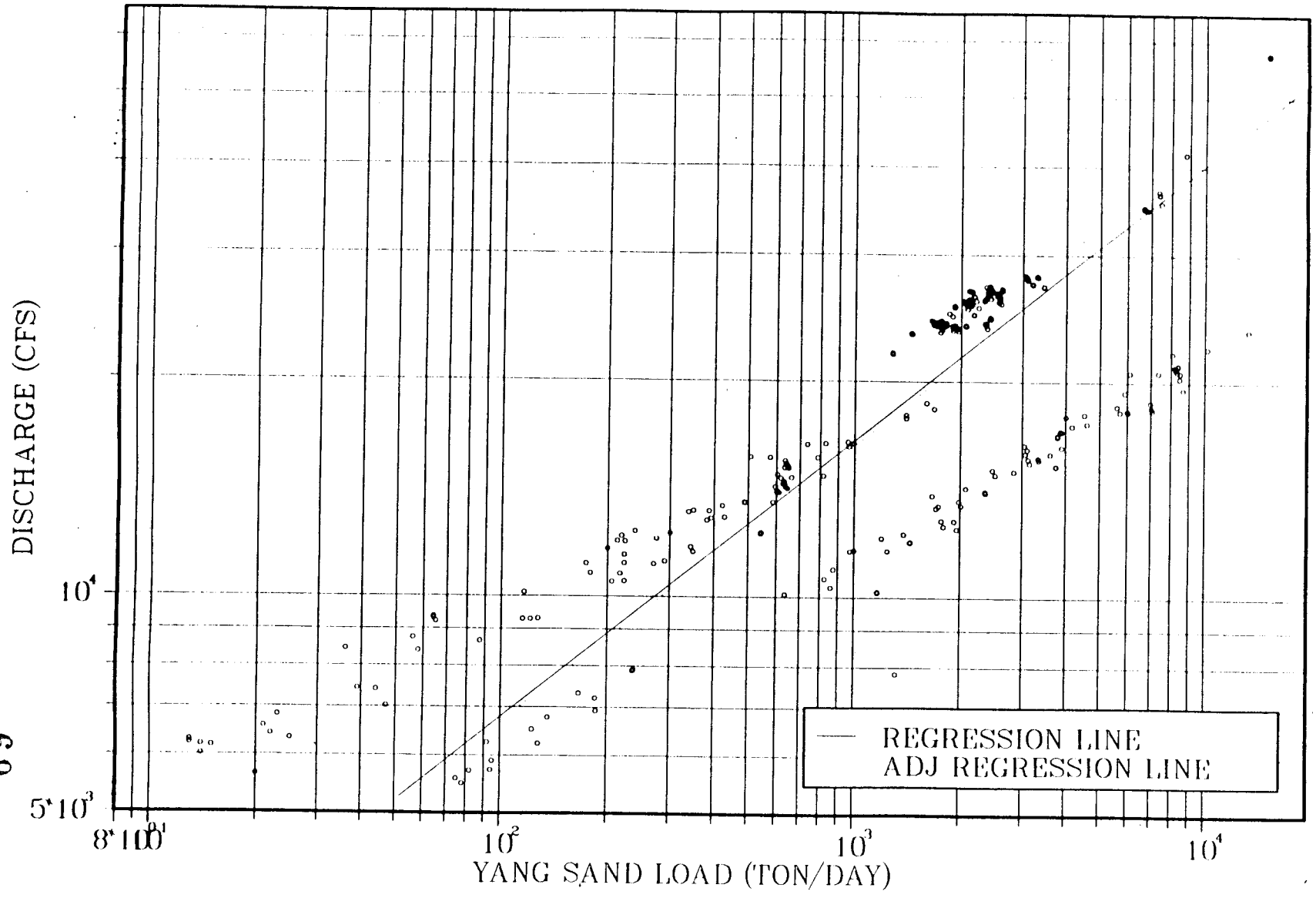


Figure 47

COLORADO RIVER NEAR GRAND CANYON

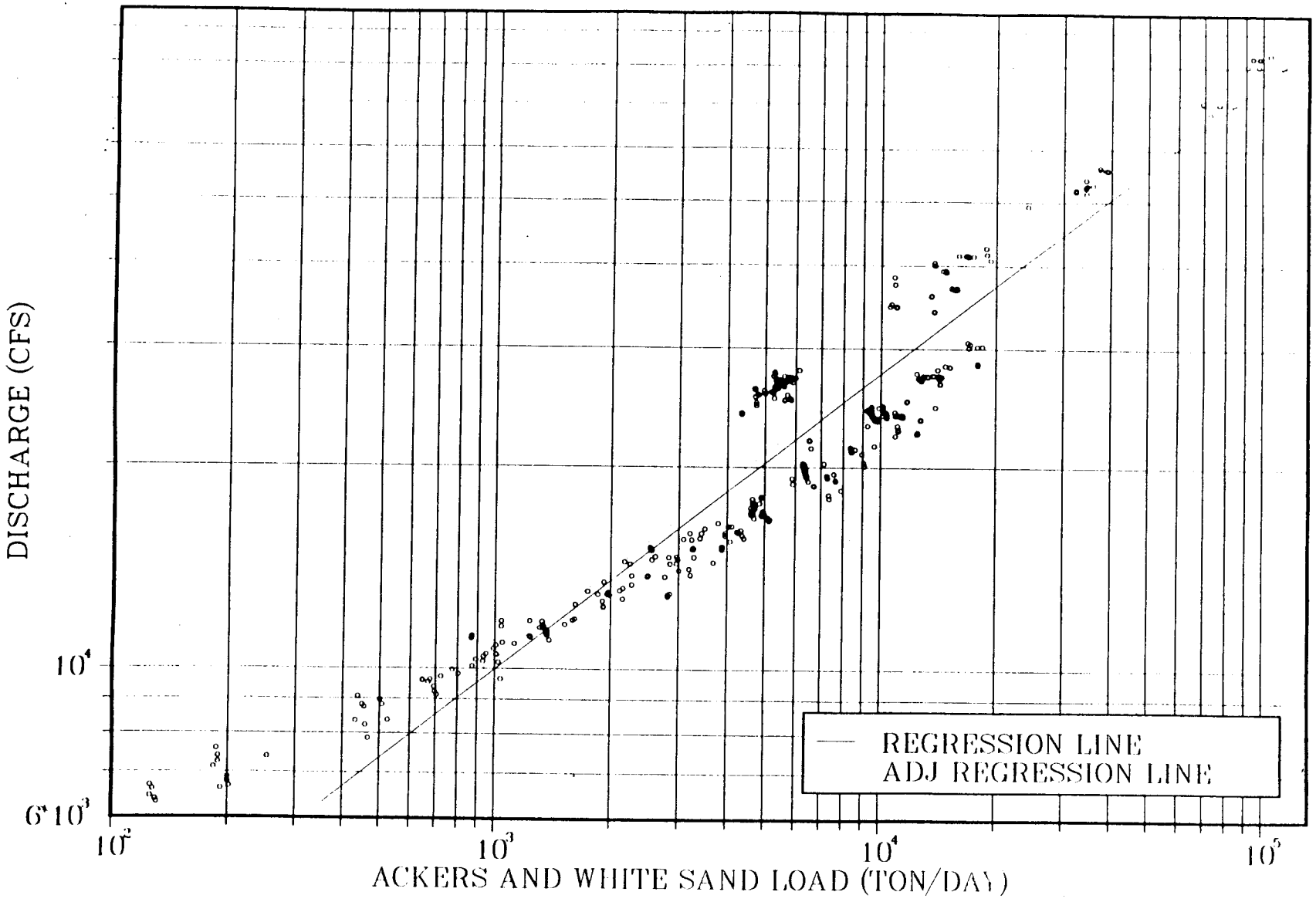


Figure 48

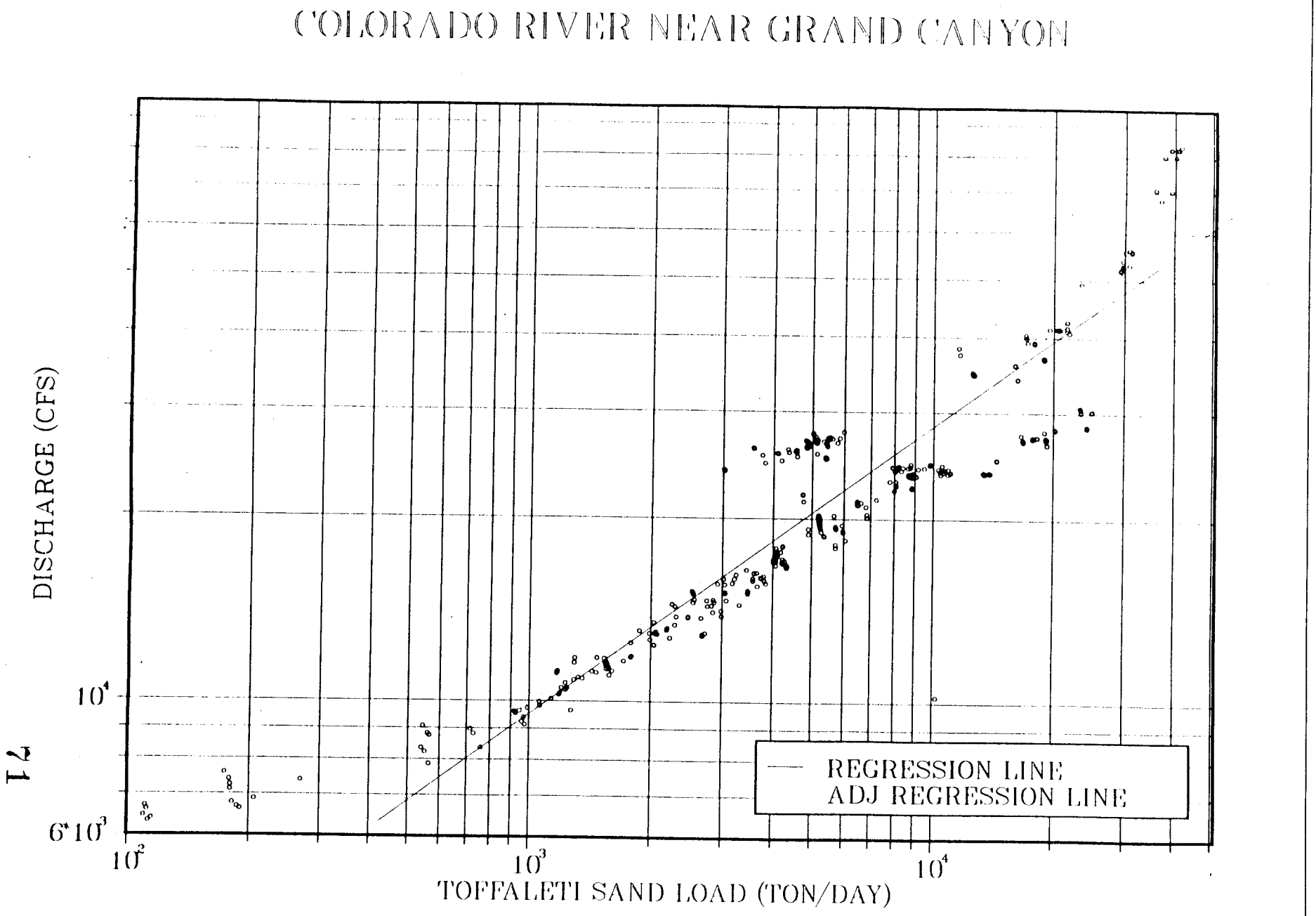

COLORADO RIVER NEAR GRAND CANYON
DISCHARGE (CFS)
10^4
$6*10^3$
10^2
10^3
10^4
TOFFALETI SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 49

COLORADO RIVER NEAR GRAND CANYON

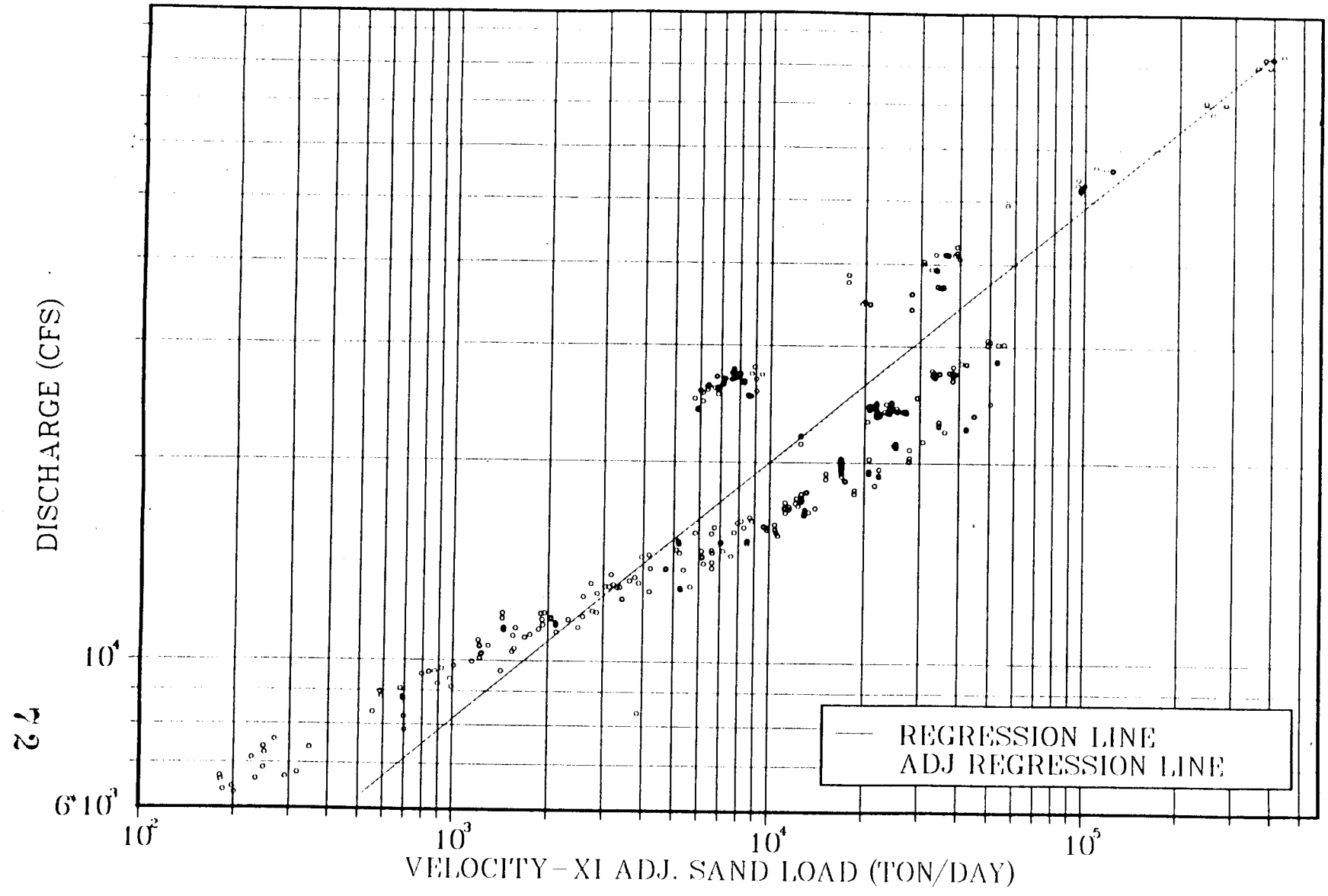


Figure 50

COLORADO RIVER NEAR GRAND CANYON

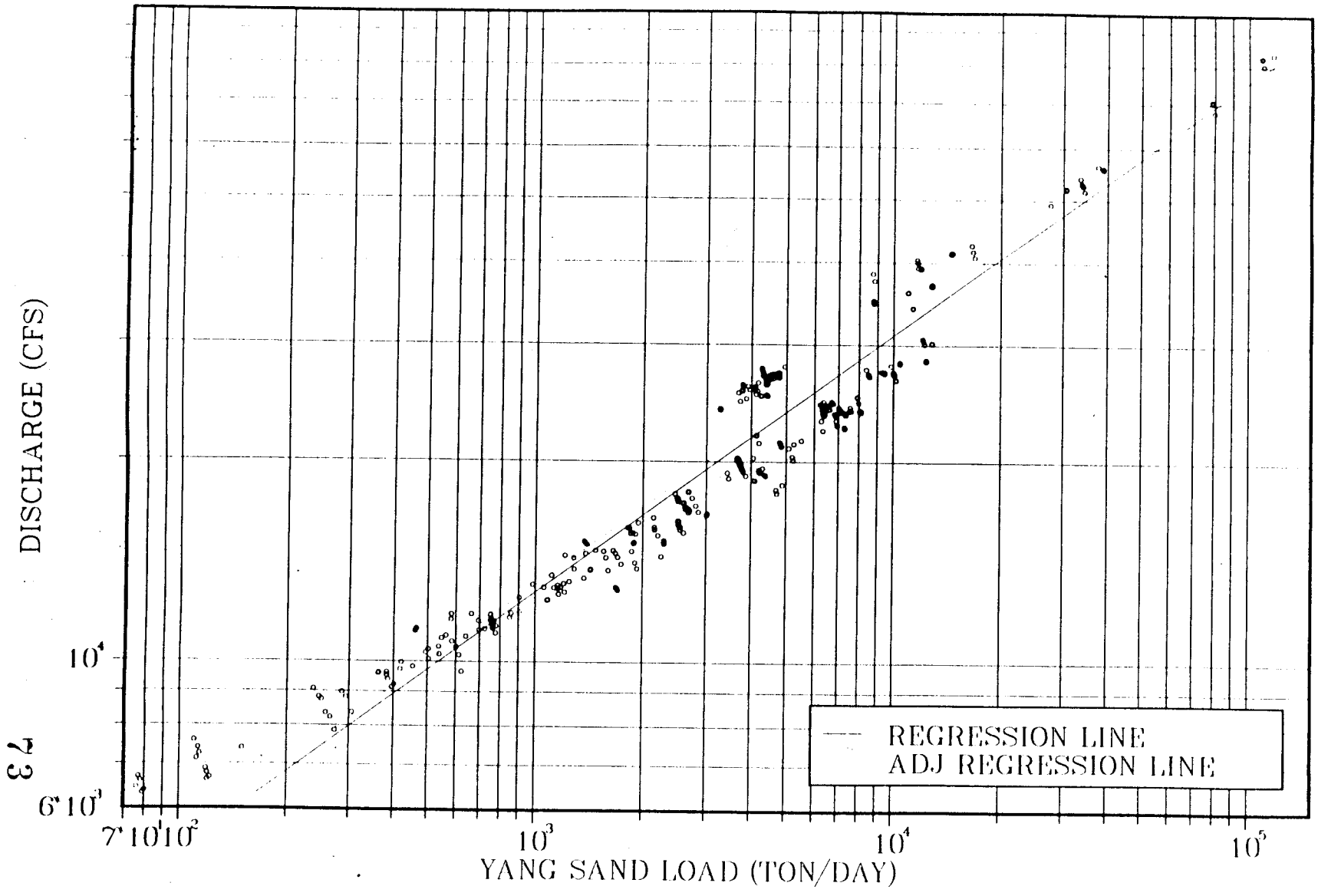


Figure 51

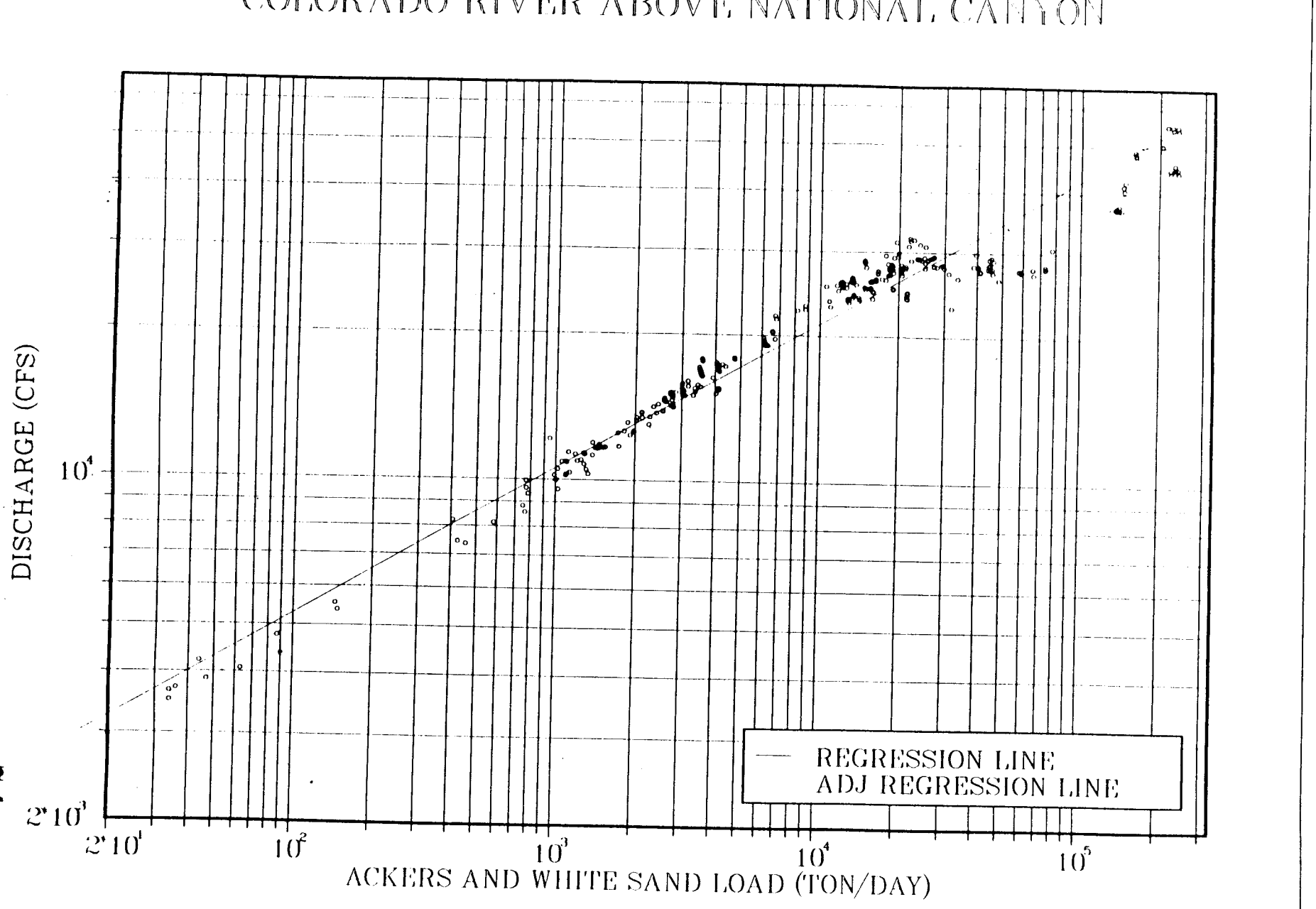

COLORADO RIVER ABOVE NATIONAL CANYON
DISCHARGE (CFS)
10^4
$2*10^3$
$2*10^1$
10^2
10^3
10^4
10^5
ACKERS AND WHITE SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 52

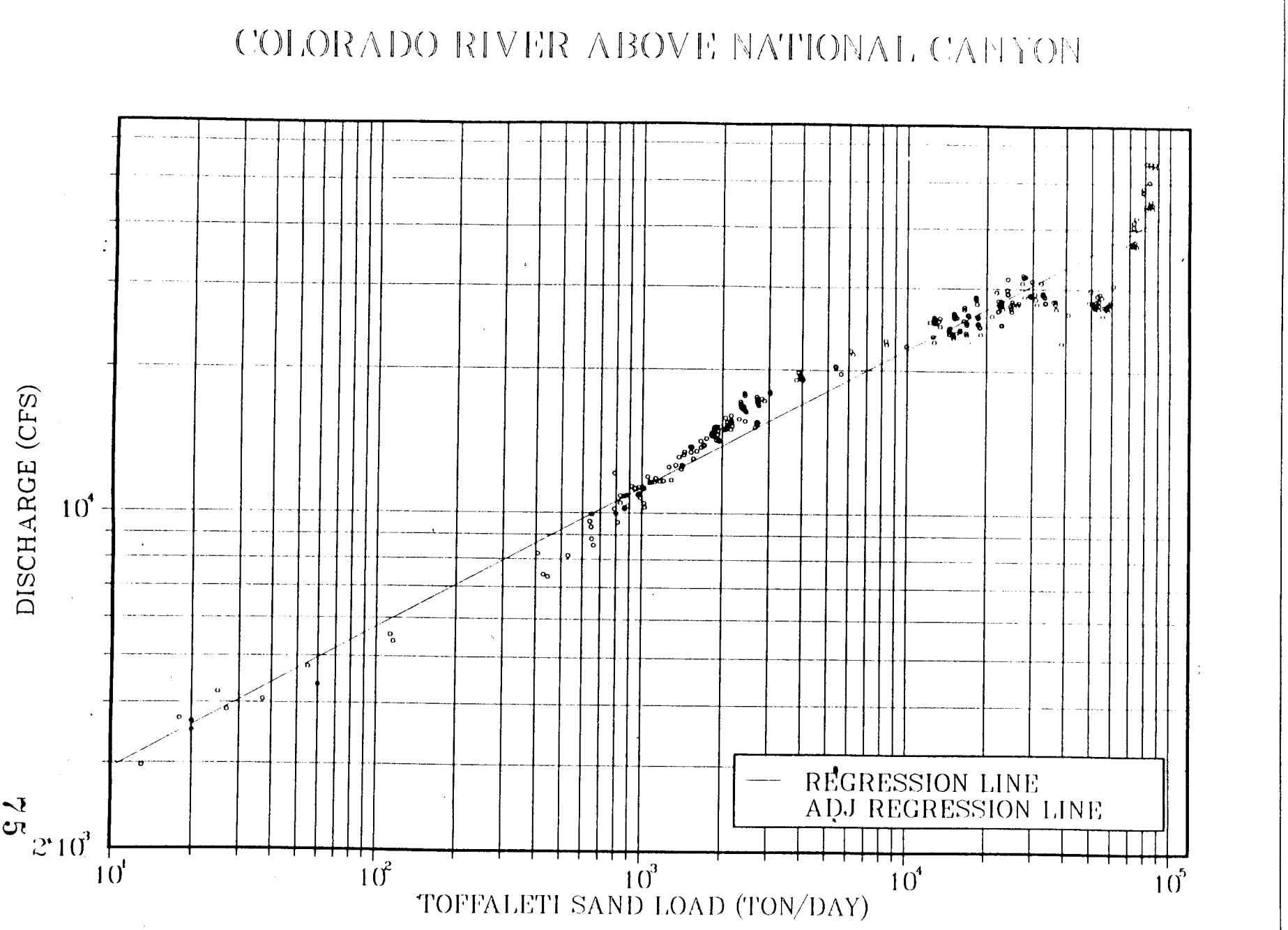

COLORADO RIVER ABOVE NATIONAL CANYON
DISCHARGE (CFS)
10^4
2×10^3
10^1
10^2
10^3
10^4
10^5
TOFFALETI SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 53

COLORADO RIVER ABOVE NATIONAL CANYON

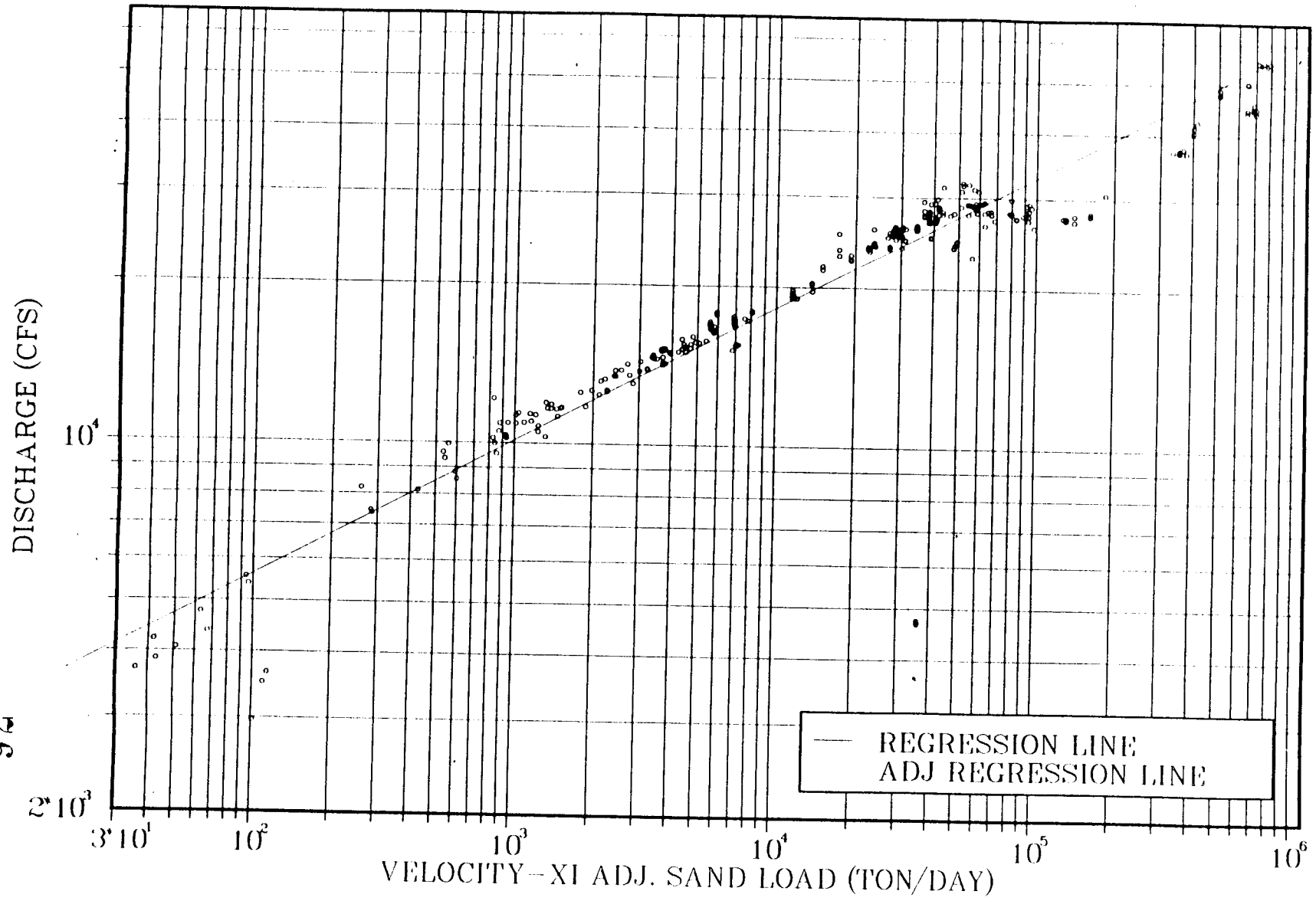


Figure 54

COLORADO RIVER ABOVE NATIONAL CANYON

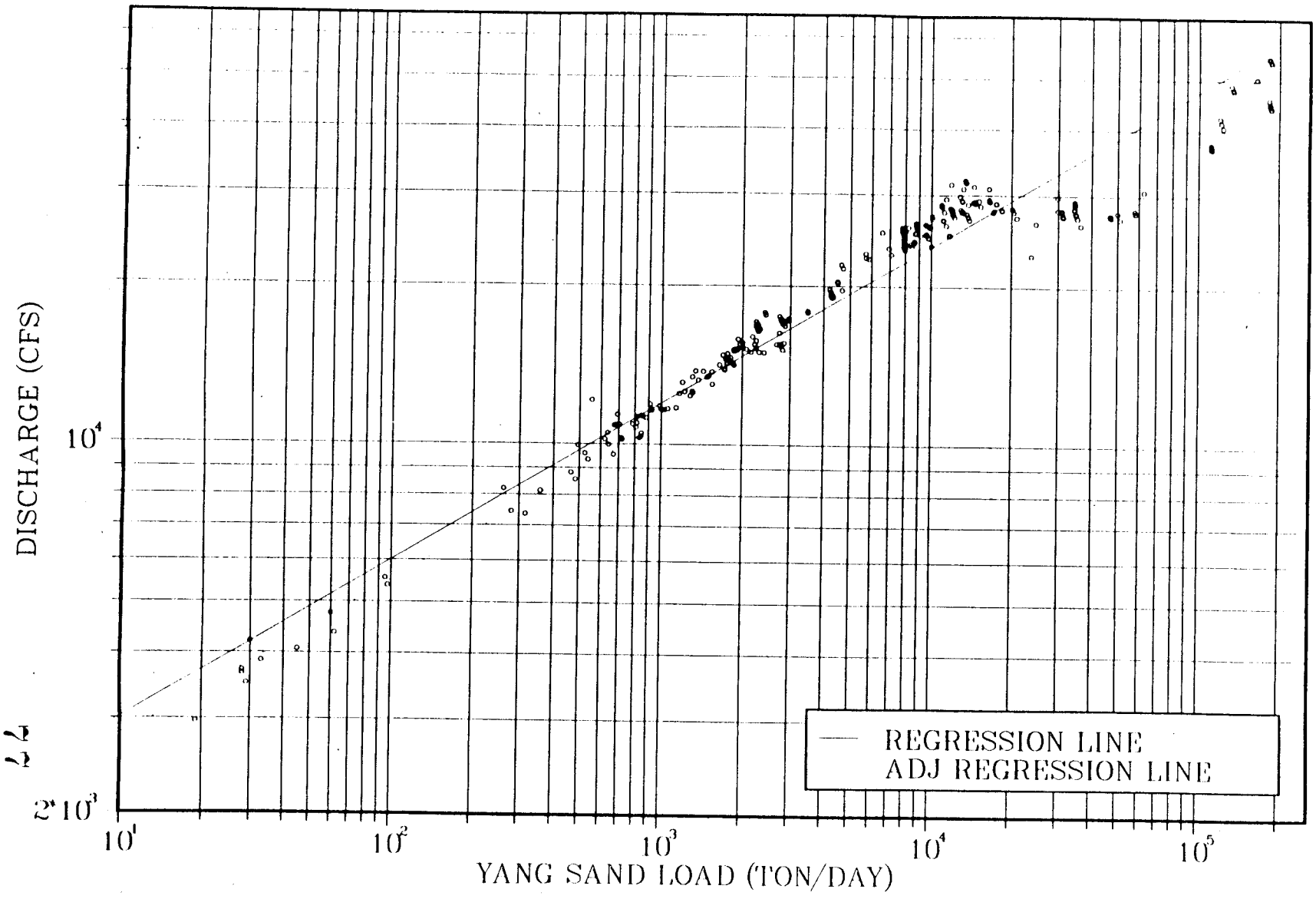


Figure 55

COLORADO RIVER ABOVE DIAMOND CREEK

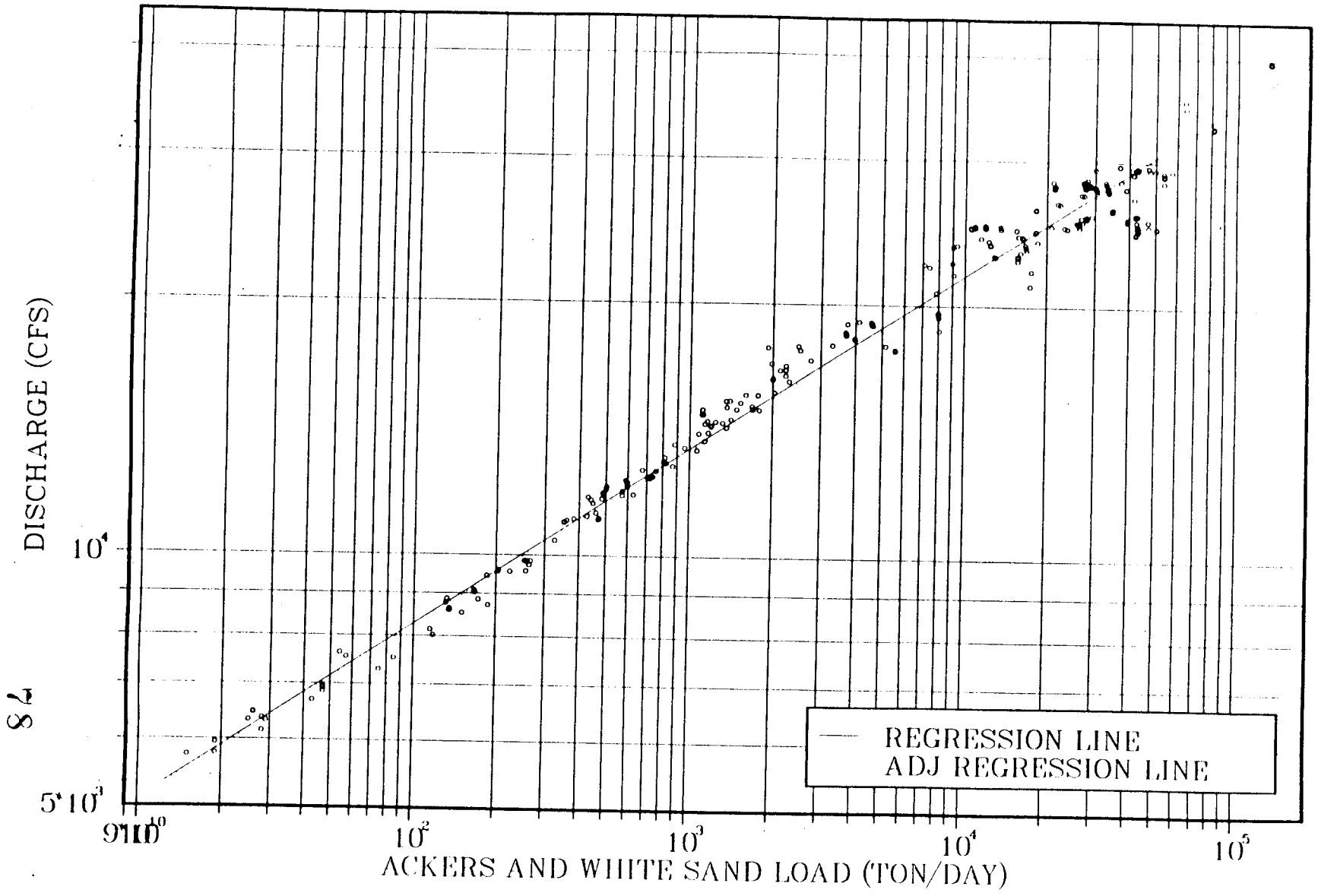


Figure 56

COLORADO RIVER ABOVE DIAMOND CREEK

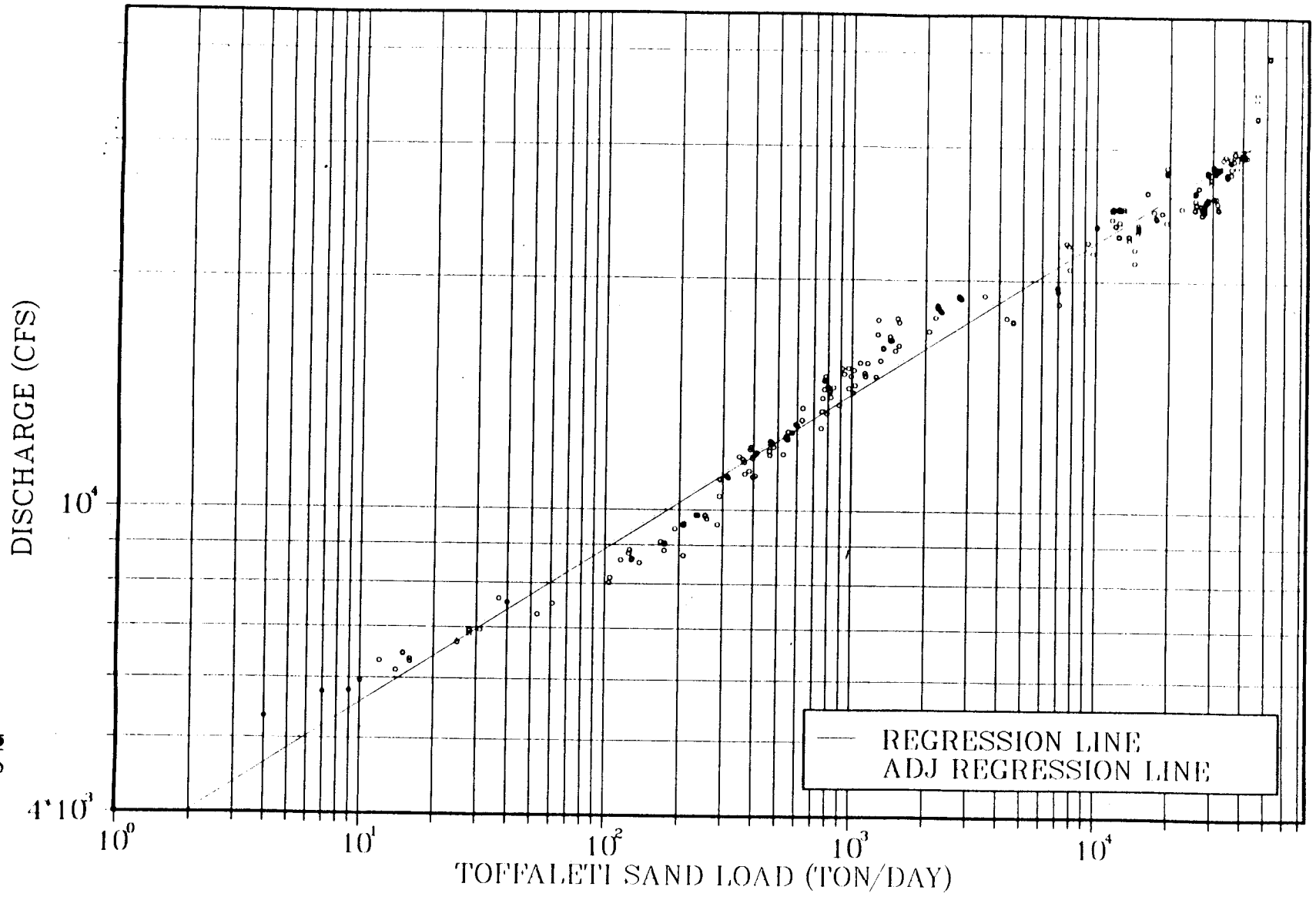


Figure 57

COLORADO RIVER ABOVE DIAMOND CREEK

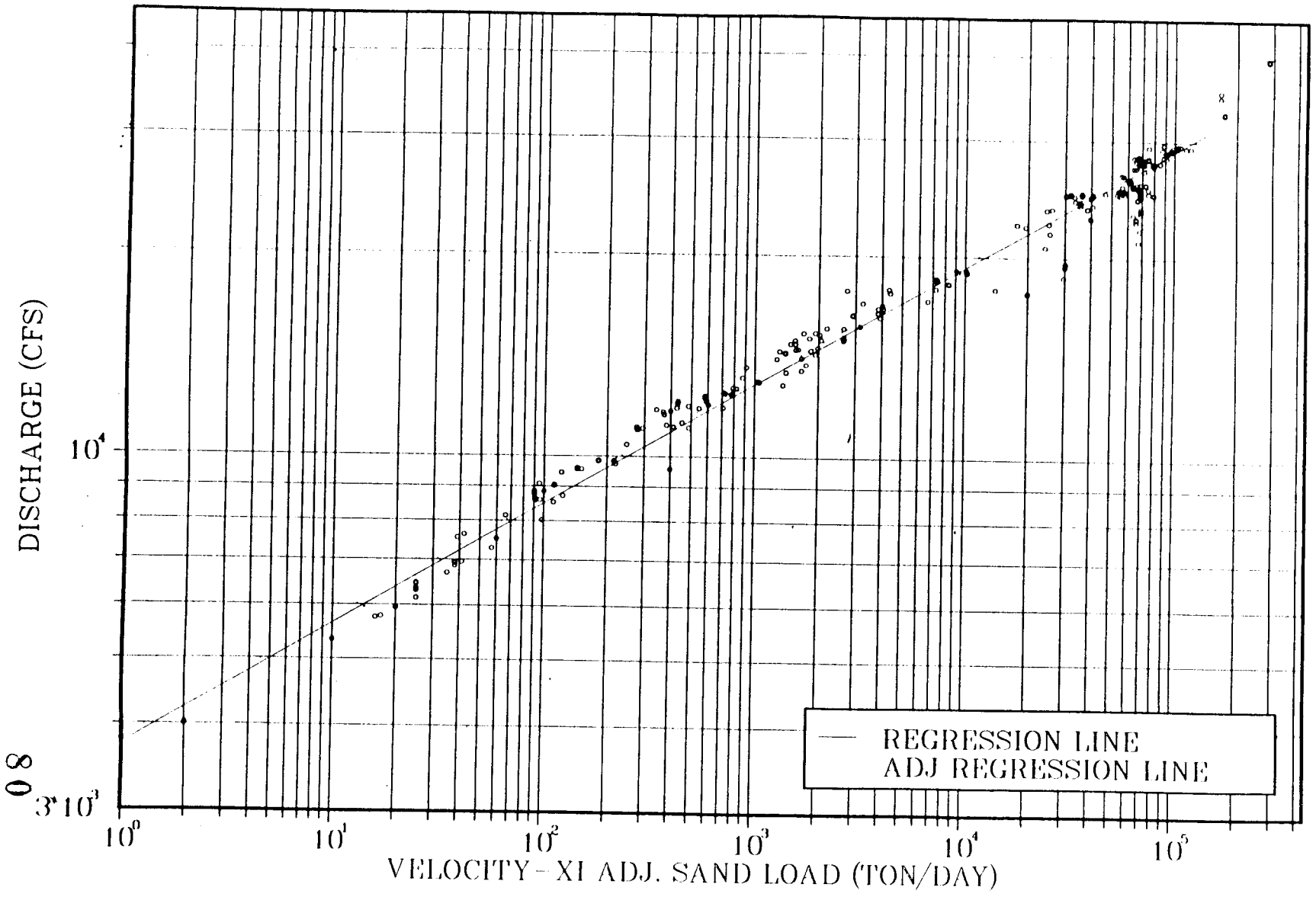


Figure 58

COLORADO RIVER ABOVE DIAMOND CREEK

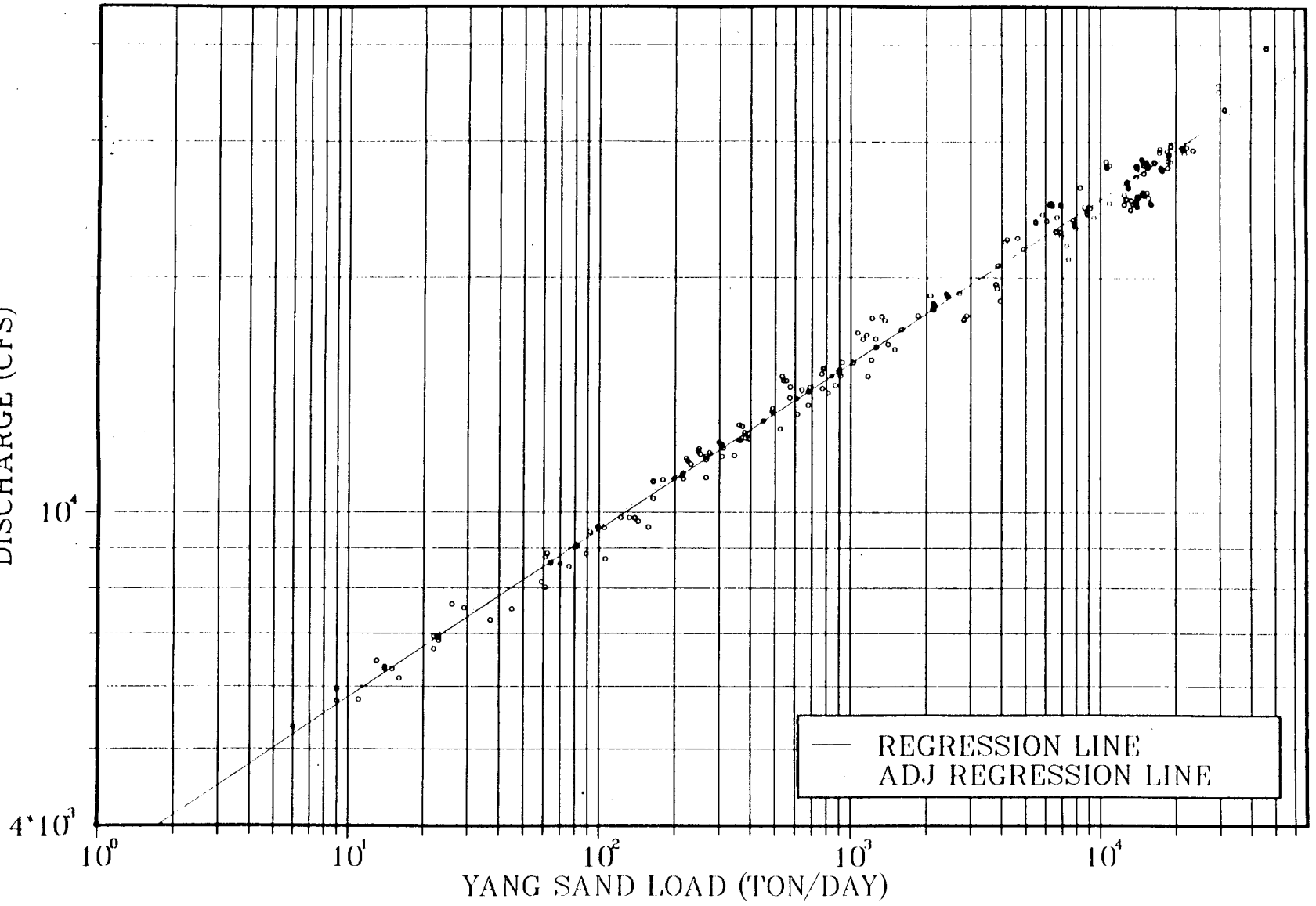


Figure 59

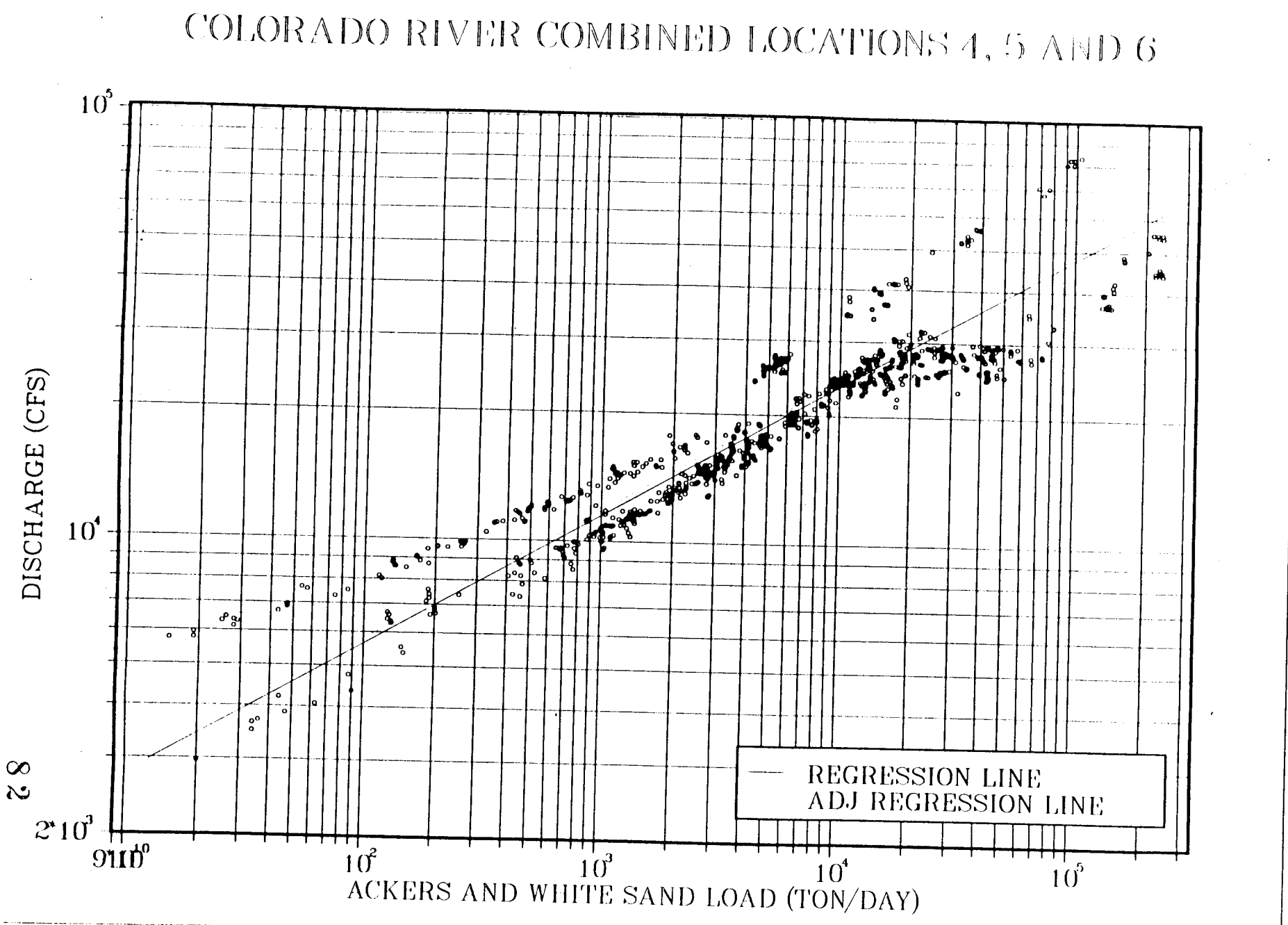

COLORADO RIVER COMBINED LOCATIONS 4, 5 AND 6
DISCHARGE (CFS)
10^5
10^4
$2*10^3$
10^0
10^2
10^3
10^4
10^5
ACKERS AND WHITE SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 60

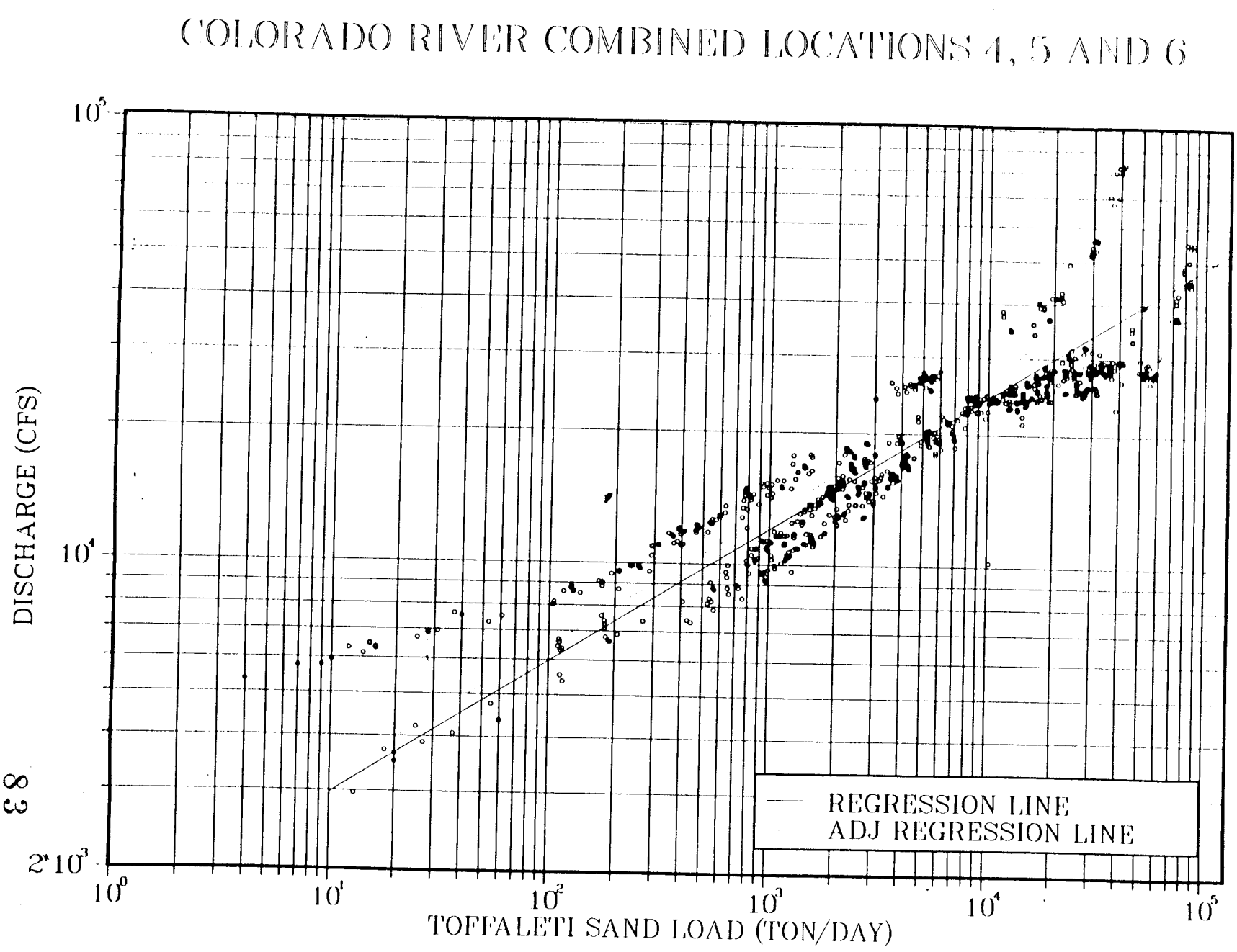

COLORADO RIVER COMBINED LOCATIONS 4, 5 AND 6
DISCHARGE (CFS)
10^5
10^4
$2*10^3$
10^0
10^1
10^2
10^3
10^4
10^5
TOFFALETI SAND LOAD (TON/DAY)
REGRESSION LINE
ADJ REGRESSION LINE

Figure 61

COLORADO RIVER COMBINED LOCATIONS 4, 5 AND 6

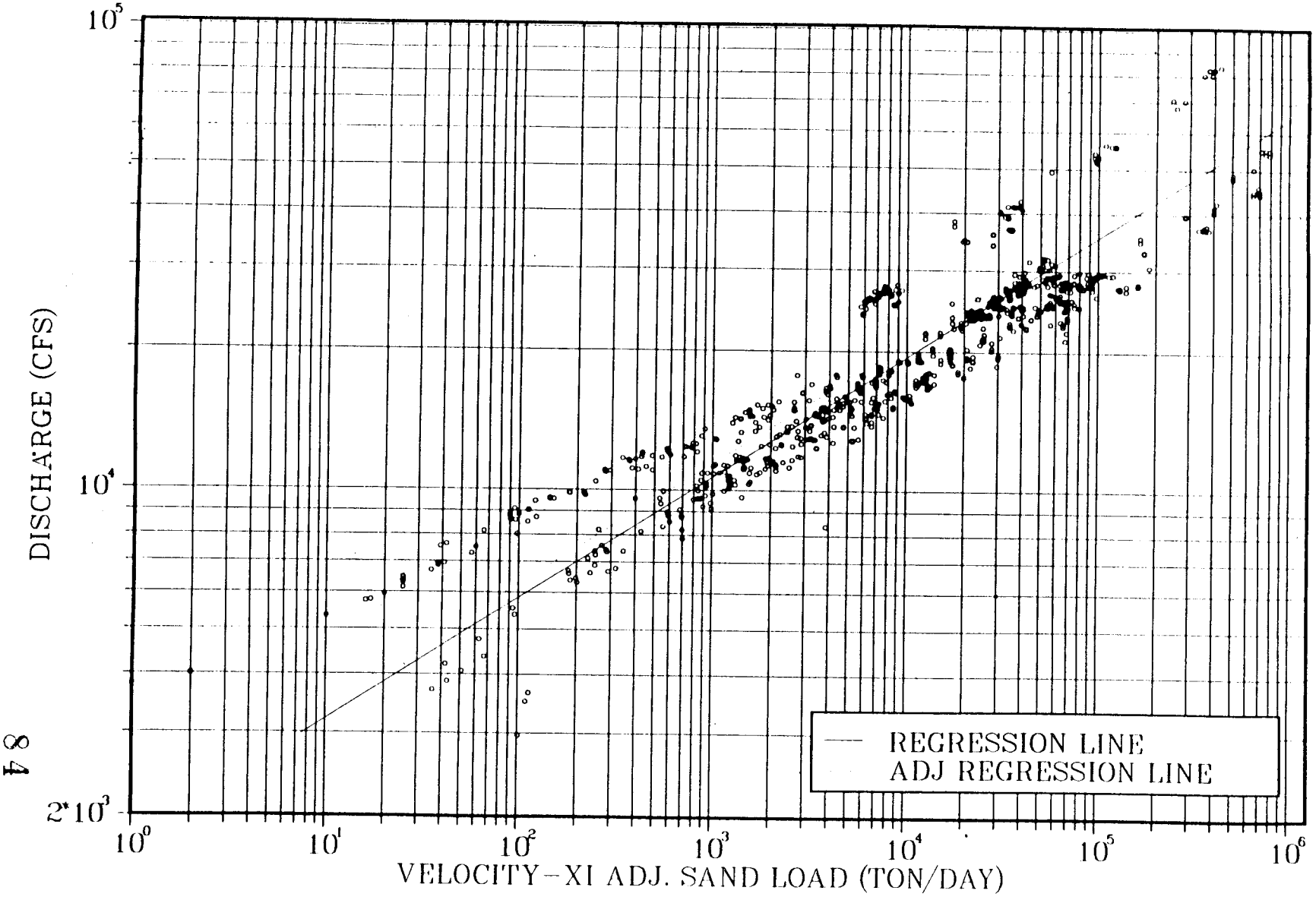


Figure 62

COLORADO RIVER COMBINED LOCATIONS 4, 5 AND 6

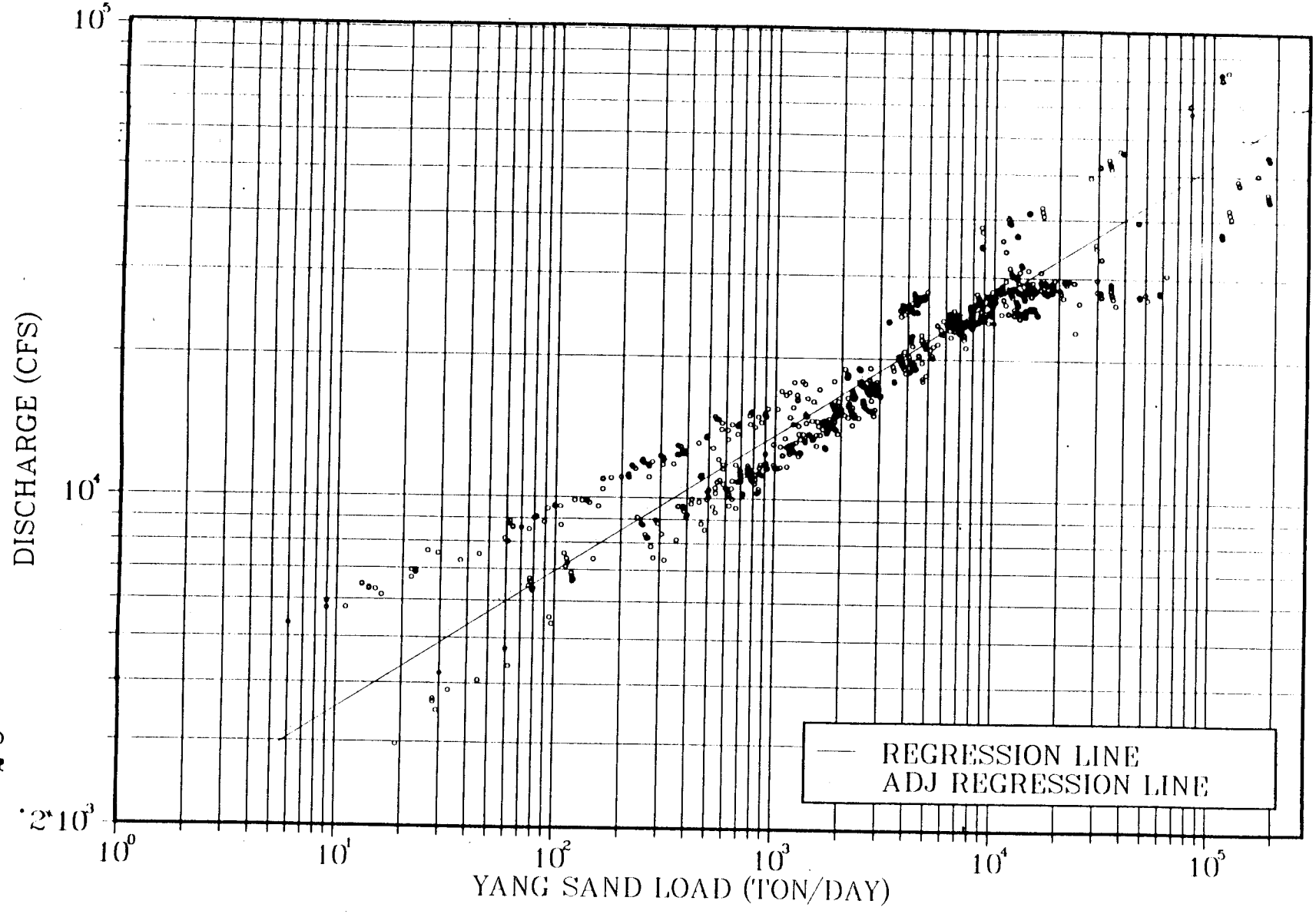
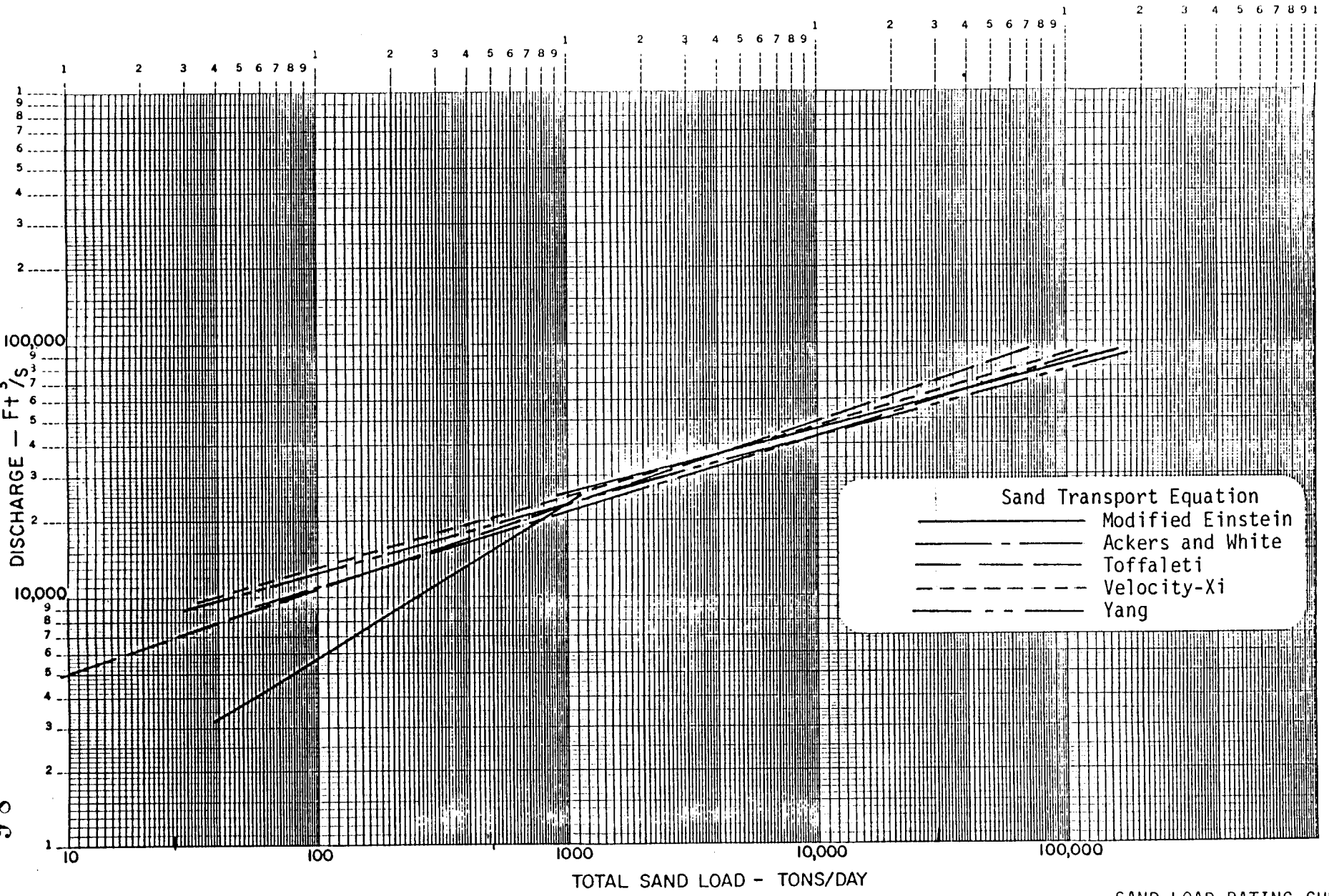


Figure 63

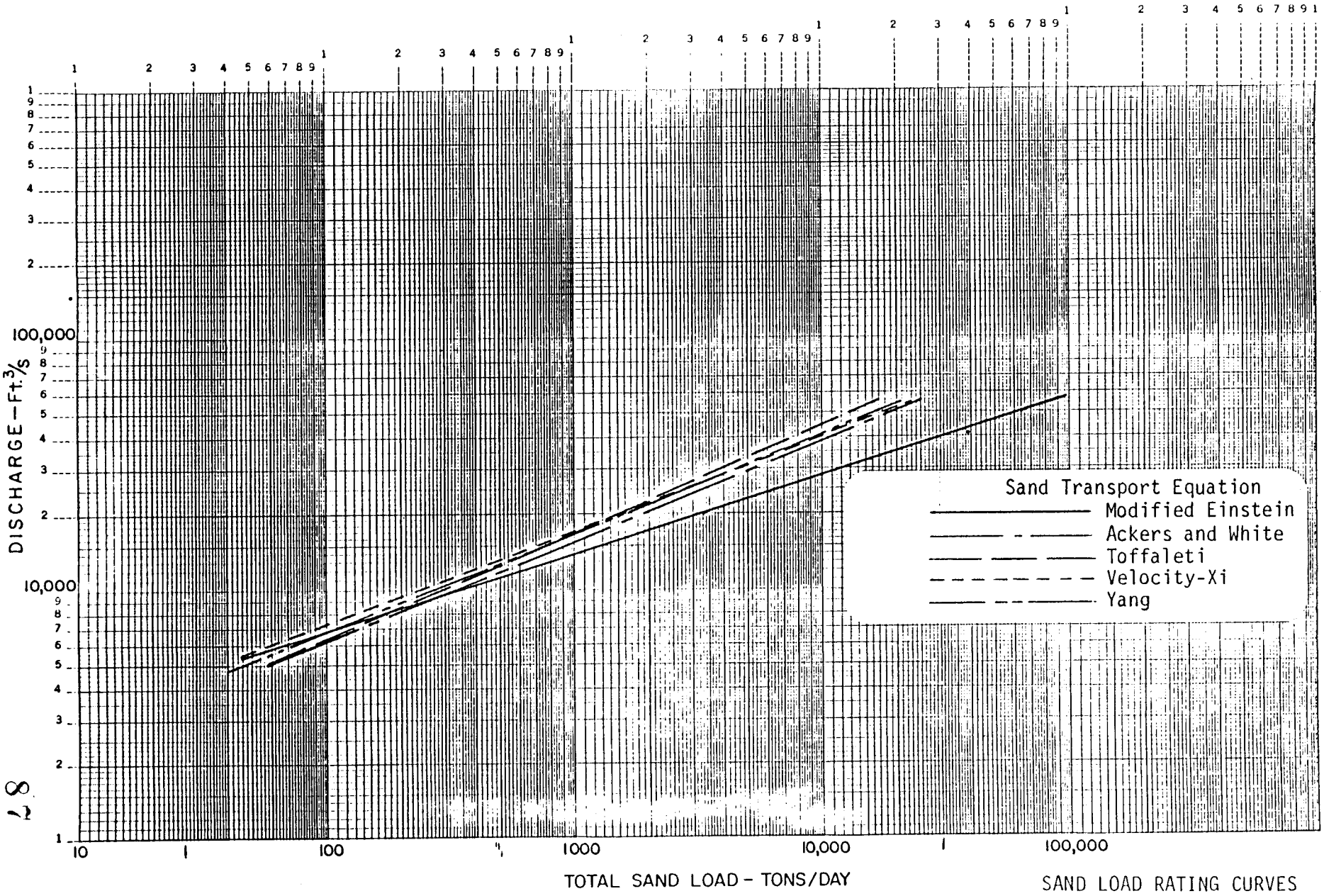
LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO MADE IN U.S.A.



SAND LOAD RATING CURVES
Colorado River at Lees Ferry

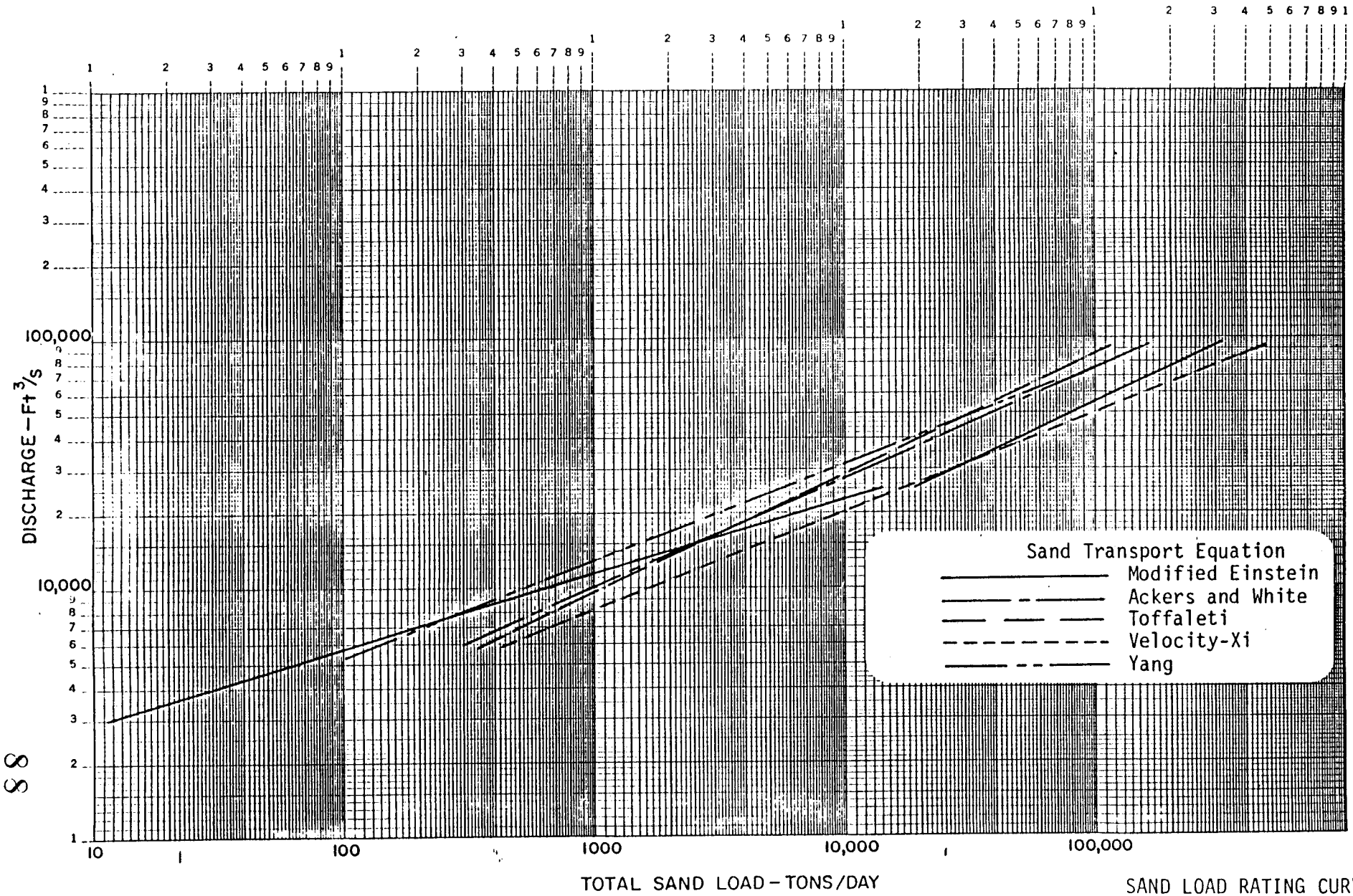
FIGURE 64

K&E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.



SAND LOAD RATING CURVES
Colorado River above Little Colorado River

FIGURE 65

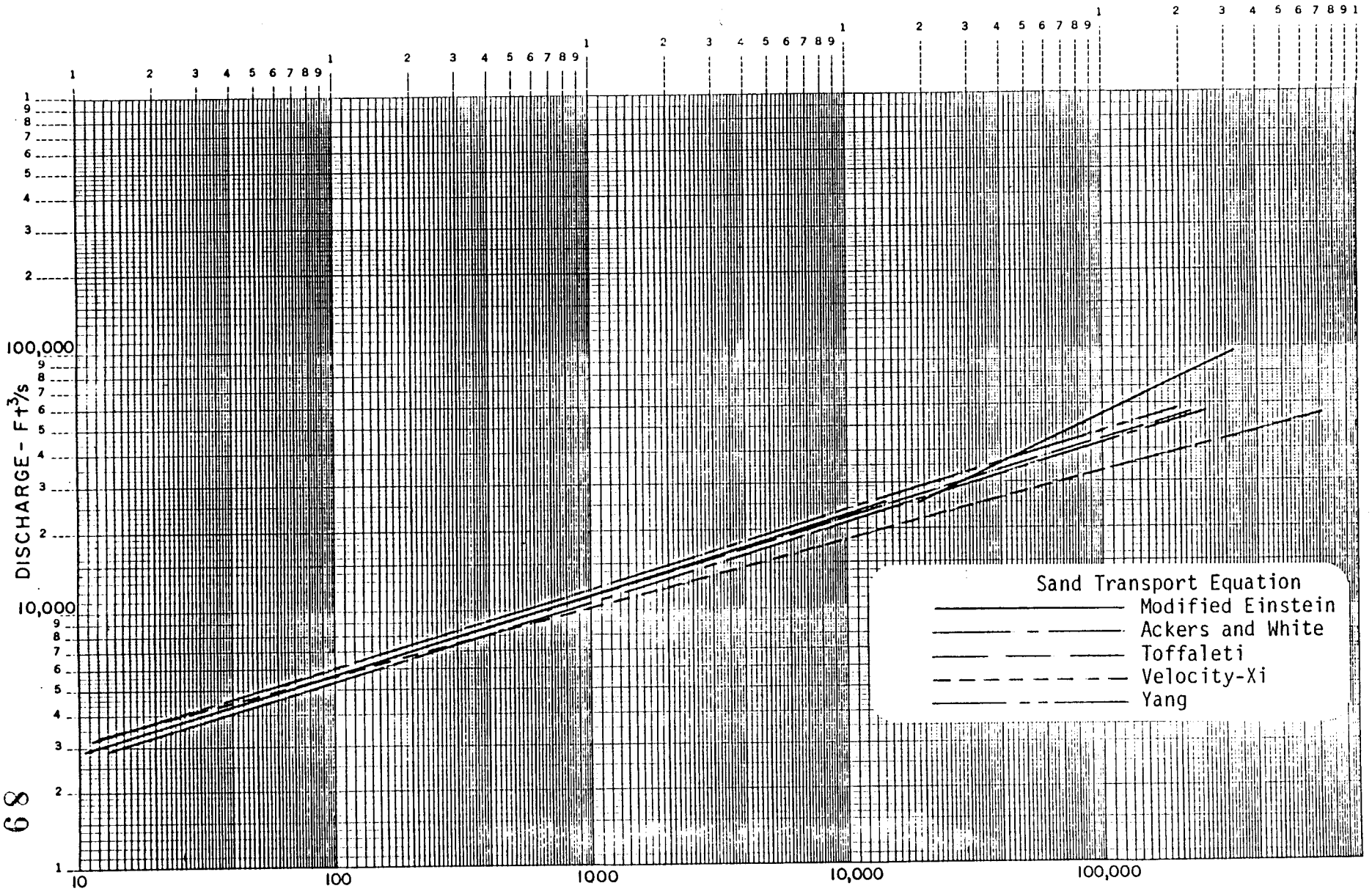


SAND LOAD RATING CURVES
Colorado River near Grand Canyon

FIGURE 66

K&E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

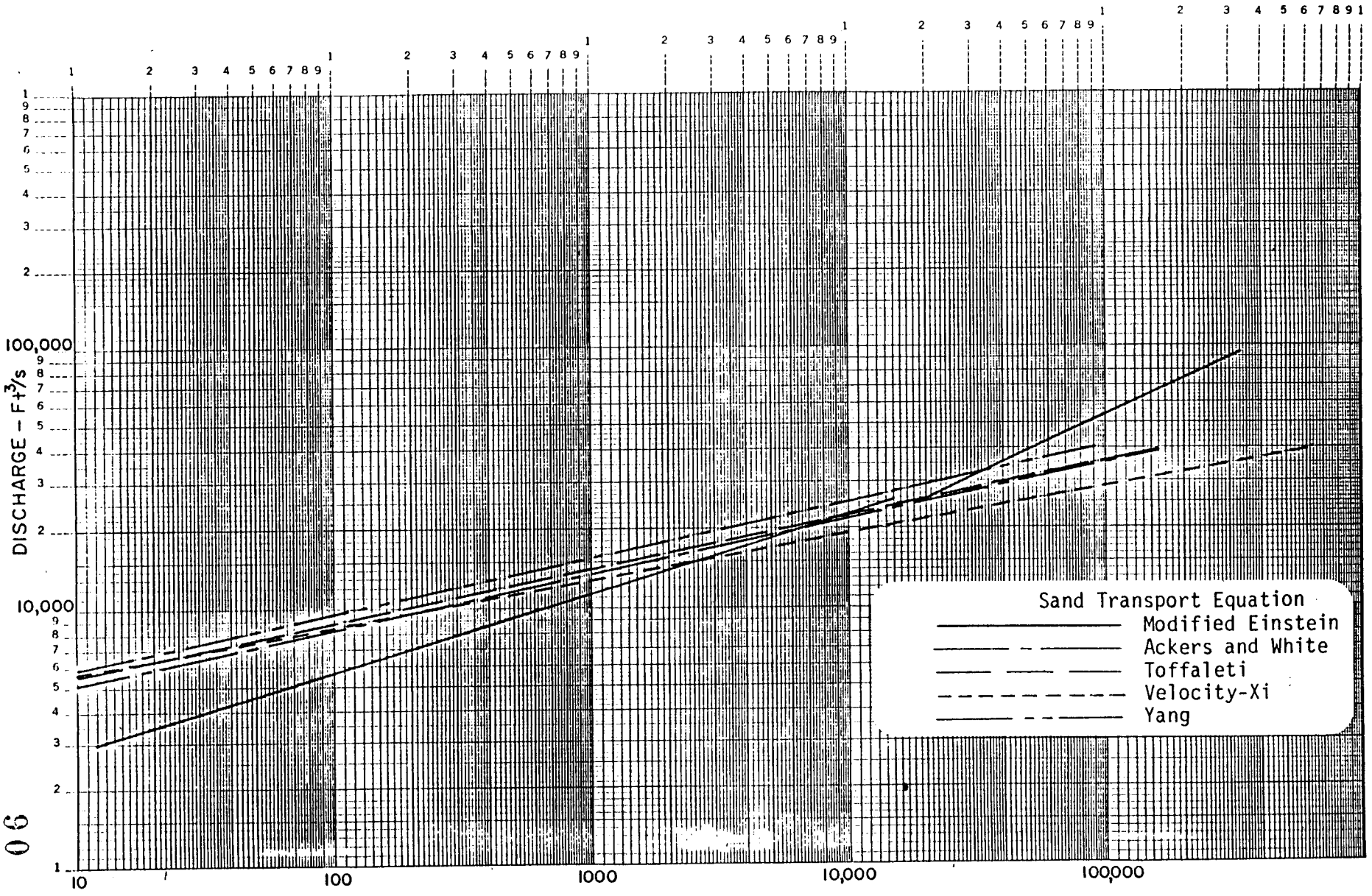
46 7522



SAND LOAD RATING CURVES
Colorado River above National Canyon

FIGURE 67

LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

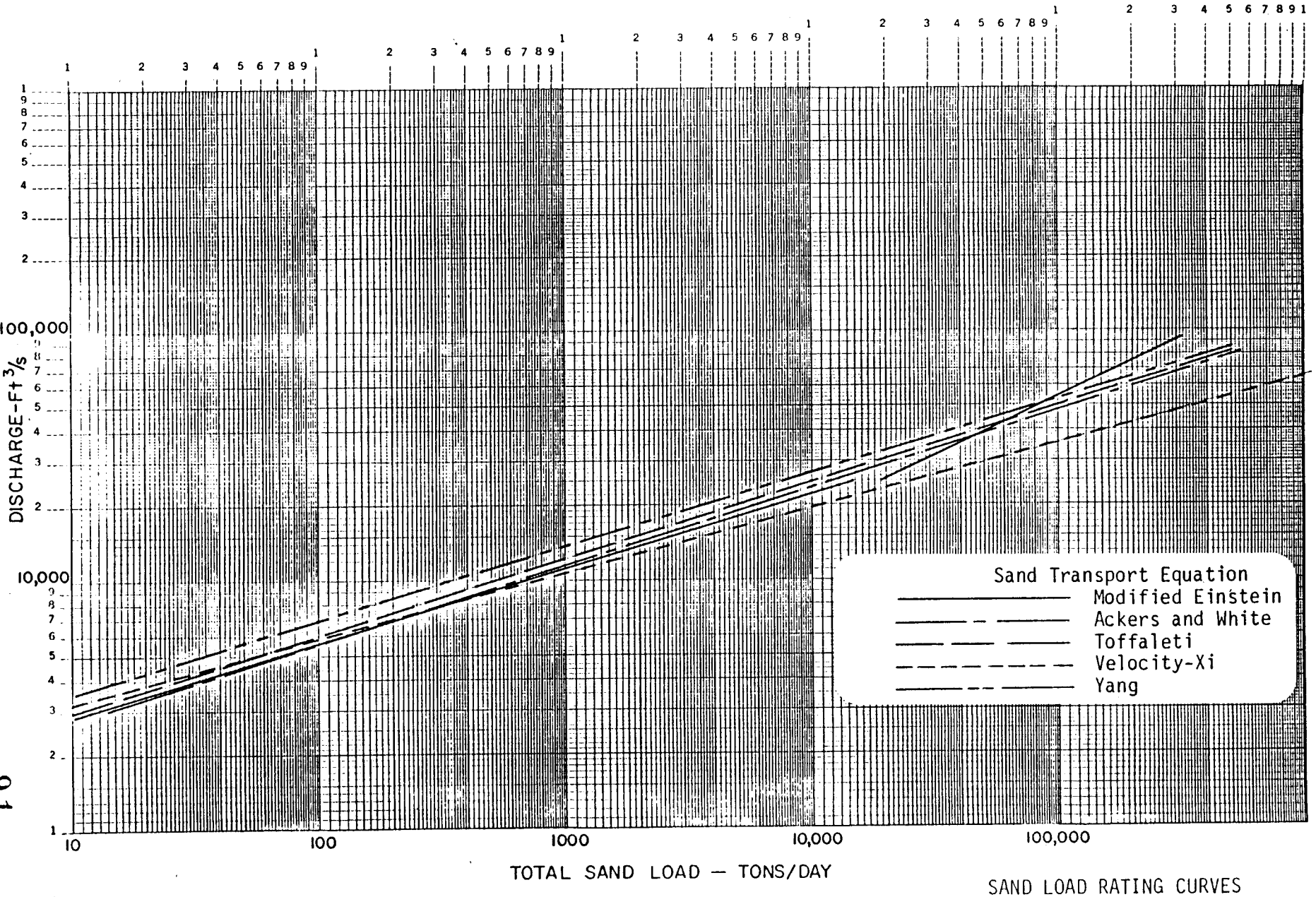


SAND LOAD RATING CURVES
Colorado River above Diamond Creek

FIGURE 68

06

K&E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.



SAND LOAD RATING CURVES
Colorado River combined - near Grand Canyon
above National Canyon
above Diamond Creek

FIGURE 69

Table 1

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

Footnote:

1: Colorado River At Lees Ferry
2: Paria River At Lees Ferry
3: Colorado River Above Little Colorado River
4: Colorado River Near Grand Canyon
5: Colorado River Above National Canyon
6: Colorado River Above Diamond Creek
7: Little Colorado River at Cameron
8: Kanab Creek Near Fredonia
9: Little Colorado River Near Mouth

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
1	1	6/29/83	1500		27.80	14.0	372.	10.8	16.6	35.6	87.5	98.5	99.2	100.0
3	1	7/ 1/83	1055		29.90	13.0	903.	2.5	3.9	11.9	34.3	87.1	99.1	100.0
5	1	7/ 2/83	1520	17.22	23.70	14.0	214.	7.8	12.6	30.1	79.2	98.4	100.0	100.0
9	1	7/ 3/83	1150	17.16	25.00	13.0	431.	25.9	29.6	43.3	86.3	97.7	99.2	100.0
7	1	7/ 3/83	1600	17.18	26.00	13.0	292.	8.9	13.7	32.8	83.5	97.1	99.0	100.0
10	1	7/ 4/83	1705	17.14	25.80	13.5	360.	21.5	24.1	36.3	72.8	92.3	97.5	100.0
13	1	7/ 5/83	1015	17.21	28.30	13.5	243.	8.1	12.3	29.1	69.9	92.4	99.5	100.0
12	1	7/ 5/83	1515	17.04	25.70	13.3	305.	10.2	13.7	31.0	80.5	97.9	99.7	100.0
17	1	7/ 6/83	1045	16.70	26.40	13.0	205.	16.6	21.3	38.5	80.1	96.1	99.2	100.0
16	1	7/ 6/83	1605	16.34	26.50	13.5	160.	10.5	15.1	34.0	80.1	98.7	99.6	100.0
20	1	7/ 7/83	1035	16.18	25.30	13.0	217.	5.5	9.9	28.4	59.0	78.1	96.6	100.0
23	1	7/ 9/83	1710	14.55	24.90	11.0	435.	6.6	10.9	31.9	49.1	66.0	87.5	100.0
26	1	7/10/83	1100	14.51	24.70	10.0	99.	12.0	31.0	69.3	95.5	98.7	100.0	100.0
27	1	7/10/83	1515	14.53	25.10	11.0	56.	14.6	23.5	55.1	95.5	100.0	100.0	100.0
30	1	7/11/83	1030	14.54	23.30	10.0	53.	15.5	23.0	55.2	93.4	99.6	100.0	100.0
31	1	7/11/83	1420	14.70	25.20	10.0	54.	12.8	12.8	20.1	45.2	89.1	100.0	100.0
35	1	7/12/83	820	14.86	25.10	10.0	47.	13.0	20.9	52.3	93.9	100.0	100.0	100.0
36	1	7/12/83	1345	14.84	25.60	12.0	168.	8.4	22.4	73.1	95.3	97.6	99.8	100.0
41	1	7/13/83	830	14.89	25.30	11.0	112.	16.6	28.5	70.1	96.0	99.3	99.8	100.0
40	1	7/13/83	1350	14.92	25.30	11.0	36.	8.9	10.5	43.2	87.3	100.0	100.0	100.0
43	1	7/14/83	1150	14.92	25.40	11.0	924.	.5	.9	3.1	27.1	95.7	100.0	100.0
45	1	7/14/83	1525	14.92	25.50	12.0	164.	17.6	32.4	67.8	94.4	98.6	99.7	100.0
48	1	7/15/83	815	14.93	26.00	11.0	280.	4.1	5.4	11.5	60.3	99.6	100.0	100.0
50	1	7/15/83	1720	14.96	25.70	11.5	135.	5.1	25.6	70.8	96.2	99.6	100.0	100.0
53	1	7/16/83	815	14.95	26.20	11.0	185.	14.6	26.7	66.1	91.9	98.2	99.5	100.0
59	1	7/17/83	930	14.92	25.60	10.5	228.	1.5	4.5	12.3	37.9	84.6	97.5	100.0
57	1	7/17/83	1320	14.71	24.70		149.	2.7	7.4	43.0	73.3	76.9	99.2	100.0
63	1	7/18/83	855	14.49	24.90	10.0	254.	18.3	40.4	78.9	96.6	98.2	99.6	100.0
69	1	7/19/83	1150	14.37	24.50	10.0	130.	10.0	13.1	42.5	93.3	100.0	100.0	100.0
266	1	7/21/83	930	13.36	24.40		34.	21.1	32.4	55.3	85.8	100.0	100.0	100.0
70	1	7/21/83	1500	13.38	24.30	11.0	20.	5.1	16.8	43.2	78.1	100.0	100.0	100.0
73	1	7/22/83	1530	13.38	23.40		26.	5.1	13.6	35.0	89.3	98.6	100.0	100.0
75	1	7/23/83	930	13.31	23.10	11.0	16.	22.4	34.3	59.3	96.8	100.0	100.0	100.0
81	1	7/24/83	830	13.66	23.80	10.0	20.	18.2	29.2	55.0	93.3	100.0	100.0	100.0
82	1	7/24/83	945	13.67	24.40	10.0	14.	26.8	34.9	52.4	96.1	100.0	100.0	100.0
80	1	7/24/83	1230	13.67	23.40		67.	54.0	57.1	66.3	95.4	100.0	100.0	100.0
85	1	7/25/83	100	13.87	23.90	10.0	62.	5.8	16.0	29.0	68.3	94.2	100.0	100.0
86	1	7/25/83	1530	13.70	23.40	10.0	97.	14.9	19.2	28.7	59.1	87.2	97.8	100.0
93	1	7/26/83	845	13.67	23.60	10.0	26.	19.3	29.0	54.9	95.7	100.0	100.0	100.0
92	1	7/26/83	1228	13.66	23.20	10.0	78.	14.4	26.1	56.3	83.1	88.4	94.5	100.0
97	1	7/27/83	1020	13.63	23.40	10.0	46.	20.0	25.3	41.8	88.9	100.0	100.0	100.0
101	1	7/28/83	800	13.30	22.50	10.0	44.	13.2	23.9	50.5	92.9	100.0	100.0	100.0
102	1	7/28/83	1600	13.44	24.00	11.5	21.	18.1	28.8	46.2	98.8	100.0	100.0	100.0
104	1	7/29/83	1800	13.49	23.00	13.0	688.	2.8	3.5	4.8	43.2	90.9	98.5	100.0
108	1	7/30/83	1000	13.47	23.00	12.0	124.	10.0	15.2	15.3	44.2	81.2	96.6	100.0
109	1	7/30/83	1500	13.49	23.40	13.0	24.	32.7	39.4	53.4	88.1	98.0	100.0	100.0
110	1	7/31/83	700	13.48	23.70	12.0	421.	2.2	2.9	4.5	41.0	96.4	99.9	100.0
111	1	8/ 1/83	1600	13.21	23.30	10.0	312.	8.2	10.8	21.7	44.6	79.5	97.1	100.0
113	1	8/ 2/83	1330	12.94	22.80	11.5	27.	28.6	43.4	62.1	88.2	96.5	100.0	100.0
116	1	8/ 3/83	900	12.92	22.10	10.0	80.	12.0	14.8	21.1	66.2	91.4	97.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
647	1	11/11/83	910	11.42	21.70	12.0	3.	48.5	64.8	82.4	94.4	100.0	100.0	100.0
648	1	11/12/83	930	11.43	21.50	12.0	2.	7.1	27.6	72.3	100.0	100.0	100.0	100.0
649	1	11/13/83	920	11.49	21.60	11.5	3.	21.5	44.1	73.1	96.1	100.0	100.0	100.0
650	1	11/14/83	1620	11.09	21.00	11.0	26.	14.7	25.8	82.6	98.6	100.0	100.0	100.0
651	1	11/15/83	915	11.38	21.50	11.0	16.	21.2	35.9	79.1	95.1	100.0	100.0	100.0
652	1	11/16/83	1100	11.46	21.50	11.5	47.	6.1	16.5	71.9	95.0	100.0	100.0	100.0
653	1	11/17/83	945	11.35	21.70	11.5	10.	27.9	44.8	87.0	98.9	100.0	100.0	100.0
654	1	11/18/83	1045	11.28	21.50	12.6	18.	40.3	51.8	81.2	95.5	100.0	100.0	100.0
655	1	11/18/83	1445	11.23	21.50	11.0	10.	32.1	49.3	85.7	99.1	100.0	100.0	100.0
686	1	11/19/83	1000	11.40	21.50	11.0	5.	52.1	69.1	90.6	100.0	100.0	100.0	100.0
656	1	11/20/83	1000	11.50	21.70	11.5	14.	21.0	35.6	81.5	95.8	100.0	100.0	100.0
657	1	11/21/83	915	11.47	21.70	10.5	36.	17.8	31.8	72.6	91.4	100.0	100.0	100.0
658	1	11/22/83	915	11.41	21.60	10.5	16.	21.0	39.4	74.7	90.7	100.0	100.0	100.0
659	1	11/22/83	1535	11.41	21.60	11.0	21.	12.0	17.1	26.4	53.0	84.5	100.0	100.0
660	1	11/23/83	925	11.41	21.70	11.0	5.	51.0	63.7	72.8	88.7	100.0	100.0	100.0
661	1	11/27/83	1530	11.43	22.20	11.0	12.	40.5	67.4	85.8	93.4	100.0	100.0	100.0
662	1	11/28/83	845	11.46	22.10	12.0	14.	51.9	72.3	90.9	96.8	100.0	100.0	100.0
663	1	11/29/83	930	11.46	22.20	12.0	103.	4.0	93.0	97.0	99.2	100.0	100.0	100.0
664	1	11/29/83	1500	11.41	22.00	12.5	10.	45.4	59.1	74.6	92.0	100.0	100.0	100.0
665	1	11/30/83	905	11.43	22.20	12.0	11.	22.8	32.9	63.2	87.5	100.0	100.0	100.0
666	1	11/30/83	940	11.44	22.10	12.0	51.	19.0	32.8	67.1	87.5	100.0	100.0	100.0
667	1	12/ 1/83	930	11.44	22.10	12.5	28.	17.6	27.4	39.7	79.3	100.0	100.0	100.0
668	1	12/ 2/83	1020	11.46	22.10	12.5	8.	32.3	46.5	64.6	79.1	100.0	100.0	100.0
669	1	12/ 2/83	1125	11.46	22.40	12.5	25.	12.0	25.3	74.0	96.6	100.0	100.0	100.0
670	1	12/ 3/83	1110	11.43	22.00	12.5	10.	27.3	36.0	49.8	78.7	100.0	100.0	100.0
672	1	12/ 4/83	950	11.44	21.90	11.5	8.	34.5	48.7	68.4	96.3	100.0	100.0	100.0
673	1	12/ 4/83	1040	11.46	21.90	11.5	10.	22.1	34.6	49.0	87.4	100.0	100.0	100.0
674	1	12/ 6/83	1000	11.47	21.70	12.0	14.	17.2	28.1	56.2	88.7	100.0	100.0	100.0
675	1	12/ 6/83	1045	11.47	21.70	12.0	8.	24.6	39.5	56.8	88.4	100.0	100.0	100.0
676	1	12/ 7/83	1130	11.44	21.70	12.0	5.	26.6	37.5	62.8	78.6	100.0	100.0	100.0
677	1	12/ 8/83	1540	11.47	21.60	12.0	5.	43.2	52.5	68.8	81.1	100.0	100.0	100.0
678	1	12/ 8/83	1615	11.47	21.40	12.0	51.	82.2	84.8	90.4	98.6	100.0	100.0	100.0
679	1	12/ 9/83	1155	11.48	21.60	12.5	16.	11.8	18.3	27.9	60.5	100.0	100.0	100.0
680	1	12/10/83	1000	11.46	21.70	12.0	5.	56.2	70.0	86.9	94.1	100.0	100.0	100.0
681	1	12/10/83	1030	11.44	21.50	12.0	4.	40.7	55.3	81.3	98.0	100.0	100.0	100.0
682	1	12/11/83	1015	11.46	21.70	12.0	4.	60.9	69.4	82.9	95.1	100.0	100.0	100.0
1	1	10/ 8/85	1430	9.82	21.60	11.0	11.	43.3	66.2	77.5	90.4	100.0	100.0	100.0
504	1	11/ 1/85	1350	10.06	20.90	11.0	17.	49.1	73.4	95.5	100.0	100.0	100.0	100.0
503	1	11/ 1/85	1540	10.04	20.00	11.0	17.	63.0	72.0	85.5	96.9	100.0	100.0	100.0
502	1	11/ 1/85	1920	9.90	20.00	11.0	10.	45.3	53.1	74.4	100.0	100.0	100.0	100.0
505	1	11/ 1/85	2245	9.92	20.31	10.0	9.	62.5	71.0	84.3	92.5	100.0	100.0	100.0
506	1	11/ 2/85	235	8.57	18.30	10.0	12.	63.2	72.0	78.7	82.7	100.0	100.0	100.0
507	1	11/ 2/85	1815	9.57	19.60	11.0	20.	68.5	77.1	90.0	96.7	100.0	100.0	100.0
508	1	11/ 3/85	200	8.84	18.00	10.0	9.	45.2	67.1	85.7	94.8	100.0	100.0	100.0
115	1	11/ 8/85	1225	9.30	21.50	11.0	9.	78.6	92.1	98.5	98.8	100.0	100.0	100.0
117	1	11/ 8/85	1717	9.77	21.90	11.0	11.	59.5	72.5	83.8	91.4	96.5	100.0	100.0
118	1	11/ 8/85	1758	10.16	22.10	11.0	103.	17.2	52.4	84.9	98.5	100.0	100.0	100.0
209	1	11/ 8/85	2315	10.23	22.30	10.0	18.	52.9	65.9	84.4	99.3	100.0	100.0	100.0
211	1	11/ 9/85	155	9.20	19.90	10.0	10.	77.9	87.9	93.2	95.0	100.0	100.0	100.0
121	1	11/ 9/85	450	7.96	16.40	10.0	37.	17.5	34.0	82.7	94.1	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
300	1	9/18/83	920	12.02	22.10	11.0	5.	61.1	70.3	87.9	96.6	100.0	100.0	100.0
299	1	9/18/83	1555	11.98	22.20	11.0	11.	60.4	75.2	87.2	98.0	100.0	100.0	100.0
301	1	9/19/83	905	11.99	22.20	11.0	13.	82.9	88.3	93.8	98.5	100.0	100.0	100.0
302	1	9/20/83	830		22.20	11.0	39.	94.6	96.3	98.6	99.1	100.0	100.0	100.0
303	1	9/21/83	830	12.02	22.30	11.0	6.	54.0	64.0	77.5	100.0	100.0	100.0	100.0
305	1	9/22/83	845	12.02	22.10	11.0	7.	48.8	60.2	69.2	100.0	100.0	100.0	100.0
304	1	9/22/83	1708	12.03	22.00	11.0	10.	22.6	27.8	34.5	72.1	100.0	100.0	100.0
306	1	9/23/83	808	11.85	22.00	11.0	12:	17.2	21.4	23.9	66.9	100.0	100.0	100.0
308	1	9/27/83	1240	11.98	21.80	11.5	19.	21.5	42.7	66.0	90.1	100.0	100.0	100.0
309	1	9/28/83	330	11.98	22.20	11.5	19.	37.9	61.8	86.0	97.7	100.0	100.0	100.0
310	1	9/29/83	1630	11.58		11.0	13.	40.1	62.2	94.1	99.3	100.0	100.0	100.0
311	1	9/30/83	1620	11.90	21.70	11.5	14.	47.2	68.6	91.1	100.0	100.0	100.0	100.0
312	1	10/ 2/83	1130	12.02	22.10	11.5	8.	43.1	63.1	90.5	99.5	100.0	100.0	100.0
618	1	10/ 6/83	930	11.94	22.40	11.5	11.	20.4	43.0	71.3	93.6	100.0	100.0	100.0
619	1	10/ 7/83	1320	12.01	22.70	11.5	12.	25.1	52.9	83.4	100.0	100.0	100.0	100.0
620	1	10/ 8/83	1010	12.01	22.30	12.0	13.	13.8	30.5	55.2	92.1	100.0	100.0	100.0
621	1	10/ 8/83	1725	12.01	22.50	12.0	11.	28.3	54.3	84.9	96.5	100.0	100.0	100.0
622	1	10/ 9/83	1040	11.98	21.90	12.5	8.	19.3	34.8	51.3	66.3	100.0	100.0	100.0
623	1	10/10/83	1705	11.96	21.80	11.5	6.	29.4	51.0	77.1	90.2	100.0	100.0	100.0
624	1	10/11/83	1545	11.44	21.30	12.0	5.	35.5	58.0	82.9	93.7	100.0	100.0	100.0
625	1	10/12/83	900	11.44	21.50		7.	29.3	49.1	70.4	86.2	100.0	100.0	100.0
626	1	10/12/83	1720	11.45	21.60		8.	37.0	48.2	59.3	77.9	82.2	100.0	100.0
627	1	10/13/83	1045	11.46	21.50		6.	39.1	48.9	74.7	89.0	100.0	100.0	100.0
628	1	10/17/83	1325	11.48	22.60	11.5	14.	26.7	41.2	48.3	86.0	100.0	100.0	100.0
577	1	10/18/83	818	11.53	22.20		26.	13.7	23.8	38.2	87.8	100.0	100.0	100.0
576	1	10/18/83	1558	11.51	22.00	11.5	11.	14.0	44.3	70.8	95.9	100.0	100.0	100.0
578	1	10/19/83	1107	11.52	22.00	11.0	34.	6.3	43.3	93.5	100.0	100.0	100.0	100.0
579	1	10/20/83	814	11.50	23.30	11.0	87.	3.5	4.4	5.5	31.6	93.5	100.0	100.0
580	1	10/21/83	1002	11.53	23.00	11.5	169.	1.3	1.6	2.9	41.4	79.0	96.8	100.0
581	1	10/22/83	814	11.41	22.40	11.5	4.	21.7	40.5	67.2	94.8	100.0	100.0	100.0
629	1	10/22/83	1238	11.50	22.40	11.5	9.	33.6	42.7	68.0	92.1	100.0	100.0	100.0
582	1	10/23/83	1020	11.51	22.10		6.	35.3	59.0	79.9	92.6	100.0	100.0	100.0
583	1	10/24/83	934	11.96	22.60	11.5	9.	16.3	43.0	76.7	93.8	100.0	100.0	100.0
630	1	10/25/83	1535	12.01	22.40		8.	38.3	54.1	86.9	98.2	100.0	100.0	100.0
631	1	10/26/83	1000	11.86	22.10		5.	62.0	83.7	94.4	97.7	100.0	100.0	100.0
632	1	10/27/83	1000	11.98	22.30		5.	37.2	63.1	79.6	96.3	100.0	100.0	100.0
633	1	10/27/83	1615	11.92	22.20		3.	48.9	72.1	96.7	99.7	100.0	100.0	100.0
634	1	10/28/83	930	11.97	22.20	11.0	6.	41.1	62.4	82.6	92.7	100.0	100.0	100.0
635	1	10/29/83	1050	11.97	22.50	11.0	153.	2.2	3.3	5.5	79.4	100.0	100.0	100.0
636	1	10/29/83	1550	11.98	22.40		18.	13.3	20.5	27.7	89.0	100.0	100.0	100.0
637	1	11/ 3/83	950	11.98	22.60		4.	34.8	54.0	83.4	100.0	100.0	100.0	100.0
639	1	11/ 5/83	1000	11.97	22.60	12.0	17.	46.6	69.0	87.3	96.3	100.0	100.0	100.0
638	1	11/ 5/83	1520	11.96	22.10	11.5	36.	7.4	10.2	13.5	38.2	76.6	100.0	100.0
640	1	11/ 6/83	924	11.46	22.00	11.0	7.	29.6	40.3	46.2	57.5	100.0	100.0	100.0
641	1	11/ 7/83	1028	11.48	22.00	11.5	8.	28.3	39.3	59.8	93.2	100.0	100.0	100.0
642	1	11/ 7/83	1625	11.47	22.00	11.0	10.	22.2	34.8	76.8	92.3	100.0	100.0	100.0
643	1	11/ 8/83	1515	11.50	21.60	11.0	7.	16.1	32.1	67.6	91.9	100.0	100.0	100.0
644	1	11/ 9/83	1525	11.48	21.80	11.0	7.	10.6	18.4	42.3	88.2	100.0	100.0	100.0
645	1	11/10/83	1020	11.34	21.40	11.5	9.	30.3	44.6	65.0	100.0	100.0	100.0	100.0
646	1	11/10/83	1530		21.60	11.5	3.	38.1	52.6	64.9	93.1	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
148	2	8/ 7/83		5.69		28.5	83962.	87.3	89.7	97.1	99.9	100.0	100.0	100.0
147	2	8/ 8/83	1150	5.50		30.0	96012.	89.5	90.1	92.7	97.4	99.7	99.8	100.0
149	2	8/ 9/83	1910	5.94		27.5	63176.	79.6						
151	2	8/10/83	1100	5.63		26.0	55888.	92.7						
150	2	8/10/83	1550	5.68		31.0	129541.	87.6						
154	2	8/11/83	1010	5.36		24.0	53364.	94.4						
153	2	8/11/83	1430	5.90		23.0	60178.	79.6						
155	2	8/12/83	1105	5.56		30.5	29316.	89.7						
152	2	8/12/83	1555	5.60		31.0	25446.	93.5	98.0	99.8	100.0	100.0	100.0	100.0
137	2	8/13/83	800	5.72		22.0	72303.	89.5	94.7	99.6	99.9	100.0	100.0	100.0
135	2	8/13/83	1740	6.04		31.0	68841.	82.3	89.6	99.3	99.8	99.9	100.0	100.0
134	2	8/14/83	1705	5.68		30.0	77164.	91.9	94.6	99.3	99.9	100.0	100.0	100.0
163	2	8/15/83	755	5.70		22.0	68812.	94.5						
164	2	8/15/83	1400	5.68		33.0	51452.	96.3						
844	2	8/16/83	820	5.71		22.0	30555.	95.3	97.3	99.4	99.8	100.0	100.0	100.0
825	2	8/16/83	1725	5.70		32.0	53098.	94.9	98.1	99.6	99.9	100.0	100.0	100.0
845	2	8/17/83	1736	5.92		28.5	184481.	86.8	91.2	98.0	99.0	99.6	99.9	100.0
846	2	8/19/83	800	6.58		23.0	150757.	66.4	82.6	98.4	99.5	99.5	100.0	100.0
826	2	8/20/83	718	5.72		19.0	82692.	90.1	92.8	98.1	99.8	99.9	100.0	100.0
827	2	8/20/83	1645	5.65		28.0	57759.	92.0	96.5	99.3	99.9	100.0	100.0	100.0
828	2	8/21/83	834	5.64		22.0	45772.	93.3	96.7	99.4	99.9	100.0	100.0	100.0
847	2	8/21/83	1730	5.60			19762.	90.5	95.7	99.0	99.6	100.0	100.0	100.0
829	2	8/22/83	848	5.55			9282.	83.3	92.9	99.5	99.9	100.0	100.0	100.0
848	2	8/22/83	1845	5.55			6977.	85.9	92.1	97.2	99.6	99.9	100.0	100.0
849	2	8/23/83	937	5.54			4474.	95.3	98.4	99.2	100.0	100.0	100.0	100.0
850	2	8/23/83	1902	5.51			5677.	74.7	87.9	95.7	99.8	100.0	100.0	100.0
851	2	8/24/83	1150	5.52			3918.	70.1	86.2	96.9	100.0	100.0	100.0	100.0
852	2	8/25/83	1112	5.54		28.0	4342.	70.9	86.1	95.4	99.2	99.7	100.0	100.0
853	2	8/25/83	1911	5.51		22.0	3070.	77.6	93.2	98.6	99.7	100.0	100.0	100.0
831	2	8/26/83	1050	5.67		22.5	12613.	89.4	96.2	99.3	99.9	100.0	100.0	100.0
830	2	8/26/83	1815	5.57		25.0	17731.	95.0	97.5	99.3	99.9	100.0	100.0	100.0
920	2	8/31/83		5.64		33.5	7191.	93.7						
921	2	9/ 3/83	930	5.62		24.0	2793.	80.9						
854	2	9/18/83	1215	7.20			1165817.	11.7	19.0	39.9	86.5	96.2	99.2	100.0
855	2	9/24/83	838	5.81			78818.	81.9	82.2	97.3	98.0	98.7	99.9	100.0
856	2	9/25/83	920	4.92			40494.	88.2	89.5	95.7	99.4	99.5	100.0	100.0
832	2	9/27/83	908	4.33		18.0	9298.	74.8	93.1	99.4	100.0	100.0	100.0	100.0
857	2	9/28/83	523	4.30		22.0	2935.	75.1	90.2	98.6	99.8	100.0	100.0	100.0
833	2	9/28/83	810	4.31		15.0	6391.	46.4	64.4	89.8	99.5	100.0	100.0	100.0
935	2	9/29/83	513	4.31		23.0	8415.	71.8						
835	2	9/30/83	956	4.68		15.5	20179.	82.3	82.3	95.4	99.7	100.0	100.0	100.0
834	2	9/30/83	1713	4.86		19.0	24827.	86.7	86.8	96.5	99.8	100.0	100.0	100.0
836	2	10/ 1/83	806	5.95		15.0	147153.	73.6	80.7	91.2	99.4	100.0	100.0	100.0
837	2	10/ 1/83	1835	5.05		15.0	93524.	86.2	89.1	98.0	99.9	100.0	100.0	100.0
838	2	10/ 2/83	1007	5.70		15.0	48828.	68.0	70.6	81.1	99.9	100.0	100.0	100.0
839	2	10/ 3/83	936	4.88		14.0	60903.	87.7	90.6	97.6	99.8	99.9	100.0	100.0
858	2	10/ 3/83	1600	4.69		19.0	43006.	92.2	94.9	99.3	100.0	100.0	100.0	100.0
840	2	10/ 4/83	920	4.44		13.5	23649.	94.2	96.1	99.2	100.0	100.0	100.0	100.0
934	2	10/ 4/83	1815	4.38		18.0	18654.	93.3						
859	2	10/ 5/83	1130	4.36		18.5	10037.	77.4	80.3	85.3	97.5	99.7	99.8	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
210	1	11/ 9/85	1205	9.40	21.70	10.0	8.	79.0	83.7	88.6	92.1	100.0	100.0	100.0
123	1	11/ 9/85	1235	9.80	22.10	10.0	38.	31.5	39.8	60.2	86.2	100.0	100.0	100.0
122	1	11/ 9/85	1340	10.20	22.40	10.0	10.	80.3	85.5	90.2	96.6	100.0	100.0	100.0
120	1	11/ 9/85	1840	10.28	22.40	11.0	10.	69.4	79.4	85.0	90.5	94.6	100.0	100.0
119	1	11/ 9/85	2037	10.76	23.20	10.0	13.	52.7	73.3	89.5	97.7	100.0	100.0	100.0
212	1	11/ 9/85	2220	10.72	23.20	10.0	14.	67.7	81.4	94.1	98.5	100.0	100.0	100.0
124	1	11/10/85	500	9.14	18.80	10.0	9.	64.1	78.4	91.2	97.0	100.0	100.0	100.0
509	1	12/ 3/85	1600	8.96	18.30	12.0	120.	23.9	27.0	31.2	49.8	100.0	100.0	100.0
510	1	12/ 3/85	2052	10.08	19.80	12.0	25.	50.7	69.7	87.1	95.3	100.0	100.0	100.0
511	1	12/ 3/85	2215	10.26	20.10	11.0	58.	8.7	13.5	21.2	39.1	100.0	100.0	100.0
703	1	1/ 4/86	1150	9.20	19.00	10.0	23.	67.9	80.7	91.0	98.1	100.0	100.0	100.0
701	1	1/ 4/86	1302	10.31	19.90	10.0	12.	56.7	78.5	93.6	100.0	100.0	100.0	100.0
702	1	1/ 4/86	1432	10.58	20.10	10..0	31.	28.2	44.9	69.7	78.0	100.0	100.0	100.0
583	1	1/ 4/86	1838	10.54	21.00	10.0	31.	47.2	60.5	85.4	97.6	100.0	100.0	100.0
582	1	1/ 4/86	2225	10.84	20.90	10.0	21.	57.2	63.0	83.3	97.1	100.0	100.0	100.0
589	1	1/ 5/86	200	9.05	18.70	10.0	78.	6.3	11.6	20.5	27.1	29.6	43.7	100.0
590	1	1/ 5/86	300	8.22	17.70	10.0	11.	44.5	66.6	90.0	100.0	100.0	100.0	100.0
704	1	1/ 5/86	505	6.80	16.20	9.0	45.	37.1	50.6	65.2	100.0	100.0	100.0	100.0
705	1	1/ 5/86	620	6.20	15.40	9.0	12.	23.6	45.8	66.1	100.0	100.0	100.0	100.0
591	1	1/ 5/86	1048	7.44	16.70	10.0	7.	35.2	53.3	71.7	86.5	100.0	100.0	100.0
588	1	1/ 5/86	1112	8.09	17.60	10.0	6.	55.4	73.9	89.5	100.0	100.0	100.0	100.0
585	1	1/ 5/86	1259	9.26	18.70	10.0	11.	22.7	34.6	60.8	100.0	100.0	100.0	100.0
593	1	1/ 5/86	1705	9.15	18.40	10.0	14.	72.6	73.3	82.6	94.6	100.0	100.0	100.0
587	1	1/ 5/86	1828	9.20	17.50	10.0	26.	25.6	62.9	94.5	100.0	100.0	100.0	100.0
592	1	1/ 5/86	1945	9.68	19.50	10.0	13.	55.1	66.4	93.0	100.0	100.0	100.0	100.0
584	1	1/ 5/86	2135	10.16	19.10	10.0	14.	29.4	53.0	90.4	100.0	100.0	100.0	100.0
586	1	1/ 5/86	2222	10.20	19.70	10.0	8.	57.7	63.8	82.6	100.0	100.0	100.0	100.0
595	1	1/ 9/86	1550	9.50	22.40	10.0	11.	32.4	53.2	77.7	86.0	100.0	100.0	100.0
594	1	1/ 9/86	2100	11.14	23.80	9.0	10.	31.2	53.1	78.9	93.8	100.0	100.0	100.0
600	1	1/10/86	200	9.25	21.40	9.0	6.	48.8	65.0	86.2	100.0	100.0	100.0	100.0
596	1	1/10/86	525	6.70	18.80	9.0	7.	47.0	57.6	66.1	100.0	100.0	100.0	100.0
597	1	1/10/86	1140	11.48	21.90	9.0	4.	38.9	61.9	86.7	99.0	100.0	100.0	100.0
598	1	1/10/86	1710	10.66	21.20	10.0	6.	42.6	51.4	91.5	100.0	100.0	100.0	100.0
601	1	1/10/86	2045	11.22	22.20	10.0	14.	16.2	23.4	60.3	86.3	100.0	100.0	100.0
599	1	1/10/86	2310	11.00	21.60	10.0	10.	28.1	44.3	79.2	91.5	100.0	100.0	100.0
140	2	7/ 1/83	850	3.92		19.0	323.	87.4	93.5	100.0	100.0	100.0	100.0	100.0
139	2	7/23/83	1045	4.02		31.5	142.	90.0	90.0	100.0	100.0	100.0	100.0	100.0
138	2	7/25/83	1150				156191.	76.5	82.2	97.8	99.9	100.0	100.0	100.0
156	2	7/27/83	1730	6.20			65905.	53.6						
158	2	7/28/83	1907	4.62		28.0	16096.	83.4						
157	2	7/29/83	830				12957.	87.1						
160	2	7/30/83	1830	4.25		25.0	2859.	64.4						
159	2	7/31/83	1930			23.5	485976.	19.7						
162	2	8/ 1/83	1235	5.48		26.0	100594.	75.4						
161	2	8/ 1/83	1635	4.92		24.0	41136.	85.1						
143	2	8/ 5/83	945	6.29		24.0	196830.	68.1	68.5	72.1	79.5	98.1	99.9	100.0
141	2	8/ 5/83	1400	5.76		27.5	101260.	58.7	86.0	91.1	99.7	100.0	100.0	100.0
144	2	8/ 6/83	750	5.10		24.0	60736.	72.9	74.8	78.4	96.6	99.9	100.0	100.0
142	2	8/ 6/83	1330	5.06		32.0	88416.	95.5	95.9	98.7	99.9	100.0	100.0	100.0
145	2	8/ 7/83	800	6.45		24.0	91406.	99.8	100.0	100.0	100.0	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
860	2	10/ 6/83	1340	4.34		24.5	2376.	80.5	87.3	97.8	100.0	100.0	100.0	100.0
861	2	10/ 7/83	1525	4.34		24.0	2285.	62.4	77.2	96.2	99.9	100.0	100.0	100.0
862	2	10/ 8/83	1130	4.38		21.5	1767.	69.0	84.6	98.7	99.8	100.0	100.0	100.0
863	2	10/ 9/83	850	4.42		15.5	2719.	67.4	82.7	96.6	99.5	100.0	100.0	100.0
864	2	10/10/83	1155	4.38		23.0	1994.	48.9	70.8	93.4	99.8	100.0	100.0	100.0
841	2	10/11/83	1440	4.34		23.5	1273.	52.2	74.8	96.2	99.8	100.0	100.0	100.0
865	2	10/12/83	1000	4.37		14.0	3099.	59.1	68.3	82.4	88.6	93.0	96.9	100.0
866	2	10/13/83	920	4.36			1421.	48.7	72.2	93.8	99.4	100.0	100.0	100.0
867	2	10/14/83	810	4.38			1605.	37.1	59.3	91.4	98.6	100.0	100.0	100.0
868	2	10/19/83	1500	4.43		19.0	1107.	40.5	70.1	97.8	100.0	100.0	100.0	100.0
842	2	10/23/83	1320	4.38			950.	19.6	54.6	93.1	99.6	100.0	100.0	100.0
869	2	10/27/83	1000	4.40			1133.	20.0	44.3	84.0	98.8	100.0	100.0	100.0
870	2	10/30/83	1115	4.40			711.	31.4	56.9	95.8	99.5	100.0	100.0	100.0
871	2	11/18/83	945	5.45		7.0	17109.	47.8	72.8	92.0	99.5	100.0	100.0	100.0
843	2	11/22/83	1615	4.86		7.0	5716.	47.6	64.6	88.3	99.1	99.5	100.0	100.0
872	2	11/29/83	1541	5.00		7.0	2744.	37.1	65.5	95.3	100.0	100.0	100.0	100.0
873	2	12/ 3/83	1450	5.10		8.0	1930.	43.3	73.7	95.9	100.0	100.0	100.0	100.0
34	3	7/12/83	1755	2737.58	24.10	11.5	326.	2.3	8.4	35.2	96.7	99.9	100.0	100.0
38	3	7/13/83	1000	2737.48	22.50	12.0	347.	5.2	9.9	28.9	82.5	99.9	100.0	100.0
39	3	7/13/83	1650	2737.58	24.60	11.5	358.	3.3	6.7	35.7	89.0	99.2	100.0	100.0
42	3	7/14/83	815	2737.58	25.00	12.0	327.	9.9	16.4	48.8	96.1	99.6	100.0	100.0
49	3	7/15/83	1120	2737.58	24.90	12.0	414.	12.5	16.8	38.3	91.8	99.8	100.0	100.0
87	3	8/ 1/83	950	2734.58	19.70	12.0	253.	24.9	38.5	65.8	97.8	99.8	100.0	100.0
88	3	8/ 1/83	1645	2734.58	19.40	12.0	378.	26.9	43.4	62.5	97.5	99.6	99.8	100.0
89	3	8/ 2/83	1830	2732.88	18.70	12.0	279.	32.8	45.9	70.4	94.4	99.1	100.0	100.0
90	3	8/ 3/83	930	2732.78	18.60	11.0	186.	23.4	36.5	57.9	96.2	99.6	99.8	100.0
195	3	8/ 4/83	855	2732.78	19.10	11.0	237.	6.2	15.4	43.2	92.6	99.3	99.7	100.0
196	3	8/ 5/83	849	2732.98	18.70	11.0	215.	6.0	22.3	59.1	95.7	99.3	99.7	100.0
197	3	8/ 6/83	1000	2732.88	18.80	11.0	642.	47.6	57.6	72.6	97.2	99.2	100.0	100.0
232	3	8/ 6/83	1800	2732.98	18.80	12.0	314.	9.0	22.9	55.9	96.5	100.0	100.0	100.0
233	3	8/ 7/83	917	2732.88	18.80	11.0	462.	29.4	41.1	68.0	97.7	100.0	100.0	100.0
198	3	8/ 7/83	1135	2732.98	19.40	11.0	704.	48.5	56.5	73.7	97.5	100.0	100.0	100.0
199	3	8/ 9/83	1000	2732.78	19.60		499.	16.7	37.9	63.4	97.4	100.0	100.0	100.0
200	3	8/ 9/83	1500	2732.78	19.30		1365.	40.2	48.8	63.7	95.7	100.0	100.0	100.0
201	3	8/10/83	1500	2732.98	19.00		862.	14.1	32.1	67.1	97.6	100.0	100.0	100.0
235	3	8/13/83	830		17.30	12.0	276.	28.8	42.9	74.1	98.4	100.0	100.0	100.0
234	3	8/13/83	1630	2730.38	17.70	14.0	303.	19.5	37.3	66.8	95.4	100.0	100.0	100.0
236	3	8/14/83	1300	2730.18	17.00		276.	27.7	36.7	66.2	92.0	100.0	100.0	100.0
238	3	8/15/83	930	2730.28	17.30		498.	38.5	51.5	72.7	98.3	100.0	100.0	100.0
237	3	8/15/83	1600	2730.18	16.90		425.	50.7	60.7	84.6	98.7	100.0	100.0	100.0
239	3	8/17/83	830	2730.38	17.30		164.	21.5	36.8	65.4	98.4	100.0	100.0	100.0
240	3	8/17/83	1630	2730.38	17.30		254.	20.7	38.0	68.6	97.7	100.0	100.0	100.0
241	3	8/18/83	1115	2730.28	17.40		301.	13.6	22.3	52.3	94.9	100.0	100.0	100.0
242	3	8/19/83	1020	2730.38	17.50		330.	19.1	26.3	47.3	84.1	96.1	100.0	100.0
224	3	8/20/83	1630	2730.28	17.80		400.	69.7	77.3	86.8	98.7	99.8	100.0	100.0
226	3	8/21/83	1140	2730.23	17.60		204.	50.8	63.6	81.2	97.4	100.0	100.0	100.0
227	3	8/21/83	1630	2730.28	17.40		142.	34.9	51.8	72.5	96.8	100.0	100.0	100.0
228	3	8/22/83	1720	2730.13	17.80		96.	29.1	45.7	69.5	96.3	99.6	100.0	100.0
229	3	8/23/83	1110	2730.28	17.50		159.	18.8	33.6	61.6	95.9	99.3	100.0	100.0
230	3	8/23/83	1530	2730.18	17.70		99.	26.3	44.3	73.0	97.5	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
243	3	8/24/83	1515	2730.28	17.70		391.	4.0	10.7	86.8	97.6	100.0	100.0	100.0
245	3	8/25/83	1150	2730.26	17.60		210.	8.6	26.1	64.2	95.4	98.8	100.0	100.0
244	3	8/25/83	1630	2729.93	17.10		130.	10.3	32.8	71.1	97.5	100.0	100.0	100.0
250	3	8/26/83	1050	2730.28	17.90		94.	20.8	47.0	96.2	96.3	100.0	100.0	100.0
246	3	8/27/83	1020	2730.33	17.50		141.	14.6	30.6	64.4	95.6	100.0	100.0	100.0
336	3	8/28/83	1352	2730.26	18.10		99.	33.5	50.9	79.9	97.4	100.0	100.0	100.0
337	3	8/29/83	1129	2730.27	17.70		99.	17.6	37.3	67.6	95.1	100.0	100.0	100.0
247	3	8/29/83	1740	2730.26	17.70		128.	13.2	33.9	67.5	93.8	100.0	100.0	100.0
248	3	8/30/83	1750	2730.62	18.50		161.	11.6	21.3	51.1	89.5	100.0	100.0	100.0
249	3	8/31/83	1036	2730.74	18.30		92.	27.9	40.3	69.5	94.6	100.0	100.0	100.0
251	3	9/ 1/83	1040	2730.72	17.90		93.	13.3	26.7	67.3	93.7	100.0	100.0	100.0
252	3	9/ 2/83	1035	2730.62	17.90		86.	12.5	25.0	66.2	95.0	100.0	100.0	100.0
253	3	9/ 2/83	1728	2730.77	18.10		114.	11.6	28.8	58.2	95.3	100.0	100.0	100.0
254	3	9/ 3/83	1145	2730.61	17.80		120.	11.0	23.5	58.8	94.6	100.0	100.0	100.0
338	3	9/ 4/83	1220	2730.63	18.60		90.	9.9	25.7	66.5	97.3	100.0	100.0	100.0
255	3	9/ 4/83	1813	2730.72	18.20		123.	15.6	28.8	57.5	87.8	100.0	100.0	100.0
339	3	9/ 5/83	1350	2730.64	18.20		110.	13.8	23.2	50.1	83.6	100.0	100.0	100.0
341	3	9/ 6/83	944	2730.77	18.50		107.	4.4	15.3	46.0	92.7	100.0	100.0	100.0
340	3	9/ 6/83	1624	2730.74	18.10		139.	4.8	17.6	54.2	94.3	100.0	100.0	100.0
342	3	9/ 8/83	930	2730.80	18.10		69.	8.4	23.4	62.3	97.0	100.0	100.0	100.0
343	3	9/ 8/83	1705	2730.82	18.00		1370.	93.5	94.4	96.7	99.6	100.0	100.0	100.0
344	3	9/ 9/83	900	2730.63	18.00		93.	.3	15.1	54.2	95.7	100.0	100.0	100.0
256	3	9/10/83	1730	2730.51	17.20		85.	10.7	23.6	59.6	97.7	100.0	100.0	100.0
257	3	9/11/83	1140	2729.88	16.90		58.	16.3	29.5	56.6	92.6	100.0	100.0	100.0
258	3	9/12/83	1700	2730.54	17.30	12.0	93.	13.8	26.0	55.4	95.8	100.0	100.0	100.0
259	3	9/14/83	1135	2730.26	17.00	12.0	81.	9.9	24.7	61.3	94.1	100.0	100.0	100.0
261	3	9/15/83	910	2730.74	17.50	11.0	157.	6.3	18.8	61.0	98.0	100.0	100.0	100.0
262	3	9/16/83	1230	2730.45	17.10	12.0	88.	9.8	23.7	68.6	98.8	100.0	100.0	100.0
263	3	9/16/83	1540	2730.46	17.20	12.0	100.	9.9	28.4	66.3	98.0	100.0	100.0	100.0
433	3	9/17/83	1020	2730.52	19.20	12.0	87.	29.5	39.6	66.9	94.5	100.0	100.0	100.0
264	3	9/18/83	915	2730.79	17.50	12.0	92.	12.7	25.3	62.1	95.5	100.0	100.0	100.0
265	3	9/18/83	1400	2730.63	17.40	12.0	109.	20.5	30.3	60.6	96.7	100.0	100.0	100.0
434	3	9/19/83	845	2730.60	18.00	12.0	442.	81.2	84.9	92.8	99.4	100.0	100.0	100.0
435	3	9/20/83	1010	2730.60	17.30	11.0	544.	82.5	88.0	94.3	99.2	99.9	100.0	100.0
436	3	9/20/83	1410	2730.61	17.60	11.0	402.	75.5	81.4	91.5	99.6	99.9	100.0	100.0
437	3	9/21/83	845	2730.60	17.50	11.0	211.	58.0	67.5	84.2	99.0	99.9	100.0	100.0
438	3	9/22/83	840	2730.67	17.80	12.0	148.	48.7	61.8	82.0	98.1	99.9	100.0	100.0
439	3	9/22/83	1210	2730.66	17.60	12.0	93.	26.2	44.9	79.1	98.4	99.9	100.0	100.0
440	3	9/23/83	1400	2730.60	17.60	11.0	95.	28.4	47.7	51.6	91.3	99.8	100.0	100.0
441	3	9/24/83	845	2730.92	17.90	11.0	1307.	86.4	88.7	94.3	99.3	100.0	100.0	100.0
442	3	9/24/83	1235	2730.92	17.80	12.0	1792.	83.0	87.2	94.2	99.5	99.9	100.0	100.0
443	3	9/25/83	1550	2730.63	17.60	12.0	836.	81.7	86.3	90.4	98.3	99.9	100.0	100.0
922	3	9/27/83	905	2730.72			200.	52.3	65.5	81.5	98.7	100.0	100.0	100.0
924	3	9/28/83	855	2730.79		11.0	216.	35.1	52.5	77.8	98.0	100.0	100.0	100.0
923	3	9/28/83	1530				182.	41.3	60.8	81.5	98.2	100.0	100.0	100.0
925	3	9/29/83	830	2730.69		11.0	196.	44.5	61.6	83.5	98.5	100.0	100.0	100.0
926	3	10/ 1/83	903	2731.17		11.0	327.	70.5	78.6	88.8	99.4	99.8	100.0	100.0
928	3	10/ 2/83	920	2731.29		11.0	1304.	85.2	88.4	95.0	99.8	100.0	100.0	100.0
927	3	10/ 2/83	1640	2731.26		11.0	1016.	86.7	89.1	94.1	99.6	100.0	100.0	100.0
929	3	10/ 3/83	1140	2731.28		11.0	340.	75.1	84.0	85.6	94.5	100.0	100.0	100.0

U.S. BUREAU OF RECLAMATION
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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
930	3	10/ 4/83	1058	2731.18		11.0	335.	50.8	58.7	73.3	97.2	99.4	99.8	100.0
495	3	10/ 5/83	916	2731.26	18.90	11.0	102.	54.3	71.6	88.9	99.1	100.0	100.0	100.0
496	3	10/ 7/83	1210	2730.79	18.10	12.0	152.	1.8	24.3	59.0	97.6	100.0	100.0	100.0
497	3	10/ 8/83	1030	2731.00	18.40	12.0	174.	16.2	30.9	50.9	92.6	100.0	100.0	100.0
498	3	10/ 9/83	930	2730.90	18.20	12.0	161.	8.0	23.3	52.6	94.8	100.0	100.0	100.0
499	3	10/10/83	845	2730.86	18.10	11.5	167.	9.6	29.0	61.9	98.4	100.0	100.0	100.0
500	3	10/11/83	900	2730.78	18.00	12.0	136.	12.8	33.9	66.0	97.0	100.0	100.0	100.0
501	3	10/11/83	1637	2729.98	17.20	12.0	138.	19.3	38.8	77.0	97.9	100.0	100.0	100.0
502	3	10/12/83	925	2729.86	17.20	11.0	151.	8.8	26.5	53.6	93.8	100.0	100.0	100.0
503	3	10/13/83	915	2729.72	17.20	11.5	100.	17.3	36.6	68.0	94.1	100.0	100.0	100.0
504	3	10/14/83	945	2730.28	17.60	12.0	172.	12.0	33.5	64.3	95.3	100.0	100.0	100.0
874	3	10/16/83	1430	2729.74	16.50	11.5	109.	18.8	35.3	63.8	97.4	100.0	100.0	100.0
875	3	10/17/83	1335	2730.04	16.80	12.0	65.	14.9	32.2	71.5	97.3	100.0	100.0	100.0
584	3	10/19/83	1515	2729.96	17.80	12.0	134.	27.5	47.6	49.7	73.6	98.1	100.0	100.0
585	3	10/20/83	1020	2730.46	18.60	12.0	145.	7.0	29.2	71.2	97.0	98.9	100.0	100.0
586	3	10/21/83	1030	2729.98	18.00	11.5	89.	11.8	32.8	68.8	98.2	100.0	100.0	100.0
587	3	10/21/83	1500	2730.01	17.70	11.5	91.	5.0	19.5	62.5	97.3	100.0	100.0	100.0
588	3	10/22/83	1115	2729.98	18.00	12.0	78.	11.4	25.6	63.7	98.2	100.0	100.0	100.0
589	3	10/23/83	1210	2729.91	17.80	12.0	291.	9.8	20.7	66.4	96.2	98.3	100.0	100.0
590	3	10/23/83	1615	2729.90	18.20	12.0	133.	5.6	20.7	57.1	99.5	100.0	100.0	100.0
592	3	10/25/83	1025	2730.68	18.80		136.	17.3	31.7	62.1	94.0	100.0	100.0	100.0
591	3	10/25/83	1425	2730.42	18.30	12.0	162.	6.7	22.6	49.2	98.8	99.7	100.0	100.0
593	3	10/26/83	1025	2730.33	18.40	12.0	183.	18.6	36.3	62.1	93.0	99.2	100.0	100.0
566	3	10/27/83	1020	2730.98	19.20	12.0	136.	10.1	33.0	72.1	98.7	100.0	100.0	100.0
567	3	10/28/83	1110	2730.82	18.90	12.0	242.	9.3	27.2	73.2	99.1	99.9	100.0	100.0
568	3	10/29/83	1105	2730.78	18.80	12.0	133.	10.3	17.2	40.4	84.5	99.3	100.0	100.0
569	3	10/29/83	1540	2730.74	18.70	12.0	129.	25.6	35.1	61.5	95.0	99.6	100.0	100.0
570	3	10/30/83	1035	2730.42	18.50	12.0	180.	7.4	14.0	31.1	71.4	95.6	100.0	100.0
571	3	10/31/83	940	2730.75	18.90	12.0	115.	21.2	32.2	62.9	95.6	100.0	100.0	100.0
572	3	10/31/83	1525	2730.76	18.80	12.0	127.	8.8	20.4	42.0	86.3	100.0	100.0	100.0
573	3	11/ 1/83	1345	2730.46	18.50		106.	17.9	33.4	64.5	97.3	100.0	100.0	100.0
574	3	11/ 2/83	1055	2730.72	18.60	11.5	217.	14.9	21.1	41.1	89.7	100.0	100.0	100.0
575	3	11/ 2/83	1640	2730.24	18.30	12.0	100.	15.9	24.0	45.0	90.0	100.0	100.0	100.0
704	3	11/ 3/83	1150	2730.84	18.90	11.5	127.	12.3	25.6	54.1	96.7	99.8	100.0	100.0
705	3	11/ 5/83	1605	2730.88	18.10	12.0	113.	69.5	78.2	90.9	99.4	100.0	100.0	100.0
706	3	11/ 6/83	1415	2730.49	17.90	12.0	211.	8.0	15.4	29.8	87.8	98.8	100.0	100.0
707	3	11/ 7/83	1435	2729.98	17.20	12.0	51.	13.5	31.5	63.4	96.4	100.0	100.0	100.0
708	3	11/ 8/83	1525	2729.94	17.30	12.0	82.	18.1	29.4	63.0	98.2	100.0	100.0	100.0
709	3	11/ 9/83	1015	2730.02	17.50	11.0	159.	16.5	25.8	48.4	95.4	100.0	100.0	100.0
711	3	11/10/83	1110	2729.76	17.10	11.0	355.	4.5	17.2	63.1	92.3	100.0	100.0	100.0
712	3	11/11/83	1030	2729.83	17.30	11.5	71.	17.8	37.2	71.8	96.5	100.0	100.0	100.0
714	3	11/12/83	1015	2729.94	17.90	11.5	65.	23.0	38.6	65.9	95.3	100.0	100.0	100.0
713	3	11/12/83	1645	2729.94	17.50	11.5	84.	25.0	40.2	65.1	97.5	100.0	100.0	100.0
715	3	11/13/83	1140	2730.00	17.60	11.5	452.	1.5	4.2	11.8	77.1	99.7	100.0	100.0
717	3	11/14/83	1050	2730.04	17.70	11.5	127.	21.2	29.3	53.8	98.2	100.0	100.0	100.0
716	3	11/14/83	1525	2730.02	17.40	11.5	120.	8.2	18.0	44.2	95.3	100.0	100.0	100.0
718	3	11/15/83	1010	2729.38	16.70	11.0	512.	2.7	7.4	35.4	94.1	100.0	100.0	100.0
719	3	11/17/83	1550	2729.98	17.40	12.0	77.	13.2	26.1	51.8	90.9	100.0	100.0	100.0
720	3	11/18/83	1135	2729.32	16.90	11.0	194.	7.8	17.8	54.0	94.9	100.0	100.0	100.0
721	3	11/19/83	1115	2729.84	17.20	11.5	1625.	5.9	10.8	33.5	99.0	100.0	100.0	100.0

U.S. BUREAU OF RECLAMATION
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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
722	3	11/20/83	1045	2730.02	17.70	11.5	967.	7.1	9.4	17.8	83.8	99.6	100.0	100.0
723	3	11/21/83	1100	2730.02	17.40	11.5	902.	9.4	17.2	47.2	98.3	99.8	100.0	100.0
724	3	11/22/83	1035	2729.80	17.30	10.5	558.	3.7	10.4	44.9	89.3	99.8	100.0	100.0
725	3	11/22/83	1510	2729.91	17.40	10.5	136.	14.7	32.3	59.7	96.8	99.7	100.0	100.0
726	3	11/23/83	1005	2729.96	17.40	11.0	577.	7.0	9.8	22.0	56.1	99.1	100.0	100.0
727	3	11/27/83	1225	2729.78	17.50	10.0	115.	9.0	23.8	60.3	94.8	100.0	100.0	100.0
824	3	11/27/83	1646	2730.04	17.30	10.0	69.	10.8	26.3	58.0	97.1	100.0	100.0	100.0
728	3	11/28/83	1200	2730.02	17.60	12.0	125.	9.9	19.2	48.5	92.2	100.0	100.0	100.0
729	3	11/29/83	1107	2729.97	17.40	12.0	63.	30.1	43.9	74.5	96.4	100.0	100.0	100.0
730	3	11/30/83	1100	2729.95	17.80	12.5	74.	5.3	19.5	53.1	96.4	100.0	100.0	100.0
688	3	12/ 1/83	1115	2729.97	17.60	12.5	54.	1.3	25.5	58.5	97.9	100.0	100.0	100.0
687	3	12/ 1/83	1614	2729.92	17.60	12.5	94.	7.5	20.0	54.8	92.0	97.0	100.0	100.0
689	3	12/ 2/83	1223	2729.87	17.40	13.0	37.	13.2	32.2	63.5	96.9	100.0	100.0	100.0
690	3	12/ 3/83	1058	2729.69	17.20	13.0	85.	6.7	17.1	55.5	97.7	100.0	100.0	100.0
691	3	12/ 4/83	1412	2729.96	17.50	13.0	64.	13.2	28.5	59.3	96.9	100.0	100.0	100.0
693	3	12/ 5/83	1115	2730.00	17.40	12.0	131.	7.9	19.4	53.1	97.0	100.0	100.0	100.0
692	3	12/ 5/83	1619	2730.00	17.40		61.	14.6	34.6	71.2	97.6	100.0	100.0	100.0
694	3	12/ 6/83	1325	2730.00	17.50	11.0	125.	9.7	19.3	52.8	98.5	100.0	100.0	100.0
695	3	12/ 7/83	1148	2729.84	17.70	12.0	52.	10.9	26.0	59.8	97.4	100.0	100.0	100.0
696	3	12/ 8/83	1258	2730.09	17.70	12.5	112.	6.1	14.8	45.4	96.3	100.0	100.0	100.0
698	3	12/ 9/83	1043	2730.04	17.50	12.0	54.	17.4	32.6	57.2	94.7	100.0	100.0	100.0
697	3	12/ 9/83	1600	2730.05	17.60	13.0	107.	10.4	21.9	54.7	97.2	99.6	100.0	100.0
699	3	12/10/83	1204	2729.98	17.40	12.0	47.	15.3	34.9	67.5	97.0	100.0	100.0	100.0
701	3	12/11/83	1127	2730.04	17.50	12.5	101.	6.5	15.7	48.9	96.9	100.0	100.0	100.0
700	3	12/11/83	1626	2729.99	17.30	12.5	50.	9.7	25.6	64.7	97.9	100.0	100.0	100.0
702	3	12/12/83	1250	2730.08	17.50	12.5	135.	13.2	28.0	59.1	97.2	100.0	100.0	100.0
703	3	12/13/83	1141	2730.02	17.40	12.0	38.	17.6	37.4	72.6	96.9	100.0	100.0	100.0
2	3	10/ 5/85	1505	2726.42	13.90	11.0	15.	34.6	57.3	74.9	84.2	89.5	93.3	100.0
3	3	10/ 5/85	2200	2724.06	11.60	12.0	14.	71.2	80.3	86.2	93.3	97.6	100.0	100.0
4	3	10/ 6/85	620	2725.30	13.80	11.0	31.	57.8	80.2	93.1	97.9	100.0	100.0	100.0
5	3	10/ 7/85	130	2722.78	10.80	13.0	12.	60.9	74.2	86.9	98.0	100.0	100.0	100.0
6	3	10/ 7/85	2155	2723.95	12.20	11.0	19.	84.0	92.6	100.0	100.0	100.0	100.0	100.0
7	3	10/ 8/85	130	2725.64	13.80	11.0	29.	71.4	87.2	97.1	99.9	100.0	100.0	100.0
8	3	10/ 8/85	1035	2727.68	15.80	11.0	33.	30.7	54.9	86.5	97.8	99.9	100.0	100.0
10	3	10/ 8/85	1735	2725.49	13.30	11.0	30.	76.6	87.6	94.4	98.6	100.0	100.0	100.0
9	3	10/ 8/85	2220	2723.88	11.40	11.0	19.	40.6	61.8	89.3	96.7	97.8	100.0	100.0
11	3	10/ 9/85	240	2725.70	14.10	11.0	23.	19.4	72.3	94.6	95.2	99.7	100.0	100.0
13	3	10/12/85	600	2726.61	15.50	11.0	635.	95.5	95.9	96.7	99.9	100.0	100.0	100.0
12	3	10/12/85	1415	2726.35	13.70	12.0	4522.	99.8	99.9	100.0	100.0	100.0	100.0	100.0
14	3	10/12/85	1845	2724.85	12.50	11.0	5945.	99.7	99.8	100.0	100.0	100.0	100.0	100.0
15	3	10/13/85	1810	2724.80	13.80	11.0	677.	99.5	99.8	99.9	100.0	100.0	100.0	100.0
17	3	10/14/85	700	2723.60	11.20	11.0	537.	99.0	99.3	99.5	99.8	99.9	100.0	100.0
16	3	10/14/85	1440	2725.00	13.20	11.0	177.	99.0	99.5	99.9	100.0	100.0	100.0	100.0
19	3	10/15/85	630	2728.30	15.00	10.0	447.	96.9	98.8	99.6	99.9	100.0	100.0	100.0
18	3	10/15/85	1455	2726.10	14.50	11.0	248.	97.2	99.2	99.6	99.9	100.0	100.0	100.0
20	3	10/15/85	1710	2725.30	13.50	11.0	194.	99.7	99.8	99.9	99.9	100.0	100.0	100.0
125	3	11/ 5/85	1405	2726.63	14.60	11.0	29.	66.1	85.9	93.9	98.2	100.0	100.0	100.0
116	3	11/ 5/85	2135	2724.07	11.60	11.0	27.	43.0	59.1	69.8	74.8	100.0	100.0	100.0
127	3	11/ 6/85	540	2727.06	13.80	11.0	19.	63.0	85.7	96.7	100.0	100.0	100.0	100.0
128	3	11/ 6/85	1432	2726.90	14.30	11.0	18.	62.5	83.1	93.9	98.5	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
126	3	11/ 6/85	1640	2726.27	13.70	11.0	16.	71.8	86.2	90.3	99.6	100.0	100.0	100.0
129	3	11/ 6/85	2205	2725.88	13.70	11.0	9.	79.4	95.1	97.8	99.9	100.0	100.0	100.0
132	3	11/ 7/85	255	2727.06	14.50	11.0	24.	59.1	78.8	91.3	98.1	100.0	100.0	100.0
135	3	11/ 7/85	425	2727.19	14.80	11.0	19.	57.6	79.3	98.4	99.9	100.0	100.0	100.0
133	3	11/ 7/85	1525	2726.77	14.90	12.0	24.	53.9	76.2	95.8	98.8	100.0	100.0	100.0
130	3	11/ 7/85	1605	2726.42	14.00	12.0	18.	57.2	85.1	94.1	97.5	100.0	100.0	100.0
131	3	11/ 7/85	2010	2725.02	12.50	11.0	16.	51.8	67.5	84.3	99.9	100.0	100.0	100.0
134	3	11/ 7/85	2205	2724.54	12.30	10.0	12.	73.1	87.8	91.9	94.1	100.0	100.0	100.0
137	3	11/ 8/85	305	2727.08	14.40	10.0	22.	49.6	76.3	93.1	99.5	100.0	100.0	100.0
136	3	11/ 8/85	445	2727.60	15.00	10.0	22.	62.3	86.3	94.6	98.6	100.0	100.0	100.0
143	3	11/ 8/85	625	2728.00	15.60	10.0	22.	58.0	83.6	92.1	96.3	100.0	100.0	100.0
141	3	11/ 8/85	1105	2728.18	15.60	11.0	52.	51.0	75.4	89.7	98.5	100.0	100.0	100.0
140	3	11/ 8/85	1435	2727.27	14.10	11.0	42.	64.2	74.9	85.0	96.8	100.0	100.0	100.0
139	3	11/ 8/85	1555	2726.68	13.40	11.0	40.	41.8	66.6	83.1	92.1	100.0	100.0	100.0
138	3	11/ 8/85	2000	2725.29	12.30	11.0	31.	56.4	77.4	88.1	94.7	100.0	100.0	100.0
239	3	11/12/85	1805	2726.00	13.90	10.0	11.	80.6	89.4	98.3	100.0	100.0	100.0	100.0
240	3	11/12/85	2150	2726.00	13.70	10.0	19.	61.4	69.9	96.3	100.0	100.0	100.0	100.0
241	3	11/12/85	2350	2726.60	14.50	10.0	36.	43.3	54.7	82.9	100.0	100.0	100.0	100.0
238	3	11/13/85	243	2727.35	14.50	10.0	25.	75.2	90.8	98.3	100.0	100.0	100.0	100.0
234	3	11/13/85	410	2727.42	15.10	10.0	48.	75.7	87.2	96.5	100.0	100.0	100.0	100.0
233	3	11/13/85	602	2727.55	15.30	10.0	40.	45.3	64.2	100.0	100.0	100.0	100.0	100.0
236	3	11/13/85	900	2727.70	15.00	8.0	51.	83.4	94.7	98.2	100.0	100.0	100.0	100.0
235	3	11/13/85	1715	2725.80	13.60	8.0	99.	89.7	93.6	98.4	100.0	100.0	100.0	100.0
232	3	11/14/85	139	2726.35	14.70	10.0	66.	81.6	90.9	97.2	100.0	100.0	100.0	100.0
220	3	11/14/85	535	2727.15	14.90	9.0	45.	91.9	97.7	100.0	100.0	100.0	100.0	100.0
228	3	11/14/85	612	2727.25	15.00	9.0	34.	73.6	88.8	97.6	100.0	100.0	100.0	100.0
229	3	11/14/85	1140	2727.62	15.40	9.0	36.	69.8	85.9	97.6	100.0	100.0	100.0	100.0
224	3	11/14/85	1410	2727.10	14.80	9.0	34.	62.3	79.1	100.0	100.0	100.0	100.0	100.0
231	3	11/14/85	1535	2726.70	14.40	9.0	32.	81.8	93.3	98.1	100.0	100.0	100.0	100.0
230	3	11/14/85	1810	2726.00	14.00	9.0	28.	76.9	86.8	96.4	100.0	100.0	100.0	100.0
218	3	11/14/85	2305	2726.40	14.20	9.0	16.	77.2	91.9	100.0	100.0	100.0	100.0	100.0
216	3	11/15/85	133	2727.05	15.20	9.0	32.	62.6	81.9	96.2	100.0	100.0	100.0	100.0
226	3	11/15/85	710	2727.25	14.90	9.0	34.	81.8	89.6	96.9	100.0	100.0	100.0	100.0
221	3	11/15/85	850	2727.55	14.60	9.0	15.	57.2	81.0	92.7	100.0	100.0	100.0	100.0
227	3	11/15/85	1455	2726.80	14.60	10.0	28.	81.1	92.0	97.5	100.0	100.0	100.0	100.0
217	3	11/15/85	2115	2725.80	13.50	9.0	10.	56.1	74.5	91.4	100.0	100.0	100.0	100.0
219	3	11/15/85	2225	2726.00	13.70	9.0	358.	62.7	69.9	99.5	100.0	100.0	100.0	100.0
252	3	11/16/85	100	2726.80	14.40	10.0	19.	66.8	78.9	85.8	90.8	100.0	100.0	100.0
253	3	11/16/85	145	2727.00	14.90	10.0	15.	61.0	80.3	95.6	100.0	100.0	100.0	100.0
315	3	12/ 3/85	2325	2726.28	13.40	10.0	33.	63.2	74.0	87.0	100.0	100.0	100.0	100.0
318	3	12/ 6/85	1110	2728.43	15.80	10.0	141.	37.4	55.4	86.1	96.6	100.0	100.0	100.0
317	3	12/ 6/85	1412	2727.40	14.60	10.0	55.	65.1	80.3	94.6	99.1	100.0	100.0	100.0
319	3	12/ 7/85	155	2727.16	14.60	10.0	43.	52.3	77.1	93.6	98.8	100.0	100.0	100.0
332	3	12/ 7/85	445	2727.42	14.90	10.0	47.	41.6	56.0	82.4	98.9	100.0	100.0	100.0
320	3	12/ 7/85	1015	2728.24	15.10	12.0	56.	45.3	65.5	85.3	98.3	100.0	100.0	100.0
321	3	12/ 7/85	1140	2727.88	15.20	11.0	37.	42.6	65.3	91.3	98.6	100.0	100.0	100.0
331	3	12/ 7/85	1340	2727.26	14.10	11.0	28.	43.8	73.6	90.0	97.2	100.0	100.0	100.0
330	3	12/ 7/85	1455	2726.63	13.60	11.0	27.	63.3	81.8	96.1	100.0	100.0	100.0	100.0
329	3	12/ 7/85	2308	2723.46	10.60	11.0	23.	38.3	60.5	86.8	100.0	100.0	100.0	100.0
328	3	12/ 7/85	2332	2723.30	10.40	11.0	13.	72.2	81.5	95.2	100.0	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
322	3	12/ 8/85	320	2723.90	11.20	10.0	15.	25.5	44.3	84.0	94.1	100.0	100.0	100.0
323	3	12/ 8/85	515	2726.00	13.10	10.0	25.	57.2	68.7	92.3	100.0	100.0	100.0	100.0
338	3	12/ 8/85	808	2727.26	14.80	11.0	36.	48.4	75.4	94.0	100.0	100.0	100.0	100.0
324	3	12/ 8/85	952	2727.49	15.10	11.0	37.	46.0	58.9	86.0	98.2	100.0	100.0	100.0
337	3	12/ 8/85	1142	2727.36	14.80	11.0	30.	64.0	80.7	91.6	100.0	100.0	100.0	100.0
336	3	12/ 8/85	1335	2726.94	13.10	12.0	28.	63.1	81.7	95.0	100.0	100.0	100.0	100.0
335	3	12/ 8/85	1500	2726.36	12.90	11.0	26.	66.9	83.3	95.5	100.0	100.0	100.0	100.0
334	3	12/ 8/85	2055	2724.08	11.50	10.0	38.	65.7	72.8	90.4	100.0	100.0	100.0	100.0
333	3	12/ 8/85	2220	2723.55	11.00	10.0	44.	65.7	74.2	91.4	100.0	100.0	100.0	100.0
339	3	12/ 9/85	405	2723.09	10.40	9.0	29.	80.2	86.4	93.6	100.0	100.0	100.0	100.0
326	3	12/ 9/85	538	2724.31	11.80	9.0	21.	65.6	71.3	88.1	96.8	100.0	100.0	100.0
340	3	12/ 9/85	820	2726.10	12.80	9.0	27.	77.8	87.5	96.1	100.0	100.0	100.0	100.0
341	3	12/ 9/85	1128	2726.62	14.60	10.0	28.	62.9	82.7	94.7	100.0	100.0	100.0	100.0
327	3	12/ 9/85	1648	2725.30	12.50	10.0	28.	78.5	89.0	97.7	100.0	100.0	100.0	100.0
325	3	12/ 9/85	2015	2724.03	11.10	10.0	24.	38.1	63.5	89.4	100.0	100.0	100.0	100.0
446	3	12/12/85	1340	2727.30	14.90	10.0	75.	50.1	62.7	86.4	99.1	100.0	100.0	100.0
445	3	12/12/85	1540	2726.60	14.20	10.0	68.	37.0	56.9	85.3	99.0	100.0	100.0	100.0
514	3	12/12/85	1715	2725.90	13.70	10.0	28.	74.3	83.4	95.5	100.0	100.0	100.0	100.0
513	3	12/12/85	2035	2724.80	12.60	10.0	15.	70.7	74.1	81.9	99.3	100.0	100.0	100.0
512	3	12/12/85	2130	2724.80	12.50	9.0	6.	79.9	89.8	100.0	100.0	100.0	100.0	100.0
449	3	12/13/85	215	2728.68	16.60	10.0	42.	56.8	86.2	96.8	99.4	100.0	100.0	100.0
450	3	12/13/85	715	2729.78	17.50	10.0	127.	39.0	77.0	93.0	98.6	100.0	100.0	100.0
448	3	12/13/85	1315	2728.20	15.90	11.0	94.	59.5	79.9	93.5	99.6	100.0	100.0	100.0
447	3	12/13/85	1520	2727.05	14.20	10.0	95.	48.9	76.2	90.8	99.1	99.6	100.0	100.0
480	3	12/14/85	220	2728.60	16.30	10.0	91.	50.1	72.4	88.5	98.3	100.0	100.0	100.0
481	3	12/14/85	450	2729.00	16.90	10.0	112.	47.6	70.8	89.5	98.8	100.0	100.0	100.0
451	3	12/14/85	700	2729.60	17.70	10.0	120.	39.6	71.8	91.7	99.4	100.0	100.0	100.0
482	3	12/14/85	1015	2729.00	16.90	10.0	141.	38.6	60.6	83.4	98.5	100.0	100.0	100.0
479	3	12/14/85	1420	2727.08	14.90	10.0	47.	66.5	81.8	93.6	98.3	100.0	100.0	100.0
478	3	12/14/85	1600	2726.28	14.20	10.0	61.	57.5	78.8	92.4	100.0	100.0	100.0	100.0
477	3	12/14/85	2350	2723.40	10.70	10.0	29.	57.9	72.7	92.8	100.0	100.0	100.0	100.0
454	3	12/15/85	330	2727.40	15.40	10.0	67.	26.4	56.2	79.7	98.3	100.0	100.0	100.0
433	3	12/15/85	645	2727.85	15.50	9.0	82.	48.3	73.2	90.4	99.0	100.0	100.0	100.0
456	3	12/15/85	1015	2728.22	15.90	10.0	23.	61.5	84.6	96.9	100.0	100.0	100.0	100.0
455	3	12/15/85	1305	2727.60	15.40	10.0	39.	52.6	77.1	91.2	100.0	100.0	100.0	100.0
453	3	12/15/85	1755	2725.60	13.40	10.0	18.	39.3	61.1	73.7	95.6	100.0	100.0	100.0
452	3	12/15/85	2055	2724.30	12.10	10.0	20.	24.6	38.7	59.2	91.3	100.0	100.0	100.0
666	3	1/ 8/86	112	2723.56	10.70	10.0	11.	16.4	46.5	84.4	100.0	100.0	100.0	100.0
662	3	1/ 8/86	240	2725.68	13.50	10.0	11.	40.4	61.9	89.2	100.0	100.0	100.0	100.0
664	3	1/ 8/86	422	2727.21	15.10	10.0	17.	34.9	67.7	96.1	100.0	100.0	100.0	100.0
661	3	1/ 8/86	718	2727.79	15.40	10.0	36.	26.3	51.5	81.1	100.0	100.0	100.0	100.0
668	3	1/ 8/86	910	2727.74	15.00	10.0	32.	31.7	55.8	84.0	97.2	100.0	100.0	100.0
665	3	1/ 8/86	1320	2726.87	13.70	10.0	15.	12.0	48.2	76.7	84.8	100.0	100.0	100.0
667	3	1/ 8/86	1500	2726.25	13.60	10.0	8.	71.8	71.9	92.1	100.0	100.0	100.0	100.0
663	3	1/ 8/86	1955	2724.22	11.60	10.0	12.	70.2	81.4	89.9	100.0	100.0	100.0	100.0
562	3	1/ 8/86	2245	2723.38	10.70	10.0	22.	30.5	52.6	84.0	100.0	100.0	100.0	100.0
674	3	1/ 9/86	112	2724.25	11.70	11.0	12.	29.8	54.7	90.6	100.0	100.0	100.0	100.0
676	3	1/ 9/86	152	2725.55	13.20	11.0	6.	38.3	62.8	84.5	100.0	100.0	100.0	100.0
670	3	1/ 9/86	248	2726.78	14.40	10.0	17.	43.9	73.5	94.2	100.0	100.0	100.0	100.0
677	3	1/ 9/86	330	2727.36	14.70	11.0	16.	35.1	69.5	93.3	99.4	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
6	4	7/ 3/83	1015	24.30	32.30	15.0	753.	12.8	17.9	36.1	88.9	98.7	100.0	100.0
8	4	7/ 3/83	1600	24.30	32.80	14.0	941.	20.9	24.7	35.9	79.7	97.1	99.5	100.0
11	4	7/ 4/83	1100	24.30	32.40	15.0	1020.	16.6	19.3	28.9	81.2	98.7	99.8	100.0
14	4	7/ 5/83	900	24.30	32.00	15.0	864.	22.7	28.1	47.5	88.4	98.3	99.8	100.0
15	4	7/ 6/83	900	23.40	30.80	16.0	930.	13.1	17.1	41.4	90.6	97.8	99.9	100.0
18	4	7/ 6/83	1440	23.40	31.00	14.2	1075.	18.9	23.7	39.5	79.9	99.6	100.0	100.0
19	4	7/ 7/83	1545	22.70	30.10	14.5	958.	11.4	16.9	47.7	93.5	98.7	100.0	100.0
22	4	7/ 8/83	1135	15.03	24.50	12.0	139.	5.1	8.3	26.3	74.1	86.8	94.9	100.0
21	4	7/ 8/83	1530	21.50	31.80	13.5	715.	7.4	16.4	48.8	89.7	96.7	98.8	100.0
24	4	7/ 9/83	1630	19.17		13.0	660.	4.9	15.9	57.9	95.6	99.4	100.0	100.0
28	4	7/10/83	1000	19.05		13.0	794.	4.3	11.3	41.8	94.4	99.4	100.0	100.0
25	4	7/10/83	1630	19.05		13.0	632.	3.9	12.4	45.5	94.2	99.7	100.0	100.0
29	4	7/11/83	930	19.13	28.00	13.0	545.	6.1	11.4	31.6	85.2	99.7	100.0	100.0
32	4	7/12/83	825	19.69	28.20	13.0	743.	5.3	10.7	34.2	84.3	93.8	100.0	100.0
33	4	7/12/83	1510	19.70	28.50	13.0	646.	16.0	20.5	34.3	82.5	97.2	100.0	100.0
37	4	7/13/83	1215	19.70	30.10	13.0	518.	24.2	29.3	53.5	92.8	97.9	100.0	100.0
47	4	7/14/83	824	19.71	30.30	13.0	408.	17.8	24.2	47.6	88.0	99.4	100.0	100.0
44	4	7/14/83	1730	19.78	30.30	13.0	542.	16.4	21.1	41.4	90.4	99.1	100.0	100.0
46	4	7/15/83	910	19.77		13.0	569.	11.0	16.3	37.9	88.5	99.4	100.0	100.0
56	4	7/16/83	800	19.80	29.80	14.0	493.	9.7	13.4	30.6	84.6	99.1	100.0	100.0
55	4	7/16/83	1637	19.80	25.90	13.0	417.	14.8	18.3	35.9	86.3	99.3	100.0	100.0
58	4	7/17/83	1040	19.73	29.10	13.0	381.	13.0	18.8	43.3	84.1	99.2	100.0	100.0
62	4	7/18/83	807	19.22	28.90	12.0	680.	5.5	8.3	24.2	71.8	99.1	100.0	100.0
64	4	7/18/83	1650	19.15	28.80	13.0	353.	7.1	12.5	34.6	85.4	98.1	100.0	100.0
67	4	7/19/83	1125	18.65	27.50	12.0	344.	4.7	8.5	25.6	68.2	98.5	100.0	100.0
71	4	7/21/83	935	16.76	25.90	11.0	340.	3.6	14.0	49.7	94.5	100.0	100.0	100.0
72	4	7/22/83	1020	16.79	24.00		530.	.7	7.3	43.3	94.8	98.1	100.0	100.0
74	4	7/22/83	1730	16.88	26.30		778.	.7	4.3	19.3	84.7	99.4	100.0	100.0
76	4	7/23/83	745	16.92	26.30	10.5	260.	2.8	9.2	37.4	89.9	100.0	100.0	100.0
78	4	7/24/83	1030	17.40	27.50	12.0	306.	6.0	16.0	48.3	93.7	99.5	100.0	100.0
77	4	7/24/83	1655	17.67	27.30	12.0	309.	9.9	14.8	36.1	91.8	99.4	100.0	100.0
165	4	7/25/83	1100	17.10	26.90	10.5	263.	3.7	16.1	52.9	96.6	99.6	100.0	100.0
146	4	7/26/83	840		27.30	10.5	1541.	28.3	34.5	42.9	67.6	95.2	99.1	100.0
95	4	7/27/83	1055	17.43	26.90	11.0	2123.	81.5	83.1	90.7	99.0	99.9	100.0	100.0
98	4	7/28/83	840	16.34	23.80	10.5	2412.	86.3	88.7	93.4	99.2	99.9	100.0	100.0
99	4	7/28/83	1555	16.85	26.30	11.0	4120.	90.7	92.6	95.4	99.1	99.8	100.0	100.0
103	4	7/29/83	830	17.14	26.70	11.0	2176.	68.4	70.0	75.9	94.0	99.5	100.0	100.0
179	4	7/30/83	1455	17.10	26.30		1948.	84.9	87.1	93.8	99.4	99.9	100.0	100.0
194	4	7/31/83	945	17.20	26.10	14.0	2515.	81.3	86.3	93.3	99.4	99.9	100.0	100.0
181	4	7/31/83	1525	17.20	26.20	12.5	1266.	71.9	79.0	88.7	98.6	100.0	100.0	100.0
189	4	8/ 1/83	925	17.20	26.30	12.0	976.	71.7	77.1	86.9	98.2	99.9	100.0	100.0
193	4	8/ 1/83	1355	17.20	26.40		973.	67.9	72.4	81.8	97.3	99.8	100.0	100.0
182	4	8/ 2/83	840	16.20	25.20	12.0	2108.	82.1	87.2	94.9	99.5	100.0	100.0	100.0
191	4	8/ 2/83	1315	16.00	25.10	12.5	1623.	80.4	86.0	94.6	99.5	100.0	100.0	100.0
180	4	8/ 3/83	855	16.00	25.00	11.0	876.	71.6	76.4	86.2	98.3	100.0	100.0	100.0
187	4	8/ 4/83	855	15.95	23.70	11.0	2686.	76.7	80.6	91.7	99.2	99.9	100.0	100.0
185	4	8/ 4/83	930	16.00	24.70	11.0	545.	58.9	65.5	81.4	98.2	99.7	100.0	100.0
186	4	8/ 5/83	1140	16.10	25.00	11.0	971.	78.0	81.8	90.1	98.9	99.8	100.0	100.0
192	4	8/ 5/83	1450	16.08	24.90	12.0	1775.	83.8	87.2	93.8	99.5	99.9	100.0	100.0
184	4	8/ 6/83	830	16.03	24.90	11.0	2437.	68.8	71.6	84.1	96.6	99.5	100.0	100.0

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GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
671	3	1/ 9/86	517	2727.99	15.10	10.0	37.	33.6	62.1	87.8	100.0	100.0	100.0	100.0
675	3	1/ 9/86	1020	2727.96	15.10	11.0	29.	31.6	55.1	82.6	97.6	100.0	100.0	100.0
673	3	1/ 9/86	1351	2726.88	14.10	11.0	14.	30.0	50.0	80.1	100.0	100.0	100.0	100.0
669	3	1/ 9/86	1610	2725.91	12.80	10.0	23.	26.1	47.6	69.5	100.0	100.0	100.0	100.0
672	3	1/ 9/86	1915	2724.56	12.00	10.0	8.	48.9	68.5	85.1	99.0	100.0	100.0	100.0
564	3	1/10/86	245	2727.16	14.90	10.0	17.	42.1	72.3	93.6	100.0	100.0	100.0	100.0
678	3	1/10/86	1225	2728.24	15.50	10.0	36.	22.3	61.8	90.4	98.5	100.0	100.0	100.0
679	3	1/10/86	1400	2727.40	14.60	10.0	24.	12.1	62.9	92.4	98.6	100.0	100.0	100.0
563	3	1/10/86	1955	2724.52	11.80	10.0	17.	51.3	68.7	87.8	96.9	100.0	100.0	100.0
622	3	1/10/86	2220	2723.88	11.00	10.0	25.	36.2	56.8	86.9	100.0	100.0	100.0	100.0
565	3	1/11/86	42	2725.96	12.70	10.0	19.	26.6	51.3	81.9	100.0	100.0	100.0	100.0
566	3	1/11/86	147	2727.81	15.10	10.0	26.	20.3	36.6	53.6	100.0	100.0	100.0	100.0
680	3	1/11/86	1105	2728.60	16.50	10.0	70.	15.9	49.6	67.4	96.2	100.0	100.0	100.0
624	3	1/11/86	1322	2727.61	15.00	10.0	50.	22.3	42.8	74.9	97.2	100.0	100.0	100.0
625	3	1/11/86	1640	2725.97	13.40	10.0	31.	61.6	81.0	95.7	100.0	100.0	100.0	100.0
623	3	1/11/86	2030	2724.22	13.00	10.0	16.	67.1	80.5	92.2	100.0	100.0	100.0	100.0
711	3	1/13/86	900	2729.00	16.50	9.0	64.	36.4	65.5	89.1	100.0	100.0	100.0	100.0
708	3	1/13/86	1310	2727.40	15.20	10.0	34.	37.5	62.0	83.0	100.0	100.0	100.0	100.0
707	3	1/13/86	1505	2726.65	14.70	10.0	20.	53.6	75.2	89.3	100.0	100.0	100.0	100.0
710	3	1/13/86	2030	2724.32	12.20	10.0	9.	56.2	69.8	87.9	100.0	100.0	100.0	100.0
709	3	1/13/86	2350	2723.40	11.00	10.0	6.	50.9	58.8	77.4	100.0	100.0	100.0	100.0
736	3	1/14/86	200	2726.30	14.40	9.0	13.	52.1	68.1	90.9	100.0	100.0	100.0	100.0
738	3	1/14/86	245	2727.40	15.30	9.0	10.	61.3	85.7	91.9	100.0	100.0	100.0	100.0
737	3	1/14/86	415	2728.40	16.30	8.0	31.	45.4	82.6	99.4	100.0	100.0	100.0	100.0
712	3	1/14/86	1025	2728.35	15.80	9.0	16.	10.1	63.5	90.4	100.0	100.0	100.0	100.0
739	3	1/14/86	1330	2727.60	15.80	9.0	45.	86.2	94.5	98.0	99.0	100.0	100.0	100.0
713	3	1/14/86	1620	2726.20	14.20	9.0	21.	62.1	76.2	90.4	95.3	100.0	100.0	100.0
740	3	1/14/86	2110	2724.10	12.00	9.0	15.	57.9	76.6	93.3	100.0	100.0	100.0	100.0
715	3	1/15/86	220	2728.55	16.50	10.0	31.	42.5	74.9	90.4	97.9	100.0	100.0	100.0
719	3	1/15/86	330	2728.84	17.00	10.0	42.	40.3	63.8	87.0	100.0	100.0	100.0	100.0
717	3	1/15/86	730	2728.95	16.90	9.0	31.	13.7	61.6	89.2	96.2	100.0	100.0	100.0
720	3	1/15/86	1035	2728.28	16.40	9.0	30.	21.5	45.7	68.5	100.0	100.0	100.0	100.0
718	3	1/15/86	1435	2726.65	14.00	9.0	18.	42.2	59.0	79.6	100.0	100.0	100.0	100.0
714	3	1/15/86	2040	2724.00	11.70	10.0	4.	56.9	78.5	89.4	100.0	100.0	100.0	100.0
716	3	1/15/86	2230	2723.48	10.70	9.0	8.	69.1	81.9	90.8	100.0	100.0	100.0	100.0
743	3	1/16/86	130	2726.40	14.20	9.0	12.	51.4	77.5	94.6	100.0	100.0	100.0	100.0
752	3	1/16/86	240	2727.60	15.60	9.0	15.	32.2	71.8	92.3	97.0	100.0	100.0	100.0
742	3	1/16/86	340	2728.20	16.20	9.0	16.	26.5	65.0	88.0	100.0	100.0	100.0	100.0
751	3	1/16/86	440	2728.70	16.60	9.0	24.	26.7	68.9	90.4	100.0	100.0	100.0	100.0
750	3	1/16/86	610	2728.10	17.00	9.0	31.	39.8	75.5	94.0	100.0	100.0	100.0	100.0
746	3	1/16/86	720	2729.40	17.30	9.0	59.	18.9	48.3	78.5	100.0	100.0	100.0	100.0
753	3	1/16/86	1130	2728.90	16.80	9.0	25.	27.6	72.3	93.7	100.0	100.0	100.0	100.0
749	3	1/16/86	1230	2728.45	12.40	9.0	116.	95.4	96.5	97.9	100.0	100.0	100.0	100.0
745	3	1/16/86	1520	2727.50	15.50	9.0	41.	44.2	59.7	80.1	100.0	100.0	100.0	100.0
744	3	1/16/86	1725	2727.10	15.00	9.0	10.	29.4	53.9	81.3	100.0	100.0	100.0	100.0
747	3	1/16/86	1945	2727.15	15.30	9.0	18.	23.1	57.9	87.8	97.3	100.0	100.0	100.0
741	3	1/16/86	2110	2727.75	15.70	9.0	32.	26.3	47.7	73.8	95.5	100.0	100.0	100.0
748	3	1/16/86	2235	2728.34	16.00	9.0	24.	35.0	60.9	86.4	100.0	100.0	100.0	100.0
2	4	7/ 1/83	935	24.60	33.10		1568.	24.1	25.6	35.0	80.9	99.3	99.9	100.0
4	4	7/ 2/83	1330	24.30	32.00	13.8	1442.	16.8	19.1	26.8	54.9	98.6	99.8	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
486	4	9/16/83	941	12.80	21.80	12.0	72.	10.2	25.3	55.7	95.8	99.8	100.0	100.0
493	4	9/17/83	1015	13.19	21.80		62.	1.4	20.4	61.7	95.2	99.2	100.0	100.0
880	4	9/17/83	1715	13.26	21.20	12.5	139.	12.8	28.7	60.1	96.2	99.6	100.0	100.0
881	4	9/18/83	915	13.34	22.10	12.0	179.	9.7	16.4	35.4	85.2	100.0	100.0	100.0
494	4	9/19/83	1720	13.30	22.40	12.0	402.	78.1	82.4	91.6	99.5	99.9	100.0	100.0
478	4	9/21/83	920	13.32	21.90	12.5	192.	38.6	53.8	80.4	98.5	99.6	100.0	100.0
479	4	9/21/83	1700	13.26	21.80	12.5	159.	28.7	46.9	75.0	96.7	99.2	100.0	100.0
480	4	9/23/83	1710	13.34	21.90		323.	61.8	71.1	85.6	98.6	99.8	100.0	100.0
481	4	9/24/83	950	13.62	22.00	12.5	137.	19.6	55.0	69.6	97.5	100.0	100.0	100.0
482	4	9/25/83	930	13.30	21.60	11.0	3436.	89.9	93.9	97.8	99.6	100.0	100.0	100.0
483	4	9/25/83	1540	12.96	21.50	12.0	1934.	88.9	94.2	97.8	99.4	99.9	100.0	100.0
484	4	9/27/83	1400	13.36	22.00	13.0	339.	23.9	47.9	78.5	97.1	99.1	100.0	100.0
485	4	9/28/83	935	13.48	22.00	12.0	682.	76.2	84.5	93.9	99.5	99.9	100.0	100.0
313	4	9/28/83	1335	13.44	22.00	12.0	629.	69.0	78.2	93.3	99.8	100.0	100.0	100.0
314	4	9/29/83	820	13.38	21.90	12.0	468.	57.3	70.4	87.1	99.1	100.0	100.0	100.0
477	4	9/29/83	1030	13.30	22.10		892.	60.3	65.9	72.7	87.9	99.1	100.0	100.0
315	4	9/30/83	900	13.87	22.10	12.5	6781.	86.4	91.4	97.6	99.5	99.9	100.0	100.0
316	4	9/30/83	1300	13.47	22.00	12.5	4874.	87.3	90.6	97.0	99.8	100.0	100.0	100.0
317	4	10/ 1/83	840	14.81	22.90	13.0	9739.	82.9	86.6	97.2	99.9	100.0	100.0	100.0
318	4	10/ 2/83	850	14.67	23.10	12.5	16568.	82.6	85.8	92.9	99.3	99.8	100.0	100.0
537	4	10/ 2/83	1230	14.40	22.40	13.0	15215.	85.2	92.2	97.3	99.6	99.9	100.0	100.0
527	4	10/ 3/83	830	14.19	22.10	12.0	6376.	81.8	90.3	96.7	99.1	99.9	100.0	100.0
528	4	10/ 4/83	1515	14.16	22.10	13.0	5652.	78.7	87.9	97.0	99.7	99.9	100.0	100.0
529	4	10/ 6/83	1410	13.64	22.90		2670.	71.6	80.5	96.0	99.6	100.0	100.0	100.0
530	4	10/ 7/83	905	13.57	22.80	12.0	4302.	87.5	89.2	95.4	99.7	100.0	100.0	100.0
531	4	10/ 7/83	1155	13.55	22.70	12.0	608.	14.7	40.2	76.0	97.9	99.6	100.0	100.0
532	4	10/ 8/83	840	13.73	22.90	12.0	1312.	48.8	58.0	83.8	97.1	99.7	100.0	100.0
533	4	10/ 9/83	830	13.64	22.40	12.0	778.	51.7	61.7	80.7	98.9	99.9	100.0	100.0
534	4	10/ 9/83	1150	13.61	22.70	12.0	853.	39.3	53.4	86.6	99.1	99.9	100.0	100.0
535	4	10/11/83	830	13.59	22.60	12.0	507.	17.0	38.3	82.9	99.1	99.7	99.9	100.0
536	4	10/11/83	1052	13.57	22.40	12.0	356.	34.3	69.3	76.3	94.2	98.0	100.0	100.0
594	4	10/13/83	938	12.45	21.60	12.0	516.	25.0	41.9	84.0	96.5	98.5	100.0	100.0
595	4	10/13/83	1130	12.47	21.60	12.0	467.	25.0	46.6	88.7	98.8	99.4	100.0	100.0
596	4	10/17/83	1130	12.58	21.20	12.0	227.	16.7	40.0	92.1	99.7	100.0	100.0	100.0
597	4	10/18/83	930	12.50	20.70	12.0	214.	.9	24.7	79.0	96.2	99.6	100.0	100.0
598	4	10/18/83	1630	12.44	21.40	13.0	135.	4.3	25.9	78.4	98.4	100.0	100.0	100.0
599	4	10/19/83	900	12.56	21.70	12.0	401.	5.9	30.3	67.8	98.2	99.7	100.0	100.0
601	4	10/20/83	1000	12.94	22.00	12.0	474.	1.1	18.6	60.3	98.1	100.0	100.0	100.0
600	4	10/20/83	1700	12.86	21.80	13.0	289.	3.9	26.1	75.9	96.4	99.8	100.0	100.0
602	4	10/21/83	900	12.58	21.50	12.0	424.	2.3	11.3	44.7	97.4	100.0	100.0	100.0
603	4	10/22/83	900	12.57	21.40	12.5	294.	3.2	18.3	57.0	95.5	100.0	100.0	100.0
538	4	10/22/83	1645	12.54	21.30	13.0	409.	5.4	23.2	72.2	94.4	99.2	100.0	100.0
539	4	10/23/83	1410	12.62	21.60	13.0	253.	2.2	16.0	72.9	97.7	100.0	100.0	100.0
540	4	10/24/83	900	13.00	22.30	12.5	356.	6.8	20.3	63.1	91.3	99.8	100.0	100.0
541	4	10/24/83	1700	13.50	22.50	13.5	639.	11.0	22.7	67.5	96.3	99.9	100.0	100.0
542	4	10/26/83	1623	12.68	21.70		234.	3.8	20.9	63.0	94.5	99.6	100.0	100.0
543	4	10/27/83	1220	13.62	22.50		322.	1.6	19.7	58.2	83.1	99.6	100.0	100.0
544	4	10/28/83	1006	13.61	22.50	12.5	271.	.2	13.4	50.6	95.8	99.7	100.0	100.0
545	4	10/28/83	1610	13.53	22.40		313.	4.4	24.1	74.5	98.2	99.7	100.0	100.0
899	4	10/29/83	1019	13.64	22.20	12.5	288.	1.9	14.0	52.5	95.9	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
188	4	8/ 6/83	1220	16.00	24.90	11.5	2559.	76.7	81.3	91.4	99.4	99.8	100.0	100.0
190	4	8/ 7/83	855	16.13	24.20	12.0	3880.	82.2	88.0	96.0	99.7	100.0	100.0	100.0
183	4	8/ 8/83	900	16.09	23.70	11.0	2496.	79.1	83.1	94.5	100.0	100.0	100.0	100.0
178	4	8/ 9/83	1130	16.05	23.30	11.0	1979.	74.8	82.3	91.7	99.3	100.0	100.0	100.0
177	4	8/10/83	835	16.08	23.20		1864.	82.2	87.0	94.3	99.7	100.0	100.0	100.0
175	4	8/11/83	815	14.78	22.50		1300.	83.8	86.9	94.8	99.5	100.0	100.0	100.0
176	4	8/11/83	1003	14.78	22.30		1871.	86.2	89.9	95.3	99.5	99.9	100.0	100.0
174	4	8/12/83	750		21.10		2052:	87.6	95.3	98.1	98.7	98.8	100.0	100.0
173	4	8/13/83	1545	13.53	19.90		2494.	87.8	91.1	97.7	99.8	99.9	100.0	100.0
172	4	8/13/83	1705	13.50	20.10		2984.	87.8	93.4	98.0	99.8	99.9	100.0	100.0
167	4	8/14/83	806	13.39	20.20		1275.	80.4	85.2	91.8	98.6	99.9	100.0	100.0
168	4	8/15/83	855	13.50	20.60		1026.	58.1	74.4	91.1	98.8	99.9	100.0	100.0
166	4	8/15/83	958	13.46	20.60		910.	52.7	71.0	88.9	98.8	99.6	100.0	100.0
170	4	8/16/83	833	13.35	20.50		1035.	75.5	81.4	92.6	99.1	100.0	100.0	100.0
169	4	8/17/83	940	13.46	20.60		3228.	93.7	95.8	98.3	99.8	100.0	100.0	100.0
171	4	8/17/83	1052	13.42	20.30		675.	67.6	78.3	91.0	98.1	99.3	100.0	100.0
402	4	8/18/83	800	13.50	20.80		485.	65.8	74.6	89.9	98.8	100.0	100.0	100.0
403	4	8/19/83	930	13.59	21.90		538.	64.6	71.0	83.4	98.3	99.4	100.0	100.0
404	4	8/19/83	1530	13.42	21.60		524.	62.3	71.6	85.6	98.2	99.0	100.0	100.0
405	4	8/20/83	1030	13.46	23.20		973.	85.0	89.3	95.8	99.3	99.7	100.0	100.0
406	4	8/22/83	900		22.40		871.	81.2	84.7	89.6	98.2	99.5	100.0	100.0
407	4	8/22/83	1700	13.27	20.60	13.5	1786.	87.3	90.1	95.5	99.4	99.9	100.0	100.0
408	4	8/23/83	1042	13.44	21.60	12.5	2248.	61.7	63.7	67.3	83.7	98.9	100.0	100.0
409	4	8/24/83	930	13.46	20.40	13.0	1030.	80.2	82.6	89.1	98.2	99.8	100.0	100.0
410	4	8/24/83	1645	13.48	21.70	13.0	1279.	49.0	51.8	57.8	79.5	94.7	100.0	100.0
411	4	8/25/83	1030	13.42	21.40	13.0	736.	83.4	87.0	90.5	98.3	99.5	100.0	100.0
412	4	8/26/83	900	13.31	21.40	13.0	543.	66.8	71.9	93.8	99.4	99.7	100.0	100.0
413	4	8/26/83	1630	13.48	21.70	14.0	681.	32.8	39.3	64.5	98.5	99.4	100.0	100.0
414	4	8/27/83	1015	13.49	21.70	13.0	330.	47.0	58.4	80.0	99.3	99.9	100.0	100.0
415	4	8/28/83	645	13.46	21.40	12.5	785.	21.8	26.3	46.2	88.4	99.1	99.7	100.0
416	4	8/29/83	1540	13.40	21.60	13.5	448.	12.9	20.9	38.8	63.3	74.4	87.5	100.0
417	4	9/ 1/83	835	13.45	20.10	13.0	127.	19.0	34.9	65.0	97.3	99.7	100.0	100.0
418	4	9/ 1/83	1645	13.45	21.40	13.0	90.	17.8	34.7	68.2	96.3	99.4	99.6	100.0
325	4	9/ 2/83	1225	13.41	21.90	13.0	163.	43.0	53.9	75.3	96.7	99.6	100.0	100.0
326	4	9/ 3/83	845	13.37	21.70	13.0	141.	21.2	34.7	62.2	98.0	99.8	100.0	100.0
327	4	9/ 3/83	1810	13.34	21.80	13.0	123.	30.7	47.9	79.1	99.2	100.0	100.0	100.0
330	4	9/ 5/83	930	13.46	21.80	12.5	89.	11.4	26.6	59.4	96.4	99.7	100.0	100.0
329	4	9/ 5/83	1640	13.36	21.80	13.0	171.	15.1	28.1	55.2	93.1	99.5	99.8	100.0
319	4	9/ 6/83	855	13.47	21.60	12.5	92.	14.1	22.6	52.5	93.8	99.7	100.0	100.0
321	4	9/ 8/83	1032	13.47	21.50	13.0	340.	7.8	14.9	36.4	91.3	99.6	100.0	100.0
320	4	9/ 8/83	1657	13.42	23.20	13.0	154.	10.2	24.7	56.2	97.4	99.6	100.0	100.0
322	4	9/ 9/83	1103	13.35	22.30		103.	15.8	28.0	49.3	88.4	97.7	100.0	100.0
323	4	9/ 9/83	1812	13.36	22.70	13.0	113.	14.2	27.1	61.5	95.1	100.0	100.0	100.0
324	4	9/10/83	903	13.08	22.30	12.0	387.	2.3	8.3	20.1	59.4	95.7	99.3	100.0
487	4	9/11/83	1725	12.44	21.80	12.0	69.	21.3	37.5	72.1	98.9	100.0	100.0	100.0
488	4	9/12/83	1115	13.12	22.70	12.0	80.	14.0	28.0	50.2	90.4	100.0	100.0	100.0
489	4	9/13/83	708		21.60	12.0	103.	19.4	35.3	71.0	97.7	99.9	100.0	100.0
490	4	9/14/83	1654	12.88	22.10	13.0	91.	12.2	28.4	59.6	98.2	99.5	100.0	100.0
492	4	9/15/83	1050	13.48	23.00		109.	3.1	25.3	67.4	95.3	99.6	100.0	100.0
491	4	9/15/83	1628	13.45	22.90		133.	8.1	27.2	67.9	97.1	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
25	4	10/12/85	205	5.16	15.20	12.0	249.	98.2	99.1	99.6	99.8	99.9	100.0	100.0
47	4	10/12/85	525	5.95	15.20	12.0	238.	97.5	98.7	99.6	100.0	100.0	100.0	100.0
24	4	10/12/85	2105	6.99	16.30	12.0	926.	99.1	99.5	99.8	99.9	100.0	100.0	100.0
23	4	10/12/85	2255	6.22	15.80	12.0	1409.	98.8	99.1	99.6	99.8	99.9	100.0	100.0
26	4	10/13/85	150	5.10	15.00	12.0	2499.	99.8	99.8	99.9	100.0	100.0	100.0	100.0
29	4	10/13/85	440	4.11	13.10	12.0	3395.	99.4	99.5	99.6	100.0	100.0	100.0	100.0
28	4	10/13/85	1730	8.02	17.60	12.0	2749.	99.0	99.5	99.7	99.9	100.0	100.0	100.0
27	4	10/13/85	2155	6.44	15.80	12.0	164.	94.7	97.1	98.8	99.6	99.8	100.0	100.0
30	4	10/14/85	200	4.84	14.30	12.0	127.	93.6	96.1	98.4	99.7	100.0	100.0	100.0
142	4	10/17/85	1745	8.80	17.90	12.0	423.	99.1	99.8	100.0	100.0	100.0	100.0	100.0
31	4	10/17/85	2240	7.00	13.70	12.0	359.	98.7	99.6	99.8	99.9	100.0	100.0	100.0
34	4	10/18/85	245	6.05	15.20	12.0	344.	91.6	93.9	96.5	98.4	98.8	99.7	100.0
35	4	10/18/85	800	8.30	18.20	11.0	343.	97.9	99.0	99.6	99.9	100.0	100.0	100.0
36	4	10/18/85	1340	8.45	18.20	12.0	347.	98.1	99.2	99.6	99.9	99.9	100.0	100.0
32	4	10/18/85	1715	8.22	18.40	12.0	270.	97.3	98.6	99.2	99.9	100.0	100.0	100.0
33	4	10/18/85	2120	7.30	17.20	12.0	259.	95.3	97.6	99.5	99.8	99.9	100.0	100.0
40	4	10/19/85	550	8.42	18.90	11.0	249.	96.4	98.1	99.5	99.9	100.0	100.0	100.0
39	4	10/19/85	935	9.76	19.06	11.0	337.	97.2	99.3	99.8	100.0	100.0	100.0	100.0
38	4	10/19/85	1115	9.90	19.06	11.0	317.	94.7	97.7	99.3	99.7	99.8	100.0	100.0
37	4	10/19/85	1470	9.74	19.60	12.0	242.	96.0	98.5	99.3	99.8	99.9	100.0	100.0
46	4	10/20/85	135	6.18	16.30	11.0	171.	95.4	97.7	99.3	99.8	99.9	100.0	100.0
45	4	10/20/85	525	5.28	15.20	11.0	162.	98.5	99.3	99.8	99.9	100.0	100.0	100.0
43	4	10/20/85	910	5.86	15.50	11.0	159.	98.7	99.6	99.9	100.0	100.0	100.0	100.0
41	4	10/20/85	1100	6.90	16.70	11.0	184.	98.7	99.5	99.7	99.8	99.9	100.0	100.0
58	4	10/20/85	1405	8.29	17.70	12.0	232.	96.8	97.9	98.7	99.9	100.0	100.0	100.0
44	4	10/20/85	1640	8.50	18.10	12.0	244.	95.6	98.2	99.6	100.0	100.0	100.0	100.0
42	4	10/20/85	2230	7.35	17.20	12.0	139.	95.0	97.7	99.1	100.0	100.0	100.0	100.0
146	4	11/10/85	925	10.95	18.10	11.0	65.	54.1	79.1	96.1	99.4	100.0	100.0	100.0
144	4	11/10/85	1635	10.55	19.00	11.0	110.	59.4	81.6	95.3	99.2	100.0	100.0	100.0
145	4	11/10/85	2030	8.30	17.50	11.0	84.	56.9	80.0	93.8	98.1	100.0	100.0	100.0
152	4	11/11/85	530	6.65	16.00	11.0	52.	73.8	92.3	98.3	99.5	100.0	100.0	100.0
151	4	11/11/85	1050	6.94	16.40	11.0	47.	56.4	78.0	92.3	98.0	100.0	100.0	100.0
147	4	11/11/85	1135	6.96	16.20	11.0	22.	75.3	88.5	96.7	99.3	100.0	100.0	100.0
149	4	11/11/85	1500	8.12	16.80	11.0	38.	62.8	79.5	91.0	98.0	100.0	100.0	100.0
150	4	11/11/85	2015	7.80	17.40	11.0	34.	58.2	76.2	90.7	96.9	100.0	100.0	100.0
148	4	11/11/85	2135	7.55	16.70	11.0	29.	74.7	91.6	98.2	99.2	100.0	100.0	100.0
155	4	11/12/85	952	9.30	17.80	10.0	42.	63.5	82.7	96.0	99.8	100.0	100.0	100.0
153	4	11/12/85	1400	9.89	18.60	10.0	51.	51.5	73.5	91.7	99.0	100.0	100.0	100.0
157	4	11/12/85	1535	9.83	19.50	10.0	35.	54.2	87.3	99.5	99.9	100.0	100.0	100.0
156	4	11/12/85	1725	9.40	18.50	10.0	49.	51.5	75.3	92.2	98.6	100.0	100.0	100.0
154	4	11/12/85	2200	8.00	17.20	10.0	32.	61.3	84.7	97.2	99.3	100.0	100.0	100.0
162	4	11/13/85	310	7.57	16.10	9.0	65.	78.2	86.5	95.0	99.3	100.0	100.0	100.0
158	4	11/13/85	550	8.98	18.30	9.0	50.	66.4	81.7	93.8	96.8	100.0	100.0	100.0
161	4	11/13/85	645	9.36	16.40	9.0	70.	77.9	88.2	96.9	99.6	100.0	100.0	100.0
160	4	11/13/85	1452	9.64	18.30	11.0	65.	32.0	58.7	89.8	98.6	100.0	100.0	100.0
159	4	11/13/85	1935	8.27	17.10	11.0	55.	78.6	90.0	97.9	99.7	100.0	100.0	100.0
248	4	11/17/85	1145	8.42	18.30	10.0	26.	89.0	95.1	98.7	100.0	100.0	100.0	100.0
249	4	11/17/85	2245	7.91	17.30	9.0	21.	78.7	92.6	99.1	99.9	100.0	100.0	100.0
245	4	11/18/85	645	7.80	17.30	9.0	20.	62.5	75.1	90.1	94.8	100.0	100.0	100.0
244	4	11/18/85	725	7.90	17.20	9.0	14.	75.2	84.4	92.6	96.9	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
901	4	10/30/83	953	13.67	22.30	12.5	308.	1.7	12.3	56.8	97.0	100.0	100.0	100.0
900	4	10/30/83	1601	13.11	21.80	12.5	575.	1.6	7.5	29.5	75.0	98.6	100.0	100.0
902	4	10/31/83	923	13.68	22.40		275.	8.5	23.1	64.2	96.8	99.7	100.0	100.0
903	4	11/ 1/83	1146	13.62	22.40		252.	2.0	17.0	65.9	86.7	99.5	100.0	100.0
904	4	11/ 1/83	1637	13.11	21.80	12.5	185.	10.7	68.7	98.4	99.7	100.0	100.0	100.0
905	4	11/ 2/83	956	14.18	22.40	12.5	276.	.8	19.6	73.6	99.2	100.0	100.0	100.0
882	4	11/ 3/83	1124	13.51	22.70		405.	3.6	11.2	40.5	81.2	99.5	100.0	100.0
883	4	11/ 3/83	1546	13.52	22.40		259.	7.9	23.0	73.3	98.2	99.8	100.0	100.0
884	4	11/ 6/83	1100	13.63	22.50	12.0	210.	8.9	26.7	77.9	96.8	100.0	100.0	100.0
885	4	11/ 7/83	1600	12.58	21.00	13.0	218.	12.7	45.9	94.6	99.4	100.0	100.0	100.0
886	4	11/ 8/83	1500	12.42	21.20	12.0	210.	13.8	29.2	68.5	97.5	100.0	100.0	100.0
887	4	11/ 9/83	1040	12.60	21.20	11.5	253.	23.7	73.1	99.1	100.0	100.0	100.0	100.0
888	4	11/10/83	1115	12.38	21.20	11.0	130.	20.3	33.1	67.6	97.3	100.0	100.0	100.0
889	4	11/10/83	1600	12.34	21.20	11.5	204.	20.2	31.6	71.5	98.4	100.0	100.0	100.0
890	4	11/11/83	1045	12.40	20.90	12.0	168.	20.5	31.0	67.8	97.2	100.0	100.0	100.0
891	4	11/12/83	1000	12.56	21.30	12.0	175.	17.7	31.8	71.4	93.1	100.0	100.0	100.0
892	4	11/13/83	1045	12.51	21.60	12.5	247.	7.0	17.1	56.2	93.2	100.0	100.0	100.0
931	4	11/17/83	1000	12.16		12.0	252.	5.0	14.0	57.9	94.3	100.0	100.0	100.0
932	4	11/17/83	1510	12.17		12.0	473.	3.1	7.3	29.6	78.3	98.6	100.0	100.0
894	4	11/18/83	1000	11.60	23.90	12.0	345.	5.1	13.8	38.4	94.5	98.6	100.0	100.0
895	4	11/19/83	1105	12.35	21.20	12.0	921.	73.3	75.8	84.3	94.1	98.7	100.0	100.0
896	4	11/19/83	1500	12.38	20.80	12.0	747.	60.6	65.6	83.9	97.2	98.9	100.0	100.0
897	4	11/20/83	1510	12.63	20.80	12.0	188.	7.6	18.4	50.0	87.2	93.0	96.4	100.0
898	4	11/21/83	930	12.68	21.20	12.0	167.	6.3	26.9	64.9	94.2	96.5	100.0	100.0
751	4	11/21/83	1030	12.66	21.10	12.0	203.	7.4	21.0	61.3	94.9	98.3	100.0	100.0
752	4	11/22/83	1000	12.66	20.00	11.5	209.	11.4	21.1	42.7	90.0	96.7	100.0	100.0
753	4	11/28/83	1620	12.60	21.60		548.	29.7	33.1	49.3	92.9	98.5	100.0	100.0
754	4	11/30/83	1445	12.62	21.30		219.	27.4	38.2	66.5	97.3	99.3	100.0	100.0
731	4	12/ 1/83	1025	12.56	21.50		104.	33.5	46.8	72.4	89.4	100.0	100.0	100.0
733	4	12/ 2/83	1045	12.58	21.40		153.	4.8	16.2	54.4	85.9	89.3	94.3	100.0
732	4	12/ 2/83	1425	12.44	21.50		160.	10.7	24.8	62.4	90.0	94.3	100.0	100.0
734	4	12/ 3/83	1030	12.27	21.40		123.	4.2	17.0	53.9	90.9	96.7	100.0	100.0
736	4	12/ 4/83	1130	12.52	21.80		163.	9.2	20.2	53.6	95.7	99.3	100.0	100.0
735	4	12/ 4/83	1445	12.58	21.20		317.	6.7	6.7	25.8	77.6	95.1	98.4	100.0
737	4	12/ 5/83	1130	12.64	21.40		371.	1.7	9.5	43.1	86.4	98.9	100.0	100.0
738	4	12/ 6/83	1320	12.52	21.10		189.	7.6	20.9	67.7	97.6	99.7	100.0	100.0
740	4	12/ 7/83	1100	12.60	21.60	12.0	135.	10.1	21.4	55.0	96.1	99.9	100.0	100.0
739	4	12/ 7/83	1500	12.46	21.50		150.	6.2	18.5	57.7	97.4	99.4	100.0	100.0
743	4	12/ 8/83	1120	12.62	21.80		128.	7.6	19.4	60.6	93.6	100.0	100.0	100.0
741	4	12/ 8/83	1500	12.66	21.70		155.	8.4	19.6	51.0	95.2	99.8	100.0	100.0
742	4	12/ 9/83	1440	12.75	21.60		256.	5.1	9.0	19.4	88.4	99.8	100.0	100.0
744	4	12/10/83	1145	12.48	21.50		110.	21.8	33.1	68.2	97.3	100.0	100.0	100.0
746	4	12/11/83	1200	12.71	21.80		149.	6.5	17.3	46.9	92.6	99.2	100.0	100.0
745	4	12/11/83	1530	12.65	21.60		127.	11.0	21.1	54.2	95.4	100.0	100.0	100.0
747	4	12/12/83	1305	12.68	21.50	12.5	374.	4.6	8.2	22.5	82.0	99.0	100.0	100.0
748	4	12/13/83	1105	12.72	21.90		375.	5.0	9.9	27.5	82.0	99.3	100.0	100.0
749	4	12/14/83	1145	12.68	21.60		133.	9.8	20.4	54.8	95.9	100.0	100.0	100.0
750	4	12/14/83	1530	12.58	21.90		107.	11.3	20.6	67.7	97.5	100.0	100.0	100.0
22	4	10/11/85	1335	9.60	18.20	12.0	310.	87.0	90.9	97.1	99.8	99.9	100.0	100.0
21	4	10/11/85	2215	6.57	16.10	12.0	386.	88.7	95.8	99.4	99.8	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
534	4	12/18/85	120	5.66	15.40	9.0	30.	78.3	93.1	98.4	100.0	100.0	100.0	100.0
533	4	12/18/85	240	5.04	14.80	9.0	25.	89.6	97.0	100.0	100.0	100.0	100.0	100.0
532	4	12/18/85	550	4.70	14.30	9.0	22.	87.4	93.3	97.8	100.0	100.0	100.0	100.0
536	4	12/18/85	735	8.01	17.70	9.0	42.	52.4	78.7	93.9	100.0	100.0	100.0	100.0
537	4	12/18/85	925	9.29	18.90	9.0	67.	36.1	58.5	84.9	98.2	100.0	100.0	100.0
539	4	12/18/85	1135	10.16	19.90	9.0	85.	42.1	63.7	89.1	100.0	100.0	100.0	100.0
540	4	12/18/85	1310	10.70	20.30	9.0	83.	39.0	67.6	94.1	100.0	100.0	100.0	100.0
541	4	12/18/85	1340	10.60	20.40	9.0	118.	29.4	62.0	90.3	100.0	100.0	100.0	100.0
465	4	12/18/85	1600	10.00	20.10	9.0	105.	29.4	61.8	91.6	99.7	100.0	100.0	100.0
538	4	12/18/85	1715	9.60	19.20	9.0	85.	42.9	74.7	95.3	100.0	100.0	100.0	100.0
535	4	12/18/85	2025	8.00	17.60	9.0	59.	49.9	72.7	89.9	99.0	100.0	100.0	100.0
466	4	12/19/85	435	4.50	14.00	10.0	10.	79.7	93.7	99.2	100.0	100.0	100.0	100.0
470	4	12/19/85	800	8.55	17.90	9.0	30.	48.5	81.4	96.5	100.0	100.0	100.0	100.0
471	4	12/19/85	1130	9.40	18.80	10.0	51.	40.9	68.9	92.3	99.0	100.0	100.0	100.0
473	4	12/19/85	1340	9.72	19.30	9.0	73.	31.6	65.8	90.1	100.0	100.0	100.0	100.0
472	4	12/19/85	1710	8.88	19.00	9.0	55.	38.3	70.9	95.6	100.0	100.0	100.0	100.0
469	4	12/19/85	2020	7.60	17.70	9.0	23.	64.9	91.4	99.6	100.0	100.0	100.0	100.0
468	4	12/19/85	2345	6.70	16.90	10.0	19.	70.1	85.7	96.4	99.7	100.0	100.0	100.0
474	4	12/20/85	145	7.40	16.70	10.0	16.	62.0	84.0	97.1	100.0	100.0	100.0	100.0
501	4	12/20/85	350	8.95	18.80	10.0	19.	57.6	75.7	93.9	100.0	100.0	100.0	100.0
487	4	12/20/85	600	9.32	19.00	10.0	44.	41.8	62.4	84.7	89.9	93.3	100.0	100.0
485	4	12/20/85	1000	8.90	18.40	10.0	29.	54.1	74.1	92.0	97.0	100.0	100.0	100.0
486	4	12/20/85	1400	9.50	18.70	10.0	52.	31.7	61.5	91.5	98.9	100.0	100.0	100.0
476	4	12/20/85	1510	9.40	19.20	10.0	45.	24.3	59.5	90.1	99.3	100.0	100.0	100.0
475	4	12/20/85	1740	8.60	18.10	10.0	30.	44.4	74.8	93.1	100.0	100.0	100.0	100.0
484	4	12/20/85	2000	7.50	17.60	10.0	18.	47.8	78.3	95.0	99.2	100.0	100.0	100.0
483	4	12/20/85	2145	6.60	16.50	10.0	28.	56.0	76.6	94.5	100.0	100.0	100.0	100.0
557	4	1/13/86	745	11.18	19.10	11.0	73.	27.3	32.8	47.2	92.3	95.3	100.0	100.0
684	4	1/13/86	815	11.40	20.20	11.0	91.	22.3	48.4	86.5	97.9	100.0	100.0	100.0
561	4	1/13/86	948	11.64	20.90	11.0	126.	18.2	36.3	75.2	97.6	100.0	100.0	100.0
558	4	1/13/86	1020	11.62	20.60	11.0	122.	17.3	19.6	27.5	96.7	100.0	100.0	100.0
560	4	1/13/86	1105	11.56	20.40	11.0	137.	19.3	43.1	80.5	99.1	100.0	100.0	100.0
559	4	1/13/86	1150	11.48	20.40	11.0	128.	19.9	34.0	77.6	96.2	99.5	100.0	100.0
685	4	1/13/86	1307	11.15	17.90	11.0	121.	21.9	51.9	88.7	98.6	100.0	100.0	100.0
687	4	1/13/86	1345	10.92	19.40	11.0	116.	29.5	48.9	86.0	98.3	100.0	100.0	100.0
686	4	1/13/86	1415	10.74	18.90	11.0	119.	21.0	44.2	79.3	95.6	100.0	100.0	100.0
682	4	1/13/86	1935	8.04	18.00	10.0	184.	18.0	58.7	88.7	95.7	100.0	100.0	100.0
688	4	1/13/86	2015	7.65	17.40	10.0	239.	18.4	55.3	89.1	96.9	100.0	100.0	100.0
681	4	1/13/86	2235	6.40	16.60	10.0	263.	39.3	78.2	97.4	99.6	100.0	100.0	100.0
683	4	1/13/86	2315	6.06	16.30	10.0	185.	38.3	71.7	89.8	98.9	100.0	100.0	100.0
690	4	1/14/86	405	4.16	13.80	10.0	25.	42.2	64.4	87.0	94.7	100.0	100.0	100.0
689	4	1/14/86	445	4.45	13.70	10.0	19.	45.1	72.0	91.7	95.3	100.0	100.0	100.0
691	4	1/14/86	602	8.20	14.50	10.0	12.	45.3	63.4	78.1	94.2	100.0	100.0	100.0
543	4	1/14/86	749	10.80	18.40	11.0	126.	9.4	36.9	89.0	99.1	100.0	100.0	100.0
547	4	1/14/86	914	11.05	19.10	11.0	134.	11.9	22.6	44.6	98.1	100.0	100.0	100.0
548	4	1/14/86	1135	11.50	19.70	11.0	144.	17.0	26.7	41.4	98.9	100.0	100.0	100.0
542	4	1/14/86	1305	11.40	20.40	11.0	141.	15.5	21.7	75.2	98.7	100.0	100.0	100.0
550	4	1/14/86	1342	11.22	20.30	11.0	144.	20.6	37.5	74.0	98.3	100.0	100.0	100.0
546	4	1/14/86	1515	10.60	19.80	11.0	106.	22.6	25.9	71.0	98.6	100.0	100.0	100.0
544	4	1/14/86	1555	10.35	19.70	11.0	82.	23.2	49.4	83.5	100.0	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
246	4	11/18/85	1045	7.94	17.30	9.0	23.	71.7	82.7	93.8	97.7	100.0	100.0	100.0
247	4	11/18/85	1115	7.94	17.60	9.0	21.	68.7	80.7	97.0	99.3	100.0	100.0	100.0
242	4	11/19/85	1030	9.65	19.00	9.0	26.	60.6	86.1	98.4	100.0	100.0	100.0	100.0
243	4	11/19/85	1100	9.61	18.70	9.0	42.	69.0	82.9	97.4	100.0	100.0	100.0	100.0
302	4	11/19/85	1655	9.67	19.10	9.0	22.	58.8	85.0	94.4	97.5	100.0	100.0	100.0
300	4	11/19/85	1810	9.39	18.70	9.0	35.	65.3	82.7	98.1	100.0	100.0	100.0	100.0
301	4	11/19/85	2255	7.61	17.00	8.0	20.	65.6	86.6	96.0	98.5	100.0	100.0	100.0
291	4	11/20/85	110	7.15	16.00	8.0	16.	52.6	75.9	90.7	95.9	100.0	100.0	100.0
298	4	11/20/85	505	8.93	18.70	9.0	22.	54.4	71.1	89.8	98.3	100.0	100.0	100.0
289	4	11/20/85	635	9.59	19.30	8.0	37.	55.0	70.8	92.9	99.2	100.0	100.0	100.0
288	4	11/20/85	735	9.75	19.70	8.0	36.	46.9	69.9	89.3	96.7	100.0	100.0	100.0
290	4	11/20/85	942	10.15	19.70	10.0	28.	47.7	75.4	95.4	98.7	100.0	100.0	100.0
296	4	11/20/85	1130	10.56	19.90	9.0	37.	49.0	68.9	94.7	100.0	100.0	100.0	100.0
295	4	11/20/85	1150	10.60	20.20	9.0	27.	30.6	61.8	93.5	98.4	100.0	100.0	100.0
297	4	11/20/85	1800	9.35	18.60	9.0	30.	52.9	83.6	97.7	100.0	100.0	100.0	100.0
294	4	11/20/85	2115	8.30	18.20	9.0	31.	71.3	88.1	95.5	97.6	100.0	100.0	100.0
299	4	11/21/85	135	7.83	17.80	8.0	18.	70.9	88.3	97.9	100.0	100.0	100.0	100.0
343	4	12/11/85	800	10.02	18.70	9.0	227.	57.7	81.5	96.1	99.9	100.0	100.0	100.0
363	4	12/11/85	1655	10.43	19.10	10.0	307.	52.4	86.3	98.8	100.0	100.0	100.0	100.0
342	4	12/11/85	2100	8.52	17.60	10.0	183.	63.0	87.0	97.3	100.0	100.0	100.0	100.0
364	4	12/11/85	2315	7.46	15.60	9.0	84.	69.7	90.5	98.3	100.0	100.0	100.0	100.0
367	4	12/12/85	335	9.15	17.70	8.0	122.	65.5	87.6	98.7	100.0	100.0	100.0	100.0
366	4	12/12/85	505	10.28	19.00	8.0	189.	53.1	80.8	96.4	100.0	100.0	100.0	100.0
352	4	12/12/85	930	10.60	19.30	9.0	205.	42.2	76.0	95.9	100.0	100.0	100.0	100.0
346	4	12/12/85	1010	10.68	18.90	9.0	274.	49.1	67.2	90.9	99.7	100.0	100.0	100.0
345	4	12/12/85	1535	10.10	18.70	9.0	182.	56.3	82.5	97.0	100.0	100.0	100.0	100.0
344	4	12/12/85	1650	9.68	18.30	9.0	115.	53.3	86.8	98.8	100.0	100.0	100.0	100.0
365	4	12/12/85	2040	8.04	17.20	9.0	88.	63.6	86.6	95.3	99.7	100.0	100.0	100.0
347	4	12/13/85	140	6.14	15.20	9.0	79.	71.7	84.4	95.4	100.0	100.0	100.0	100.0
348	4	12/13/85	235	6.26	15.40	9.0	79.	78.9	90.3	98.0	100.0	100.0	100.0	100.0
349	4	12/13/85	420	9.52	19.20	9.0	102.	56.3	83.4	97.5	100.0	100.0	100.0	100.0
350	4	12/13/85	450	10.20	20.00	9.0	141.	45.1	71.7	92.9	99.7	100.0	100.0	100.0
368	4	12/13/85	610	11.11	20.20	9.0	188.	41.0	66.5	90.4	99.4	100.0	100.0	100.0
354	4	12/13/85	1050	12.42	20.60	9.0	470.	26.1	65.1	92.9	100.0	100.0	100.0	100.0
351	4	12/13/85	1130	12.41	20.20	9.0	507.	25.1	62.7	93.9	99.8	100.0	100.0	100.0
353	4	12/13/85	1418	11.62	20.00	9.0	697.	41.7	79.5	96.2	100.0	100.0	100.0	100.0
369	4	12/13/85	1518	11.12	19.70	9.0	703.	48.8	84.7	98.4	100.0	100.0	100.0	100.0
422	4	12/13/85	2345	6.72	15.60	9.0	150.	75.0	91.6	98.6	100.0	100.0	100.0	100.0
355	4	12/14/85	135	7.19	16.00	10.0	131.	62.9	90.1	99.0	100.0	100.0	100.0	100.0
361	4	12/14/85	945	12.05	20.20	9.0	364.	34.6	64.2	94.2	99.8	100.0	100.0	100.0
362	4	12/14/85	1025	12.16	20.60	9.0	330.	29.2	67.6	93.4	99.7	100.0	100.0	100.0
360	4	12/14/85	1140	12.08	19.80	9.0	413.	30.9	65.3	91.2	99.7	100.0	100.0	100.0
358	4	12/14/85	1545	10.52	18.70	9.0	312.	47.0	66.4	93.8	99.8	100.0	100.0	100.0
359	4	12/14/85	1620	10.28	19.60	9.0	266.	49.2	81.0	96.2	98.9	100.0	100.0	100.0
357	4	12/14/85	2105	7.54	17.10	9.0	88.	68.0	93.2	100.0	100.0	100.0	100.0	100.0
356	4	12/14/85	2215	6.93	16.70	9.0	84.	75.0	95.8	99.8	100.0	100.0	100.0	100.0
530	4	12/17/85	1145	10.80	20.40	9.0	112.	32.3	59.6	87.1	98.1	100.0	100.0	100.0
531	4	12/17/85	1330	11.59	20.50	9.0	169.	34.8	75.9	96.9	100.0	100.0	100.0	100.0
529	4	12/17/85	2020	8.44	18.10	10.0	60.	64.6	82.6	94.0	100.0	100.0	100.0	100.0
528	4	12/17/85	2205	7.38	17.30	10.0	48.	74.0	88.1	97.8	100.0	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
787	4	1/21/86	1250	10.70	20.80	9.0	44.	14.8	43.5	80.2	100.0	100.0	100.0	100.0
810	4	1/21/86	1620	9.95	20.10	9.0	21.	6.8	57.6	90.7	100.0	100.0	100.0	100.0
813	4	1/21/86	1800	9.40	19.50	9.0	18.	19.3	61.8	93.3	100.0	100.0	100.0	100.0
812	4	1/21/86	2035	8.45	18.70	9.0	11.	38.0	71.5	91.1	100.0	100.0	100.0	100.0
51	5	7/15/83	1045	1756.52	26.60	14.0	588.	7.7	14.6	53.6	97.2	99.4	100.0	100.0
54	5	7/16/83	830	1756.52	25.30	15.0	577.	.1	7.7	49.5	95.4	99.3	100.0	100.0
52	5	7/16/83	1555	1756.52	24.50	15.0	466.	2.5	11.1	45.8	93.9	99.5	99.8	100.0
60	5	7/17/83	825	1756.47	24.60	13.0	528.	1.5	8.5	48.1	98.8	99.0	100.0	100.0
61	5	7/18/83	900	1756.12	24.20	14.0	453.	1.1	5.7	34.0	93.2	99.0	99.4	100.0
65	5	7/18/83	1630	1755.92	23.30		486.	.5	8.0	48.9	91.8	99.2	100.0	100.0
66	5	7/19/83	1510	1755.42	22.90	13.0	319.	1.8	10.7	44.4	94.4	98.3	100.0	100.0
68	5	7/20/83	830	1755.37	23.60	13.0	813.	.3	5.2	26.5	81.4	100.0	100.0	100.0
79	5	7/24/83	1050	1753.36	20.30	14.0	287.	.6	5.9	43.5	94.4	99.6	100.0	100.0
84	5	7/25/83	1025	1754.14	24.70	13.0	414.	11.9	23.0	54.1	94.9	98.8	99.7	100.0
83	5	7/25/83	1600	1754.16	23.10	13.0	451.	16.1	31.3	73.4	98.7	99.6	100.0	100.0
91	5	7/26/83	1125	1754.56	24.40	13.0	1215.	9.0	16.9	41.6	90.9	99.4	99.8	100.0
94	5	7/27/83	1020	1753.96	23.80	13.0	3814.	87.6	89.2	94.8	99.7	99.9	100.0	100.0
96	5	7/27/83	1715	1753.78	23.10	13.0	4500.	91.0	92.7	96.0	99.4	99.9	100.0	100.0
100	5	7/28/83	1740	1753.71	22.90	12.5	1686.	71.9	76.5	86.4	98.7	99.8	100.0	100.0
105	5	7/29/83	850	1753.26	21.30	12.5	2500.	85.7	88.7	93.7	99.6	99.9	99.9	100.0
106	5	7/29/83	1720	1753.58	22.30	13.0	2518.	81.9	85.7	92.7	99.6	100.0	100.0	100.0
107	5	7/30/83	1055	1753.86	23.60	13.5	1894.	81.6	85.0	92.6	98.8	99.9	100.0	100.0
112	5	8/ 1/83	1220	1753.59	23.30	14.0	2582.	74.4	78.4	87.8	99.1	99.9	100.0	100.0
114	5	8/ 2/83	1000	1753.30	20.80	14.0	1671.	64.5	70.0	84.2	99.6	100.0	100.0	100.0
115	5	8/ 2/83	1630	1752.86	22.50	14.0	2555.	84.5	86.6	92.9	99.6	100.0	100.0	100.0
118	5	8/ 3/83	1640	1752.47	20.20	14.0	1780.	78.1	83.5	92.7	99.3	100.0	100.0	100.0
119	5	8/ 4/83	935	1752.42	20.10	12.5	1085.	68.4	75.5	88.3	99.5	100.0	100.0	100.0
120	5	8/ 4/83	1615	1752.36	22.10	12.5	1044.	64.3	71.3	87.9	99.6	100.0	100.0	100.0
122	5	8/ 5/83	955	1752.36	20.60	12.0	761.	53.9	64.1	84.8	99.2	100.0	100.0	100.0
124	5	8/ 6/83	905	1752.81	21.40	12.5	1566.	79.4	84.5	93.6	99.5	100.0	100.0	100.0
125	5	8/ 6/83	1700	1752.52	21.40	13.0	2415.	85.4	88.7	94.9	99.7	100.0	100.0	100.0
127	5	8/ 7/83	1030	1752.66	20.80	13.0	3671.	84.8	89.8	96.4	99.8	100.0	100.0	100.0
129	5	8/ 8/83	930	1752.62	20.10	13.0	4354.	83.1	89.4	96.6	99.9	100.0	100.0	100.0
128	5	8/ 8/83	1700	1752.55	21.50	13.5	4136.	85.6	90.6	96.5	99.9	100.0	100.0	100.0
131	5	8/ 9/83	1100	1751.06	19.90	13.0	2941.	85.5	91.0	96.5	99.8	100.0	100.0	100.0
203	5	8/11/83	1000	1752.70	22.20	13.0	2104.	76.1	82.8	92.1	99.6	100.0	100.0	100.0
205	5	8/12/83	845	1752.42	21.30	13.0	1974.	78.5	84.9	93.4	99.8	100.0	100.0	100.0
207	5	8/13/83	1005	1750.38	20.10	12.0	2879.	92.3	93.0	96.6	99.8	100.0	100.0	100.0
206	5	8/13/83	1345	1750.83	19.60	13.0	2675.	82.3	89.2	95.0	99.7	100.0	100.0	100.0
209	5	8/14/83	1450	1751.50	20.60	14.0	2975.	89.7	92.7	96.7	99.8	100.0	100.0	100.0
211	5	8/15/83	935	1751.50	21.90	13.0	1382.	76.6	83.8	92.9	99.8	100.0	100.0	100.0
212	5	8/15/83	1315	1751.36	20.40	13.0	1314.	67.8	75.9	87.2	98.9	100.0	100.0	100.0
213	5	8/16/83	1300	1751.44	22.10	13.5	2623.	86.0	91.1	96.3	99.8	100.0	100.0	100.0
214	5	8/17/83	830	1751.42	20.70	13.0	1909.	79.5	87.2	94.1	99.7	100.0	100.0	100.0
215	5	8/17/83	1225	1751.42	19.40	13.0	1174.	69.2	80.1	91.1	99.7	100.0	100.0	100.0
216	5	8/18/83	1355	1751.55	21.20	13.0	880.	49.8	68.2	87.9	98.9	100.0	100.0	100.0
217	5	8/19/83	1545	1751.62	21.30	13.0	746.	50.4	60.4	77.3	98.0	100.0	100.0	100.0
449	5	8/21/83	927	1750.02	20.30	12.5	1238.	75.1	80.8	90.1	99.2	100.0	100.0	100.0
450	5	8/21/83	1658	1749.86	18.30	12.5	1048.	65.5	72.5	83.5	96.3	100.0	100.0	100.0
451	5	8/22/83	848	1749.84	18.20	12.5	569.	46.3	56.9	77.7	98.0	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
545	4	1/14/86	1715	9.70	19.00	11.0	73.	31.4	52.3	84.4	98.8	100.0	100.0	100.0
552	4	1/14/86	1945	8.35	17.60	11.0	46.	42.3	61.5	87.2	97.9	100.0	100.0	100.0
551	4	1/14/86	2015	8.05	17.60	11.0	58.	38.8	50.6	70.3	97.6	100.0	100.0	100.0
549	4	1/14/86	2258	6.55	16.20	11.0	20.	66.4	86.5	96.9	99.5	100.0	100.0	100.0
553	4	1/15/86	125	5.38	14.70	11.0	19.	64.0	72.5	86.6	98.6	100.0	100.0	100.0
556	4	1/15/86	147	5.68	15.20	11.0	25.	50.4	55.0	79.6	97.9	100.0	100.0	100.0
603	4	1/15/86	253	4.78	14.00	11.0	22.	59.7	72.2	87.7	100.0	100.0	100.0	100.0
555	4	1/15/86	645	11.12	20.50	11.0	88.	16.1	25.5	73.5	98.1	100.0	100.0	100.0
554	4	1/15/86	1050	11.45	20.60	11.0	78.	26.7	47.1	67.6	100.0	100.0	100.0	100.0
604	4	1/15/86	1330	10.92	19.30	11.0	84.	35.2	81.4	98.5	100.0	100.0	100.0	100.0
602	4	1/15/86	1548	10.02	18.90	11.0	71.	30.4	44.5	71.6	96.7	100.0	100.0	100.0
692	4	1/15/86	2006	8.10	16.00	10.0	53.	32.7	52.2	69.4	100.0	100.0	100.0	100.0
693	4	1/15/86	2226	6.81	15.25	10.0	14.	34.7	70.9	87.5	100.0	100.0	100.0	100.0
605	4	1/16/86	215	4.98	14.80	11.0	21.	38.3	58.1	77.1	100.0	100.0	100.0	100.0
606	4	1/16/86	430	4.30	13.90	11.0	18.	31.4	51.3	71.1	100.0	100.0	100.0	100.0
695	4	1/16/86	615	7.20	17.40	11.0	23.	26.6	57.0	87.8	100.0	100.0	100.0	100.0
696	4	1/16/86	642	8.70	18.70	11.0	36.	35.6	65.0	88.7	100.0	100.0	100.0	100.0
697	4	1/16/86	722	10.00	19.00	11.0	59.	38.4	61.1	87.4	100.0	100.0	100.0	100.0
694	4	1/16/86	748	10.40	20.00	11.0	56.	18.3	42.9	79.9	100.0	100.0	100.0	100.0
700	4	1/16/86	1430	11.65	21.00	11.0	111.	12.2	42.1	83.4	97.1	100.0	100.0	100.0
699	4	1/16/86	1742	10.35	18.40	10.0	109.	29.8	52.3	78.2	97.1	100.0	100.0	100.0
698	4	1/16/86	2030	9.35	18.50	10.0	50.	35.7	60.0	83.4	97.1	100.0	100.0	100.0
816	4	1/18/86	1040	12.42	22.40	9.0	248.	2.1	38.1	84.1	97.7	100.0	100.0	100.0
815	4	1/18/86	1600	11.93	22.00	9.0	238.	33.9	71.8	84.4	99.1	100.0	100.0	100.0
814	4	1/18/86	1750	11.01	21.20	9.0	162.	23.3	79.5	97.0	99.9	100.0	100.0	100.0
818	4	1/18/86	2200	9.40	19.50	10.0	60.	38.8	72.2	96.0	98.9	100.0	100.0	100.0
817	4	1/18/86	2335	9.22	19.40	10.0	59.	27.4	78.1	96.6	100.0	100.0	100.0	100.0
756	4	1/19/86	145	9.90	20.00	10.0	106.	26.5	53.3	81.4	97.6	100.0	100.0	100.0
757	4	1/19/86	330	10.94	20.80	10.0	84.	23.1	56.1	86.3	96.6	100.0	100.0	100.0
761	4	1/19/86	450	11.36	21.10	10.0	108.	21.9	44.7	69.3	98.3	100.0	100.0	100.0
755	4	1/19/86	645	11.68	21.80	10.0	116.	10.2	34.9	90.8	98.6	100.0	100.0	100.0
762	4	1/19/86	930	12.20	22.00	10.0	167.	14.0	25.9	75.3	96.6	100.0	100.0	100.0
763	4	1/19/86	1100	12.45	22.20	10.0	230.	5.9	26.9	72.3	98.8	100.0	100.0	100.0
758	4	1/19/86	1430	12.12	21.90	10.0	137.	21.0	44.1	86.5	97.3	100.0	100.0	100.0
760	4	1/19/86	1745	10.90	20.40	10.0	109.	42.2	59.4	88.5	100.0	100.0	100.0	100.0
759	4	1/19/86	2000	9.95	19.30	10.0	117.	28.2	54.4	82.5	98.1	100.0	100.0	100.0
754	4	1/19/86	2340	8.38	18.10	10.0	68.	32.6	59.6	91.1	100.0	100.0	100.0	100.0
803	4	1/20/86	350	8.30	18.50	10.0	18.	25.4	65.9	92.9	100.0	100.0	100.0	100.0
808	4	1/20/86	615	9.90	20.10	9.0	29.	27.2	64.0	93.0	100.0	100.0	100.0	100.0
806	4	1/20/86	915	10.44	20.60	10.0	31.	10.8	52.3	88.2	98.0	100.0	100.0	100.0
807	4	1/20/86	1130	11.38	21.60	10.0	53.	31.3	66.1	91.2	100.0	100.0	100.0	100.0
800	4	1/20/86	1320	11.60	21.40	10.0	61.	4.0	30.9	68.0	97.3	100.0	100.0	100.0
804	4	1/20/86	1650	10.65	21.10	10.0	85.	29.9	55.5	85.5	98.8	100.0	100.0	100.0
801	4	1/20/86	2020	9.32	19.50	10.0	33.	29.0	64.1	81.3	100.0	100.0	100.0	100.0
805	4	1/20/86	2235	8.87	18.50	10.0	34.	34.2	61.2	86.9	100.0	100.0	100.0	100.0
811	4	1/21/86	110	10.00	19.00	9.0	50.	9.1	41.1	80.4	100.0	100.0	100.0	100.0
809	4	1/21/86	610	10.45	19.60	9.0	92.	9.1	51.1	89.8	98.9	100.0	100.0	100.0
802	4	1/21/86	730	10.20	20.40	9.0	86.	9.5	40.1	82.1	98.2	100.0	100.0	100.0
789	4	1/21/86	930	10.20	20.20	9.0	80.	13.8	27.7	50.6	100.0	100.0	100.0	100.0
788	4	1/21/86	1040	10.40	20.10	9.0	49.	21.1	40.6	80.9	100.0	100.0	100.0	100.0

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
511	5	10/10/83	1630	1750.02	21.00	12.5	980.	33 2	46.5	64.3	97.1	99.5	100.0	100.0
512	5	10/11/83	912	1749.98	20.80	13.0	991.	36.0	44.3	60.4	83.5	99.0	99.8	100.0
514	5	10/12/83	940	1750.27	19.60	12.5	796.	36.6	45.3	60.1	81.8	99.4	100.0	100.0
513	5	10/12/83	1523	1750.23	19.20	13.0	844.	30.1	38.1	54.5	79.7	99.4	99.8	100.0
515	5	10/13/83	1140	1748.75	19.10	12.5	704.	53.5	63.4	77.6	95.3	99.3	99.9	100.0
516	5	10/14/83	1017	1748.74	19.10	12.5	1089.	29.7	33.2	40.9	62.6	98.7	99.8	100.0
517	5	10/15/83	945	1748.74	19.40	12.5	841.	19.2	27.8	44.4	68.3	98.0	100.0	100.0
556	5	10/16/83	1202	1748.60	20.20	13.0	869.	6.0	7.1	33.3	69.6	100.0	100.0	100.0
557	5	10/17/83	935	1750.21	20.20		2811.	1 5	4.4	14.5	57 4	98.2	100.0	100.0
558	5	10/18/83	915	1748.82	20.70	13.0	231.	20.7	47.9	75.6	96.1	98.5	100.0	100.0
559	5	10/18/83	1142	1747.77	20.30	13.0	267.	18.1	43.1	73.8	96.5	99.0	99.7	100.0
560	5	10/19/83	942	1748.87	20.60	13.0	236.	11.0	37.8	70.9	97.7	100.0	100.0	100.0
561	5	10/20/83	955	1748.89	20.70	13.0	358.	16.8	49.5	78.7	97.6	99.7	100.0	100.0
562	5	10/21/83	910	1748.86	20.80	13.0	354.	10.3	37.5	68.8	97.7	100.0	100.0	100.0
563	5	10/22/83	953	1748.86	20.60	13.0	267.	15.3	36.7	59.3	83.7	89.0	92.9	100.0
564	5	10/22/83	1105	1748.86		13.0	449.	11.0	30.2	55.2	81.9	89.9	94.1	100.0
565	5	10/23/83	936	1748.66	20.70	13.0	213.	7.8	35.3	68.3	97.5	100.0	100.0	100.0
546	5	10/25/83	1450	1749.96	21.90	13.0	356.	18.1	46.2	78.0	96.8	99.9	100.0	100.0
877	5	10/26/83	1510	1751.61	21.80	13.0	1321.	9.4	25.5	56.4	92.8	99.3	100.0	100.0
876	5	10/27/83	1130	1749.73	21.30	13.0	761.	10.5	34.7	65.3	96.2	100.0	100.0	100.0
879	5	10/28/83	1123	1749.85	21.70	12.0	322.	8.2	42.7	83.4	98.4	100.0	100.0	100.0
548	5	10/29/83	1145	1750.00	21.30	13.0	336.	15.1	36.0	67.6	95.2	99.5	100.0	100.0
549	5	10/30/83	907	1750.00	21.20	13.0	197.	8.4	39.3	76.1	98.4	99.8	100.0	100.0
550	5	10/30/83	1005	1750.04	20.80	13.0	283.	3.3	22.6	68.2	94.6	99.8	100.0	100.0
551	5	10/31/83	937	1749.93	21.60	13.0	340.	8.4	24.7	60.1	97.0	99.8	100.0	100.0
552	5	11/ 1/83	930	1750.07	21.40	13.0	261.	16.0	33.9	66.1	97.8	99.7	100.0	100.0
553	5	11/ 2/83	845	1749.59	20.70	13.0	498.	3.0	15.1	35.3	71.8	95.6	99.4	100.0
554	5	11/ 3/83	957	1749.88	20.60	13.0	235.	.9	18.9	60.4	97.1	99.5	100.0	100.0
555	5	11/ 3/83	1042	1749.28	20.70	13.0	258.	10.5	28.2	63.9	96.5	99.6	99.9	100 0
795	5	11/ 5/83	1623	1750.17	22.00	13.0	525.	1.9	22.3	72.6	98.5	100.0	100 0	100.0
915	5	11/ 6/83	1211	1750.08	21.60		245.	9.0	32.8	78.2	98.9	100.0	100.0	100.0
796	5	11/ 6/83	1644	1750.17	23.20	13.0	269.	4.2	31.8	74.3	97.9	100.0	100.0	100.0
798	5	11/ 8/83	1040	1748.96	21.60		472.	7.1	18.7	41.2	75.7	98.3	100.0	100.0
799	5	11/10/83	940	1748.96	22.20	12.0	1115.	2.9	7.2	19.0	51.8	89.5	95.5	100.0
800	5	11/11/83	1540	1748.55	22.00	12.0	220.	4.9	17.4	37.4	83.6	98.2	100.0	100.0
801	5	11/12/83	1144	1750.30	21.60	13.0	503.	6.6	16.2	43.2	65.8	73.3	80.9	100.0
803	5	11/13/83	1050	1748.80	21.50	13.0	331.	14.3	30.8	53.5	81.5	89.4	96.1	100.0
804	5	11/14/83	1141	1748.96	22.30	13.0	501.	3.9	15.5	39.1	84.6	98.3	100.0	100.0
917	5	11/14/83	1706	1748.84	21.90	13.0	390.	10.6	22.4	51.9	73.3	79.7	87.0	100.0
918	5	11/15/83	1349	1750.12	21.80		2076.	.3	3.1	9.9	33.2	90.9	99.3	100.0
805	5	11/16/83	1056	1748.54	21.60		886.	2.8	7.7	17.7	59.1	96.0	100.0	100.0
806	5	11/16/83	1637	1747.94	21.90	13.0	421.	1.0	11.5	34.0	82.7	99.4	100 0	100.0
807	5	11/17/83	1036	1748.72	23.00	12.0	303.	9.1	27.2	62.8	97.3	99.7	100.0	100.0
809	5	11/19/83	1654	1748.43	22.40	12.0	201.	44.8	71.5	89.0	90.8	91.0	100.0	100.0
812	5	11/22/83	1314	1748.67	21.70	12.5	300.	9.6	27.0	59.0	96.1	99.4	100.0	100.0
813	5	11/28/83	1554	1748.91	21.50	11.0	338.	69.7	78.4	93.4	99.5	99.9	100.0	100.0
814	5	11/29/83	1615	1748.92	21.70	11.0	408.	39.4	47.8	70.5	95.8	98.8	99.3	100 0
815	5	11/30/83	1615	1748.88	21.80	11.0	284.	52.3	60.4	83.7	97.7	99 6	100.0	100 0
816	5	12/ 1/83	1230	1748.88	21.90	12.0	252.	42.9	52.8	74.6	94.0	98.9	100.0	100 0
818	5	12/ 2/83	1100	1750.29	21.60	12.5	57.	6.3	27.0	57.9	78.7	96.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
452	5	8/23/83	820	1749.73	18.90	12.5	1115.	75.9	81.5	90.9	99.5	100.0	100.0	100.0
453	5	8/23/83	1702	1749.91	19.00	12.5	1602.	82.7	87.0	93.5	99.1	100.0	100.0	100.0
454	5	8/24/83	900	1749.89	19.90	13.0	1228.	78.3	83.6	90.8	99.1	100.0	100.0	100.0
455	5	8/25/83	815	1749.89	20.30	13.0	814.	63.0	71.2	85.0	98.7	100.0	100.0	100.0
456	5	8/25/83	1722	1749.83	20.00	13.0	770.	62.8	74.5	88.3	99.4	100.0	100.0	100.0
457	5	8/26/83	855	1748.80	18.30	13.0	595.	63.8	71.8	85.0	98.7	100.0	100.0	100.0
458	5	8/27/83	832	1749.89	19.30	13.0	547.	38.7	50.7	73.0	97.6	100.0	100.0	100.0
444	5	8/27/83	1650	1749.88	19.70	13.0	489.	32.6	45.3	69.1	97.3	100.0	100.0	100.0
445	5	8/28/83	842	1749.87	20.10	13.0	357.	35.3	52.0	78.8	98.5	100.0	100.0	100.0
446	5	8/28/83	1706	1749.82	19.00	13.0	408.	30.8	48.3	82.5	99.1	100.0	100.0	100.0
447	5	8/29/83	845	1749.94	19.40	13.0	336.	24.5	41.0	74.0	98.2	100.0	100.0	100.0
448	5	8/30/83	905	1749.79	20.70	14.0	375.	29.7	41.8	68.3	97.5	100.0	100.0	100.0
387	5	8/30/83	1715	1749.81	20.50	13.0	303.	14.6	32.7	64.9	92.3	94.5	94.9	100.0
388	5	8/31/83	900	1751.24	20.80	13.0	234.	2.4	25.4	63.9	97.3	100.0	100.0	100.0
389	5	8/31/83	1730	1749.87	20.50	13.5	302.	15.4	32.0	66.1	97.3	100.0	100.0	100.0
390	5	9/ 1/83	915	1749.90	19.40	13.0	310.	8.4	23.6	58.1	93.4	100.0	100.0	100.0
391	5	9/ 2/83	1218	1749.88	20.50	13.0	286.	16.5	30.0	59.5	94.2	100.0	100.0	100.0
392	5	9/ 3/83	930	1749.88	20.40	13.0	439.	20.0	30.1	54.4	89.0	99.6	100.0	100.0
393	5	9/ 4/83	1130	1751.06	20.40	13.0	322.	21.4	34.7	63.8	96.8	100.0	100.0	100.0
394	5	9/ 5/83	1815	1749.86	21.00	13.5	243.	5.8	20.4	60.5	97.7	100.0	100.0	100.0
395	5	9/ 6/83	830	1749.58	19.60	13.0	254.	13.6	28.1	62.3	96.0	100.0	100.0	100.0
878	5	9/11/83	1215	1749.55	20.40	12.5	307.	28.3	40.0	68.8	97.1	100.0	100.0	100.0
396	5	9/12/83	1645	1749.93	20.80	12.5	295.	16.6	27.5	52.6	83.8	98.2	98.9	100.0
397	5	9/13/83	1020	1749.60	21.00	13.0	482.	10.1	15.8	32.0	75.8	98.3	100.0	100.0
398	5	9/13/83	1705	1749.30	20.60	13.0	153.	25.4	37.3	67.9	97.3	99.4	100.0	100.0
399	5	9/15/83	915	1751.77	21.30	12.5	243.	24.0	33.0	57.3	93.5	99.4	100.0	100.0
400	5	9/15/83	1705	1749.91	21.50	13.0	263.	11.9	24.4	53.7	93.4	99.7	100.0	100.0
401	5	9/16/83	1045	1751.32	21.00	13.0	226.	10.4	24.7	58.5	97.5	99.9	100.0	100.0
371	5	9/18/83	1348	1751.25	21.50	14.0	314.	42.8	52.8	73.5	97.4	100.0	100.0	100.0
372	5	9/19/83	1004	1751.31	21.70	13.0	220.	12.3	24.7	54.2	95.6	99.4	100.0	100.0
373	5	9/20/83	1209	1749.72	21.70	13.5	255.	21.1	21.1	51.2	96.6	99.7	100.0	100.0
374	5	9/20/83	1736	1749.75	22.10	13.5	695.	66.4	70.4	83.8	97.4	100.0	100.0	100.0
375	5	9/21/83	955	1749.74	21.40	13.0	777.	75.0	81.2	90.8	99.1	99.8	100.0	100.0
376	5	9/22/83	1144	1749.77	22.30	13.0	307.	37.5	47.8	68.8	97.1	100.0	100.0	100.0
377	5	9/23/83	1430	1751.32	23.00	13.0	430.	15.7	21.4	36.6	61.8	97.5	100.0	100.0
378	5	9/24/83	1008	1749.84	22.30	13.0	326.	20.8	42.3	71.2	96.5	100.0	100.0	100.0
379	5	9/24/83	1814	1750.35	22.60	13.0	972.	44.3	53.6	67.3	84.7	98.5	100.0	100.0
380	5	9/25/83	844	1750.16	22.00	13.0	679.	33.3	41.2	57.2	83.3	99.3	100.0	100.0
381	5	9/29/83	945	1749.88	21.90	13.0	2482.	60.0	62.4	66.3	74.6	94.2	99.3	100.0
382	5	9/30/83	1135	1752.18	22.00	13.0	1513.	77.5	82.4	89.8	98.6	99.8	100.0	100.0
383	5	10/ 1/83	1130	1751.90	23.20		10180.	81.5	83.1	84.9	86.8	98.1	100.0	100.0
384	5	10/ 2/83	1630	1752.85	21.90	13.0	23073.	96.1	97.2	98.6	99.9	99.9	100.0	100.0
385	5	10/ 3/83	1045	1752.19		12.5	25826.	93.8	95.0	96.6	99.5	99.9	100.0	100.0
386	5	10/ 4/83		1752.28		12.5	10059.	91.9	93.6	95.8	99.2	99.9	100.0	100.0
505	5	10/ 6/83	933	1750.70	21.40	12.0	8665.	89.9	93.1	97.9	99.7	99.9	100.0	100.0
506	5	10/ 6/83	1625	1749.06	21.00	12.0	9029.	91.5	92.6	95.2	99.7	99.9	100.0	100.0
507	5	10/ 7/83	905	1750.06	21.30	12.0	6054.	87.5	91.2	96.7	99.7	99.9	100.0	100.0
508	5	10/ 8/83	912	1750.14	20.30	12.0	2831.	65.4	68.8	77.5	90.7	99.5	100.0	100.0
509	5	10/ 8/83	1605	1750.16	21.30	12.0	2004.	72.3	76.9	87.2	99.1	99.9	100.0	100.0
510	5	10/ 9/83	837	1750.17	20.80	12.0	2109.	77.6	81.1	88.2	99.0	99.7	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
172	5	11/18/85	1442	1742.56	15.60	11.0	67.	49.4	64.9	80.9	90.3	100.0	100.0	100.0
171	5	11/18/85	1935	1742.48	16.00	11.0	84.	45.2	56.2	71.4	81.1	100.0	100.0	100.0
169	5	11/18/85	2110	1742.79	15.60	10.0	64.	52.9	68.2	82.5	89.6	97.1	100.0	100.0
174	5	11/19/85	245	1743.89	16.40	10.0	89.	34.3	50.8	71.9	92.9	95.6	100.0	100.0
175	5	11/19/85	736	1743.95	17.60	10.0	70.	33.4	46.3	64.3	79.6	90.2	100.0	100.0
173	5	11/19/85	1100	1743.00	16.60	10.0	40.	58.8	72.2	85.7	95.0	100.0	100.0	100.0
178	5	11/19/85	1345	1742.26	15.20	10.0	66.	48.7	64.0	85.8	94.8	100.0	100.0	100.0
176	5	11/19/85	1550	1742.07	15.60	10.0	47.	38.1	48.5	59.4	73.9	82.7	100.0	100.0
179	5	11/19/85	2105	1744.68	17.40	10.0	62.	34.8	50.6	65.7	76.3	86.6	100.0	100.0
177	5	11/19/85	2205	1744.93	17.80	10.0	100.	19.5	31.0	46.3	67.9	90.0	100.0	100.0
281	5	11/23/85	1350	1742.72	18.20	9.0	23.	61.6	85.4	96.7	99.1	100.0	100.0	100.0
307	5	11/24/85	1055	1743.14	18.60	10.0	47.	57.0	67.5	82.9	98.0	100.0	100.0	100.0
306	5	11/24/85	1400	1742.11	17.80	10.0	21.	51.3	64.2	87.0	98.5	100.0	100.0	100.0
305	5	11/24/85	1530	1741.92	17.60	10.0	25.	59.8	73.4	88.7	100.0	100.0	100.0	100.0
304	5	11/24/85	1740	1742.70	17.40	11.0	16.	72.9	88.7	97.2	100.0	100.0	100.0	100.0
303	5	11/24/85	2235	1744.14	19.30	11.0	28.	45.2	71.8	92.7	100.0	100.0	100.0	100.0
311	5	11/25/85	130	1744.48	19.50	10.0	16.	55.1	81.4	94.6	97.9	100.0	100.0	100.0
310	5	11/25/85	655	1744.77	19.00	10.0	27.	32.7	56.5	83.0	96.0	100.0	100.0	100.0
313	5	11/25/85	925	1744.17	19.80	11.0	53.	32.3	43.0	64.9	95.4	100.0	100.0	100.0
314	5	11/25/85	1105	1743.64	19.40	11.0	9.	5.7	43.6	81.1	93.3	100.0	100.0	100.0
276	5	11/26/85	2025	1742.68	18.10	11.0	23.	65.1	77.8	88.4	100.0	100.0	100.0	100.0
278	5	11/26/85	2150	1743.62	19.00	11.0	40.	60.3	76.8	91.8	100.0	100.0	100.0	100.0
375	5	12/18/85	1315	1742.31	15.60	11.0	60.	58.3	76.3	94.3	100.0	100.0	100.0	100.0
376	5	12/18/85	2210	1743.61	16.20	11.0	83.	40.9	60.8	79.9	86.9	100.0	100.0	100.0
378	5	12/18/85	2240	1744.31	16.70	11.0	72.	52.1	66.2	97.2	100.0	100.0	100.0	100.0
379	5	12/19/85	1800	1740.27	13.20	10.0	18.	76.4	82.1	94.0	100.0	100.0	100.0	100.0
384	5	12/20/85	520	1744.80	17.00	9.0	84.	42.1	60.3	80.3	99.2	100.0	100.0	100.0
397	5	12/20/85	1130	1742.77	15.40	9.0	76.	48.3	62.8	81.7	100.0	100.0	100.0	100.0
398	5	12/20/85	2210	1744.57	18.50	11.0	75.	43.3	63.1	83.3	97.1	100.0	100.0	100.0
393	5	12/21/85	125	1744.75	17.00	10.0	74.	40.8	61.7	86.1	99.3	100.0	100.0	100.0
394	5	12/21/85	525	1744.61	17.40	10.0	77.	50.6	69.2	87.7	100.0	100.0	100.0	100.0
395	5	12/21/85	718	1744.09	16.80	10.0	55.	56.5	76.2	93.6	99.7	100.0	100.0	100.0
373	5	12/21/85	1108	1742.63	16.20	10.0	63.	59.0	67.4	76.9	99.9	100.0	100.0	100.0
423	5	12/21/85	1247	1741.97	14.60	10.0	24.	52.0	68.2	87.9	100.0	100.0	100.0	100.0
424	5	12/21/85	1447	1741.21	13.80	10.0	22.	21.9	41.9	80.4	100.0	100.0	100.0	100.0
399	5	12/21/85	2014	1739.45	13.50	10.0	58.	35.2	52.4	89.4	100.0	100.0	100.0	100.0
400	5	12/21/85	2130	1740.72	13.90	10.0	30.	43.2	66.3	86.7	100.0	100.0	100.0	100.0
492	5	12/24/85	530	1737.35	12.50	9.0	19.	77.4	84.1	94.5	100.0	100.0	100.0	100.0
491	5	12/24/85	930	1736.32	11.70	9.0	19.	79.6	85.1	95.3	100.0	100.0	100.0	100.0
489	5	12/24/85	1140	1736.00	11.40	9.0	16.	89.7	94.5	98.0	100.0	100.0	100.0	100.0
490	5	12/24/85	1530	1735.55	11.50	9.0	26.	88.6	93.5	99.1	100.0	100.0	100.0	100.0
488	5	12/24/85	2100	1734.95	9.50	9.0	60.	24.3	44.4	91.8	100.0	100.0	100.0	100.0
498	5	12/25/85	135	1743.69	19.20	9.0	89.	50.1	66.0	87.7	98.6	100.0	100.0	100.0
497	5	12/25/85	255	1745.23	18.80	9.0	105.	37.2	65.1	86.5	98.5	100.0	100.0	100.0
500	5	12/25/85	500	1741.62	18.80	9.0	74.	57.8	92.4	98.5	100.0	100.0	100.0	100.0
496	5	12/25/85	620	1744.33	18.20	9.0	68.	51.1	75.7	95.7	100.0	100.0	100.0	100.0
499	5	12/25/85	2300	1743.86	19.30	9.0	105.	38.8	67.7	90.3	99.0	100.0	100.0	100.0
515	5	12/26/85	200	1745.55	20.70	9.0	113.	44.4	58.9	81.8	96.0	100.0	100.0	100.0
516	5	12/26/85	945	1743.10	18.20	9.0	123.	40.7	48.6	65.4	86.1	100.0	100.0	100.0
519	5	12/26/85	1615	1740.57	15.80	10.0	29.	82.7	90.7	96.3	100.0	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
817	5	12/ 2/83	1642	1748.81	21.90		164.	22.9	38.3	72.6	97.2	99.7	100.0	100.0
819	5	12/ 3/83	1532	1748.88	21.70	12.0	122.	9.4	31.0	67.3	93.0	99.2	100.0	100.0
820	5	12/ 5/83	1110	1748.91	21.50	12.0	191.	23.9	38.5	71.3	92.7	96.7	100.0	100.0
822	5	12/ 7/83	1237	1748.96	21.50	10.5	282.	31.8	40.0	62.8	95.5	100.0	100.0	100.0
823	5	12/ 7/83	1530	1748.96	21.70	12.0	362.	10.4	17.2	40.1	77.6	97.9	100.0	100.0
48	5	10/17/85	545	1744.22	16.90	11.0	1426.	97.1	98.4	99.5	99.9	100.0	100.0	100.0
50	5	10/17/85	1515	1741.41	14.30	12.0	1174.	98.8	99.2	99.7	99.9	100.0	100.0	100.0
51	5	10/17/85	1710	1740.66	15.60	12.0	1095.	99.3	99.7	99.9	99.9	100.0	100.0	100.0
49	5	10/17/85	2350	1743.37	17.50	12.0	1175.	97.9	99.5	99.8	99.9	100.0	100.0	100.0
52	5	10/18/85	640	1744.21	16.60	12.0	1093.	98.7	99.4	99.8	100.0	100.0	100.0	100.0
54	5	10/18/85	1435	1741.82	15.70	12.0	588.	99.2	99.2	99.5	99.7	99.9	100.0	100.0
53	5	10/18/85	2325	1743.47	17.40	12.0	944.	69.0	77.2	94.6	99.3	99.8	100.0	100.0
55	5	10/19/85	1120	1742.67	16.40	12.0	453.	98.6	99.4	99.8	100.0	100.0	100.0	100.0
56	5	10/19/85	2045	1744.69	17.40	13.0	339.	93.2	95.3	97.2	99.4	99.9	100.0	100.0
57	5	10/20/85	125	1745.49	17.40	12.0	408.	96.9	98.3	99.1	99.8	100.0	100.0	100.0
59	5	10/23/85	2015	1741.41	16.80	12.0	842.	99.5	99.8	99.9	100.0	100.0	100.0	100.0
61	5	10/24/85	705	1743.96	17.60	11.0	439.	98.7	99.6	99.8	99.8	99.8	100.0	100.0
62	5	10/24/85	940	1743.02	17.00	12.0	366.	98.9	99.4	99.5	99.8	100.0	100.0	100.0
63	5	10/24/85	1405	1741.34	15.90	14.0	337.	97.5	98.4	99.4	99.8	99.9	100.0	100.0
60	5	10/24/85	1515	1740.90	15.30	14.0	316.	98.3	99.0	99.6	99.9	100.0	100.0	100.0
64	5	10/24/85	2235	1741.94	17.80	12.0	324.	97.1	98.5	99.4	99.8	100.0	100.0	100.0
163	5	10/25/85	115	1744.82	18.20	12.0	492.	97.4	98.9	99.6	100.0	100.0	100.0	100.0
69	5	10/25/85	352	1744.94	18.80	12.0	516.	98.3	99.4	99.9	100.0	100.0	100.0	100.0
65	5	10/25/85	622	1740.86	18.10	12.0	442.	96.7	98.1	99.0	99.8	100.0	100.0	100.0
66	5	10/25/85	940	1743.38	18.00	12.0	353.	94.7	96.8	98.5	99.4	99.7	100.0	100.0
72	5	10/25/85	1115	1742.78	17.50	12.0	288.	97.5	98.5	99.4	99.8	100.0	100.0	100.0
70	5	10/25/85	1505	1741.70	15.60	12.0	273.	91.3	93.3	95.4	98.6	100.0	100.0	100.0
74	5	10/25/85	1830	1741.81	17.20	12.0	249.	98.4	99.3	99.6	99.9	100.0	100.0	100.0
67	5	10/25/85	2210	1744.78	20.70	12.0	262.	95.3	97.3	99.1	99.7	100.0	100.0	100.0
68	5	10/25/85	2315	1745.48	21.40	12.0	304.	91.3	95.0	96.9	98.7	100.0	100.0	100.0
79	5	10/26/85	255	1745.62	19.10	12.0	377.	94.4	97.2	98.8	99.7	100.0	100.0	100.0
77	5	10/26/85	510	1745.04	18.00	12.0	329.	95.6	97.5	98.4	99.9	99.9	100.0	100.0
78	5	10/26/85	615	1744.67	18.60	12.0	254.	95.6	97.1	98.3	99.8	100.0	100.0	100.0
76	5	10/26/85	1120	1743.10	17.56	12.0	180.	96.2	97.7	98.7	99.1	100.0	100.0	100.0
73	5	10/26/85	1345	1742.44	17.10	13.0	179.	94.3	96.7	98.9	99.6	99.7	100.0	100.0
75	5	10/26/85	2030	1742.80	19.40	12.0	223.	99.7	99.7	99.7	99.7	100.0	100.0	100.0
80	5	10/26/85	2205	1744.80	20.50	12.0	285.	93.2	96.8	99.2	99.8	100.0	100.0	100.0
164	5	11/16/85	1020	1743.74	15.90	12.0	246.	93.1	96.7	99.1	100.0	100.0	100.0	100.0
180	5	11/16/85	1500	1742.81	16.00	12.0	215.	86.9	93.0	98.3	99.7	100.0	100.0	100.0
165	5	11/16/85	2100	1744.43	17.10	10.0	201.	92.0	96.1	98.6	99.5	100.0	100.0	100.0
213	5	11/16/85	2205	1744.77	17.20	10.0	151.	90.7	95.5	98.9	99.8	100.0	100.0	100.0
181	5	11/16/85	2350	1745.71	18.20	10.0	206.	70.7	83.0	92.5	99.3	99.8	100.0	100.0
182	5	11/17/85	147	1746.50	19.50	11.0	191.	62.0	77.8	92.7	99.1	100.0	100.0	100.0
167	5	11/17/85	515	1746.26	19.10	11.0	168.	51.3	71.3	93.9	99.6	100.0	100.0	100.0
168	5	11/17/85	615	1745.92	18.80	11.0	161.	51.9	75.6	94.0	99.2	99.6	100.0	100.0
166	5	11/17/85	950	1744.56	17.50	11.0	94.	66.8	86.1	96.9	99.9	100.0	100.0	100.0
183	5	11/17/85	1430	1742.81	16.00	11.0	73.	71.8	81.2	95.1	99.4	100.0	100.0	100.0
185	5	11/18/85	555	1745.01	17.60	10.0	68.	61.5	74.9	95.6	99.7	100.0	100.0	100.0
184	5	11/18/85	730	1744.71	17.50	10.0	100.	50.1	68.9	89.7	99.4	99.8	100.0	100.0
186	5	11/18/85	1005	1744.02	17.10	11.0	77.	59.2	74.8	87.5	97.7	100.0	100.0	100.0

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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
767	5	1/26/86	1040	1748.00	23.40	9.0	149.	32.5	53.0	84.9	98.2	100.0	100.0	100.0
774	5	1/26/86	1145	1748.28	23.20	9.0	503.	10.1	18.6	37.5	82.9	98.2	100.0	100.0
773	5	1/26/86	1320	1748.59	24.40	10.0	186.	26.7	50.1	73.2	97.3	100.0	100.0	100.0
772	5	1/26/86	1410	1748.70	24.30	10.0	225.	22.9	47.7	80.1	94.6	100.0	100.0	100.0
771	5	1/26/86	1710	1748.85	24.50	10.0	135.	12.3	47.2	79.3	97.1	100.0	100.0	100.0
766	5	1/26/86	2000	1749.05	24.90	10.0	140.	16.1	34.5	56.9	95.2	100.0	100.0	100.0
764	5	1/26/86	2300	1749.22	25.00	10.0	235.	11.0	31.8	74.8	96.4	100.0	100.0	100.0
783	5	1/27/86	140	1748.96	25.10	9.0	593.	5.7	30.5	62.7	82.5	100.0	100.0	100.0
784	5	1/27/86	350	1748.57	24.10	9.0	347.	15.5	30.1	77.3	91.9	100.0	100.0	100.0
785	5	1/27/86	715	1747.86	23.30	9.0	253:	27.4	51.7	82.1	97.1	100.0	100.0	100.0
779	5	1/27/86	1110	1748.29	24.20	9.0	253.	20.0	44.3	79.4	97.7	100.0	100.0	100.0
782	5	1/27/86	1250	1748.94	23.40	9.0	245.	12.6	35.9	74.6	97.9	100.0	100.0	100.0
780	5	1/27/86	1435	1749.48	24.10	9.0	145.	13.5	48.6	84.7	95.9	100.0	100.0	100.0
781	5	1/27/86	1745	1746.17	24.50	9.0	191.	28.2	63.8	87.9	100.0	100.0	100.0	100.0
778	5	1/27/86	2200	1749.78	24.20	9.0	256.	25.3	53.9	70.4	83.9	100.0	100.0	100.0
786	5	1/27/86	2355	1749.62	25.40	9.0	624.	13.0	27.8	66.1	96.1	100.0	100.0	100.0
793	5	1/28/86	215	1749.29	25.40	9.0	355.	16.6	36.8	66.8	100.0	100.0	100.0	100.0
792	5	1/28/86	530	1748.78	24.60	9.0	207.	24.9	42.6	65.5	100.0	100.0	100.0	100.0
794	5	1/28/86	740	1748.73	24.10	9.0	214.	16.4	38.5	66.0	100.0	100.0	100.0	100.0
791	5	1/28/86	945	1748.90	24.60	9.0	420.	18.9	40.7	74.5	96.4	100.0	100.0	100.0
790	5	1/28/86	1125	1749.02	24.70	9.0	172.	23.6	51.3	93.8	96.5	100.0	100.0	100.0
797	5	1/28/86	1330	1749.04	23.90	9.0	281.	26.2	44.0	75.0	98.0	100.0	100.0	100.0
795	5	1/28/86	1630	1748.99	23.30	9.0	197.	16.4	34.7	62.6	98.5	100.0	100.0	100.0
796	5	1/28/86	1730	1749.01	23.20	9.0	176.	18.8	36.1	60.7	100.0	100.0	100.0	100.0
799	5	1/28/86	2005	1749.21	23.70	9.0	250.	14.1	26.5	63.5	93.2	100.0	100.0	100.0
798	5	1/28/86	2125	1749.26	23.90	9.0	210.	7.7	28.2	59.9	95.4	100.0	100.0	100.0
123	6	8/ 6/83	1040	1355.30	28.50		1441.	28.1	36.5	64.5	98.6	99.7	100.0	100.0
126	6	8/ 7/83	915	1355.35	31.60		3333.	74.3	76.6	84.5	98.5	99.9	100.0	100.0
130	6	8/ 8/83	940	1355.40	31.20		6241.	84.0	86.3	90.8	98.9	99.9	100.0	100.0
132	6	8/ 9/83	905	1355.40	31.80		3994.	75.6	78.2	87.1	99.2	99.9	100.0	100.0
133	6	8/10/83	845	1355.29	32.00	14.0	2411.	65.0	69.9	84.9	99.1	100.0	100.0	100.0
218	6	8/12/83	1100	1354.56	30.30	14.0	2725.	83.4	87.2	93.6	99.6	99.9	100.0	100.0
220	6	8/13/83	915	1353.08	28.10	14.5	3318.	91.2	93.1	96.0	99.6	99.9	100.0	100.0
219	6	8/13/83	1825	1353.10	28.60	14.5	4531.	94.3	96.2	98.3	99.8	99.9	100.0	100.0
221	6	8/16/83	1050	1353.10	28.50	15.0	878.	94.2	96.1	98.4	99.7	100.0	100.0	100.0
231	6	8/18/83	1125	1353.32	29.70	14.5	825.	89.0	94.0	98.1	99.6	99.7	99.9	100.0
222	6	8/18/83	1735	1353.12	30.30	15.5	1521.	92.3	96.2	99.4	99.9	99.9	100.0	100.0
223	6	8/19/83	1005	1353.08	29.30	14.5	582.	90.8	95.8	98.9	99.6	99.7	99.8	100.0
225	6	8/20/83	945	1353.14	28.50	14.5	449.	88.7	95.3	98.6	99.4	99.6	99.8	100.0
355	6	8/22/83	1115	1353.06	27.70	14.0	651.	89.3	93.9	98.1	99.6	99.8	100.0	100.0
356	6	8/24/83	1135	1353.03	29.10	14.5	1180.	97.7	99.1	99.7	99.9	100.0	100.0	100.0
357	6	8/24/83	1640	1353.00	27.10		1458.	96.1	98.1	99.5	99.9	100.0	100.0	100.0
358	6	8/26/83	1250	1352.92	28.30		689.	65.6	72.1	85.1	99.4	99.9	100.0	100.0
359	6	8/27/83	1050	1353.02	28.50		773.	42.6	53.1	66.5	87.6	99.5	100.0	100.0
360	6	8/28/83	1030	1353.03	29.60		481.	41.7	51.4	77.1	98.1	99.0	100.0	100.0
361	6	8/28/83	1435	1353.03	28.00		546.	41.6	52.9	74.3	95.3	96.8	98.2	100.0
362	6	8/29/83	845	1353.00	29.50		432.	39.9	50.0	69.2	93.2	96.0	100.0	100.0
363	6	8/30/83	940	1352.98	28.90		367.	26.9	29.9	63.7	96.0	98.2	100.0	100.0
364	6	9/ 3/83	1310	1352.93	27.70		347.	10.0	13.3	64.1	97.9	99.5	100.0	100.0
365	6	9/ 4/83	930	1352.74	28.80		496.	11.0	25.4	60.2	90.7	92.4	100.0	100.0

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
520	5	12/26/85	2035	1739.12	14.10	9.0	27.	63.1	69.4	83.5	100.0	100.0	100.0	100.0
517	5	12/26/85	2315	1738.36	13.50	9.0	23.	64.7	71.2	80.8	92.7	100.0	100.0	100.0
527	5	12/27/85	120	1737.95	13.50	9.0	20.	74.5	81.7	93.4	100.0	100.0	100.0	100.0
526	5	12/27/85	350	1737.30	13.00	9.0	17.	78.1	81.2	88.8	99.7	100.0	100.0	100.0
524	5	12/27/85	940	1736.32	12.00	9.0	16.	48.9	64.7	90.3	100.0	100.0	100.0	100.0
523	5	12/27/85	1650	1732.55	11.90	9.0	25.	77.2	79.1	93.5	100.0	100.0	100.0	100.0
525	5	12/27/85	2125	1736.45	12.40	9.0	23.	66.9	70.4	84.7	100.0	100.0	100.0	100.0
643	5	1/20/86	1115	1744.43	17.20	10.0	146.	31.8	49.4	75.1	97.5	100.0	100.0	100.0
642	5	1/20/86	1305	1743.93	16.50	10.0	113.	51.7	64.7	81.7	97.2	100.0	100.0	100.0
706	5	1/20/86	2050	1746.00	17.90	9.0	133.	36.2	60.1	78.5	97.9	100.0	100.0	100.0
647	5	1/21/86	330	1747.02	19.50	10.0	170.	26.4	46.8	74.4	94.8	100.0	100.0	100.0
646	5	1/21/86	430	1746.74	18.90	10.0	126.	28.0	49.4	76.7	97.0	100.0	100.0	100.0
648	5	1/21/86	510	1746.48	19.90	10.0	137.	22.1	41.6	71.8	97.4	100.0	100.0	100.0
650	5	1/21/86	605	1746.23	21.70	10.0	142.	23.9	42.0	66.1	93.2	100.0	100.0	100.0
649	5	1/21/86	940	1745.07	17.50	10.0	94.	20.5	41.0	71.4	93.6	100.0	100.0	100.0
644	5	1/21/86	1140	1744.79	17.20	10.0	72.	19.8	40.6	71.3	96.6	100.0	100.0	100.0
628	5	1/21/86	1312	1745.19	17.50	10.0	176.	15.4	21.5	32.1	65.4	100.0	100.0	100.0
651	5	1/21/86	1528	1746.15	18.40	10.0	115.	18.9	36.7	68.6	94.5	100.0	100.0	100.0
626	5	1/21/86	1610	1746.28	18.50	10.0	132.	19.4	34.6	55.7	86.6	100.0	100.0	100.0
627	5	1/21/86	1947	1746.10	18.90	10.0	115.	25.0	44.2	74.7	97.3	100.0	100.0	100.0
645	5	1/21/86	2150	1746.03	18.10	10.0	108.	20.5	38.2	60.7	76.7	92.9	100.0	100.0
652	5	1/21/86	2240	1746.09	18.20	10.0	109.	20.7	40.1	67.2	90.8	95.6	100.0	100.0
656	5	1/22/86	45	1746.27	18.70	10.0	95.	25.1	43.8	68.7	100.0	100.0	100.0	100.0
632	5	1/22/86	202	1746.26	19.00	10.0	68.	21.5	42.0	73.3	97.2	100.0	100.0	100.0
658	5	1/22/86	312	1746.11	18.90	10.0	83.	8.5	24.7	61.5	96.5	100.0	100.0	100.0
655	5	1/22/86	428	1745.78	18.60	10.0	50.	32.5	59.6	86.0	97.4	100.0	100.0	100.0
629	5	1/22/86	528	1745.51	18.30	10.0	98.	15.6	29.5	62.4	96.1	100.0	100.0	100.0
653	5	1/22/86	712	1744.99	16.90	10.0	105.	21.8	35.5	56.3	87.0	100.0	100.0	100.0
659	5	1/22/86	1000	1744.13	16.50	10.0	78.	26.2	47.4	71.5	92.8	100.0	100.0	100.0
654	5	1/22/86	1325	1744.84	17.30	10.0	306.	3.6	7.5	92.8	98.9	100.0	100.0	100.0
657	5	1/22/86	1400	1745.48	18.90	10.0	71.	11.7	35.2	66.8	95.0	100.0	100.0	100.0
631	5	1/22/86	1854	1747.51	20.10	10.0	143.	14.8	35.2	61.2	94.5	100.0	100.0	100.0
630	5	1/22/86	2245	1747.89	20.90	10.0	166.	23.0	43.8	64.7	96.4	100.0	100.0	100.0
660	5	1/23/86	158	1747.57	20.20	10.0	161.	17.0	37.8	73.5	95.9	100.0	100.0	100.0
633	5	1/23/86	328	1747.13	19.60	10.0	170.	17.8	32.8	57.5	92.8	100.0	100.0	100.0
636	5	1/23/86	544	1746.29	18.90	10.0	100.	23.7	43.3	69.7	92.6	100.0	100.0	100.0
638	5	1/23/86	656	1745.97	18.30	10.0	98.	20.6	38.8	58.8	94.2	100.0	100.0	100.0
634	5	1/23/86	1252	1745.43	17.80	10.0	83.	20.4	35.9	54.9	80.6	100.0	100.0	100.0
637	5	1/23/86	1328	1745.63	17.80	10.0	63.	29.1	43.4	68.4	91.5	100.0	100.0	100.0
635	5	1/23/86	1500	1745.95	17.90	10.0	76.	27.8	41.8	64.9	87.9	92.4	100.0	100.0
641	5	1/23/86	1556	1745.98	18.10	10.0	83.	19.5	36.9	65.1	97.5	100.0	100.0	100.0
640	5	1/23/86	1915	1746.05	18.80	10.0	61.	25.6	41.8	67.1	94.2	100.0	100.0	100.0
639	5	1/23/86	2018	1746.33	19.10	10.0	48.	2.0	23.7	55.5	96.3	100.0	100.0	100.0
777	5	1/25/86	1110	1745.74	21.30	10.0	59.	31.4	50.6	69.5	100.0	100.0	100.0	100.0
776	5	1/25/86	1545	1748.30	23.90	10.0	152.	17.0	41.4	71.2	96.8	100.0	100.0	100.0
775	5	1/25/86	2320	1749.24	25.10	9.0	263.	8.0	34.2	66.1	97.5	99.5	100.0	100.0
770	5	1/26/86	130	1748.91	24.00	10.0	299.	20.3	48.0	83.0	98.5	100.0	100.0	100.0
769	5	1/26/86	345	1748.36	24.30	9.0	145.	34.3	63.3	87.6	98.9	100.0	100.0	100.0
768	5	1/26/86	740	1747.70	23.50	9.0	130.	30.8	61.6	85.0	98.2	100.0	100.0	100.0
765	5	1/26/86	915	1747.74	23.60	9.0	289.	17.0	34.6	60.8	93.5	100.0	100.0	100.0

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
610	6	10/22/83	1348	1352.23	30.00	13.5	315.	21.2	40.1	74.5	99.1	100.0	100.0	100.0
611	6	10/23/83	950	1352.25	29.20	13.0	304.	15.4	38.6	66.0	96.6	99.3	99.7	100.0
612	6	10/24/83	1100	1353.22	33.20	13.0	248.	21.6	29.8	71.6	99.4	100.0	100.0	100.0
613	6	10/25/83	1010	1353.16	32.10	13.5	794.	18.0	42.9	79.4	98.0	99.6	100.0	100.0
614	6	10/26/83	1010	1352.88	30.70	14.0	568.	22.5	38.4	77.0	99.0	99.9	100.0	100.0
615	6	10/27/83	1130	1352.20	31.20	14.0	320.	23.7	46.4	73.0	98.3	100.0	100.0	100.0
616	6	10/28/83	915	1353.67	29.80	14.0	423.	21.8	52.5	81.9	98.9	99.8	100.0	100.0
617	6	11/ 4/83	600	1353.03	27.90	15.5	267.	19.9	42.0	70.5	98.2	99.3	100.0	100.0
756	6	11/ 7/83	1100	1352.81	28.20	14.0	288.	7.5	22.7	63.1	99.4	100.0	100.0	100.0
755	6	11/ 7/83	1435	1352.52	26.60	14.0	382.	10.3	34.6	75.1	98.6	99.8	100.0	100.0
757	6	11/ 8/83	1050	1352.12	26.00	14.0	374.	13.9	37.6	72.8	98.9	100.0	100.0	100.0
758	6	11/ 9/83	1055	1352.05	26.70	14.0	308.	8.6	31.6	68.1	97.9	99.2	100.0	100.0
759	6	11/ 9/83	1215	1352.03	26.10	14.0	311.	11.1	37.7	73.5	99.2	99.8	100.0	100.0
761	6	11/11/83	1056	1351.91	26.20	13.0	283.	3.0	3.1	19.5	54.1	97.3	99.4	100.0
762	6	11/11/83	1210	1351.91	25.90	13.0	229.	6.1	32.7	70.9	97.8	99.3	100.0	100.0
766	6	11/14/83	925	1352.10	26.80	13.0	265.	11.3	36.6	75.0	98.8	100.0	100.0	100.0
767	6	11/18/83	1410	1352.20		13.0	209.	20.0	41.1	78.8	98.2	100.0	100.0	100.0
768	6	11/19/83	1325	1351.85	26.70	13.0	318.	42.5	59.4	82.8	98.9	100.0	100.0	100.0
770	6	11/22/83	1105	1352.34	27.00	12.0	427.	20.0	40.7	70.2	98.4	99.3	100.0	100.0
771	6	11/22/83	1640	1352.32	26.70	12.0	237.	28.1	48.6	78.0	99.0	100.0	100.0	100.0
772	6	11/28/83	1049	1352.28	26.30	13.0	529.	55.4	62.0	79.0	98.2	100.0	100.0	100.0
773	6	11/29/83	1106	1352.30	27.40	13.0	371.	53.5	60.8	77.3	99.2	100.0	100.0	100.0
774	6	12/ 1/83	1130	1352.23	27.00	13.0	349.	37.0	53.5	76.4	99.0	100.0	100.0	100.0
775	6	12/ 2/83	1550	1352.13	28.30	13.0	293.	23.5	37.8	73.4	97.6	100.0	100.0	100.0
776	6	12/ 3/83	1614	1352.12	29.80	13.0	271.	26.4	43.5	77.5	98.7	100.0	100.0	100.0
777	6	12/ 4/83	1023	1351.90	26.60	13.0	293.	16.4	32.3	58.7	95.2	100.0	100.0	100.0
778	6	12/ 4/83	1425	1352.04	27.00	13.0	239.	11.5	27.1	62.5	94.9	100.0	100.0	100.0
779	6	12/ 5/83	1136	1352.14	26.90	13.0	212.	22.1	35.7	68.8	98.2	100.0	100.0	100.0
780	6	12/ 6/83	1050	1352.14	26.60	13.0	257.	13.7	24.4	62.1	96.8	100.0	100.0	100.0
781	6	12/ 6/83	1515	1352.11	27.30	13.0	202.	8.4	20.1	52.3	95.9	100.0	100.0	100.0
782	6	12/ 7/83	1102	1352.10	30.40	13.0	79.	30.9	30.9	30.9	97.8	100.0	100.0	100.0
783	6	12/ 8/83	1020	1352.10	26.60	13.0	214.	25.4	38.3	66.4	97.1	100.0	100.0	100.0
784	6	12/ 9/83	1106	1352.21	28.10	13.0	323.	11.2	24.0	57.4	95.5	100.0	100.0	100.0
785	6	12/10/83	902	1352.28	26.70	13.0	239.	2.5	19.5	51.2	94.2	100.0	100.0	100.0
786	6	12/11/83	1612	1352.17	26.70	13.0	212.	16.7	29.2	57.9	94.1	100.0	100.0	100.0
787	6	12/12/83	934	1352.25	27.70	13.0	276.	12.3	26.7	56.1	91.4	100.0	100.0	100.0
788	6	12/13/83	1505	1352.29	26.80	13.0	242.	13.9	32.0	64.8	98.2	100.0	100.0	100.0
789	6	12/14/83	1105	1352.25	27.30	13.0	250.	11.9	24.5	57.2	94.6	100.0	100.0	100.0
791	6	12/15/83	1040	1352.29	27.70	13.0	297.	19.1	35.5	62.5	97.7	100.0	100.0	100.0
790	6	12/15/83	1545	1352.05	26.50	13.0	277.	28.6	43.2	70.1	98.7	100.0	100.0	100.0
792	6	12/16/83	920	1351.82	26.70	13.0	215.	15.7	30.3	62.2	97.7	100.0	100.0	100.0
793	6	12/18/83	1346	1352.34	28.50	12.0	260.	12.9	25.0	60.1	98.1	100.0	100.0	100.0
794	6	12/19/83	1120	1352.29	28.70	13.0	222.	17.0	28.2	58.2	97.1	100.0	100.0	100.0
81	6	10/22/85	2155	1350.34	20.19	13.0	225.	92.4	94.9	98.2	99.7	100.0	100.0	100.0
83	6	10/23/85	615	1349.60	26.50	13.0	217.	88.2	91.0	96.3	99.8	99.9	100.0	100.0
84	6	10/23/85	1125	1351.81	27.80	13.0	212.	79.3	85.0	92.8	99.4	99.8	100.0	100.0
82	6	10/23/85	2150	1350.62	27.00	13.0	198.	84.1	90.7	96.7	99.6	100.0	100.0	100.0
85	6	10/24/85	215	1349.74	25.50	13.0	226.	97.2	98.0	98.4	98.9	99.1	100.0	100.0
86	6	10/24/85	1740	1351.53	27.40	14.0	990.	95.9	97.4	98.8	99.9	100.0	100.0	100.0
87	6	10/24/85	2135	1350.31	28.30	14.0	872.	97.4	98.5	99.6	100.0	100.0	100.0	100.0

U.S. BUREAU OF RECLAMATION
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SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
366	6	9/ 4/83	1530	1352.82	26.90		352.	23.8	32.6	71.0	94.8	97.3	100.0	100.0
367	6	9/ 5/83	1005	1352.89	29.90		309.	15.4	27.2	58.1	95.0	97.9	100.0	100.0
368	6	9/ 6/83	900	1353.02	28.30		295.	13.3	25.7	68.1	99.0	99.6	100.0	100.0
369	6	9/ 6/83	1710	1352.79	28.30		282.	14.9	29.2	64.0	95.8	96.9	100.0	100.0
370	6	9/ 7/83	1115	1353.01	28.40		337.	4.6	15.6	45.3	81.9	87.4	93.0	100.0
468	6	9/ 8/83	850	1352.94	28.40		339.	14.8	29.1	60.5	95.8	100.0	100.0	100.0
472	6	9/11/83	830	1352.69	28.20	14.0	197.	12.2	28.1	68.1	96.4	100.0	100.0	100.0
473	6	9/12/83	1105	1352.20	28.80		216.	17.9	35.9	74.0	100.0	100.0	100.0	100.0
474	6	9/13/83	945	1352.60	27.70	14.0	306.	15.6	24.8	53.2	92.9	100.0	100.0	100.0
331	6	9/13/83	1745	1349.40	29.50	14.0	237.	14.0	28.3	64.9	90.7	95.3	100.0	100.0
332	6	9/14/83	840	1352.47	27.00	14.0	243.	20.0	35.3	68.9	90.6	92.7	100.0	100.0
333	6	9/15/83	1635	1352.89	31.00	16.0	79.	31.4	49.8	74.5	97.7	100.0	100.0	100.0
334	6	9/16/83	1145	1353.00	29.80	14.0	174.	36.9	51.3	78.4	99.0	100.0	100.0	100.0
335	6	9/18/83	1010	1352.86	29.40		59.	1.5	28.5	73.5	95.9	97.7	100.0	100.0
345	6	9/19/83	1045	1353.03	29.70	15.0	242.	13.5	24.9	56.7	97.6	99.7	100.0	100.0
346	6	9/20/83	950	1353.00	29.50	14.0	128.	8.2	22.7	63.6	97.6	99.6	100.0	100.0
347	6	9/21/83	1425	1352.94	29.40	14.0	1338.	91.3	93.3	97.0	99.8	100.0	100.0	100.0
348	6	9/22/83	1110	1352.92	28.30	13.5	422.	68.5	74.6	85.4	98.7	99.6	100.0	100.0
349	6	9/24/83	1210	1353.18	29.40	15.0	692.	75.5	81.5	91.1	99.6	100.0	100.0	100.0
350	6	9/25/83	1010	1353.35	29.80	14.0	466.	67.7	74.7	90.0	99.2	99.7	100.0	100.0
351	6	9/25/83	1610	1353.26	31.20	14.0	1100.	85.3	90.1	95.8	99.8	99.9	100.0	100.0
352	6	9/26/83	755	1352.78	29.30	14.0	721.	85.8	89.8	95.4	99.7	99.9	100.0	100.0
353	6	9/27/83	1742	1352.98	29.00	14.0	995.	83.9	88.8	94.4	99.4	99.9	100.0	100.0
354	6	9/28/83	1044	1352.93	27.30	14.0	449.	69.6	77.6	88.1	99.3	99.9	100.0	100.0
459	6	9/28/83	1748	1352.98	31.20	14.0	415.	60.2	67.6	81.3	98.2	100.0	100.0	100.0
460	6	9/29/83	948	1353.03	28.50	14.0	296.	47.0	64.8	84.3	98.6	100.0	100.0	100.0
461	6	9/30/83	1052	1353.01	28.10	14.0	593.	74.9	80.8	90.9	99.2	100.0	100.0	100.0
462	6	10/ 1/83	1316	1353.66	30.70	14.0	596.	69.4	76.4	87.4	99.1	100.0	100.0	100.0
463	6	10/ 2/83	1155	1354.41	30.30	14.0	3209.	88.7	91.6	95.5	99.5	100.0	100.0	100.0
464	6	10/ 2/83	1736	1354.26	32.20	14.0	12622.	96.3	97.5	99.1	99.9	100.0	100.0	100.0
465	6	10/ 3/83	908	1353.86	30.70	14.0	12564.	96.7	97.6	99.0	99.9	100.0	100.0	100.0
466	6	10/ 4/83	1019	1353.68	30.10	14.0	9304.	96.3	98.1	99.3	99.9	100.0	100.0	100.0
467	6	10/ 4/83	1420	1353.80	30.30	14.0	7654.	95.1	96.8	98.6	99.9	100.0	100.0	100.0
475	6	10/ 5/83	925	1353.72	31.00	15.0	4749.	96.1	98.5	98.7	99.9	100.0	100.0	100.0
476	6	10/ 6/83	1106	1353.86	29.60		4689.	92.1	96.2	98.6	99.9	99.9	100.0	100.0
518	6	10/ 7/83	1020	1353.29	27.50	14.0	5044.	95.3	97.7	99.0	99.9	100.0	100.0	100.0
519	6	10/ 8/83	1545	1353.24	27.30	15.0	2045.	89.3	95.2	98.0	99.8	100.0	100.0	100.0
520	6	10/ 9/83	1430	1353.28	28.10	15.0	1201.	81.7	90.5	97.5	99.8	100.0	100.0	100.0
521	6	10/10/83	1055	1353.10	26.90	15.0	1057.	76.7	85.5	92.7	98.9	100.0	100.0	100.0
522	6	10/11/83	1600	1353.08	27.80	15.0	564.	57.2	74.0	86.7	98.5	100.0	100.0	100.0
523	6	10/12/83	930	1352.82	28.10	14.0	486.	59.3	77.5	91.5	99.0	100.0	100.0	100.0
524	6	10/14/83	1030	1352.01	25.80	13.5	446.	70.0	83.7	93.3	99.3	100.0	100.0	100.0
525	6	10/14/83	1620	1352.10	25.30	14.0	395.	70.3	85.4	93.7	99.2	100.0	100.0	100.0
526	6	10/16/83	1000	1352.04	27.70	13.0	339.	45.8	62.1	82.8	98.9	100.0	100.0	100.0
604	6	10/18/83	1630	1352.25	25.70	14.0	402.	19.3	46.8	76.4	98.9	99.8	100.0	100.0
605	6	10/19/83	955	1352.17	30.50	13.0	402.	21.2	43.5	73.3	98.2	99.8	100.0	100.0
606	6	10/20/83	1455	1352.21	29.50	14.0	281.	26.3	43.5	69.7	98.4	99.8	100.0	100.0
607	6	10/20/83	1610	1352.21	29.20	14.0	291.	18.9	39.5	74.3	99.0	99.9	100.0	100.0
608	6	10/21/83	945	1352.68	30.30	13.0	519.	38.4	66.8	89.0	99.6	99.9	100.0	100.0
609	6	10/22/83	1130	1352.23	29.90		328.	26.7	49.0	79.3	99.2	99.7	100.0	100.0

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
261	6	11/29/85	1355	1349.90	32.90	12.0	38.	50.5	68.2	78.6	93.9	97.9	100.0	100.0
260	6	11/29/85	2255	1350.20	31.60	11.0	32.	63.9	80.6	92.9	96.9	100.0	100.0	100.0
285	6	11/30/85	210	1349.45	31.00	11.0	21.	69.0	83.2	92.3	94.7	100.0	100.0	100.0
265	6	11/30/85	930	1348.15	30.30	11.0	17.	82.6	91.2	99.0	100.0	100.0	100.0	100.0
264	6	11/30/85	1430	1347.62	28.70	11.0	77.	96.3	98.3	99.5	99.7	100.0	100.0	100.0
266	6	11/30/85	1650	1348.20	29.10	11.0	201.	98.2	99.0	99.6	99.8	100.0	100.0	100.0
267	6	11/30/85	2005	1349.30	30.10	11.0	781.	95.3	96.2	97.6	98.9	100.0	100.0	100.0
268	6	11/30/85	2155	1349.40	30.00	11.0	1096.	98.5	99.0	99.6	99.8	100.0	100.0	100.0
271	6	12/ 1/85	125	1349.08	33.30	11.0	1579.	99.5	99.8	99.9	100.0	100.0	100.0	100.0
274	6	12/ 1/85	555	1348.58	30.10	11.0	1337.	99.5	99.7	99.9	100.0	100.0	100.0	100.0
273	6	12/ 1/85	700	1348.46	35.50	11.0	1254.	99.5	99.7	99.9	100.0	100.0	100.0	100.0
270	6	12/ 1/85	1115	1350.15	31.50	11.0	1022.	99.0	99.5	99.8	99.9	100.0	100.0	100.0
259	6	12/ 1/85	1715	1352.50	33.30	11.0	1054.	96.9	98.8	99.8	99.9	100.0	100.0	100.0
272	6	12/ 1/85	2015	1351.60	32.30	11.0	552.	85.4	91.2	97.5	99.5	100.0	100.0	100.0
269	6	12/ 1/85	2155	1351.20	31.80	11.0	870.	96.7	98.6	99.5	99.9	100.0	100.0	100.0
258	6	12/ 2/85	325	1349.85	31.00	11.0	462.	93.5	96.1	99.3	99.9	100.0	100.0	100.0
257	6	12/ 2/85	610	1349.15	30.70	11.0	396.	95.2	97.2	98.6	99.9	100.0	100.0	100.0
255	6	12/ 2/85	1130	1349.40	30.40	11.0	290.	95.9	97.9	99.2	99.7	100.0	100.0	100.0
256	6	12/ 2/85	1405	1349.95	30.90	11.0	343.	94.9	96.3	98.7	99.7	100.0	100.0	100.0
250	6	12/ 2/85	1515	1350.05	30.40	11.0	412.	73.7	79.3	87.7	98.5	100.0	100.0	100.0
251	6	12/ 2/85	1630	1350.20	30.40	11.0	377.	91.4	93.1	96.6	100.0	100.0	100.0	100.0
254	6	12/ 2/85	2225	1350.00	30.40	11.0	594.	94.2	95.6	97.9	99.5	100.0	100.0	100.0
401	6	12/24/85	1135	1347.82	22.50	10.0	35.	73.0	88.0	97.5	100.0	100.0	100.0	100.0
403	6	12/24/85	1328	1347.50	24.80	10.0	46.	76.1	92.7	98.4	100.0	100.0	100.0	100.0
402	6	12/24/85	1638	1347.15	24.40	10.0	46.	59.2	86.7	98.1	100.0	100.0	100.0	100.0
404	6	12/25/85	330	1345.85	23.30	10.0	91.	32.1	50.0	84.4	100.0	100.0	100.0	100.0
408	6	12/25/85	835	1345.75	29.10	10.0	98.	45.2	67.1	82.4	99.5	100.0	100.0	100.0
407	6	12/25/85	1140	1346.00	26.10	10.0	83.	39.6	59.0	82.5	98.4	100.0	100.0	100.0
406	6	12/25/85	1342	1349.54	24.50	10.0	80.	52.5	76.3	95.5	100.0	100.0	100.0	100.0
405	6	12/25/85	1417	1350.68	23.60	10.0	113.	43.9	72.0	93.2	100.0	100.0	100.0	100.0
409	6	12/26/85	440	1348.92	22.70	10.0	79.	64.2	79.2	94.0	100.0	100.0	100.0	100.0
412	6	12/26/85	1100	1351.13	27.10	10.0	128.	38.0	60.6	88.7	99.5	100.0	100.0	100.0
411	6	12/26/85	1532	1351.79	27.00	10.0	118.	46.3	73.5	94.2	99.6	100.0	100.0	100.0
410	6	12/26/85	1705	1351.43	26.80	10.0	119.	46.0	65.9	88.0	100.0	100.0	100.0	100.0
414	6	12/26/85	1950	1350.82	29.60	10.0	80.	52.7	74.6	92.0	99.0	100.0	100.0	100.0
413	6	12/26/85	2200	1350.31	28.50	10.0	60.	66.0	86.0	96.2	100.0	100.0	100.0	100.0
417	6	12/27/85	130	1349.55	23.90	10.0	70.	63.9	76.7	92.1	99.1	100.0	100.0	100.0
418	6	12/27/85	300	1349.22	23.90	10.0	73.	43.4	54.6	74.7	98.3	100.0	100.0	100.0
421	6	12/27/85	450	1348.85	25.80	10.0	34.	83.1	89.4	95.7	100.0	100.0	100.0	100.0
420	6	12/27/85	655	1348.39	25.10	10.0	24.	71.4	84.5	94.6	100.0	100.0	100.0	100.0
416	6	12/27/85	940	1347.92	23.40	10.0	40.	75.2	83.1	94.0	100.0	100.0	100.0	100.0
415	6	12/27/85	1220	1347.59	23.20		87.	33.8	39.4	69.9	98.7	100.0	100.0	100.0
419	6	12/27/85	1448	1347.26	24.60	10.0	21.	76.6	89.7	97.7	100.0	100.0	100.0	100.0
425	6	12/31/85	1145	1347.86	28.00	11.0	35.	90.9	95.8	100.0	100.0	100.0	100.0	100.0
426	6	12/31/85	1500	1350.20	30.60	9.0	73.	24.4	42.7	72.3	96.4	100.0	100.0	100.0
427	6	12/31/85	1630	1350.80	32.00	10.0	43.	64.9	87.7	98.4	100.0	100.0	100.0	100.0
428	6	1/ 1/86	800	1348.38	28.40	10.0	21.	78.0	89.5	98.1	100.0	100.0	100.0	100.0
429	6	1/ 1/86	1030	1350.40	30.60	10.0	25.	46.3	77.9	98.1	100.0	100.0	100.0	100.0
457	6	1/ 1/86	1115	1351.55	31.90	10.0	80.	27.7	51.6	84.9	99.3	100.0	100.0	100.0
432	6	1/ 1/86	1305	1352.00	33.60	10.0	78.	44.2	68.9	96.6	100.0	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
90	6	10/25/85	210	1349.27	24.20	13.0	801.	97.8	98.6	99.5	99.9	100.0	100.0	100.0
89	6	10/25/85	520	1348.71	26.00	13.0	802.	99.0	99.4	99.7	100.0	100.0	100.0	100.0
88	6	10/25/85	1025	1350.25	23.50	13.0	625.	97.9	99.0	99.7	100.0	100.0	100.0	100.0
92	6	10/28/85	1800	1350.70	26.60	13.0	194.	76.3	85.7	94.1	97.3	97.7	100.0	100.0
91	6	10/28/85	2105	1350.28	26.70	13.0	155.	86.8	92.5	96.4	99.2	100.0	100.0	100.0
96	6	10/29/85	140	1349.60	24.80	13.0	214.	92.2	94.9	97.8	99.1	100.0	100.0	100.0
95	6	10/29/85	615	1349.50	29.00	12.0	162.	82.2	88.4	94.6	100.0	100.0	100.0	100.0
94	6	10/29/85	1055	1350.86	34.10	13.0	118.	97.3	99.0	99.8	100.0	100.0	100.0	100.0
97	6	10/29/85	1715	1351.98	27.50	13.0	125.	88.0	96.0	98.7	99.4	100.0	100.0	100.0
98	6	10/29/85	2000	1351.55	27.40	13.0	114.	89.6	94.4	98.8	99.4	100.0	100.0	100.0
93	6	10/29/85	2335	1351.18	26.40	13.0	110.	85.5	93.6	98.1	99.2	100.0	100.0	100.0
104	6	10/30/85	130	1351.20	31.90	13.0	91.	79.8	90.0	97.3	100.0	100.0	100.0	100.0
103	6	10/30/85	505	1350.00	32.20	12.0	229.	47.5	61.7	75.4	92.7	97.8	100.0	100.0
101	6	10/30/85	1210	1352.65	28.00	14.0	144.	76.0	93.4	99.3	99.8	100.0	100.0	100.0
100	6	10/30/85	1525	1352.20	26.50	14.0	132.	85.1	94.9	98.5	99.8	100.0	100.0	100.0
99	6	10/30/85	1740	1351.80	27.00	13.0	132.	90.4	97.2	99.7	100.0	100.0	100.0	100.0
102	6	10/30/85	2220	1351.05	25.90	13.0	174.	76.1	89.0	99.0	99.7	100.0	100.0	100.0
109	6	10/31/85	110	1350.80	31.20	13.0	190.	77.1	88.9	96.3	99.3	99.6	100.0	100.0
110	6	10/31/85	1400	1352.45	27.60	13.0	195.	78.6	90.8	97.4	99.2	99.6	100.0	100.0
105	6	10/31/85	1705	1351.75	27.60	13.0	143.	64.3	85.3	97.7	99.7	100.0	100.0	100.0
106	6	10/31/85	2000	1351.15	25.80	13.0	195.	74.6	86.3	93.5	98.9	100.0	100.0	100.0
108	6	10/31/85	2210	1350.72	26.00	13.0	184.	74.8	88.0	96.1	97.1	97.7	100.0	100.0
107	6	10/31/85	2300	1350.55	26.00	13.0	159.	79.3	88.2	94.3	99.3	100.0	100.0	100.0
111	6	11/ 1/85	440	1350.30	30.40	12.0	143.	64.7	78.1	92.8	99.7	99.8	100.0	100.0
112	6	11/ 1/85	610	1350.60	30.60	12.0	132.	67.8	83.7	96.0	99.8	100.0	100.0	100.0
113	6	11/ 1/85	1000	1351.58	27.00	13.0	127.	57.9	78.7	96.1	98.9	100.0	100.0	100.0
114	6	11/ 1/85	1145	1351.80	26.70	13.0	138.	75.5	90.2	97.8	98.6	99.2	100.0	100.0
189	6	11/22/85	925	1352.24	27.00	11.0	81.	28.9	45.9	83.3	91.8	100.0	100.0	100.0
188	6	11/22/85	1100	1352.27	28.90	11.0	103.	29.6	43.3	78.0	98.6	100.0	100.0	100.0
190	6	11/22/85	1535	1351.95	27.50	11.0	47.	47.9	70.3	91.7	98.5	100.0	100.0	100.0
191	6	11/22/85	1640	1351.80	28.80	11.0	92.	16.9	26.5	40.5	94.3	100.0	100.0	100.0
215	6	11/22/85	2105	1350.97	26.30	11.0	40.	16.2	38.9	61.4	96.7	100.0	100.0	100.0
187	6	11/22/85	2310	1350.60	26.30	11.0	44.	51.8	65.7	88.0	93.6	100.0	100.0	100.0
192	6	11/23/85	310	1350.76	25.20	11.0	49.	42.6	61.2	76.5	93.8	98.2	100.0	100.0
195	6	11/23/85	430	1351.51	28.20	11.0	48.	37.8	57.3	81.3	98.9	100.0	100.0	100.0
197	6	11/23/85	650	1352.37	27.00	10.0	76.	30.8	45.8	73.6	95.5	98.4	100.0	100.0
194	6	11/23/85	728	1352.50	28.50	10.0	83.	25.0	48.0	82.0	98.4	100.0	100.0	100.0
196	6	11/23/85	1030	1352.69	27.90	10.0	119.	23.2	46.8	81.7	98.9	100.0	100.0	100.0
198	6	11/23/85	1322	1352.46	28.10	10.0	120.	46.7	70.9	89.5	98.5	99.3	100.0	100.0
193	6	11/23/85	1555	1352.04	27.50	10.0	86.	36.5	68.7	89.4	98.3	100.0	100.0	100.0
199	6	11/23/85	2005	1351.28	27.20	10.0	97.	28.4	44.4	74.6	96.7	100.0	100.0	100.0
200	6	11/23/85	2330	1350.59	24.90	10.0	41.	52.7	75.4	88.1	99.0	100.0	100.0	100.0
203	6	11/24/85	1650	1351.66	25.30	12.0	61.	29.9	49.8	73.2	94.4	100.0	100.0	100.0
208	6	11/24/85	1730	1351.48	23.10	12.0	88.	25.9	40.7	64.5	97.9	100.0	100.0	100.0
204	6	11/24/85	2220	1350.53	25.60	11.0	39.	39.5	61.3	78.9	95.5	100.0	100.0	100.0
207	6	11/25/85	150	1349.93	25.80	11.0	49.	39.3	49.4	74.0	98.8	100.0	100.0	100.0
205	6	11/25/85	755	1351.02	25.80	12.0	35.	44.1	66.5	84.0	92.4	100.0	100.0	100.0
206	6	11/25/85	902	1351.10	25.00	12.0	43.	49.6	68.7	88.4	98.6	100.0	100.0	100.0
263	6	11/29/85	715	1348.50	31.20	12.0	30.	60.1	77.0	93.4	100.0	100.0	100.0	100.0
262	6	11/29/85	1205	1348.90	27.80	11.0	76.	88.8	94.2	98.4	100.0	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
722	6	1/30/86	1720	1353.22	33.30	11.0	233.	38.4	53.4	77.3	98.3	100.0	100.0	100.0
721	6	1/30/86	2120	1352.92	35.50	11.0	212.	40.1	62.1	83.7	98.1	100.0	100.0	100.0
820	6	1/30/86	2300	1353.29	35.20	11.0	145.	26.8	55.6	82.2	100.0	100.0	100.0	100.0
724	6	1/31/86	150	1353.98	35.80	10.0	203.	14.3	37.3	68.1	94.6	99.7	100.0	100.0
725	6	1/31/86	345	1354.30	36.00	10.0	271.	16.3	29.9	57.0	97.9	100.0	100.0	100.0
726	6	1/31/86	1025	1354.05	34.90	10.0	250.	8.0	27.6	63.6	97.7	100.0	100.0	100.0
729	6	1/31/86	1325	1353.68	32.60	10.0	76.	26.6	56.0	83.1	97.5	100.0	100.0	100.0
728	6	1/31/86	1730	1352.95	32.00	10.0	66.	19.8	48.0	80.2	97.9	100.0	100.0	100.0
723	6	1/31/86	2210	1352.85	32.20	10.0	222.	10.7	23.2	42.8	61.5	87.0	100.0	100.0
727	6	1/31/86	2340	1353.46	32.20	10.0	138.	15.7	34.3	69.8	94.9	100.0	100.0	100.0
828	6	2/ 1/86	130	1354.28	35.10	11.0	253.	5.1	23.0	59.9	97.5	100.0	100.0	100.0
824	6	2/ 1/86	310	1354.73	35.90	10.0	241.	8.1	22.7	60.4	96.1	100.0	100.0	100.0
826	6	2/ 1/86	635	1354.95	35.30	10.0	319.	3.1	24.3	57.7	97.7	100.0	100.0	100.0
822	6	2/ 1/86	1010	1354.51	34.90	10.0	359.	13.3	34.9	66.5	98.1	100.0	100.0	100.0
827	6	2/ 1/86	1400	1353.70	33.00	11.0	192.	5.1	27.4	59.0	100.0	100.0	100.0	100.0
821	6	2/ 1/86	1635	1353.00	31.50	11.0	174.	27.6	40.6	64.1	97.5	100.0	100.0	100.0
730	6	2/ 1/86	1740	1352.43	32.20	11.0	127.	21.6	37.5	65.3	97.2	100.0	100.0	100.0
823	6	2/ 1/86	2240	1352.35	33.10	11.0	147.	11.3	26.3	55.8	96.1	100.0	100.0	100.0
825	6	2/ 1/86	2335	1352.60	33.20	11.0	137.	6.2	24.3	51.0	100.0	100.0	100.0	100.0
732	6	2/ 2/86	105	1352.92	32.10	10.0	36.	24.0	68.0	91.4	100.0	100.0	100.0	100.0
735	6	2/ 2/86	510	1353.12	31.80	10.0	154.	16.9	33.4	65.5	100.0	100.0	100.0	100.0
734	6	2/ 2/86	740	1352.96	32.00	10.0	89.	25.5	54.4	85.5	100.0	100.0	100.0	100.0
733	6	2/ 2/86	1150	1352.82	31.40	10.0	257.	8.4	73.2	88.7	98.8	100.0	100.0	100.0
731	6	2/ 2/86	1440	1352.63	32.20	12.0	117.	12.4	26.3	57.2	92.8	100.0	100.0	100.0
936	7	7/27/83	1515	2.87		28.5	117830.	88.4	89.4	94.4	99.9	100.0	100.0	100.0
937	7	7/27/83	1945	2.55		27.0	71332.	88.3	89.6	92.9	99.1	100.0	100.0	100.0
938	7	7/28/83	720	2.00		21.0	66191.	93.2	94.2	97.7	99.8	100.0	100.0	100.0
939	7	7/28/83	1935	2.82		28.5	67288.	92.6	93.8	97.6	99.8	99.9	100.0	100.0
942	7	7/29/83	635	3.10		20.5	96995.	85.5	86.8	93.2	99.9	100.0	100.0	100.0
940	7	7/29/83	1040	3.35		23.0	107006.	82.5	83.7	89.8	98.4	100.0	100.0	100.0
941	7	7/29/83	1655	2.85		29.5	89563.	89.0	90.0	94.4	99.6	100.0	100.0	100.0
943	7	7/30/83	635	2.95		21.0	99991.	93.9	94.2	95.0	99.8	100.0	100.0	100.0
944	7	7/30/83	1915	2.75		25.5	83856.	89.3	90.6	95.9	99.7	100.0	100.0	100.0
945	7	7/31/83	650	2.43		21.5	86557.	90.1	91.1	94.4	99.7	100.0	100.0	100.0
946	7	7/31/83	1820	2.20		26.5	86904.	95.9	96.7	98.4	99.9	100.0	100.0	100.0
947	7	8/ 1/83	600	2.30		21.0	93475.	95.0	95.6	97.9	99.9	100.0	100.0	100.0
948	7	8/ 1/83	1915	1.75		24.5	78772.	96.4	96.9	98.6	99.9	100.0	100.0	100.0
949	7	8/ 2/83	805	1.90		21.0	77568.	96.5	97.2	98.6	99.7	100.0	100.0	100.0
950	7	8/ 2/83	1920	1.93		28.0	181693.	98.3	98.5	99.2	99.9	100.0	100.0	100.0
951	7	8/ 3/83	820	1.60		23.5	127473.	97.1	97.4	98.6	99.8	100.0	100.0	100.0
952	7	8/ 3/83	1910	1.65		24.5	116256.	97.4	97.7	98.9	99.9	100.0	100.0	100.0
954	7	8/ 4/83	600	1.53		20.0	94718.	98.0	98.2	99.2	100.0	100.0	100.0	100.0
953	7	8/ 4/83	1920	1.83		24.5	174670.	96.8	97.3	98.9	99.4	100.0	100.0	100.0
955	7	8/ 5/83	720	1.70		21.0	216580.	88.9	89.2	93.0	96.1	100.0	100.0	100.0
956	7	8/ 5/83	1900	2.00		27.0	136616.	93.8	94.2	97.1	99.8	100.0	100.0	100.0
957	7	8/ 6/83	720	2.85		21.0	129473.	88.1	88.7	91.9	99.1	100.0	100.0	100.0
958	7	8/ 6/83	1905	2.75		28.0	102979.	89.7	90.8	97.0	99.8	100.0	100.0	100.0
960	7	8/ 7/83	730	2.60		21.5	99046.	91.8	93.0	94.6	99.9	100.0	100.0	100.0
959	7	8/ 7/83	1855	2.36		27.0	91967.	93.4	95.0	98.9	100.0	100.0	100.0	100.0
961	7	8/ 8/83	715	2.05		20.5	85789.	94.0	94.8	98.5	99.9	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
435	6	1/ 1/86	1640	1351.55	33.70	11.0	112.	46.1	68.3	91.6	99.2	100.0	100.0	100.0
430	6	1/ 1/86	1950	1350.75	30.70	11.0	62.	38.6	59.4	85.0	99.3	100.0	100.0	100.0
431	6	1/ 1/86	2245	1350.05	30.80	10.0	40.	53.5	70.6	90.4	98.9	100.0	100.0	100.0
439	6	1/ 2/86	220	1349.50	29.60	9.0	26.	75.7	89.4	95.5	99.4	100.0	100.0	100.0
438	6	1/ 2/86	435	1348.80	29.00	9.0	20.	83.8	90.0	95.1	99.8	100.0	100.0	100.0
437	6	1/ 2/86	725	1348.20	28.60	10.0	16.	62.2	80.6	96.9	99.7	100.0	100.0	100.0
436	6	1/ 2/86	950	1348.00	28.50	10.0	13.	73.4	88.4	96.6	99.9	100.0	100.0	100.0
440	6	1/ 2/86	1140	1350.20	30.60	10.0	21.	52.8	77.1	93.2	99.4	100.0	100.0	100.0
442	6	1/ 2/86	1320	1352.40	31.40	10.0	97.	29.3	61.3	92.4	99.9	100.0	100.0	100.0
443	6	1/ 2/86	1540	1352.40	32.70	10.0	90.	34.9	60.5	89.5	99.8	100.0	100.0	100.0
444	6	1/ 2/86	1715	1351.95	34.60	10.0	91.	40.4	67.1	89.6	99.4	100.0	100.0	100.0
441	6	1/ 2/86	2010	1351.20	31.10	10.0	56.	62.0	71.6	80.9	100.0	100.0	100.0	100.0
463	6	1/ 3/86	335	1349.35	29.70	10.0	38.	46.0	62.5	82.6	100.0	100.0	100.0	100.0
459	6	1/ 3/86	820	1348.32	27.50	10.0	133.	18.9	26.0	58.4	98.8	100.0	100.0	100.0
458	6	1/ 3/86	1140	1347.79	26.70	10.0	51.	23.1	43.9	82.5	100.0	100.0	100.0	100.0
460	6	1/ 3/86	1330	1347.57	27.60	10.0	34.	35.8	55.1	81.9	98.9	100.0	100.0	100.0
461	6	1/ 3/86	1710	1348.42	28.50	10.0	12.	72.8	77.5	88.2	100.0	100.0	100.0	100.0
462	6	1/ 3/86	1805	1349.20	29.50	10.0	69.	73.3	79.9	90.2	99.7	100.0	100.0	100.0
464	6	1/ 3/86	2005	1350.00	30.40	10.0	44.	33.0	55.3	73.1	99.4	100.0	100.0	100.0
571	6	1/26/86	415	1354.82	27.30		325.	14.2	20.5	29.5	97.2	100.0	100.0	100.0
567	6	1/26/86	643	1355.05	27.40	11.0	349.	19.5	37.6	62.1	96.9	100.0	100.0	100.0
569	6	1/26/86	1325	1354.42	26.50	11.0	331.	28.5	42.6	76.6	97.6	100.0	100.0	100.0
568	6	1/26/86	1540	1354.08	26.30	11.0	395.	25.9	39.9	71.4	98.1	100.0	100.0	100.0
572	6	1/26/86	2245	1354.52	28.10	12.0	298.	23.9	43.0	72.6	99.0	100.0	100.0	100.0
570	6	1/26/86	2400	1354.66	27.60	11.0	207.	20.8	34.4	64.7	94.3	100.0	100.0	100.0
573	6	1/27/86	128	1354.72	27.60	11.0	371.	20.3	35.5	65.8	97.9	100.0	100.0	100.0
575	6	1/27/86	255	1354.81	27.60		331.	18.0	25.0	62.7	97.6	100.0	100.0	100.0
577	6	1/27/86	427	1354.88	27.70		299.	23.8	28.4	67.6	97.8	100.0	100.0	100.0
576	6	1/27/86	539	1354.92	28.00	10.0	325.	22.0	32.3	72.0	97.7	100.0	100.0	100.0
609	6	1/27/86	702	1355.00	29.20	10.0	469.	20.3	45.0	73.5	94.2	100.0	100.0	100.0
607	6	1/27/86	1100	1354.84	29.90	10.0	441.	27.5	32.7	64.2	98.0	100.0	100.0	100.0
578	6	1/27/86	1314	1354.55	28.80		317.	24.4	29.5	63.8	96.9	100.0	100.0	100.0
581	6	1/27/86	1555	1354.17	28.20		231.	34.1	38.4	68.6	98.6	100.0	100.0	100.0
580	6	1/27/86	2000	1354.26	28.50	10.0	233.	28.7	38.7	66.2	97.7	100.0	100.0	100.0
608	6	1/27/86	2115	1354.58	30.30	10.0	313.	23.8	40.4	66.8	98.1	100.0	100.0	100.0
574	6	1/27/86	2210	1354.86	30.30	10.0	171.	38.3	55.8	90.2	97.3	100.0	100.0	100.0
579	6	1/28/86	50	1355.34	28.60		413.	21.9	23.7	28.0	87.4	100.0	100.0	100.0
617	6	1/28/86	612	1355.80	29.40	10.0	334.	4.6	32.9	71.6	96.4	100.0	100.0	100.0
614	6	1/28/86	1005	1355.24	28.60	10.0	484.	6.1	30.8	72.7	97.6	100.0	100.0	100.0
615	6	1/28/86	1135	1355.08	24.90	10.0	511.	21.6	36.9	70.7	90.9	100.0	100.0	100.0
610	6	1/28/86	1245	1354.96	28.20		591.	23.1	36.3	87.4	99.2	100.0	100.0	100.0
611	6	1/28/86	1430	1354.82	30.10	10.0	388.	30.5	45.7	78.3	99.2	100.0	100.0	100.0
612	6	1/28/86	1610	1354.73	30.00	10.0	393.	31.8	47.4	75.5	97.8	100.0	100.0	100.0
616	6	1/28/86	2035	1354.84	28.00	10.0	294.	10.0	31.7	70.1	98.5	100.0	100.0	100.0
613	6	1/28/86	2250	1354.96	29.30	10.0	302.	30.1	47.7	78.3	99.1	100.0	100.0	100.0
619	6	1/29/86	159	1354.92	30.30	10.0	356.	24.0	40.0	71.6	97.6	100.0	100.0	100.0
620	6	1/29/86	445	1355.01	30.80	10.0	303.	31.3	50.0	80.5	98.9	100.0	100.0	100.0
618	6	1/29/86	1328	1354.20	26.70	11.0	290.	30.5	45.5	72.4	98.1	100.0	100.0	100.0
621	6	1/29/86	1535	1353.86	27.00	11.0	245.	35.9	51.8	77.0	98.0	100.0	100.0	100.0
819	6	1/30/86	1435	1353.89	34.30	11.0	115.	22.7	51.2	75.6	97.3	100.0	100.0	100.0

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LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
962	7	8/ 8/83	1925	1.80		27.5	76805.	96.0	96.8	99.0	99.9	100.0	100.0	100.0
964	7	8/ 9/83	720	2.36		21.0	123213.	94.7	95.4	97.2	99.9	100.0	100.0	100.0
963	7	8/ 9/83	1910	2.56		26.5	168355.	85.0	85.6	89.3	98.5	99.9	100.0	100.0
966	7	8/10/83	725	2.00		21.0	109254.	95.0	95.6	98.1	99.9	100.0	100.0	100.0
965	7	8/10/83	1830	1.86		27.0	88548.	97.8	98.4	99.6	100.0	100.0	100.0	100.0
968	7	8/11/83	650	2.18		21.5	51157.	96.1	97.7	99.2	99.9	100.0	100.0	100.0
967	7	8/11/83	1915	2.75		24.5	84607.	84.2	85.9	91.4	99.8	100.0	100.0	100.0
969	7	8/12/83	715	1.90		21.0	100169.	96.9	97.4	98.8	99.9	100.0	100.0	100.0
970	7	8/12/83	1750	1.75		30.5	81768.	96.6	97.1	99.4	99.9	100.0	100.0	100.0
971	7	8/13/83	600	1.50		23.0	92220.	96.7	97.7	99.4	100.0	100.0	100.0	100.0
1057	7	8/13/83	600	1.50		23.0	47558.	98.4						
972	7	8/13/83	1930	1.40		30.0	64598.	99.6	99.7	99.9	100.0	100.0	100.0	100.0
974	7	8/14/83	730	2.75		23.0	80026.	90.4	92.8	98.3	99.9	100.0	100.0	100.0
973	7	8/14/83	1920	2.12		27.5	67947.	94.1	95.6	99.1	99.9	100.0	100.0	100.0
976	7	8/15/83	710	1.94		23.0	66666.	95.4	96.4	99.7	100.0	100.0	100.0	100.0
975	7	8/15/83	1915	1.70		28.5	64963.	97.9	98.7	99.7	100.0	100.0	100.0	100.0
978	7	8/16/83	720	1.70		22.5	61630.	99.3	99.7	99.9	100.0	100.0	100.0	100.0
977	7	8/16/83	1515	1.70		30.5	64536.	97.5	98.3	99.8	100.0	100.0	100.0	100.0
980	7	8/17/83	830	1.78		22.5	80913.	96.9	97.7	99.9	100.0	100.0	100.0	100.0
979	7	8/17/83	1840	1.85		25.0	72506.	97.7	98.2	99.8	100.0	100.0	100.0	100.0
982	7	8/18/83	735	1.85		20.5	60202.	97.5	98.2	99.6	100.0	100.0	100.0	100.0
981	7	8/18/83	1840	1.95		24.0	60670.	96.4	97.9	99.8	99.9	100.0	100.0	100.0
983	7	8/19/83	645	1.70		18.0	46988.	99.3	99.6	99.9	100.0	100.0	100.0	100.0
984	7	8/19/83	1820	1.70		25.0	47686.	98.4	99.2	99.8	100.0	100.0	100.0	100.0
986	7	8/20/83	725	1.72		18.5	54063.	99.4	99.7	99.9	100.0	100.0	100.0	100.0
985	7	8/20/83	1915	2.26		26.0	65413.	93.7	95.8	99.5	100.0	100.0	100.0	100.0
988	7	8/21/83	715	2.20		19.0	73462.	100.0						
987	7	8/21/83	1905	2.70		26.0	79344.	92.1	93.8	98.4	99.9	100.0	100.0	100.0
989	7	8/22/83	830	2.12		19.0	70357.	100.0						
990	7	8/22/83	1900	2.00		26.0	80107.	100.0						
991	7	8/23/83	830	1.95		19.0	87951.	100.0						
992	7	8/23/83	1900	1.95		24.0	88449.	100.0						
999	7	8/24/83	1135	2.15		15.5	36269.	92.6						
993	7	8/24/83	1155	1.80		23.5	84275.	100.0						
994	7	8/24/83	1920	1.80		24.5	81823.	100.0						
995	7	8/25/83	655	1.70		18.0	77334.	100.0						
997	7	8/25/83	1710	1.32		22.0	20864.	100.0						
996	7	8/25/83	1910	1.60		25.5	73418.	100.0						
998	7	8/26/83	730	1.50		18.0	86127.	100.0						
1017	7	9/ 4/83	1100	3.75		15.0	43500.	68.8						
1000	7	9/24/83	1840	1.75		14.0	26987.	97.3						
1001	7	9/25/83	900	1.45		15.5	12388.	98.3						
1002	7	9/26/83	900	1.10		15.0	20702.	99.7						
1003	7	9/26/83	1815	1.80		19.0	37229.	96.9						
1004	7	9/27/83	945	1.92		15.0	62068.	93.7						
1005	7	9/27/83	1830	1.84		19.5	47466.	96.6						
1006	7	9/28/83	789	1.72		13.5	38635.	96.5						
1007	7	9/28/83	1725	3.00		18.0	78921.	99.6						
1008	7	9/29/83	730	2.48		12.5	58323.	91.0						
1009	7	9/29/83	2100	2.25		12.0	46464.	91.6						

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
1010	7	9/30/83	700	2.85		11.5	43643.	68.5						
1058	7	9/30/83	1500	5.10		15.0	81881.	81.0						
1011	7	10/ 1/83	1145	4.10		15.5	61723.	55.1						
1012	7	10/ 1/83	1825	4.35		16.0	90523.	68.6						
1013	7	10/ 2/83	715	3.15		13.0	71792.	77.6						
1014	7	10/ 2/83	1830	3.30		16.5	41457.	46.1						
1015	7	10/ 3/83	645	3.45		13.0	40867.	68.1						
1016	7	10/ 3/83	1815	3.58		18.0	39815.	70.1	70.1	100.0	100.0	100.0	100.0	100.0
1018	7	10/ 4/83	1845	3.80		18.5	39632.	69.0	76.1	88.5	99.3	99.9	100.0	100.0
1019	7	10/ 5/83	700	3.50		13.5	42759.	66.4						
1020	7	10/ 5/83	1830	2.40		17.5	4126.	78.4						
1021	7	10/ 6/83	700	2.00		13.5	32046.	50.2						
1022	7	10/ 6/83	1500	1.84		19.5	25694.	77.2						
1023	7	10/ 7/83	745	2.00		15.0	22884.	77.9						
1024	7	10/ 7/83	1930	2.10		19.5	25033.	87.7						
1025	7	10/ 8/83	600	1.68		16.0	24888.	83.7						
1026	7	10/ 8/83	1810	1.45		21.0	19904.	89.8						
1027	7	10/ 9/83	900	1.45		16.0	18929.	91.6						
1028	7	10/ 9/83	1820	1.30		20.5	21026.	95.6						
1029	7	10/10/83	715	1.58		15.0	22088.	88.7						
1030	7	10/10/83	1650	1.70		22.5	22204.	93.1	96.0	99.5	100.0	100.0	100.0	100.0
1031	7	10/11/83	1100	1.46		16.5	17672.	94.6						
1032	7	10/11/83	1815	1.50		17.0	15132.	92.8						
1033	7	10/12/83	830	1.45		12.0	17608.	95.7						
1034	7	10/12/83	2100	1.40		17.0	18945.	96.9						
1035	7	10/13/83	1030	1.40		14.0	9562.	94.5						
1036	7	10/13/83	2100	1.25		14.5	16297.	98.8						
1037	7	10/14/83	835	1.20		12.0	13231.	99.2	99.5	99.9	100.0	100.0	100.0	100.0
1038	7	10/14/83	1825	1.15		15.5	12155.	98.2						
1039	7	10/15/83	635	1.01		10.5	10365.	98.3						
1040	7	10/15/83	1815	1.10		15.0	10427.	98.3						
1041	7	10/16/83	750	1.10		11.0	13730.	99.2						
1042	7	10/16/83	1505	1.10		17.0	13725.	98.9						
1043	7	10/17/83	900	1.10		13.0	10773.	99.2						
1044	7	10/17/83	1830	1.08		16.5	12262.	99.1						
1045	7	10/18/83	1100	1.10		14.5	12943.	99.5						
1046	7	10/18/83	1815	1.10		17.0	12175.	99.4						
1047	7	10/19/83	715	1.15		11.5	12406.	99.1						
1048	7	10/19/83	1515	1.15		13.5	12873.	99.3						
1049	7	10/20/83	815	1.18		7.5	10545.	99.2						
1050	7	10/20/83	1845	1.20		14.5	8291.	98.6						
1051	7	10/21/83	815	1.16		9.0	5717.	98.0						
1052	7	10/21/83	1655	1.14		17.5	4764.	96.4						
1053	7	10/22/83	630	1.14		9.0	4135.	97.5						
1054	7	10/22/83	1800	1.10		16.5	4214.	94.7						
1055	7	10/23/83	945	1.10		11.0	3542.	99.1						
1056	7	10/23/83	1940	1.00		15.5	3165.	97.6						
1059	7	11/23/83	2200	1.94		3.5	30928.	83.3						
1060	7	11/24/83	940	1.72		1.0	36513.	87.8						
1061	7	11/24/83	1720	1.80		5.5	37748.	91.9						

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
1093	9	10/10/83	1351			21.0	10904.	98.9						
1094	9	10/14/83	1530			19.0	5337.	97.9	98.2	98.5	99.2	100.0	100.0	100.0
1095	9	10/23/83	1500				2648.	99.3						

Table 1

U.S. BUREAU OF RECLAMATION
INTERREGIONAL SOIL AND WATER LAB
GRAND CANYON SEDIMENT TRANSPORT STUDY
SUSPENDED SEDIMENT SAMPLES

Footnote:

1: Colorado River At Lees Ferry
2: Paria River At Lees Ferry
3: Cclorado River Above Little Colorado River
4: Colorado River Near Grand Canyon
5: Colorado River Above National Canyon
6: Colorado River Above Diamond Creek
7: Little Colorado River at Cameron
8: Kanab Creek Near Fredonia
9: Little Colorado River Near Mouth

LAB NUM	LOCATION CODE	SAMPLING DATE	SAMPLING TIME	GAGE HEIGHT FT	AVERAGE SAMPLE DEPTH FT	TEMP C	SUSPENDED CONC MG/L	PERCENT FINER THAN SEIVE SIZE (MM) .062	.125	.250	.500	1.00	2.00	4.00
1063	7	11/25/83	925	1.30		4.0	32050.	94.7						
1062	7	11/25/83	1825	1.40		3.5	33816.	96.8						
1065	7	11/26/83	1015	1.40		2.5	22723.	98.2						
1064	7	11/26/83	1800	1.36		3.0	30427.	98.2						
1066	7	11/27/83	930	1.36		2.0	29512.	99.3						
1067	7	11/27/83	1720	1.36		3.0	30126.	97.9						
1069	7	11/28/83	755	1.20		0.0	28625.	97.4						
1068	7	11/28/83	1720	1.20		3.0	22401.	97.9						
1070	7	11/30/83					13787.	99.0	99.3	99.9	100.0	100.0	100.0	100.0
1072	8	8/ 2/83	1810	1.00			663355.	99.4	99.5	99.7	99.9	100.0	100.0	100.0
1073	8	8/ 9/83	1015	1.16		24.0	132199.	99.7	99.8	99.9	100.0	100.0	100.0	100.0
1071	8	8/12/83	1430	2.00		25.0	84376.	97.0						
1075	8	8/13/83	1030	1.50		22.0	29321.	99.9						
1074	8	8/13/83	1830	1.10		27.0	11656.	99.3	99.5	99.9	100.0	100.0	100.0	100.0
1076	8	9/ 6/83	1530	.90		18.0	29374.	98.7						
1096	8	9/30/83	700				31896.	94.2	98.6	99.5	99.9	100.0	100.0	100.0
1097	8	9/30/83	715				33454.	93.6	98.4	99.7	99.9	100.0	100.0	100.0
1098	8	9/30/83	730				31526.	95.2	99.0	99.8	100.0	100.0	100.0	100.0
1099	8	9/30/83	745				16300.	94.8	98.8	99.7	100.0	100.0	100.0	100.0
1100	8	9/30/83	800				26902.	95.5	99.0	99.8	99.9	100.0	100.0	100.0
1101	8	9/30/83	815				26837.	95.4	98.9	99.8	100.0	100.0	100.0	100.0
1102	8	9/30/83	830				30336.	96.1	99.0	99.8	99.9	100.0	100.0	100.0
1103	8	9/30/83	845				30140.	96.2	99.0	99.8	100.0	100.0	100.0	100.0
1104	8	9/30/83	900				28158.	95.9	98.7	99.7	100.0	100.0	100.0	100.0
1105	8	9/30/83	915				30130.	96.1	99.0	99.8	100.0	100.0	100.0	100.0
1106	8	9/30/83	930				27523.	95.8	99.2	99.9	100.0	100.0	100.0	100.0
1107	8	9/30/83	945				27094.	95.2	99.2	99.9	100.0	100.0	100.0	100.0
1108	8	9/30/83	1000				24617.	95.3	99.1	99.9	100.0	100.0	100.0	100.0
1109	8	9/30/83	1015				25580.	94.3	98.7	99.8	100.0	100.0	100.0	100.0
1110	8	9/30/83	1030				27004.	91.8	98.6	99.7	99.9	100.0	100.0	100.0
1111	8	9/30/83	1045				32028.	87.4	97.5	99.6	99.9	100.0	100.0	100.0
1112	8	9/30/83	1100				39005.	85.5	97.5	99.6	99.9	100.0	100.0	100.0
1113	8	9/30/83	1115				39219.	85.8	97.5	99.5	99.9	100.0	100.0	100.0
1114	8	9/30/83	1130				38647.	87.4	96.3	99.3	99.9	100.0	100.0	100.0
1115	8	9/30/83	1145				41004.	88.4	97.4	99.3	99.9	100.0	100.0	100.0
1077	8	10/ 3/83	1330	1.38		9.0	14129.	99.4	99.5	99.8	100.0	100.0	100.0	100.0
1078	8	10/ 4/83	1335	.66		14.0	11008.	96.4						
1079	8	11/19/83	1128	1.50		3.0	4310.	97.4						
1080	8	11/22/83	1121	1.50		3.0	3529.	98.5	99.5	99.9	100.0	100.0	100.0	100.0
1081	8	12/ 1/83	1130	1.36		2.0	1714.	97.7	99.5	99.7	100.0	100.0	100.0	100.0
1082	8	12/ 8/83	220	1.48		0.0	26648.	94.2						
1083	8	12/13/83	1600	1.52		4.5	16454.	87.1	95.9	99.0	99.9	100.0	100.0	100.0
1084	9	7/28/83	900				815.	77.4	88.2	97.4	100.0	100.0	100.0	100.0
1085	9	7/29/83	930				227.	19.2						
1086	9	8/ 6/83	1300				192167.	84.4						
1087	9	8/14/83	1130				42959.	96.7						
1088	9	8/23/83	1000				43021.	97.4						
1090	9	9/22/83	1800				550.	95.1						
1092	9	9/24/83					66829.	81.1						
1091	9	9/24/83	1545				65627.	78.7	93.0	99.8	100.0	100.0	100.0	100.0

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
1	12/ 9/83	1410	263	22800.	2.84	8030.	414.	423.	11.49	12.0	26
1	12/11/83	1115	264	23300.	2.88	8082.	414.	422.	11.47	12.0	26
1	10/ 2/85	950	279	8280.	1.20	6432.	406.	415.	8.09		15
1	10/ 2/85	1640	280	17400.	2.27	7670.	406.	414.	10.14		12
1	10/ 8/85	1835	281	14800.	1.89	7800.	405.	415.	9.78		28
1	10/10/85	1000	282	12400.	1.71	7200.	400.	407.	8.98		19
1	11/ 2/85	235		16380. *	2.30	7123.	404.	412.	8.57		12
1	11/ 2/85	610	283	7640.	2.22	6901.	399.	407.	7.96		22
1	11/ 2/85	1255		12493. **	1.67	7461.	405.	414.	9.20		21
1	11/ 2/85	1815		13816. *	1.87	7377.	406.	414.	9.57		17
1	11/ 2/85	2240	284	14700.	1.93	7610.	410.	419.	9.80		17
1	11/ 3/85	200		10862. *	1.57	6903.	395.	402.	8.84		10
1	11/ 8/85	2130	285	18400.	2.35	7830.	414.	422.	10.48		25
1	11/ 8/85	2315		17200. *	2.29	7510.	414.	421.	10.23		12
1	11/ 9/85	155		11363. *	1.58	7196.	407.	414.	9.20		11
1	11/ 9/85	320	286	9910.	1.43	6629.	407.	414.	8.75	10.0	12
1	11/ 9/85	2220		21331. *	2.73	7803.	413.	421.	10.72		12
1	11/10/85	600	287	10600.	1.47	7190.	404.	412.	8.83	10.0	25
1	12/ 3/85	1600		11573. *	1.64	7037.	403.	411.	8.96		15
1	12/ 3/85	2052		17384. *	2.26	7677.	410.	420.	10.08		15
1	12/ 3/85	2215		17948. *	2.31	7775.	410.	419.	10.26		15
1	1/ 4/86	1710	288	19000.	2.40	7920.	411.	419.	10.50		21
1	1/ 5/86	505		4181. *	.66	6323.	403.	409.	6.80		12
1	1/ 5/86	620		3360. *	.56	5990.	403.	408.	6.20		12
1	1/ 9/86	2100		28911. *	3.27	8829.	510.	517.	11.14		13
1	1/10/86	200		13532. *	1.90	7115.	408.	415.	9.25		12
1	1/10/86	525		4001. *	.64	6244.	407.	412.	6.70		12
1	1/10/86	815	289	2090.	.35	5930.	399.	404.	5.76	9.0	23
1	1/10/86	1500		20435. **	2.65	7722.	410.	417.	10.58		13
1	1/10/86	2200	290	24500.	3.04	8045.	411.	419.	11.19	10.0	24

Table 2

CHANNEL HYDRAULIC DATA-DISCHARGE MEASUREMENTS, 1983 and 1985-86
Colorado River Sediment Transport Study

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
1	6/ 8/83	1225	213	49900.	5.49	9090.	493.	504.	14.19		27
1	6/17/83	1210	214	57700.	6.28	9190.	408.	420.	15.03		22
1	6/18/83	1115	215	60500.	6.82	8870.	409.	421.	15.15		23
1	6/19/83	1010	216	62200.	7.04	8840.	408.	420.	15.15		23
1	6/27/83	1645	217	66400.	6.75	9984.	514.	528.	15.70		27
1	6/28/83	1410	218	91600.	7.53	12100.	483.	503.	17.79	13.0	31
1	6/30/83	850	219	80900.	7.63	10630.	500.	513.	17.37	14.0	24
1	7/ 2/83	1115	220	84200.	7.60	11100.	478.	494.	17.26	13.0	23
1	7/ 4/83	1100	221	84600.	7.83	10800.	482.	498.	17.10	14.0	31
1	7/ 6/83	1330	222	71000.	6.40	11100.	479.	492.	16.34	13.5	25
1	7/ 9/83	1130	223	53500.	5.22	10300.	475.	485.	14.58	10.0	25
1	7/16/83	1400	224	55500.	5.48	10100.	421.	440.	14.96	11.0	26
1	7/20/83	1100	225	43500.	4.56	9540.	418.	431.	13.71	9.5	24
1	7/22/83	945	226	41000.	4.39	9324.	420.	431.	13.37	10.0	26
1	8/ 2/83	1130	227	36400.	3.72	9275.	422.	434.	12.96	11.5	29
1	8/ 9/83	1130	228	35500.	3.42	9039.	409.	427.	12.98	10.0	25
1	8/12/83	1200	229	26800.	3.16	8490.	410.	424.	11.81	10.5	25
1	8/14/83	925	230	26600.	3.11	8550.	410.	422.	11.80	10.0	27
1	8/24/83	945	231	26700.	3.05	8760.	412.	424.	11.97		27
1	8/30/83	1240	232	26500.	3.03	8757.	412.	423.	12.05	10.0	25
1	9/ 2/83	930	233	27400.	3.20	8556.	412.	422.	12.07	10.0	21
1	9/ 4/83	1000	234	27100.	3.13	8648.	412.	422.	12.04	10.0	21
1	9/ 7/83	1120	235	27200.	3.21	8480.	417.	426.	12.06	10.0	24
1	9/ 9/83	1145	236	27300.	3.25	8400.	417.	426.	12.10	10.0	26
1	9/11/83	1030	237	25400.	3.04	8370.	417.	425.	11.88	10.0	25
1	9/13/83	1045	238	27000.	3.12	8650.	418.	428.	12.09	10.0	26
1	9/19/83	1445	239	26200.	3.04	8622.	412.	423.	11.98	11.0	26
1	9/21/83	1000	240	27300.	3.15	8665.	412.	423.	12.01	11.0	26
1	9/23/83	1045	241	26400.	3.06	8640.	412.	423.	11.94	11.0	26
1	10/ 2/83	1345	242	26800.	3.15	8514.	413.	424.	11.90	11.0	26
1	10/ 9/83	1215	243	25600.	3.20	8028.	410.	421.	11.99	12.5	26
1	10/11/83	1100	244	23000.	2.85	8076.	410.	421.	11.44	12.5	27
1	10/13/83	1545	245	23700.	2.88	8216.	410.	420.	11.46		26
1	10/17/83	1045	246	23800.	2.82	8420.	413.	423.	11.48	11.5	25
1	10/19/83	1310	247	22800.	2.83	8050.	413.	421.	11.51	11.5	21
1	10/21/83	1120	248	23800.	2.93	8123.	413.	421.	11.52	11.5	23
1	10/26/83	1115	249	27000.	3.20	8440.	410.	422.	11.88		21
1	10/28/83	1115	250	27300.	3.17	8620.	410.	421.	11.98	11.0	21
1	11/ 2/83	1420	251	19700.	2.98	6620.	397.	405.	10.56	9.0	19
1	11/ 6/83	1115	252	23300.	2.78	8360.	410.	420.	11.44	11.0	26
1	11/ 9/83	1645	253	23700.	2.83	8380.	410.	420.	11.41	11.0	26
1	11/11/83	1030	254	23900.	2.85	8370.	410.	420.	11.41	12.0	26
1	11/13/83	1040	255	24300.	2.91	8340.	410.	420.	11.50	11.5	26
1	11/15/83	1100	256	22220.	2.68	8277.	411.	422.	11.22	11.0	26
1	11/17/83	1115	257	22300.	2.67	8347.	411.	421.	11.22	11.5	26
1	11/19/83	1115	258	23200.	2.82	8229.	411.	420.	11.40	11.0	25
1	11/21/83	1030	259	23700.	2.90	8168.	411.	419.	11.48	10.5	25
1	11/29/83	1045	260	24200.	2.89	8390.	415.	424.	11.46	12.0	25
1	12/ 1/83	1045	261	24200.	2.88	8400.	415.	424.	11.44	12.5	25
1	12/ 7/83	1000	262	23100.	3.02	7630.	414.	421.	11.45	12.0	25

Footnotes:

Location Codes

1: Colorado River At Lees Ferry
2: Paria River At Lees Ferry
3: Colorado River Above Little Colorado River
4: Colorado River Near Grand Canyon
5: Colorado River Above National Canyon
6: Colorado River Above Diamond Creek

* Discharge computed from velocities taken when current meter was piggy-backed with sediment sampler for EWI measurement.

** Discharge computed from velocities taken in special sediment sampling verticals for separate concentrations.

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
3	10/ 7/85	2155		6239. *	1.72	3617.	326.	332.	2723.95		12
3	10/ 8/85	410	60	15300.	3.19	4800.	334.	343.	2727.32	11.0	27
3	10/ 8/85	730		17252. **	3.48	4955.	334.	344.	2727.94		18
3	10/ 8/85	1735		9223. *	2.20	4199.	326.	335.	2725.49		13
3	10/11/85	2250	61	6690.	1.84	3630.	324.	330.	2723.40		18
3	10/12/85	600		15660. *	3.31	4730.	343.	349.	2726.60		12
3	10/12/85	1415		11948. *	2.67	4478.	340.	346.	2726.35		13
3	10/12/85	1845		8397. *	2.10	4007.	338.	343.	2724.85		15
3	10/12/85	2230	62	5820.	1.64	3550.	333.	337.	2723.80	11.0	23
3	10/13/85	1045	63	14300.	2.98	4800.	342.	349.	2726.90	11.0	27
3	10/13/85	1810		8752. *	2.10	4163.	332.	341.	2724.80		12
3	10/13/85	2205		6500. **	2.09	3111.	325.	328.	2723.50		7
3	10/14/85	225		4738. **	1.64	2882.	319.	322.	2722.70		9
3	10/14/85	700		6187. *	1.74	3549.	326.	332.	2723.60		13
3	10/14/85	1000	64	8630.	2.26	3820.	332.	336.	2724.80	11.0	12
3	10/14/85	1440		8449. *	2.13	3974.	337.	342.	2725.00		12
3	10/15/85	115	65	16100.	3.23	4980.	333.	343.	2726.50	10.0	28
3	10/15/85	630		15742. *	4.21	3741.	333.	336.	2728.30		8
3	10/15/85	1455		12596. *	2.86	4400.	339.	345.	2726.10		12
3	10/15/85	1710		10487. *	2.56	4095.	338.	343.	2725.30		12
3	11/ 5/85	1405		12352. *	2.72	4546.	340.	346.	2726.63		10
3	11/ 5/85	1640	66	10260.	2.48	4130.	334.	341.	2725.72	12.0	19
3	11/ 5/85	2135		6337. *	1.80	3516.	327.	332.	2724.07		10
3	11/ 6/85	225	67	11100.	2.70	4110.	327.	333.	2725.64		27
3	11/ 6/85	540		13203. *	2.99	4420.	337.	345.	2727.06		13
3	11/ 6/85	940		15637. **	3.35	4661.	342.	349.	2727.61		17
3	11/ 6/85	1432		13144. *	2.89	4540.	331.	341.	2726.90		15
3	11/ 6/85	1640		11678. *	2.69	4346.	329.	338.	2726.27		15
3	11/ 6/85	2022	68	9940.	2.44	4080.	330.	338.	2725.56		14
3	11/ 6/85	2205		11118. *	2.56	4341.	331.	339.	2725.88		18
3	11/ 7/85	255		14013. *	3.15	4455.	333.	340.	2727.06		10
3	11/ 7/85	425		14691. *	3.24	4539.	334.	342.	2727.19		10
3	11/ 7/85	1525		13189. *	2.95	4475.	332.	340.	2726.77		12
3	11/ 7/85	2010		8665. *	2.30	3768.	332.	337.	2725.02		14
3	11/ 7/85	2205		7429. *	2.01	3687.	326.	332.	2724.54		14
3	11/ 8/85	138	69	11500.	2.70	4260.	330.	339.	2725.86	10.0	26
3	11/ 8/85	445		16402. *	3.43	4788.	335.	344.	2727.60		13
3	11/ 8/85	625		17977. *	3.63	4958.	334.	344.	2728.00		15
3	11/ 8/85	915	70	18600.	3.69	5040.	336.	346.	2728.40		26
3	11/ 8/85	1435		14777. *	3.27	4524.	331.	339.	2727.27		13
3	11/ 8/85	1555		12797. *	2.97	4311.	331.	338.	2726.68		13
3	11/ 8/85	2000		9290. *	2.35	3947.	331.	337.	2725.29		13
3	11/12/85	1805		11441. *	2.75	4161.	331.	338.	2726.00		12
3	11/12/85	2150		10763. *	2.63	4087.	329.	337.	2726.00		12
3	11/13/85	1152	71	15100.	3.22	4680.	337.	345.	2727.30	9.0	24
3	11/13/85	1715		10507. *	2.69	3903.	334.	338.	2725.80		11
3	11/13/85	1938	72	8680.	2.20	3940.	334.	339.	2725.20	8.0	24
3	11/14/85	302		13791. **	3.14	4392.	336.	343.	2726.80		12
3	11/14/85	938	73	16500.	3.37	4890.	343.	350.	2727.75		25
3	11/14/85	1410		14197. *	3.15	4512.	340.	346.	2727.10		12

LOCATION CODE	DATE	M N TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
3	7/11/83	1140	1	55900.	6.49	8622.	354.	375.	2736.78		25
3	7/14/83	1035	2	57600.	6.42	8975.	358.	380.	2737.58	12.0	30
3	7/31/83	1805	3	39800.	5.76	6905.	352.	367.	2733.58	12.0	29
3	8/ 2/83	915	4	35600.	5.51	6457.	342.	357.	2732.98	12.0	28
3	8/ 4/83	1050	5	35100.	5.51	6372.	340.	357.	2732.78	11.0	30
3	8/ 6/83	1140	6	35000.	5.44	6420.	341.	357.	2732.88	11.0	29
3	8/ 8/83	1140	7	32800.	5.30	6196.	346.	362.	2732.78		29
3	8/10/83	920	8	37000.	5.52	6697.	346.	360.	2732.98		29
3	8/12/83	905	9	26800.	4.48	5975.	340.	352.	2730.41		28
3	8/14/83	1010	10	27800.	4.74	5866.	340.	352.	2730.21		27
3	8/30/83	1200	16	26300.	4.48	5870.	346.	357.	2730.10		24
3	9/ 1/83	1400	17	27300.	4.69	5810.	347.	357.	2730.72		24
3	9/ 3/83	1340	18	27100.	4.76	5694.	345.	354.	2730.61		24
3	9/ 5/83	1020	19	25400.	4.30	5904.	344.	355.	2730.64		22
3	9/ 7/83	1500	20	27900.	4.73	5908.	350.	360.	2730.74		25
3	9/ 9/83	1100	21	26100.	4.47	5840.	350.	359.	2730.60		24
3	9/13/83	1130	22	26200.	4.47	5860.	349.	359.	2730.50	12.0	24
3	9/15/83	1050	23	26700.	4.51	5920.	350.	360.	2730.75	11.5	24
3	9/17/83	1525	24	27100.	4.58	5910.	344.	355.	2730.62	12.0	24
3	9/19/83	1140	25	26200.	4.56	5750.	348.	357.	2730.61	12.0	27
3	9/21/83	1125	26	25800.	4.46	5780.	349.	358.	2730.53	11.0	26
3	9/23/83	1550	27	25500.	4.42	5770.	348.	357.	2730.54	11.0	27
3	10/ 5/83	1615	32	25700.	4.28	5996.	345.	357.	2731.16	11.0	22
3	10/10/83	1040	33	26800.	4.58	5851.	347.	358.	2730.82	11.5	25
3	10/12/83	1115	34	23700.	4.29	5531.	345.	354.	2729.88	11.0	25
3	10/14/83	1115	35	24500.	4.33	5656.	346.	355.	2730.16	12.0	25
3	10/18/83	1615	36	23800.	4.31	5508.	341.	351.	2729.92	12.0	25
3	10/20/83	1155	37	25500.	4.53	5642.	342.	353.	2730.29	12.0	25
3	10/22/83	1550	38	23200.	4.17	5567.	342.	352.	2729.91	12.0	25
3	10/24/83	1150	39	26200.	4.49	5821.	343.	355.	2730.88	11.5	25
3	10/26/83	1540	40	23800.	4.30	5527.	342.	353.	2729.92	12.0	25
3	10/28/83	1525	41	26700.	4.58	5841.	343.	355.	2730.72	12.0	25
3	11/ 1/83	1125	42	26000.	4.55	5714.	344.	355.	2730.60	12.0	26
3	11/ 6/83	1555	43	24500.	4.36	5620.	339.	350.	2730.28	12.0	22
3	11/ 9/83	1210	44	24300.	4.31	5644.	338.	351.	2730.02	11.0	23
3	11/11/83	1145	45	24100.	4.32	5586.	338.	350.	2729.83	11.5	23
3	11/13/83	1305	46	24026.	4.30	5592.	340.	352.	2730.00	11.5	23
3	11/15/83	1150	47	21400.	3.95	5410.	338.	350.	2729.38	11.0	23
3	11/19/83	1325	48	23600.	4.21	5600.	338.	351.	2729.84	11.5	23
3	11/21/83	1250	49	24100.	4.28	5640.	338.	350.	2730.02	11.5	23
3	11/23/83	1130	50	24100.	4.30	5600.	338.	350.	2729.96	11.0	23
3	12/ 2/83	1340	51	24000.	4.36	5495.	343.	353.	2729.87	13.0	21
3	12/ 4/83	1315	52	23400.	4.32	5420.	343.	353.	2729.96	13.0	23
3	12/ 6/83	1220	53	23700.	4.33	5476.	343.	352.	2730.00	11.0	23
3	12/ 8/83	1150	54	23900.	4.38	5461.	343.	352.	2730.09	12.5	23
3	12/10/83	1105	55	23800.	4.34	5481.	343.	352.	2729.98	12.0	23
3	12/12/83	1150	56	24600.	4.43	5545.	343.	353.	2730.08	12.5	23
3	10/ 5/85	1740	57	9550.	2.39	3990.	331.	337.	2725.62		13
3	10/ 6/85	250	58	5360.	1.57	3420.	321.	327.	2722.59	11.0	25
3	10/ 7/85	1050	59	14900.	3.23	4610.	334.	343.	2727.16	11.0	22

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
3	12/15/85	2055		7209. *	2.00	3608.	328.	333.	2724.30		12
3	12/15/85	2325	90	5740.	1.73	3320.	325.	329.	2723.45	10.0	25
3	1/ 8/86	910		16789. *	3.49	4811.	337.	345.	2727.74		13
3	1/ 8/86	1320		13638. *	3.04	4489.	333.	341.	2726.87		11
3	1/ 8/86	1500		12105. *	2.80	4322.	330.	338.	2726.25		13
3	1/ 8/86	1642		10246. **	2.51	4089.	327.	335.	2725.56		15
3	1/ 8/86	1955		7323. *	1.99	3678.	323.	330.	2724.22		15
3	1/ 8/86	2245		5578. *	1.57	3560.	421.	426.	2723.38		13
3	1/ 9/86	622	91	18400.	3.74	4920.	342.	350.	2728.10		21
3	1/ 9/86	1020		17055. *	3.50	4872.	338.	346.	2727.96		13
3	1/ 9/86	1351		13431. *	3.01	4462.	332.	340.	2726.88		15
3	1/ 9/86	1610		10606. *	2.61	4058.	330.	337.	2725.91		13
3	1/ 9/86	1915		7907. *	2.08	3795.	331.	336.	2724.56		13
3	1/ 9/86	2335	92	6090.	1.76	3460.	330.	335.	2723.95		22
3	1/10/86	950	93	21700.	4.09	5310.	340.	350.	2729.12	9.5	22
3	1/10/86	1225		18027. *	3.63	4971.	338.	347.	2728.24		13
3	1/10/86	1400		15076. *	3.20	4711.	337.	345.	2727.40		13
3	1/10/86	1955		9011. *	2.49	3615.	328.	333.	2724.52		10
3	1/10/86	2220		5901. *	1.76	3353.	322.	327.	2723.88		10
3	1/11/86	730	94	22800.	4.21	5410.	341.	350.	2729.48		22
3	1/11/86	1105		19341. *	3.84	5041.	337.	345.	2728.60		13
3	1/11/86	1322		16103. *	3.36	4794.	337.	345.	2727.61		13
3	1/11/86	1550	95	12300.	2.89	4250.	332.	337.	2726.36		20
3	1/11/86	2030		4331. *	2.00	2162.	266.	272.	2724.22		8
3	1/13/86	1310		15268. *	3.49	4373.	339.	344.	2727.40		11
3	1/13/86	1505		12797. *	3.08	4160.	339.	343.	2726.65		11
3	1/13/86	1638	96	11100.	2.68	4140.	334.	340.	2725.98	9.0	15
3	1/13/86	2030		6925. *	2.00	3458.	329.	332.	2724.32		11
3	1/13/86	2252	97	5720.	1.76	3250.	328.	331.	2723.38	9.0	21
3	1/14/86	740	98	20500.	3.98	5150.	343.	351.	2728.95	9.0	26
3	1/14/86	1025		18188. *	3.78	4811.	339.	345.	2728.35		12
3	1/14/86	1330		15864. *	3.43	4620.	340.	346.	2727.60		13
3	1/14/86	1620		11636. *	2.70	4308.	337.	343.	2726.20		14
3	1/14/86	2110		6776. *	1.88	3609.	330.	335.	2724.10		14
3	1/14/86	2258	99	6660.	1.91	3480.	326.	330.	2724.30	9.0	25
3	1/15/86	555	100	21100.	4.06	5190.	345.	353.	2729.00	9.0	26
3	1/15/86	1035		18188. *	3.76	4843.	346.	351.	2728.28		13
3	1/15/86	1435		12814. *	3.02	4243.	338.	343.	2726.65		12
3	1/15/86	1708	101	9780.	2.52	3880.	333.	338.	2725.42	9.0	19
3	1/15/86	2040		6520. *	1.84	3534.	330.	334.	2724.00		12
3	1/16/86	918	102	22300.	4.26	5220.	340.	348.	2729.40	9.0	25
3	1/16/86	1130		20959. *	4.11	5101.	340.	349.	2728.90		12
3	1/16/86	1310		17981. **	3.71	4841.	346.	351.	2728.30		13
3	1/16/86	1520		15567. *	3.39	4592.	344.	349.	2727.50		13
3	1/16/86	1725		14021. *	3.18	4406.	342.	347.	2727.10		13

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
3	11/14/85	1535		13574. *	3.09	4393.	340.	345.	2726.70		12
3	11/14/85	1640	74	12300.	3.23	3810.	336.	339.	2726.40	9.0	11
3	11/14/85	1810		11105. *	2.78	3988.	333.	337.	2726.00		11
3	11/14/85	2115	75	10900.	2.67	4090.	334.	339.	2725.90	9.0	25
3	11/15/85	318	76	14100.	3.51	4480.	339.	345.	2727.10	9.0	25
3	11/15/85	1012	77	15700.	3.28	4780.	340.	348.	2727.58	9.0	26
3	11/15/85	1355		14208. *	3.14	4522.	338.	344.	2727.10		12
3	11/15/85	1455		13567. *	3.06	4427.	337.	342.	2726.80		12
3	11/15/85	1635	78	12100.	2.98	4060.	337.	341.	2726.45	9.0	13
3	11/15/85	1825		11459. *	3.03	3786.	333.	336.	2726.10		13
3	12/ 6/85	840	79	20000.	3.90	5130.	338.	347.	2728.90		30
3	12/ 6/85	1110		18676. *	3.70	5045.	336.	345.	2728.43		13
3	12/ 6/85	1412		14831. *	3.19	4644.	333.	341.	2727.40		15
3	12/ 6/85	1537		13201. *	2.94	4492.	331.	339.	2725.82		15
3	12/ 6/85	2200	80	10300.	2.51	4110.	333.	341.	2725.72		29
3	12/ 7/85	1015		17783. *	3.54	5017.	340.	348.	2728.24		12
3	12/ 7/85	1140		16340. *	3.34	4888.	339.	348.	2727.88		13
3	12/ 7/85	1340		14502. *	3.21	4515.	334.	342.	2727.26		13
3	12/ 7/85	1455		12927. *	2.97	4354.	333.	341.	2726.63		13
3	12/ 7/85	2125	81	6280.	1.80	3490.	325.	330.	2724.63		25
3	12/ 8/85	320		7403. *	2.08	3565.	331.	335.	2723.90		15
3	12/ 8/85	515		11132. *	2.66	4179.	334.	340.	2726.00		15
3	12/ 8/85	952		16467. *	3.43	4803.	336.	345.	2727.49		18
3	12/ 8/85	1142		15172. *	3.21	4725.	336.	344.	2727.36		13
3	12/ 8/85	1335		13411. *	2.98	4495.	335.	342.	2726.94		14
3	12/ 8/85	1500		12061. *	2.77	4356.	333.	341.	2726.36		16
3	12/ 8/85	1640	82	10400.	2.55	4080.	330.	337.	2725.71		16
3	12/ 8/85	2055		6824. *	1.88	3629.	323.	330.	2724.08		15
3	12/ 8/85	2220		6026. *	1.74	3464.	320.	327.	2723.55		13
3	12/ 9/85	145	83	4410.	1.43	3080.	320.	325.	2722.72	7.0	28
3	12/ 9/85	405		5249. *	1.46	3593.	391.	393.	2723.09		10
3	12/ 9/85	1648		9292. *	2.34	3969.	328.	336.	2725.30		13
3	12/ 9/85	2015		6424. *	1.83	3505.	324.	330.	2724.03		15
3	12/12/85	1340		15001. *	3.34	4497.	335.	343.	2727.30		12
3	12/12/85	1540		12264. *	2.89	4250.	330.	338.	2726.60		12
3	12/12/85	1715		10940. *	2.65	4125.	335.	341.	2725.90		12
3	12/12/85	2240	84	10800.	2.77	3900.	330.	334.	2725.60	9.0	13
3	12/13/85	912	85	23500.	4.45	5280.	348.	355.	2729.72	10.0	23
3	12/13/85	1315		17371. *	3.53	4925.	345.	351.	2728.20		14
3	12/13/85	1520		13447. *	3.09	4356.	335.	341.	2727.05		14
3	12/13/85	1725	86	11200.	2.83	3960.	333.	337.	2726.10	10.0	16
3	12/14/85	1015		21112. *	4.10	5149.	344.	352.	2729.00		12
3	12/14/85	1420		14214. *	3.14	4531.	340.	347.	2727.08		12
3	12/14/85	1600		11602. *	2.71	4282.	335.	341.	2726.28		12
3	12/14/85	2015	87	7090.	1.95	3630.	329.	335.	2724.35	10.0	23
3	12/15/85	748	88	17300.	3.61	4790.	340.	346.	2728.08		20
3	12/15/85	1305		15613. *	3.40	4597.	328.	337.	2727.60		12
3	12/15/85	1450		14007. **	3.16	4434.	336.	343.	2726.80		12
3	12/15/85	1622	89	12000.	2.89	4150.	336.	341.	2726.20	10.0	14
3	12/15/85	1755		10086. *	2.51	4025.	333.	339.	2725.60		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
4	10/ 8/83	1020	962	28500.	4.59	6214.	300.	318.	13.73	12.0	26
4	10/10/83	940	963	27500.	4.35	6300.	300.	318.	13.58	12.0	26
4	10/14/83	1015	964	25700.	4.21	6100.	298.	316.	13.02	12.0	25
4	10/17/83	915	965	24600.	4.07	6030.	300.	317.	12.52	12.0	25
4	10/19/83	1020	966	24000.	4.04	5930.	294.	313.	12.54	12.0	26
4	10/21/83	1030	967	24300.	4.06	5980.	294.	313.	12.58	12.0	26
4	10/23/83	1530	968	24200.	4.05	5960.	294.	313.	12.60	13.0	26
4	10/27/83	1540	969	27300.	4.37	6240.	305.	320.	13.60		24
4	10/29/83	1200	970	27200.	4.39	6200.	305.	322.	13.64	12.5	24
4	10/31/83	1045	971	27800.	4.43	6270.	305.	322.	13.63	12.5	23
4	11/ 7/83	1100	972	23900.	4.11	5810.	296.	312.	12.60	12.5	25
4	11/ 9/83	1505	973	24200.	4.19	5770.	292.	308.	12.64	11.5	25
4	11/13/83	1200	974	24100.	4.13	5840.	291.	309.	12.54	12.5	25
4	11/16/83	1505	975	21600.	3.76	5760.	291.	311.	11.92	12.0	26
4	11/18/83	1555	976	21800.	3.71	5860.	291.	311.	12.03	12.0	26
4	11/20/83	945	977	24300.	4.11	5920.	291.	312.	12.66	12.0	26
4	11/22/83	1430	978	23500.	3.99	5880.	292.	312.	12.38	11.0	26
4	12/ 1/83	1155	979	23500.	4.10	5720.	295.	309.	12.56		21
4	12/ 3/83	1140	980	23100.	4.00	5750.	295.	311.	12.28	13.0	22
4	12/ 6/83	1305	981	23700.	4.02	5900.	295.	313.	12.63		23
4	12/10/83	1305	982	23800.	4.16	5720.	295.	309.	12.52	12.5	22
4	12/13/83	1225	983	23900.	4.21	5680.	295.	311.	12.72	12.5	23
4	10/10/85	1240	992	17900.	3.22	5560.	293.	314.	10.35		28
4	10/11/85	1335		15612. *	3.06	5108.	286.	303.	9.60		21
4	10/11/85	1500	993	15700.	3.05	5140.	286.	302.	9.40		21
4	10/11/85	1820		13533. *	2.77	4882.	283.	299.	8.32		20
4	10/11/85	2330	994	8970.	2.16	4160.	281.	294.	6.21	12.0	14
4	10/12/85	415	995	7090.	1.84	3850.	278.	293.	5.03		27
4	10/13/85	255	996	6220.	1.75	3550.	274.	283.	5.10		26
4	10/13/85	1130	997	14100.	2.94	4800.	286.	299.	9.06		16
4	10/13/85	1520	998	13700.	2.78	4920.	290.	306.	8.68		30
4	10/13/85	2030	999	10100.	2.32	4350.	282.	295.	6.86	12.0	16
4	10/14/85	100	1000	7020.	1.83	3830.	277.	288.	5.11		25
4	10/17/85	1345	1001	14500.	2.80	5190.	291.	314.	9.07		28
4	10/17/85	2240		10515. *	2.47	4259.	283.	292.	7.00		12
4	10/18/85	135	1002	8520.	2.00	4250.	283.	302.	6.25	12.0	13
4	10/18/85	510	1003	10600.	2.33	4550.	288.	308.	6.94	11.0	28
4	10/18/85	800		13024. *	2.79	4671.	290.	299.	8.30		12
4	10/18/85	945	1004	13100.	2.67	4910.	290.	311.	8.48	11.0	11
4	10/18/85	1715		13358. *	2.91	4595.	275.	286.	8.22		12
4	10/18/85	2250	1005	10100.	2.24	4500.	284.	307.	6.99	12.0	25
4	10/19/85	125		8678. **	2.16	4016.	282.	290.	6.24		12
4	10/19/85	550		13483. *	2.77	4861.	290.	300.	8.42		12
4	10/19/85	750	1006	15400.	2.89	5320.	292.	316.	9.53	11.0	27
4	10/19/85	1115		15925. *	3.03	5255.	291.	306.	9.90		16
4	10/19/85	1340	1007	16300.	3.07	5320.	290.	313.	9.92	12.0	13
4	10/19/85	1470		16292. *	3.24	5032.	290.	301.	9.74		12
4	10/19/85	2225	1008	11200.	2.39	4680.	285.	306.	7.25	11.0	27
4	10/20/85	245	1009	8660.	2.09	4150.	282.	300.	5.78	11.0	12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
4	6/ 8/83	1315	913	48700.	7.16	6800.	300.	327.	19.43	10.5	22
4	6/16/83	1645	914	57600.	7.52	7653.	300.	329.	21.41		22
4	6/17/83	1155	915	59700.	7.88	7590.	300.	332.	21.03	12.5	29
4	6/18/83	1045	916	62300.	7.89	7890.	300.	339.	20.90	11.5	30
4	6/24/83	1115	917	70000.	7.84	8930.	300.	341.	22.05	12.0	30
4	6/25/83	1045	918	71500.	7.95	8990.	300.	347.	21.94		30
4	6/30/83	1515	919	83700.	8.64	9690.	313.	348.	24.65		24
4	7/ 2/83	1050	920	83800.	8.64	9700.	308.	344.	24.54	13.8	24
4	7/ 7/83	1110	921	71300.	7.99	8920.	305.	336.	22.87	13.5	31
4	7/ 9/83	1100	922	52600.	6.46	8140.	300.	332.	19.40	11.5	24
4	7/11/83	1715	923	52100.	6.64	7850.	300.	330.	19.40		25
4	7/13/83	1000	924	57000.	6.80	8380.	300.	332.	20.03		25
4	7/14/83	1115	925	56200.	6.86	8200.	300.	328.	19.98	13.0	25
4	7/17/83	930	926	54800.	6.65	8230.	300.	328.	20.12	13.0	25
4	7/19/83	1000	927	49700.	6.26	7900.	300.	326.	18.92	13.0	25
4	7/21/83	1110	928	39300.	5.28	7440.	302.	327.	16.85	11.0	25
4	7/23/83	915	929	39100.	5.31	7380.	300.	326.	16.86	10.5	25
4	7/25/83	1215	930	36600.	5.06	7240.	299.	322.	16.55	10.5	24
4	7/27/83	1430	931	42600.	5.74	7410.	300.	324.	17.46	10.5	25
4	7/29/83	1030	932	41300.	5.50	7510.	301.	325.	17.16	11.0	25
4	8/ 3/83	1415	933	34600.	4.97	6960.	300.	322.	15.91	11.0	25
4	8/ 7/83	1400	934	36900.	5.33	6930.	300.	322.	16.08	12.0	25
4	8/10/83	1030	935	36000.	5.17	6960.	300.	322.	16.04		25
4	8/12/83	1015	936	25100.	4.19	6000.	300.	318.	13.54		25
4	8/14/83	930	937	24700.	4.20	5890.	295.	319.	13.38		25
4	8/16/83	915	938	23900.	4.01	5950.	298.	316.	13.36		25
4	8/18/83	920	939	26400.	4.23	6240.	300.	318.	13.49		25
4	8/20/83	900	940	27500.	4.26	6460.	301.	326.	13.50		26
4	8/23/83	930	941	27000.	4.25	6350.	299.	321.	13.49	12.5	27
4	8/25/83	900	942	27200.	4.35	6260.	297.	316.	13.48	13.0	29
4	8/27/83	840	943	27100.	4.33	6260.	300.	320.	13.43		28
4	8/29/83	1135	944	26800.	4.35	6150.	298.	316.	13.46	13.5	24
4	8/31/83	1545	945	26900.	4.34	6190.	298.	318.	13.44	12.5	26
4	9/ 2/83	1100	946	26700.	4.29	6230.	298.	318.	13.42	13.0	26
4	9/ 4/83	1125	947	26500.	4.28	6200.	298.	317.	13.24	13.0	26
4	9/ 6/83	1015	948	26700.	4.28	6230.	298.	318.	13.45	12.5	26
4	9/ 8/83	1240	949	26300.	4.28	6150.	297.	314.	13.50	13.0	23
4	9/10/83	1050	950	25400.	4.14	6140.	299.	318.	13.12	12.0	23
4	9/12/83	940	951	26000.	4.20	6190.	299.	316.	13.16	12.0	23
4	9/14/83	1500	952	24800.	4.17	5960.	299.	314.	12.85	13.0	23
4	9/18/83	1030	953	25900.	4.19	6180.	303.	321.	13.32	12.0	22
4	9/20/83	1220	954	26000.	4.19	6210.	303.	318.	13.26	12.0	25
4	9/22/83	1400	955	26300.	4.22	6220.	303.	318.	13.32	12.5	23
4	9/24/83	1125	956	27900.	4.39	6360.	300.	319.	13.71	12.5	24
4	9/27/83	1635	957	27100.	4.31	6280.	300.	318.	13.31	13.0	25
4	9/29/83	1510	958	27000.	4.33	6240.	300.	318.	13.41	12.5	25
4	10/ 1/83	1045	959	30400.	4.61	6600.	306.	324.	14.65	13.0	26
4	10/ 3/83	1040	960	30300.	4.64	6520.	305.	323.	14.21	12.0	26
4	10/ 6/83	1540	961	28140.	4.47	6300.	300.	319.	13.62	12.0	26

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO OF VERTICALS
4	12/12/85	2040		11823. *	2.63	4496.	284.	298.	8.04		11
4	12/13/85	140		8750. *	2.12	4128.	277.	291.	6.14		16
4	12/13/85	810	1026	21500.	3.77	5710.	291.	310.	11.58		16
4	12/13/85	1240	1027	23500.	3.96	5930.	292.	311.	12.41		24
4	12/13/85	1518		20948. *	3.69	5669.	294.	311.	11.12		12
4	12/14/85	135		9966. *	2.32	4288.	277.	292.	7.19		15
4	12/14/85	1140		22475. *	3.96	5671.	291.	310.	12.08		12
4	12/14/85	2105		11520. *	2.55	4525.	278.	291.	7.54		10
4	12/14/85	2215		10431. *	2.41	4336.	276.	288.	6.93		11
4	12/17/85	1530	1028	19700.	3.57	5520.	295.	310.	11.06		26
4	12/17/85	2020		12911. *	2.79	4633.	288.	297.	8.44		12
4	12/17/85	2205		11146. *	2.54	4382.	283.	292.	7.38		12
4	12/17/85	2300	1029	10200.	2.35	4340.	283.	293.	6.86		15
4	12/18/85	120		8227. *	2.14	8841.	280.	287.	5.66		14
4	12/18/85	1600		16988. *	3.28	5181.	292.	303.	10.00		12
4	12/18/85	1715		16104. *	3.23	4980.	294.	304.	9.60		12
4	12/18/85	2025		12379. *	2.77	4476.	286.	295.	8.00		12
4	12/19/85	340		6650. *	1.85	3594.	281.	287.	4.45		12
4	12/19/85	610	1030	8830.	2.11	4186.	281.	295.	5.96		20
4	12/19/85	1045		15025. **	3.10	4849.	288.	298.	9.18		12
4	12/19/85	1445	1031	15900.	3.03	5260.	289.	312.	9.68		27
4	12/19/85	1710		14102. *	3.06	4603.	287.	295.	8.88		13
4	12/19/85	2020		11873. *	2.67	4443.	285.	293.	7.60		14
4	12/19/85	2130	1032	10900.	2.52	4350.	285.	294.	7.32		12
4	12/19/85	2345		9658. *	2.47	3916.	282.	288.	6.70		12
4	12/20/85	700	1033	15000.	2.88	5200.	290.	313.	9.27		21
4	12/20/85	1000		13743. *	2.91	4722.	288.	298.	8.90		12
4	12/20/85	1100	1034	14700.	2.90	5060.	288.	311.	8.94		13
4	12/20/85	1740		13729. *	2.95	4650.	290.	298.	8.60		12
4	12/20/85	2000		11607. *	2.58	4493.	285.	294.	7.50		12
4	12/20/85	2145		10087. *	2.40	4197.	284.	292.	6.60		12
4	1/15/86	410	1035	7150.	1.86	3840.	275.	288.	5.20		26
4	1/15/86	1330		19588. *	3.48	5622.	293.	310.	10.92		14
4	1/15/86	1548		17053. *	3.23	5281.	288.	304.	10.02		14
4	1/15/86	2006		11346. *	2.58	4405.	286.	294.	8.10		13
4	1/15/86	2226		9386. *	2.27	4128.	283.	292.	6.81		13
4	1/16/86	335	1036	6450.	1.73	3730.	272.	284.	4.45		21
4	1/16/86	1145	1037	22300.	3.87	5760.	290.	307.	11.98		22
4	1/16/86	1430		21268. *	3.73	5706.	294.	310.	11.65		13
4	1/16/86	1742		14961. *	2.89	5173.	287.	300.	10.35		12
4	1/16/86	2030		13228. *	2.72	4872.	283.	294.	9.35		11
4	1/18/86	1330	1038	25200.	4.00	6290.	304.	324.	13.00		27
4	1/18/86	1600		22102. *	4.04	5466.	294.	305.	11.93		13
4	1/18/86	1750		18466. *	3.66	5047.	293.	301.	11.01		12
4	1/18/86	2020	1039	16200.	3.21	5030.	290.	300.	9.86		12
4	1/18/86	2200		15238. *	3.17	4811.	290.	299.	9.40		13
4	1/19/86	1430		22666. *	3.97	5708.	298.	309.	12.12		12
4	1/19/86	1745		18733. *	3.56	5258.	293.	303.	10.90		12
4	1/19/86	2000		16019. *	3.25	4936.	288.	298.	9.95		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
4	10/20/85	525		7386. *	1.92	3840.	282.	290.	5.28		12
4	10/20/85	700	1010	7720.	1.93	3990.	282.	299.	5.47	11.0	12
4	10/20/85	910		8348. *	2.13	3924.	281.	288.	5.86		12
4	10/20/85	1100		10256. *	2.41	4251.	285.	293.	6.90		12
4	10/20/85	1310	1011	12500.	2.69	4660.	288.	308.	7.99	11.0	12
4	10/20/85	1405		12628. *	2.79	4533.	288.	297.	8.29		12
4	10/20/85	1640		12937. *	2.79	4642.	290.	299.	8.50		12
4	10/20/85	1815	1012	12800.	2.54	5030.	289.	312.	8.25	11.0	27
4	10/20/85	2230		11191. *	2.55	4391.	286.	295.	7.35		12
4	10/20/85	2345	1013	10800.	2.38	4540.	285.	302.	7.18	11.0	12
4	11/10/85	925		17242. *	3.33	5177.	289.	306.	10.95		12
4	11/10/85	1120	1014	19200.	3.42	5615.	292.	311.	10.90		27
4	11/10/85	2030		15440. *	3.02	5108.	293.	305.	8.30		16
4	11/11/85	200	1015	9750.	2.25	4330.	278.	291.	7.20		25
4	11/11/85	530		9727. *	2.32	4196.	278.	288.	6.65		11
4	11/11/85	2015		11564. *	2.48	4656.	282.	295.	7.80		13
4	11/11/85	2135		10901. *	2.49	4372.	284.	295.	7.55		11
4	11/12/85	952		13780. *	2.87	4804.	286.	298.	9.30		13
4	11/12/85	1400		16482. *	3.15	5238.	288.	306.	9.89		21
4	11/12/85	1535		16182. *	3.10	5217.	284.	301.	9.83		13
4	11/12/85	1725		14553. *	2.88	5051.	285.	302.	9.40		17
4	11/12/85	2200		11787. *	2.52	4670.	281.	297.	8.00		16
4	11/13/85	145	1016	10900.	2.42	4510.	286.	302.	7.30		28
4	11/13/85	310		10838. *	2.44	4448.	287.	299.	7.57		16
4	11/13/85	645		14672. *	2.95	4971.	293.	305.	9.36		11
4	11/13/85	1452		15580. *	3.07	5082.	288.	302.	9.64		16
4	11/13/85	1935		12481. *	2.66	4694.	284.	298.	8.27		16
4	11/17/85	1530	1017	15800.	3.00	5260.	292.	316.	9.75	10.0	24
4	11/17/85	2050	1018	13000.	2.77	4700.	286.	296.	8.46		14
4	11/17/85	2245		11647. *	2.64	4414.	286.	294.	7.91		12
4	11/18/85	430	1019	10600.	2.38	4460.	282.	302.	7.00		27
4	11/19/85	1350		16711. **	3.34	5007.	292.	302.	10.13		12
4	11/19/85	1510	1020	17000.	3.13	5420.	292.	316.	10.10		24
4	11/19/85	1655		15141. *	3.09	4899.	290.	300.	9.67		12
4	11/19/85	1810		14450. *	2.88	5025.	287.	304.	9.39		12
4	11/19/85	2040	1021	13000.	2.81	4630.	287.	298.	8.40		15
4	11/19/85	2255		11218. *	2.60	4309.	282.	291.	7.61		12
4	11/20/85	110		10322. *	2.41	4281.	282.	290.	7.15		11
4	11/20/85	1440	1023	17800.	3.25	5470.	293.	318.	10.33		24
4	11/20/85	1800		14373. *	3.01	4773.	290.	299.	9.35		12
4	11/20/85	2115		13099. *	2.82	4651.	289.	297.	8.30		12
4	11/29/85	315	1022	11900.	2.51	4750.	286.	304.	7.76		27
4	12/11/85	1400	1024	19700.	3.57	5520.	290.	306.	11.30		23
4	12/11/85	1655		17179. *	3.29	5214.	290.	301.	10.43		13
4	12/11/85	2100		12930. *	2.76	4685.	286.	295.	8.52		11
4	12/11/85	2315		10940. *	2.45	4468.	280.	295.	7.46		11
4	12/12/85	140	1025	10600.	2.41	4400.	281.	299.	7.15		28
4	12/12/85	1535		16897. *	3.25	5200.	287.	305.	10.10		14
4	12/12/85	1650		15947. *	3.12	5113.	287.	304.	9.68		14

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
5	7/14/83	100	1	54800.	7.42	7390.	325.	338.	1756.30	14.0	22
5	7/19/83	835	2	50400.	7.24	6962.	321.	332.	1755.45	14.5	24
5	7/22/83	1110	3	41400.	6.85	6047.	300.	310.	1753.34	14.0	24
5	7/26/83	930	4	48900.	7.06	6928.	312.	323.	1754.66	12.0	24
5	7/30/83	935	5	45200.	7.44	6073.	305.	315.	1753.79	13.5	24
5	8/ 3/83	1500	6	37100.	7.76	5489.	291.	301.	1752.47	13.5	23
5	8/12/83	1440	7	30000.	5.94	5050.	288.	297.	1751.18	13.5	25
5	8/14/83	1020	8	28000.	5.75	4870.	270.	280.	1751.50	13.0	25
5	8/16/83	920	9	27700.	5.38	5160.	274.	283.	1751.46	13.0	25
5	8/18/83	1010	10	28000.	5.90	4750.	274.	283.	1751.54	13.0	25
5	8/21/83	1205	11	25900.	4.95	5230.	276.	286.	1749.80	12.0	27
5	8/22/83	1120	12	27400.	5.66	4850.	276.	285.	1749.82	12.5	25
5	8/24/83	1030	13	27400.	5.23	5240.	276.	286.	1749.88	13.0	24
5	8/26/83	1100	14	22600.	4.91	4600.	270.	279.	1748.47	13.0	23
5	9/ 2/83	955	15	28000.	5.24	5340.	278.	288.	1749.83	13.0	26
5	9/ 4/83	940	16	27900.	5.27	5300.	278.	288.	1749.86	13.0	23
5	9/ 6/83	1010	17	27900.	5.13	5430.	286.	296.	1749.60	13.0	25
5	9/ 7/83	1540	18	24000.	4.70	5102.	283.	292.	1748.52	13.0	23
5	9/12/83	1110	19	25600.	4.76	5380.	283.	294.	1749.36	12.5	24
5	9/16/83	1220	20	27400.	4.93	5560.	284.	295.	1749.76	13.0	23
5	9/19/83	1210	21	29000.	5.08	5710.	292.	302.	1749.83	13.0	24
5	9/21/83	1130	22	27600.	4.80	5750.	290.	301.	1749.74	13.0	26
5	9/27/83	1455	23	27800.	4.83	5760.	288.	299.	1749.88	13.0	24
5	9/30/83	1620	24	30100.	4.88	6160.	291.	303.	1750.60	13.0	24
5	10/ 4/83	1115	25	30000.	4.87	6160.	291.	304.	1750.82	12.5	24
5	10/ 7/83	1140	26	28400.	4.98	5710.	288.	300.	1750.06	13.0	23
5	10/ 9/83	1035	27	29100.	5.11	5700.	290.	301.	1750.17	12.0	24
5	10/11/83	1100	28	29200.	5.06	5770.	288.	299.	1749.98	13.0	26
5	10/13/83	1700	29	25100.	4.65	5407.	286.	296.	1748.75	12.5	26
5	10/17/83	1135	30	24000.	4.37	5500.	281.	293.	1748.74	13.0	26
5	10/21/83	1045	31	24900.	4.52	5500.	281.	293.	1748.85	13.0	26
5	10/23/83	1100	32	24000.	4.39	5460.	281.	294.	1748.60	13.0	26
5	10/25/83	1125	33	28800.	4.85	5940.	288.	300.	1749.96	13.0	26
5	10/27/83	1255	34	27800.	4.85	5740.	286.	298.	1749.82	13.0	26
5	10/29/83	1040	35	29100.	4.94	5928.	286.	298.	1750.00	13.0	26
5	10/31/83	1130	36	28100.	4.79	5870.	286.	298.	1750.03	13.0	26
5	11/ 1/83	1010	37	27500.	4.79	5750.	284.	295.	1749.59	13.0	26
5	11/ 7/83	1430	38	24800.	4.53	5480.	287.	297.	1748.94	13.0	21
5	11/ 9/83	1615	39	24500.	4.45	5511.	287.	297.	1748.90	13.0	23
5	11/11/83	1335	40	24100.	4.37	5509.	287.	297.	1748.55	12.0	22
5	11/13/83	1235	41	24300.	4.47	5438.	287.	297.	1748.78	13.0	23
5	11/15/83	1550	42	23500.	4.30	5469.	287.	298.	1748.40	13.0	23
5	11/19/83	1105	43	23800.	4.35	5461.	287.	297.	1748.66	12.0	22
5	11/23/83	1455	44	24400.	4.44	5494.	287.	297.	1748.88	12.0	23
5	11/28/83	1225	45	25600.	4.45	5639.	289.	299.	1748.91	11.0	23
5	12/ 1/83	1415	46	26100.	4.58	5699.	289.	299.	1748.88	12.0	28
5	12/ 3/83	1645	47	25000.	4.48	5578.	289.	299.	1748.80	12.0	25
5	12/ 6/83	1430	48	26300.	4.60	5712.	290.	300.	1748.88	12.0	27
5	10/16/85	2220	49	12000.	2.87	4180.	272.	279.	1742.60		24

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
4	1/20/86	230	1040	11800.	2.48	4750.	287.	302.	7.97		27
4	1/20/86	500		15078. **	3.18	4741.	287.	296.	9.22		13
4	1/20/86	1420	1041	21300.	3.64	5850.	294.	322.	11.55		28
4	1/20/86	1650		18162. *	3.64	4987.	292.	300.	10.65		9
4	1/20/86	2020		14425. *	3.14	4599.	290.	297.	9.32		9
4	1/20/86	2130	1042	15000.	2.93	5090.	289.	312.	9.14		13
4	1/20/86	2335	1043	14300.	2.83	5060.	288	312.	9.00		27
4	1/21/86	300		18631. **	3.61	5157.	290.	301.	10.70		12
4	1/21/86	1400	1044	17800.	3.20	5560.	291.	313.	10.60		27
4	1/21/86	1620		16682. *	3.36	4967.	290.	300.	9.95		13
4	1/21/86	1800		15662. *	3.26	4800.	289.	298.	9.40		13
4	1/21/86	2035		12953. *	2.96	4373.	286.	293.	8.45		12
4	1/21/86	2230	1045	12200.	2.53	4830.	289.	308.	8.60		27

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
5	11/17/85	615		17360. *	3.47	5006.	283.	291.	1745.92		11
5	11/17/85	950		14613. *	3.15	4645.	278.	286.	1744.56		11
5	11/17/85	1430		10893. *	2.64	4130.	272.	279.	1742.81		15
5	11/17/85	2115		11923. *	2.72	4389.	272.	282.	1742.77		11
5	11/18/85	430	72	15600.	3.22	4830.	280.	288.	1745.11	10.0	21
5	11/18/85	730		15621. *	3.22	4856.	278.	288.	1744.71		16
5	11/18/85	1005		14150. *	3.13	4519.	278.	286.	1744.02		11
5	11/18/85	1340		11654. *	2.80	4161.	275.	282.	1742.93		13
5	11/18/85	1630	73	10800.	2.72	3970.	265.	273.	1742.30	10.5	24
5	11/18/85	2110		11823. *	2.86	4139.	274.	281.	1742.79		11
5	11/19/85	245		13754. *	3.07	4474.	275.	283.	1743.89		10
5	11/19/85	736		13773. *	3.00	4596.	277.	286.	1743.95		15
5	11/19/85	1100		12361. *	2.94	4204.	275.	285.	1743.00		15
5	11/19/85	1345		10913. *	2.72	4005.	269.	276.	1742.26		11
5	11/19/85	1550		10502. *	2.62	4007.	265.	272.	1742.07		15
5	11/19/85	2205		15828. *	3.21	4925.	280.	291.	1744.93		16
5	11/23/85	1350		11675. *	2.90	4029.	270.	276.	1742.72		12
5	11/23/85	1540	74	11200.	2.78	4030.	273.	279.	1742.31		13
5	11/23/85	1745	75	11500.	2.78	4130.	268.	276.	1742.48	9.0	22
5	11/24/85	440	76	16000.	3.29	4870.	284.	292.	1745.03		22
5	11/24/85	1055		13002. *	3.14	4143.	273.	279.	1743.14		12
5	11/24/85	1400		11227. *	2.79	4027.	273.	280.	1742.11		12
5	11/24/85	1625	77	10500.	2.68	3930.	271.	277.	1742.31	11.0	21
5	11/24/85	2045		14612. **	3.23	4524.	272.	280.	1744.08		13
5	11/25/85	445	78	15800.	3.26	4840.	281.	289.	1745.00		23
5	11/25/85	925		14969. *	3.35	4470.	275.	282.	1744.17		12
5	11/25/85	1105		13873. *	3.17	4371.	273.	280.	1743.64		12
5	11/25/85	1325		12112. *	2.99	4057.	270.	276.	1742.88		12
5	11/25/85	1520	79	10300.	2.53	4080.	267.	274.	1742.25	11.0	21
5	11/25/85	2010	80	9200.	2.46	3750.	265.	272.	1741.39	11.0	21
5	11/26/85	355		9951. *	2.58	3859.	266.	273.	1741.63		13
5	11/26/85	1110		11850. *	2.94	4030.	271.	277.	1742.50		12
5	11/26/85	1225	81	10700.	2.68	3990.	272.	278.	1742.14	10.5	13
5	11/26/85	1435		9950. *	2.62	3796.	270.	276.	1742.08		12
5	12/18/85	1135		12080. *	2.84	4260.	270.	277.	1743.05		13
5	12/18/85	1315		11285. *	2.73	4140.	279.	285.	1742.31		11
5	12/18/85	1630	82	9130.	2.47	3690.	264.	272.	1740.87		18
5	12/18/85	1950	83	8230.	2.40	3430.	261.	267.	1740.41		17
5	12/19/85	537		17550. *	3.56	4933.	282.	290.	1745.44		13
5	12/19/85	715		15259. *	3.31	4608.	278.	286.	1744.77		13
5	12/19/85	1005		12552. *	2.91	4310.	278.	285.	1743.55		12
5	12/19/85	1110		12084. *	2.88	4198.	272.	279.	1743.09		13
5	12/19/85	1338		10072. *	2.52	3990.	267.	274.	1741.95		12
5	12/19/85	1502		9500. *	2.57	3699.	265.	271.	1741.38		12
5	12/19/85	1620		8482. *	2.34	3618.	261.	267.	1740.85		12
5	12/19/85	1800		8140. *	2.34	3484.	257.	263.	1740.27		11
5	12/19/85	1925	84	8160.	2.33	3500.	258.	264.	1740.35		21
5	12/20/85	230	85	15800.	3.22	4910.	282.	399.	1745.10		21
5	12/20/85	520		15488. *	3.34	4631.	280.	288.	1744.80		13

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
5	10/17/85	310	50	14600.	3.14	4650.	279.	287.	1744.33		30
5	10/17/85	645	51	13800.	2.96	4670.	280.	288.	1743.79		16
5	10/17/85	1100	52	11600.	2.70	4290.	271.	279.	1742.85		22
5	10/17/85	1710		2407. *	.66	3651.	264.	270.	1740.66		17
5	10/17/85	2310	53	12600.	2.92	4310.	275.	282.	1743.37		14
5	10/18/85	640		13424. *	2.91	4618.	281.	289.	1744.21		16
5	10/18/85	1435		10207. *	2.56	3990.	267.	275.	1741.82		19
5	10/18/85	2240	54	12900.	2.90	4460.	274.	282.	1743.47		20
5	10/19/85	210		13773. **	3.04	4526.	278.	286.	1743.89		16
5	10/19/85	415	55	13900.	3.05	4560.	281.	289.	1743.93		29
5	10/19/85	1120		11608. *	2.77	4196.	271.	278.	1742.67		19
5	10/19/85	1510	56	10200.	2.67	3820.	267.	273.	1741.61		21
5	10/19/85	1725	57	9800.	2.55	3850.	270.	276.	1741.73		21
5	10/19/85	2045		14322. *	3.16	4533.	277.	285.	1744.69		15
5	10/20/85	125		16007. *	3.25	4919.	283.	292.	1745.49		21
5	10/20/85	245	58	15800.	3.22	4920.	283.	292.	1745.39		21
5	10/23/85	1625	59	9480.	2.45	3880.	269.	276.	1741.20		24
5	10/23/85	2015		10345. *	2.80	3698.	265.	271.	1741.41		12
5	10/23/85	2300	60	15100.	3.31	4570.	268.	277.	1743.84	12.0	12
5	10/24/85	440	61	16200.	3.45	4700.	281.	289.	1744.65	12.0	22
5	10/24/85	705		13478. *	3.01	4473.	278.	285.	1743.96		12
5	10/24/85	940		10658. *	2.51	4249.	274.	281.	1743.02		12
5	10/24/85	1110	62	10500.	2.57	4080.	274.	281.	1742.40		12
5	10/24/85	1405		9595. *	2.49	3858.	265.	272.	1741.34		14
5	10/24/85	1730	63	7650.	2.12	3610.	263.	269.	1740.29	12.0	23
5	10/24/85	2235		12088. *	3.03	3987.	272.	278.	1741.94		12
5	10/25/85	352		15172. *	3.17	4788.	283.	291.	1744.94		12
5	10/25/85	622		14973. *	3.26	4599.	279.	286.	1744.36		12
5	10/25/85	940		13236. *	3.00	4415.	275.	283.	1743.38		14
5	10/25/85	1115		11906. *	2.77	4303.	275.	283.	1742.78		14
5	10/25/85	1400	64	10400.	2.60	3990.	273.	279.	1741.99		18
5	10/25/85	1545		9597. *	2.47	3889.	272.	279.	1741.54		12
5	10/25/85	1830		11125. *	2.93	3795.	267.	273.	1741.81		12
5	10/25/85	2050	65	14000.	3.08	4550.	277.	285.	1743.93	12.0	10
5	10/25/85	2315		18832. *	3.87	4870.	281.	289.	1745.48		12
5	10/26/85	145	66	18100.	3.60	5020.	285.	399.	1745.78	11.5	24
5	10/26/85	510		15589. *	3.46	4512.	281.	289.	1745.04		12
5	10/26/85	615		15032. *	3.17	4743.	280.	288.	1744.67		12
5	10/26/85	950	67	13100.	2.94	4450.	279.	286.	1743.56		14
5	10/26/85	1120		12475. *	2.89	4314.	276.	283.	1743.10		14
5	10/26/85	1500	68	10700.	2.60	4120.	272.	280.	1742.15	12.0	24
5	10/26/85	1745	69	10900.	2.76	3960.	265.	272.	1742.15	12.0	24
5	10/26/85	2030		14359. *	3.31	4344.	274.	281.	1742.80		12
5	10/26/85	2205		17278. *	3.73	4627.	276.	284.	1744.80		12
5	11/16/85	1020		13408. *	3.04	4417.	277.	284.	1743.74		16
5	11/16/85	1500		11270. *	2.72	4140.	272.	279.	1742.81		15
5	11/16/85	1640	70	11700.	2.77	4230.	270.	278.	1742.89		21
5	11/17/85	345	71	19700.	3.67	5370.	286.	296.	1746.58	10.5	25
5	11/17/85	515		17627. *	3.38	5208.	284.	293.	1746.26		11

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS		VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO OF VERTICALS
5	1/26/86	1625	102	25600.		4.33	5910.	292.	302.	1748.83	10.0	21
5	1/27/86	140		28251.	*	4.78	5911.	292.	302.	1748.96		12
5	1/27/86	350		27231.	*	4.80	5673.	290.	300.	1748.57		12
5	1/27/86	715		24224.	*	4.48	5402.	288.	297.	1747.86		12
5	1/27/86	930	103	22600.		4.05	5580.	287.	297.	1747.84	9.0	23
5	1/27/86	1550	104	28600.		4.66	6140.	292.	304.	1749.58	9.0	23
5	1/27/86	2355		28731.	*	4.63	6205.	292.	304.	1749.62		13
5	1/28/86	215		29847.	*	5.01	5958.	292.	303.	1749.29		12
5	1/28/86	340	105	27100.		4.53	5980.	292.	303.	1749.04	9.0	14
5	1/28/86	530		27891.	*	5.01	5562.	293.	302.	1748.78		11
5	1/28/86	945		27372.	*	4.90	5583.	292.	301.	1748.90		11
5	1/28/86	1510	106	26300.		4.40	5980.	290.	301.	1749.02	9.0	16

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
5	12/20/85	1130		11645. *	2.87	4056.	271.	278.	1742.77		11
5	12/20/85	1335		10650. *	2.67	3989.	269.	276.	1742.33		15
5	12/20/85	1513		11517. *	2.78	4144.	269.	276.	1742.59		13
5	12/21/85	300	86	15400.	3.24	4760.	279.	288.	1744.84		24
5	12/21/85	525		14852. *	3.14	4724.	278.	286.	1744.61		13
5	12/21/85	718		14230. *	3.12	4559.	278.	285.	1744.09		13
5	12/21/85	942		12401. *	2.88	4306.	273.	280.	1743.15		13
5	12/21/85	1108		11725. *	2.89	4057.	270.	277.	1742.63		12
5	12/21/85	1247		10491. *	2.74	3834.	265.	271.	1741.97		11
5	12/21/85	1447		8820. *	2.43	3637.	265.	271.	1741.21		11
5	12/24/85	735	87	4050.	1.54	2630.	239.	244.	1736.88	9.0	20
5	12/24/85	1530		3502. *	1.55	2262.	234.	238.	1735.55		11
5	12/24/85	1650	88	3180.	1.38	2300.	243.	238.	1735.35	9.5	21
5	12/24/85	2100		2969. *	1.44	2065.	232.	235.	1734.95		11
5	12/24/85	2310	89	3100.	1.43	2170.	232.	236.	1735.40		22
5	12/25/85	400	90	16500.	3.31	4980.	232.	293.	1745.25		23
5	12/25/85	620		14619. *	3.19	4577.	279.	288.	1744.33		12
5	12/25/85	1300		11166. *	2.87	3891.	270.	276.	1742.09		12
5	12/25/85	1940		7506. *	2.30	3261.	258.	263.	1739.71		12
5	12/26/85	300	91	16900.	3.35	5040.	286.	295.	1745.44		25
5	12/26/85	620		14540. *	3.11	4678.	281.	289.	1744.55		13
5	12/26/85	945		11368. *	2.66	4270.	276.	283.	1743.10		13
5	12/26/85	1110	92	10900.	2.65	4110.	272.	279.	1742.51	9.0	15
5	12/26/85	1410		9098. *	2.37	3846.	268.	275.	1741.33		12
5	12/26/85	1615		8214. *	2.27	3615.	261.	267.	1740.57		13
5	12/27/85	120		5375. *	1.87	2879.	248.	253.	1737.95		12
5	12/27/85	350		4754. *	1.73	2741.	243.	248.	1737.30		12
5	12/27/85	630	93	4520.	1.72	2620.	240.	245.	1736.84	9.0	23
5	12/27/85	940		4068. *	1.65	2473.	236.	240.	1736.32		12
5	12/27/85	1150		3881. **	1.60	2424.	236.	240.	1736.12		12
5	12/27/85	1430	94	3690.	1.53	2416.	235.	240.	1736.00	9.0	23
5	12/27/85	2300		4187. **	1.70	2462.	241.	245.	1736.65		11
5	1/20/86	1115		15173. *	3.24	4677.	280.	288.	1744.43		13
5	1/20/86	1450	95	12900.	2.96	4360.	272.	281.	1743.67		23
5	1/21/86	840	96	16800.	3.35	5010.	280.	289.	1745.35	10.0	19
5	1/21/86	1140		15732. *	3.30	4764.	278.	286.	1744.79		16
5	1/21/86	1947		19123. *	3.80	5026.	281.	290.	1746.10		11
5	1/22/86	712		15521. *	3.37	4601.	281.	288.	1744.99		13
5	1/22/86	1000		13731. *	3.07	4470.	278.	285.	1744.13		13
5	1/22/86	2040	97	21800.	3.88	5620.	284.	295.	1747.71	10.0	20
5	1/23/86	15	98	22800.	4.06	5610.	284.	295.	1747.82	10.0	20
5	1/23/86	328		20392. *	3.82	5344.	286.	295.	1747.13		13
5	1/23/86	1130	99	16600.	3.48	4770.	280.	288.	1745.18		23
5	1/25/86	1400		21434. **	3.89	5515.	287.	297.	1747.19		12
5	1/25/86	1755	100	25500.	4.29	5940.	290.	302.	1748.84		24
5	1/26/86	130		28423. *	4.88	5827.	289.	299.	1748.91		12
5	1/26/86	345		26211. *	4.65	5634.	287.	297.	1748.36		12
5	1/26/86	530	101	24400.	4.34	5620.	290.	300.	1748.08	9.0	13
5	1/26/86	740		23889. *	4.37	5465.	288.	297.	1747.70		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS		VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
6	10/25/85	715	46	8100.		1.76	4593.	193.	216.	1348.71		20
6	10/25/85	1025		13722.	*	2.85	4807.	203.	225.	1350.25		14
6	10/28/85	1350	47	13600.		2.53	5370.	209.	241.	1350.72		17
6	10/28/85	1800		12063.	*	2.28	5294.	212.	235.	1350.70		12
6	10/28/85	2105		10954.	*	2.07	5293.	208.	230.	1350.28		12
6	10/28/85	2330	48	9640.		1.84	5240.	207.	229.	1349.95		12
6	10/29/85	140		9844.	*	2.00	4920.	201.	223.	1349.60		12
6	10/29/85	405	49	9800.		1.97	4990.	201.	228.	1349.35	12.0	25
6	10/29/85	1055		14219.	*	2.83	5018.	201.	225.	1350.86		15
6	10/29/85	1715		15552.	*	2.84	5466.	214.	238.	1351.98		12
6	10/29/85	2000		14445.	*	2.67	5419.	211.	235.	1351.55		12
6	10/29/85	2335		14277.	*	2.74	5203.	200.	223.	1351.18		12
6	10/30/85	505		16314.	*	3.12	5232.	214.	238.	1350.00		12
6	10/30/85	730	50	18700.		3.13	5970.	214.	238.	1352.45	12.0	12
6	10/30/85	1020	51	19100.		3.54	5400.	216.	242.	1352.70		23
6	10/30/85	1525		16159.	*	3.06	5276.	214.	235.	1352.20		12
6	10/30/85	1740		14947.	*	2.79	5358.	210.	231.	1351.80		12
6	10/30/85	2050	52	14100.		2.64	5320.	210.	232.	1351.25	13.0	12
6	10/30/85	2220		11518.	*	2.24	5153.	210.	230.	1351.05		12
6	10/31/85	715	53	19900.		3.49	5700.	213.	237.	1353.15		12
6	10/31/85	1020		19563.	**	3.51	5567.	215.	238.	1353.11		10
6	10/31/85	1400		16620.	*	3.01	5513.	215.	237.	1352.45		12
6	10/31/85	1515	54	17600.		3.12	5640.	214.	236.	1352.15		12
6	10/31/85	1705		15297.	*	2.80	5464.	211.	232.	1351.75		12
6	10/31/85	2000		14407.	*	2.78	5181.	211.	233.	1351.15		12
6	10/31/85	2210		12414.	*	2.40	5179.	211.	231.	1350.72		12
6	11/ 1/85	155	55	11600.		2.23	5210.	207.	231.	1350.20		25
6	11/ 1/85	610		12786.	*	2.60	4920.	208.	233.	1350.60		12
6	11/ 1/85	1000		15221.	*	2.84	5368.	212.	234.	1351.58		12
6	11/ 1/85	1145		15673.	*	2.95	5316.	212.	233.	1351.80		12
6	11/22/85	1100		16967.	*	2.95	5749.	211.	236.	1352.27		12
6	11/22/85	1330	56	17800.		3.07	5798.	213.	240.	1352.17		21
6	11/22/85	1535		15305.	*	2.79	5479.	215.	236.	1351.95		12
6	11/22/85	2105		12610.	*	2.41	5225.	211.	232.	1350.97		12
6	11/22/85	2310		13445.	*	2.58	5218.	207.	229.	1350.60		12
6	11/23/85	310		13357.	*	2.67	4999.	211.	232.	1350.76		10
6	11/23/85	430		14469.	*	2.59	5594.	211.	235.	1351.51		12
6	11/23/85	1135	57	18500.		3.35	5510.	212.	241.	1352.60		25
6	11/23/85	1555		16673.	*	3.04	5481.	212.	235.	1352.04		12
6	11/23/85	2005		14023.	*	2.60	5391.	207.	229.	1351.28		12
6	11/23/85	2330		12379.	*	2.41	5146.	208.	229.	1350.59		16
6	11/24/85	150	58	11700.		2.32	5043.	207.	232.	1350.30		25
6	11/24/85	1650		14932.	*	2.97	5025.	208.	231.	1351.66		12
6	11/24/85	1730		15036.	*	2.75	5469.	210.	236.	1351.48		12
6	11/24/85	2135	59	12500.		2.45	5109.	208.	229.	1350.71		16
6	11/25/85	43	60	11100.		2.16	5140.	203.	225.	1350.20		21
6	11/25/85	1605	61	16600.		3.03	5470.	210.	240.	1351.76		30
6	11/29/85	1000	62	7590.		1.57	4830.	197.	222.	1348.70		23
6	11/29/85	2255		11787.	*	2.33	5049.	203.	225.	1350.20		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
6	8/ 5/83	1120	1	39600.	6.03	6568.	218.	250.	1355.32	13.5	23
6	8/10/83	1130	2	38900.	5.94	6550.	218.	250.	1355.30	14.0	22
6	8/12/83	845	3	34700.	5.50	6304.	218.	245.	1354.50	14.0	22
6	8/14/83	1025	4	29700.	4.99	5950.	219.	245.	1353.14	14.0	22
6	8/17/83	1300	5	28400.	4.71	6020.	219.	247.	1353.13	14.5	26
6	8/19/83	1155	6	29000.	4.97	5820.	217.	243.	1353.08	14.5	27
6	8/21/83	1745	7	26700.	4.52	5910.	222.	249.	1353.17	15.0	24
6	8/23/83	1515	8	27200.	4.70	5790.	221.	247.	1352.96	15.0	24
6	8/25/83	1725	9	28200.	4.75	5930.	220.	246.	1353.03		24
6	8/27/83	1435	10	28300.	4.95	5704.	220.	241.	1353.02		20
6	8/29/83	1140	11	28000.	4.68	5985.	220.	250.	1353.00		24
6	9/ 5/83	1310	12	28300.	4.83	5860.	218.	246.	1352.90	13.0	24
6	9/ 7/83	1320	13	28000.	4.86	5794.	218.	246.	1352.99		24
6	9/12/83	945	14	25300.	4.63	5470.	216.	240.	1352.20	14.5	23
6	9/14/83	1010	15	29300.	4.96	5920.	216.	242.	1353.47	14.0	22
6	9/20/83	1610	16	28000.	4.79	5848.	215.	243.	1352.95	14.0	24
6	9/22/83	1525	17	28000.	4.70	5940.	215.	240.	1352.94	14.5	25
6	9/24/83	1005	18	29400.	4.97	5990.	215.	243.	1353.18	15.0	25
6	9/29/83	1145	19	27800.	4.93	5643.	218.	248.	1353.03	14.0	24
6	10/ 1/83	1515	20	32300.	5.58	5790.	218.	241.	1353.66	14.0	27
6	10/ 4/83	1215	21	29400.	5.11	5750.	221.	242.	1353.68	14.0	26
6	10/ 8/83	1710	22	29300.	5.21	5615.	218.	238.	1353.24	15.0	21
6	10/11/83	1335	23	29800.	5.20	5730.	218.	241.	1353.08	15.0	23
6	10/13/83	945	24	25000.	4.54	5502.	217.	242.	1352.10	14.0	23
6	10/15/83	1330	25	25000.	4.43	5640.	217.	241.	1352.22	14.0	23
6	10/17/83	1130	26	24200.	4.29	5644.	217.	242.	1352.04	13.0	21
6	10/19/83	1220	27	25400.	4.67	5430.	217.	241.	1352.17	13.0	24
6	10/21/83	1145	28	25600.	4.53	5650.	216.	243.	1352.58	13.0	25
6	10/23/83	1245	29	25000.	4.47	5580.	219.	245.	1352.25	14.0	25
6	10/25/83	1315	30	29100.	4.99	5840.	218.	244.	1353.13	15.0	25
6	10/27/83	1630	31	25700.	4.59	5600.	220.	251.	1352.32	15.0	25
6	10/30/83	1255	32	29000.	4.93	5879.	220.	245.	1352.96	14.0	25
6	11/10/83	1225	33	25100.	4.76	5279.	217.	241.	1352.08	14.0	25
6	11/12/83	1545	34	24900.	4.70	5291.	217.	240.	1351.98	14.0	25
6	11/14/83	1045	35	24500.	4.60	5340.	217.	240.	1352.10	14.0	25
6	11/19/83	1150	36	23800.	4.30	5538.	217.	241.	1351.66	13.0	24
6	11/23/83	1020	37	24400.	4.31	5662.	217.	243.	1351.92	12.0	24
6	11/29/83	1330	38	25600.	4.66	5500.	219.	242.	1352.30	13.0	24
6	12/ 1/83	1510	39	26200.	4.61	5670.	219.	243.	1352.12	12.0	24
6	12/ 5/83	1310	40	25000.	4.64	5384.	219.	241.	1352.14	12.0	24
6	12/ 7/83	1220	41	25600.	4.36	5464.	219.	245.	1352.10	13.0	25
6	10/23/85	350	42	10100.	2.01	5020.	201.	226.	1349.32	13.0	23
6	10/23/85	615		9559. *	1.90	5042.	201.	225.	1349.60		21
6	10/23/85	1125		15562. *	2.88	5410.	209.	233.	1351.81		15
6	10/23/85	2320	43	12100.	1.70	5328.	200.	224.	1350.62		12
6	10/24/85	540	44	8940.	1.85	4840.	202.	223.	1349.18		23
6	10/24/85	1645	45	14700.	2.69	5470.	210.	236.	1351.53		26
6	10/24/85	2135		11046. *	2.14	5171.	204.	229.	1350.31		20
6	10/25/85	210		8852. *	1.88	4703.	201.	221.	1349.27		15

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
6	10/25/85	715	46	8100.	1.76	4593.	193.	216.	1348.71		20
6	10/25/85	1025		13722. *	2.85	4807.	203.	225.	1350.25		14
6	10/28/85	1350	47	13600.	2.53	5370.	209.	241.	1350.72		17
6	10/28/85	1800		12063. *	2.28	5294.	212.	235.	1350.70		12
6	10/28/85	2105		10954. *	2.07	5293.	208.	230.	1350.28		12
6	10/28/85	2330	48	9640.	1.84	5240.	207.	229.	1349.95		12
6	10/29/85	140		9844. *	2.00	4920.	201.	223.	1349.60		12
6	10/29/85	405	49	9800.	1.97	4990.	201.	228.	1349.35	12.0	25
6	10/29/85	1055		14219. *	2.83	5018.	201.	225.	1350.86		15
6	10/29/85	1715		15552. *	2.84	5466.	214.	238.	1351.98		12
6	10/29/85	2000		14445. *	2.67	5419.	211.	235.	1351.55		12
6	10/29/85	2335		14277. *	2.74	5203.	200.	223.	1351.18		12
6	10/30/85	505		16314. *	3.12	5232.	214.	238.	1350.00		12
6	10/30/85	730	50	18700.	3.13	5970.	214.	238.	1352.45	12.0	12
6	10/30/85	1020	51	19100.	3.54	5400.	216.	242.	1352.70		23
6	10/30/85	1525		16159. *	3.06	5276.	214.	235.	1352.20		12
6	10/30/85	1740		14947. *	2.79	5358.	210.	231.	1351.80		12
6	10/30/85	2050	52	14100.	2.64	5320.	210.	232.	1351.25	13.0	12
6	10/30/85	2220		11518. *	2.24	5153.	210.	230.	1351.05		12
6	10/31/85	715	53	19900.	3.49	5700.	213.	237.	1353.15		12
6	10/31/85	1020		19563. **	3.51	5567.	215.	238.	1353.11		10
6	10/31/85	1400		16620. *	3.01	5513.	215.	237.	1352.45		12
6	10/31/85	1515	54	17600.	3.12	5640.	214.	236.	1352.15		12
6	10/31/85	1705		15297. *	2.80	5464.	211.	232.	1351.75		12
6	10/31/85	2000		14407. *	2.78	5181.	211.	233.	1351.15		12
6	10/31/85	2210		12414. *	2.40	5179.	211.	231.	1350.72		12
6	11/ 1/85	155	55	11600.	2.23	5210.	207.	231.	1350.20		25
6	11/ 1/85	610		12786. *	2.60	4920.	208.	233.	1350.60		12
6	11/ 1/85	1000		15221. *	2.84	5368.	212.	234.	1351.58		12
6	11/ 1/85	1145		15673. *	2.95	5316.	212.	233.	1351.80		12
6	11/22/85	1100		16967. *	2.95	5749.	211.	236.	1352.27		12
6	11/22/85	1330	56	17800.	3.07	5798.	213.	240.	1352.17		21
6	11/22/85	1535		15305. *	2.79	5479.	215.	236.	1351.95		12
6	11/22/85	2105		12610. *	2.41	5225.	211.	232.	1350.97		12
6	11/22/85	2310		13445. *	2.58	5218.	207.	229.	1350.60		12
6	11/23/85	310		13357. *	2.67	4999.	211.	232.	1350.76		10
6	11/23/85	430		14469. *	2.59	5594.	211.	235.	1351.51		12
6	11/23/85	1135	57	18500.	3.35	5510.	212.	241.	1352.60		25
6	11/23/85	1555		16673. *	3.04	5481.	212.	235.	1352.04		12
6	11/23/85	2005		14023. *	2.60	5391.	207.	229.	1351.28		12
6	11/23/85	2330		12379. *	2.41	5146.	208.	229.	1350.59		16
6	11/24/85	150	58	11700.	2.32	5043.	207.	232.	1350.30		25
6	11/24/85	1650		14932. *	2.97	5025.	208.	231.	1351.66		12
6	11/24/85	1730		15036. *	2.75	5469.	210.	236.	1351.48		12
6	11/24/85	2135	59	12500.	2.45	5109.	208.	229.	1350.71		16
6	11/25/85	43	60	11100.	2.16	5140.	203.	225.	1350.20		21
6	11/25/85	1605	61	16600.	3.03	5470.	210.	240.	1351.76		30
6	11/29/85	1000	62	7590.	1.57	4830.	197.	222.	1348.70		23
6	11/29/85	2255		11787. *	2.33	5049.	203.	225.	1350.20		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
6	11/30/85	210		9449. *	1.91	4949.	206.	227.	1349.45		12
6	11/30/85	420	63	9000.	1.86	4800.	197.	219.	1349.02		15
6	11/30/85	640		7632. *	1.90	4027.	157.	177.	1348.55		10
6	11/30/85	1150	64	6400.	1.37	4660.	196.	219.	1347.85		22
6	12/ 1/85	125		10172. *	2.16	4700.	203.	226.	1349.08		10
6	12/ 1/85	555		9071. *	1.89	4789.	201.	222.	1348.58		9
6	12/ 1/85	1410		19497. **	3.38	5762.	217.	242.	1352.70		12
6	12/ 1/85	1530	65	19100.	3.35	5700.	215.	242.	1352.75		15
6	12/ 1/85	2015		16412. *	3.12	5262.	215.	240.	1351.60		12
6	12/ 1/85	2155		14542. *	2.83	5133.	210.	235.	1351.20		12
6	12/ 1/85	2315	66	12900.	2.46	5240.	210.	233.	1350.80		12
6	12/ 2/85	325		10413. *	2.10	4965.	205.	225.	1349.85		12
6	12/ 2/85	610		8740. *	2.17	4020.	158.	178.	1349.15		11
6	12/ 2/85	935	67	8730.	1.78	4910.	199.	221.	1348.95		15
6	12/ 2/85	1750	68	12300.	2.33	5270.	207.	234.	1350.20		25
6	12/ 2/85	2225		11070. *	2.27	4877.	206.	230.	1350.00		12
6	12/24/85	910	69	6780.	1.48	4540.	197.	220.	1348.22		20
6	12/24/85	1328		6324. *	1.43	4435.	193.	215.	1347.50		11
6	12/24/85	1638		5338. *	1.23	4351.	190.	211.	1347.15		11
6	12/25/85	155	70	4020.	.93	4340.	192.	214.	1345.95		15
6	12/25/85	835		3807. *	.87	4393.	190.	212.	1345.75		11
6	12/25/85	1140		2891. *	.67	4321.	190.	209.	1346.00		9
6	12/26/85	440		8720. *	1.93	4528.	213.	235.	1348.92		12
6	12/26/85	640	71	7930.	1.75	4520.	204.	227.	1348.59		18
6	12/26/85	1400	72	16900.	2.94	5650.	214.	239.	1351.92		22
6	12/26/85	1705		15086. *	2.83	5337.	213.	234.	1351.43		12
6	12/26/85	1950		12935. *	2.40	5382.	198.	224.	1350.82		11
6	12/26/85	2200		11922. *	2.29	5198.	212.	232.	1350.31		11
6	12/27/85	130		9841. *	2.09	4712.	202.	222.	1349.55		10
6	12/27/85	300		10351. *	2.20	4714.	202.	222.	1349.22		10
6	12/27/85	450		8597. *	1.85	4650.	200.	222.	1348.85		11
6	12/27/85	655		8020. *	1.77	4529.	202.	221.	1348.39		11
6	12/27/85	940		6946. *	1.50	4638.	200.	220.	1347.92		12
6	12/27/85	1220		5777. *	1.39	4161.	193.	212.	1347.59		11
6	12/27/85	1448		5753. *	1.31	4396.	192.	213.	1347.26		11
6	12/31/85	1145		6314. *	1.38	4579.	201.	221.	1347.86		10
6	12/31/85	1320	73	8830.	1.78	4960.	210.	235.	1348.87		25
6	12/31/85	1920	74	13100.	3.02	5200.	215.	242.	1350.70		25
6	12/31/85	2205		11810. *	2.40	4925.	211.	235.	1350.20		12
6	1/ 1/86	800		7525. *	1.69	4466.	198.	221.	1348.38		12
6	1/ 1/86	1640		14738. *	2.60	5667.	215.	240.	1351.55		10
6	1/ 1/86	1950		12351. *	2.38	5191.	214.	234.	1350.75		10
6	1/ 1/86	2130	75	12100.	2.36	5105.	211.	235.	1350.35		14
6	1/ 1/86	2245		11227. *	2.17	5174.	212.	233.	1350.05		10
6	1/ 2/86	435		8529. *	1.84	4637.	208.	231.	1348.80		12
6	1/ 2/86	725		7286. *	1.61	4536.	204.	226.	1348.20		12
6	1/ 2/86	1420	76	17900.	3.28	5460.	217.	244.	1352.55		21
6	1/ 2/86	1540		17144. *	3.20	5353.	217.	243.	1352.40		12
6	1/ 2/86	1715		16653. *	2.96	5626.	218.	246.	1351.95		12

LOCATION CODE	DATE	MEAN TIME	MEAS. NO.	DISCHARGE CFS	VELOCITY FPS	AREA SQ FT	WIDTH FT	W P FT	GAGE HEIGHT FT	TEMP DEG C	NO. OF VERTICALS
6	1/ 2/86	2010		13710. *	2.70	5086.	218.	243.	1351.20		12
6	1/ 2/86	2235	77	12000.	2.28	5260.	217.	238.	1350.59		13
6	1/ 3/86	335		9605. *	1.94	4952.	209.	229.	1349.35		10
6	1/ 3/86	950	78	6880.	1.49	4610.	202.	225.	1348.08		15
6	1/ 3/86	1330		6146. *	1.42	4339.	199.	220.	1347.57		12
6	1/ 3/86	1450	79	5930.	1.28	4640.	199.	224.	1347.68		25
6	1/ 3/86	2130	80	11100.	2.18	5107.	213.	239.	1350.00		25
6	1/ 3/86	2325		10822. **	2.24	4839.	213.	236.	1349.80		12
6	1/26/86	800	81	25000.	4.25	5880.	215.	242.	1355.02		18
6	1/26/86	1325		23987. *	4.16	5769.	219.	244.	1354.42		13
6	1/26/86	1540		22433. *	3.85	5826.	217.	240.	1354.08		11
6	1/26/86	2055	82	23400.	4.00	5850.	215.	244.	1354.27		22
6	1/27/86	1100		24894. *	4.17	5967.	217.	240.	1354.84		12
6	1/27/86	1314		23707. *	4.12	.5752.	215.	239.	1354.55		12
6	1/27/86	1555		22931. *	4.15	5524.	215.	241.	1354.17		15
6	1/28/86	330	83	28100.	4.62	6080.	217.	244.	1355.44		21
6	1/28/86	1430		24929. *	4.15	6007.	217.	241.	1354.82		12
6	1/29/86	159		26204. *	4.41	5944.	215.	240.	1354.92		15
6	1/29/86	1328		22515. *	3.88	5809.	219.	241.	1354.20		13
6	1/29/86	1535		22267. *	3.79	5880.	220.	246.	1353.86		13
6	1/30/86	1435		21783. *	3.88	5613.	221.	250.	1353.89		11
6	1/30/86	1720		19569. *	3.75	5212.	218.	239.	1353.22		11
6	1/31/86	600	84	24100.	4.15	5800.	217.	242.	1354.30		16
6	1/31/86	1025		22990. *	4.24	5424.	217.	241.	1354.05		11
6	1/31/86	1530	85	20600.	3.79	5430.	219.	239.	1353.24		12
6	1/31/86	2040	86	18100.	3.31	5470.	219.	247.	1352.70		25
6	2/ 1/86	1010		23432. *	4.33	5406.	219.	245.	1354.51		11
6	2/ 1/86	1400		22049. *	4.27	5162.	217.	237.	1353.70		11
6	2/ 1/86	1535	87	20400.	3.76	5420.	217.	240.	1353.22		12
6	2/ 1/86	1635		18661. *	3.80	4905.	215.	235.	1353.00		11
6	2/ 1/86	1740		17682. *	3.52	5019.	219.	239.	1352.43		11
6	2/ 1/86	2140	88	17000.	3.20	5300.	214.	236.	1352.30		16
6	2/ 2/86	250		20270. **	3.80	5338.	219.	244.	1353.18		12
6	2/ 2/86	1030	89	18900.	3.44	5500.	219.	246.	1352.88		25
6	2/ 2/86	1440		17859. *	3.55	5031.	219.	238.	1352.63		11

Footnotes:

Location Codes

1: Colorado River At Lees Ferry
2: Paria River At Lees Ferry
3: Colorado River Above Little Colorado River
4: Colorado River Near Grand Canyon
5: Colorado River Above National Canyon
6: Colorado River Above Diamond Creek

* Discharge computed from velocities taken when current meter was piggy-backed with sediment sampler for EWI measurement.

** Discharge computed from velocities taken in special sediment sampling verticals for separate concentrations.

Colorado River Transport Study
Bed Material Composites at Sampling Stations

Location	Date	Station	No. of Samples	PERCENT FINER THAN (SIEVE SIZE IN MM)										
				0.0625	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.000	32.00	64.00
1	6/30 to 8/28/83	305 to 365	13	0.0	0.0	0.7	9.1	24.5	38.7	48.7	62.5	74.8	100	
	6/30 to 8/28/83	365 to 405	15	0.0	0.1	0.5	20.1	46.4	71.2	86.3	95.4	97.9	100	
At Lees	6/30 to 8/28/83	405 to 525	42	0.0	0.1	2.5	67.7	93.6	98.5	99.3	99.6	99.8	100	
Ferry	9/1 to 12/13/83	190 to 245	17	12.0	41.6	74.3	91.6	96.1	97.6	98.4	99.2	100		
		305 to 365	10	0.1	1.1	3.3	6.7	8.1	10.9	16.3	29.3	53.2	100	
		365 to 405	32	0.0	0.2	1.2	18.0	36.4	53.1	68.4	83.6	89.9	100	
		405 to 525	72	0.1	0.4	3.7	73.9	91.5	95.5	96.7	98.8	99.4	100	
	10/3/85 to 1/5/86	150 to 265 and 500 to 600	7	3.9	22.2	64.4	98.8	99.7	99.9	100				
		300 to 380	7	4.7	18.6	24.7	26.4	27.5	29.3	32.1	34.0	45.7	67.4	100
		380 to 500	16	0.0	0.4	1.7	38.7	85.9	97.3	99.6	100			
3	7/12 to 12/13/83	50 to 130 and 330 to 380	93	0.1	1.3	22.8	95.0	99.3	99.7	99.8	99.9	100		
Above		380 to 450	12	2.0	18.4	69.2	95.7	99.6	99.9	100				
Little														
Colorado	10/6 to 12/6/85	50 to 80 and 380 to 400	7	10.1	49.5	90.6	99.7	100						
River		80 to 130 and 310 to 380	22	0.5	5.6	33.7	88.2	95.6	96.5	97.1	98.4	100		
		130 to 150	5	0.1	0.4	3.6	14.8	15.9	16.5	20.1	32.0	48.9	87.6	100
	12/12/85 to 1/13/86	50 to 80 and 380 to 400	5	9.0	38.3	86.8	99.6	99.9	99.9	100				
		80 to 130 and 265 to 375	17	0.4	3.5	30.8	91.7	97.8	98.4	99.2	100			
		130 to 215	5	0.0	0.6	7.7	46.2	52.7	54.7	59.9	66.1	96.7	100	
4	7/1 to 9/27/83	140 to 170	11	0.2	2.7	24.7	90.4	99.5	100					
		240 to 310	31	0.1	0.3	7.8	72.8	91.1	95.8	97.9	99.3	100		
Near	9/28 to 12/14/83	90 to 120	4	4.0	24.2	86.8	99.9	100						
Grand		140 to 310	72	0.2	2.0	21.4	81.6	92.4	93.7	94.1	94.4	95.7	100	
Canyon	10/10/85 to 1/21/86	80 to 120	7	2.7	23.7	77.1	99.8	99.9	100					
		120 to 335	53	0.5	4.0	23.5	88.0	97.9	99.3	99.7	100			
5	7/15 to 8/30/83	150 to 330	54	0.1	0.9	15.9	91.6	99.1	99.4	99.6	99.7	100		
		330 to 335	6	1.2	14.5	75.7	99.9	100						
Above	9/1 to 12/6/83	225 to 330	26	0.3	1.4	21.6	93.9	99.8	99.9	99.9	100			
National		330 to 375	11	6.4	22.3	83.1	99.9	100						
Canyon	10/18/85 to 1/25/86	90 to 150 and 340 to 400	26	7.6	34.3	89.6	99.7	100						
		215 to 340	28	0.2	1.4	15.8	72.8	95.0	97.5	98.1	99.2	100		
6	8/6 to 12/19/83	50 to 100 and 240 to 270	49	12.5	39.5	86.1	99.7	100						
Above		100 to 200	114	0.3	1.6	22.0	94.7	98.9	99.3	99.5	99.7	99.9	100	
Diamond	10/23/85 to 1/30/86	30 to 60	8	27.0	79.8	98.6	99.5	99.8	99.9	100				
Creek		60 to 95 and 190 to 270	41	6.0	29.5	78.7	98.7	99.4	99.6	99.8	100			
		125 to 190	38	0.1	1.1	13.7	84.6	93.9	95.3	96.0	96.6	97.2	100	

TABLE 4

O U T P U T

DETERMINATION OF TOTAL SEDIMENT LOAD IN A STREAM

JOBIDENT COLORADO RIVER AT LEES FERRY

METHOD OF COMPUTATION MODIFIED EINSTEIN DATE OF COMPUTATION 84/08/27.

DATE OF SAMPLE 7/ 9/83 TIME OF SAMPLE 1710 TEMPERATURE 51.8 F SLOPE OF ENERGY GRADIENT .00026 FT/FT

DISCHARGE 9751. CFS CONCENTRATION IN PPM 435. SAMPLED SEDIMENT 11453. TONS/DAY

D65 = 9.1200 MILLIMETERS D35 = 1.6900 MILLIMETERS Z LIMIT SUSP. = 1.0 Z LIMIT BED = 1.0

AREA 1547. FTSQ. TOP WIDTH 60.0 FT. EQUIV. DEPTH 0.00 FT. EQUIV. SLOPE = 0.00000 FT/FT

VELOCITY 6.30 FT/SEC. EQUIV. WIDTH 0.0 FT. AVERAGE BOTTOM DEPTH 25.80 FT. HYDR. RADIUS = 25.80 FT.

DISTANCE BETWEEN SAMPLER AND BED (DSUBN) .40 FT. AVERAGE DEPTH FROM SAMPLE VERTICALS (DSUBS) 24.90 FT.

SIZE FRACTION IN MILLIMETERS		PERCENT OF MATERIAL SUSPENDED	BED	IBQB T/D	QPRIME SUBS(T/D)	Z - V A L U E S COMPUTED	FITTED	COMPUTATIONAL FACTORS F(J)	F(I)+1	COMPUTED TOTAL LOAD
.0320	.0620	6.60	0.00	0.00	749.5	0.00	.10	1.01	0.00	760.0
.0620	.1250	4.30	0.00	0.00	488.3	0.00	.18	1.02	0.00	498.4
.1250	.2500	21.00	.70	.16	2384.7	0.00	.31	0.00	2124.30	2405.0
.2500	.5000	17.20	8.40	5.47	1953.2	.46	.47	0.00	385.05	2107.0
.5000	1.0000	16.90	15.40	28.37	1919.1	.63	.60	0.00	79.21	2247.7
1.0000	2.0000	21.50	14.20	74.00	2441.5	.70	.74	0.00	40.64	3007.6
2.0000	4.0000	12.50	10.00	147.40	1419.5	.89	.87	0.00	14.22	2096.2
4.0000	8.0000	0.00	13.80	302.35	0.0	0.00	1.03	0.00	8.00	2420.2
8.0000	16.0000	0.00	12.30	95.30	0.0	0.00	1.21	0.00	5.04	480.6
16.0000	32.0000	0.00	25.20	13.94	0.0	0.00	1.42	0.00	3.63	50.6
32.0000	64.0000	0.00	0.00	0.00	0.0	0.00	1.67	0.00	0.00	0.0
64.0000	128.0000	0.00	0.00	0.00	0.0	0.00	1.96	0.00	0.00	0.0
TOTALS		100.00	100.00		11355.7					16073.3

TABLE 5

O U T P U T

DETERMINATION OF TOTAL SEDIMENT LOAD IN A STREAM

JOBIDENT COLORADO RIVER AT LEES FERRY

METHOD OF COMPUTATION MODIFIED EINSTEIN DATE OF COMPUTATION 84/08/27.

DATE OF SAMPLE 7/ 9/83 TIME OF SAMPLE 1710 TEMPERATURE 51.8 F SLOPE OF ENERGY GRADIENT .00026 FT/FT

DISCHARGE 6632. CFS CONCENTRATION IN PPM 435. SAMPLED SEDIMENT 7789. TONS/DAY

DG5 = 1.6600 MILLIMETERS D35 = .7600 MILLIMETERS Z LIMIT SUSP. = 1.0 Z LIMIT BED = 1.0

AREA 1056. FTSQ. TOP WIDTH 40.0 FT. EQUIV. DEPTH 0.00 FT. EQUIV. SLOPE = 0.00000 FT/FT

VELOCITY 6.28 FT/SEC. EQUIV. WIDTH 0.0 FT. AVERAGE BOTTOM DEPTH 26.40 FT. HYDR. RADIUS = 26.40 FT.

DISTANCE BETWEEN SAMPLER AND BED (DSUBN) .40 FT. AVERAGE DEPTH FROM SAMPLE VERTICALS (DSUBS) 24.90 FT.

SIZE FRACTION IN MILLIMETERS		PERCENT OF MATERIAL SUSPENDED	BED	IBQB T/D	QPRIME SUBS(T/D)	Z - V A L U E S COMPUTED	FITTED	COMPUTATIONAL FACTORS F(J)	F(I)+1	COMPUTED TOTAL LOAD
.0320	.0620	6.60	0.00	0.00	509.3	0.00	.25	1.03	0.00	526.1
.0620	.1250	4.30	.10	.01	331.8	0.00	.37	0.00	2310.96	334.9
.1250	.2500	21.00	.40	.13	1620.5	0.00	.54	0.00	357.32	1635.7
.2500	.5000	17.20	19.60	18.56	1327.3	.68	.70	0.00	88.78	1647.3
.5000	1.0000	16.90	26.30	70.42	1304.1	.84	.82	0.00	27.46	1933.7
1.0000	2.0000	21.50	24.80	187.83	1659.1	.95	.93	0.00	15.09	2833.7
2.0000	4.0000	12.50	15.10	164.02	964.6	1.02	1.04	0.00	10.82	1774.5
4.0000	8.0000	0.00	9.10	51.57	0.0	0.00	1.16	0.00	7.01	361.7
8.0000	16.0000	0.00	2.50	2.99	0.0	0.00	1.29	0.00	5.33	16.0
16.0000	32.0000	0.00	2.10	.01	0.0	0.00	1.43	0.00	4.30	.0
32.0000	64.0000	0.00	0.00	0.00	0.0	0.00	1.58	0.00	0.00	0.0
64.0000	128.0000	0.00	0.00	0.00	0.0	0.00	1.75	0.00	0.00	0.0
TOTALS		100.00	100.00		7716.6					11063.8

TABLE 6

O U T P U T

DETERMINATION OF TOTAL SEDIMENT LOAD IN A STREAM

JOBIDENT COLORADO RIVER AT LEES FERRY

METHOD OF COMPUTATION MODIFIED EINSTEIN DATE OF COMPUTATION 84/08/27.

DATE OF SAMPLE 7/ 9/83 TIME OF SAMPLE 1710 TEMPERATURE 51.8 F SLOPE OF ENERGY GRADIENT .00026 FT/FT

DISCHARGE 20204. CFS CONCENTRATION IN PPM 435. SAMPLED SEDIMENT 23730. TONS/DAY

D65 = .4900 MILLIMETERS D35 = .3900 MILLIMETERS Z LIMIT SUSP. = 1.0 Z LIMIT BED = 1.0

AREA 3462. FTSQ. TOP WIDTH 120.0 FT. EQUIV. DEPTH 0.00 FT. EQUIV. SLOPE = 0.00000 FT/FT

VELOCITY 5.84 FT/SEC. EQUIV. WIDTH 0.0 FT. AVERAGE BOTTOM DEPTH 28.80 FT. HYDR. RADIUS = 28.70 FT.

DISTANCE BETWEEN SAMPLER AND BED (DSUBN) .40 FT. AVERAGE DEPTH FROM SAMPLE VERTICALS (DSUBS) 24.90 FT.

SIZE FRACTION IN MILLIMETERS		PERCENT OF MATERIAL SUSPENDED	BED	IBQB T/D	QPRIME SUBS(T/D)	Z - V A L U E S COMPUTED	FITTED	COMPUTATIONAL FACTORS F(J)	F(I)+1	COMPUTED TOTAL LOAD
.0320	.0620	6.60	0.00	0.00	1551.8	0.00	.21	1.03	0.00	1593.2
.0620	.1250	4.30	.10	.05	1011.0	0.00	.32	0.00	4695.50	1020.4
.1250	.2500	21.00	2.40	3.39	4937.6	.39	.48	0.00	1549.70	5260.3
.2500	.5000	17.20	65.20	260.83	4044.1	.91	.65	0.00	26.31	6862.1
.5000	1.0000	16.90	25.90	293.05	3973.6	.92	.78	0.00	22.88	6704.3
1.0000	2.0000	21.50	4.90	90.68	5055.2	.68	.90	0.00	68.85	6243.4
2.0000	4.0000	12.50	.80	10.08	2939.0	0.00	1.02	0.00	12.89	2966.2
4.0000	8.0000	0.00	.30	1.20	0.0	0.00	1.15	0.00	8.49	10.2
8.0000	16.0000	0.00	.20	.03	0.0	0.00	1.30	0.00	6.16	.2
16.0000	32.0000	0.00	.20	.00	0.0	0.00	1.45	0.00	4.79	.0
32.0000	64.0000	0.00	0.00	0.00	0.0	0.00	1.63	0.00	0.00	0.0
64.0000	128.0000	0.00	0.00	0.00	0.0	0.00	1.83	0.00	0.00	0.0
TOTALS		100.00	100.00		23512.4					30660.3

TABLE 7

COLORADO RIVER AT LEES FERRY

MODIFIED EINSTEIN COMPUTATION

DATE	TIME	GAGE HEIGHT	CONCENTRATION	BED MATERIAL DATES FROM	TO	HYDR DATE	HYDR SLOPE	N VALUE
7/ 9/83	1710	14.55	435.	6/29/83	8/31/83	7/ 9/83	.000263	.035

	COMPOSITE 1	COMPOSITE 2	COMPOSITE 3	COMPOSITE 4	NO RETURN	TOTAL
STATIONS	305 TO 365 0 TO 0	365 TO 405 0 TO 0	405 TO 525 0 TO 0	0 TO 0 0 TO 0		105.2 TO 580.0
DISCHARGE	9751.	6632.	20204.	0.	16849.	53435.
SAMPLED	11463.	7789.	23730.	0.	19789.	62759.
SAND LOAD	15313.	10538.	29067.	0.	18483.	73401.
TOTAL LOAD	16073.	11064.	30660.	0.	19789.	77587.
AREA	1547.	1056.	3462.	0.	4180.	10245.
VELOCITY	6.30	6.28	5.84	.00	4.03	5.22
TOP WIDTH	60.0	40.0	120.0	.0	254.8	474.8
WETTED PER	60.0	40.1	120.6	.0	271.3	491.9
HYD RADIUS	25.78	26.36	28.72	.00	15.41	20.83
HYD DEPTH	25.78	26.39	28.85	.00	16.41	21.58
D35	1.69	.76	.39	.00		
D50	4.26	1.10	.44	.00		
D65	9.12	1.66	.49	.00		
D90	19.07	5.00	.86	.00		

Table 8

Range in Discharges for Sampling Periods
Colorado River Transport Study

Year	Station	Range in Discharges Cubic Feet Per Second
1983	1	22,047 to 91,044
1985-86	1	3,360 to 24,819
1983	3	21,818 to 57,643
1985-86	3	5,249 to 23,545
1983	4	21,331 to 83,542
1985-86	4	6,319 to 24,543
1983	5	22,961 to 55,229
1985-86	5	2,969 to 28,801
1983	6	23,973 to 39,660
1985-86	6	3,807 to 28,341

Table 9

COLORADO RIVER TRANSPORT STUDY
SAND LOAD RATING CURVES
1983 and 1985-86 Data

Location	Discharge Limits			Sand Load Equation - Tons/Day	R Correlation Coefficient
1	0 CFS	to	25,000 CFS	= 0.21029E-11*Q**03.3326	--
1	25,000 CFS	to	Maximum	= 0.27301E-14*Q**03.9864	0.897
3	0 CFS	to	40,000 CFS	= 0.46047E-10*Q**03.2228	0.915
3	40,000 CFS	to	Maximum	= 0.57336E-05*Q**02.1117	--
4,5&6	0 CFS	to	25,000 CFS	= 0.31854E-10*Q**03.3326	0.898
	25,000 CFS	to	Maximum	= 0.10114E-04*Q**02.1117	0.675

Legend: Location 1 = Colorado River at Lees Ferry
Location 3 = Colorado River above Little Colorado River
Location 4 = Colorado River near Grand Canyon
Location 5 = Colorado River above National Canyon
Location 6 = Colorado River above Diamond Creek

Table 10

COLORADO RIVER TRANSPORT STUDY
SAND LOAD RATING CURVES
1983 and 1985-86 DATA

Location	Method	Discharge - CFS Minimum	Discharge - CFS Maximum	Sand Load - T/D Minimum	Sand Load - T/D Maximum	Sand Load Equation	Correlation Coefficient
1	Modified Einstein	3360	91044	32	105,412	.27301E-14*Q**3.9864 (U)	0.897
						.66598E-04*Q**1.6439 (L)	0.672
	Ackers and White	9521	91044	19	82,589	.13267E-11*Q**3.4319	0.975
	Toffaleti	4181	91044	1	30,680	.71061E-10*Q**3.0132	0.926
	Velocity-Xi	9521	91044	4	92,726	.14979E-12*Q**3.5982	0.928
	Yang	9521	91044	25	134,096	.45951E-13*Q**3.7466	0.993
3	Modified Einstein	5249	57643	40	99,741	.46047E-10*Q**3.2228	0.915
	Ackers and White	5249	57643	5	17,470	.23621E-07*Q**2.5355	0.792
	Toffaleti	5249	57643	5	17,932	.99023E-07*Q**2.3675	0.766
	Velocity-Xi	5249	57643	5	25,963	.38124E-08*Q**2.6980	0.823
	Yang	5249	57643	8	15,171	.12184E-07*Q**2.5874	0.851
4	Modified Einstein	6319	83542	78	300,444	.31243E-04*Q**1.9961 (U)	0.732
						.21120E-11*Q**3.6104 (L)	0.913
	Ackers and White	6319	83542	126	104,377	.79606E-06*Q**2.2753	0.947
	Toffaleti	6319	83542	110	41,449	.41271E-05*Q**2.1074	0.924
	Velocity-Xi	6319	83542	181	431,531	.83662E-07*Q**2.5758	0.905
	Yang	6319	83542	76	117,219	.24605E-07*Q**2.5847	0.972
5	Modified Einstein	2969	55229	20	201,231	.86843E-05*Q**2.1448 (U)	0.645
						.18688E-09*Q**3.1519 (L)	0.882
	Ackers and White	2969	55229	20	236,351	.42876E-10*Q**3.3222	0.978
	Toffaleti	2969	55229	13	87,297	.13551E-10*Q**3.4223	0.974
	Velocity-Xi	2969	55229	36	792,483	.20423E-12*Q**3.9176	0.979
	Yang	2969	55229	19	186,380	.21843E-10*Q**3.3504	0.970
6	Modified Einstein	3807	39660	52	127,718	.35941E-12*Q**3.7706 (U)	0.566
						.67850E-10*Q**3.2542 (L)	0.896
	Ackers and White	5338	39660	9	132,900	.19110E-16*Q**4.7779	0.990
	Toffaleti	4006	39660	1	51,490	.26290E-17*Q**4.9594	0.989
	Velocity-Xi	3807	39660	1	284,999	.71860E-20*Q**5.6358	0.992
	Yang	4006	39660	1	46,224	.19834E-16*Q**4.7021	0.995
4,5&6	Modified Einstein	2969	83542	20	300,444	.10114E-04*Q**2.1117 (U)	0.675
						.31854E-10*Q**3.3326 (L)	0.898
	Ackers and White	2969	83542	9	236,351	.67790E-10*Q**3.2436	0.927
	Toffaleti	2969	83542	1	87,297	.36064E-10*Q**3.2951	0.915
	Velocity-Xi	2969	83542	1	792,483	.34449E-12*Q**3.8394	0.923
	Yang	2969	83542	1	186,380	.74576E-11*Q**3.4169	0.942

(U) - Upper Curve
(L) - Lower Curve
} Split at 25,000 CFS

SEDIMENT DATA COLLECTION AND ANALYSIS FOR FIVE STATIONS ON THE COLORADO RIVER FROM LEES FERRY TO DIAMOND CREEK

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