

180

COMPLETION REPORT
PHASE I
CONTRACT NO. EG-77-S-07-1691

VOLUME A
MAIN REPORT WITH SAMPLE APPENDICES

**A RESOURCE SURVEY OF
LOW-HEAD HYDROELECTRIC POTENTIAL
PACIFIC NORTHWEST REGION**

JOHN S. GLADWELL
LEROY F. HEITZ
CALVIN C. WARNICK
IDAHO WATER RESOURCES RESEARCH INSTITUTE

IN COOPERATION WITH
CLAUD C. LOMAX
STATE OF WASHINGTON WATER RESEARCH CENTER

PETER C. KLINGEMAN
OREGON WATER RESOURCES RESEARCH INSTITUTE

ALFRED B. CUNNINGHAM
MONTANA UNIVERSITY JOINT WATER RESOURCES RESEARCH CENTER

THIS PROJECT FUNDED BY THE
UNITED STATES DEPARTMENT OF ENERGY

MARCH 1979

FORWARD

Due to the tremendous volume of information presented in this report, final publication has been split into ten volumes. The first volume (Volume A) contains the main report which describes study methodologies and sample data tables. The remaining nine volumes (Volumes A-J) contain sets of complete data tables for all the streams studied. Page viii of this volume contains a listing of the contents of all of the volumes. A listing of the distribution of the different report volumes is contained on pages 98 and 99 of this report.

Those desiring information from or copies of any of the reach sheets should contact the Idaho Water Resources Research Institute or the water research institute in the particular state in which the stream or streams of interest are located. Institute addresses are shown on the distribution list.

Section 1

The first part of the report deals with the general situation of the country. It is a very interesting and detailed study of the economic and social conditions of the country. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the knowledge of the country. It is a must-read for anyone interested in the country's development.

The second part of the report deals with the specific details of the country's economy. It covers the various sectors of the economy and the role of each sector. The author has provided a clear and concise analysis of the country's economic structure. This part of the report is particularly useful for those who are interested in the country's economic policy and its impact on the economy.

The third part of the report deals with the social conditions of the country. It covers the various aspects of social life, including education, health, and housing. The author has provided a detailed and up-to-date account of the country's social conditions. This part of the report is particularly useful for those who are interested in the country's social development and its impact on the population.

The fourth part of the report deals with the political situation of the country. It covers the various aspects of the political system, including the government, the judiciary, and the legislature. The author has provided a clear and concise analysis of the country's political structure. This part of the report is particularly useful for those who are interested in the country's political development and its impact on the country's future.

ACKNOWLEDGEMENTS

The authors of this report wish to express their appreciation to those staff members of the water resources institutes of Washington, Oregon, Idaho and Montana and to the other employees of the four Universities that were involved in the study for the assistance rendered in the completion of this project. Because of the large number of individuals involved, it is impossible to list each person separately, but without the aid of these people the completion of this project would have been impossible.

We also wish to express our gratitude to the U.S. Department of Energy whose funding made this project possible. A special vote of thanks goes to Richard McDonald of the Resource Engineering Branch, Department of Geothermal Energy of D.O.E., Charles Gilmore and Michael McLatchy of the Idaho Operations Office of D.O.E. and to George Smith and Steve Metzger of E.G.&G. Idaho, whose cooperation and advice were essential to the completion of the study presented in this report.



EXECUTIVE SUMMARY

In September of 1977, the University of Idaho Water Resources Research Institute entered into a contract with the then named Energy Research and Development Administration, (now the U.S. Department of Energy) to make a study entitled, "A Resource Survey of Low-Head Hydroelectric Potential Pacific Northwest Region." The University of Idaho Water Resources Research Institute in turn entered into subcontracts with the water resources research institutes of Oregon, Washington and Montana to do portions of the study involving their respective states. The following report is the completion report for the first phase of work under this contract.

The purpose of this first phase study was to evaluate the theoretical low-head hydroelectric potential of the Pacific Northwest Region. For purposes of this study, low-head hydroelectric power was defined as power produced from power sites with gross hydraulic heads ranging from 3m to 20m and with power plant sizes greater than 200 kW.

The study area includes all of the Columbia River system in the United States and all other river basins in Idaho, Oregon and Washington. The total area studied is approximately 292,000 square miles.

The initial study assignment was to define the low-head hydro potential by identifying all possible sites. It was soon realized that the task of identifying every possible low-head hydroelectric site was too formidable under the project time and cost limitation. It was mutually determined that a better approach would be in the first phase (this report) to define the theoretical power potential of the streams by reaches. These have been defined such that each reach contains a reasonably homogeneous stream segment. Corresponding to the flow required to produce 200 kW at 20 meters of head, the uppermost reaches

are bounded by a requirement of 36CFS 50 percent of the time. Reaches were chosen so that major tributaries to the stream would enter at either the upstream or downstream end point of the reaches.

As a means of defining the flows available in the reaches over time, a duration curve approach has been used. The duration curve technique was chosen because it was considered that this method would yield the most information concerning streamflow variability while staying within the time and cost limitations of the study. The basic data used to develop the duration curves for the study reaches were the U.S.G.S. streamflow data. Several different methods were developed to determine characteristic duration curves for reaches that did not contain gage sites. These methods are described in detail in the section of this report entitled Analysis Techniques.

After generating a duration curve for the midpoint of a particular reach, the first step was to compute the theoretical power potential for that particular reach. The plant capacity was computed for five different flow rates corresponding to the 10, 30, 50, 80 and 95 percent exceedance levels. The head used was the total head available in that particular reach. An efficiency of 100% was used in all power and energy computations. Operation was assumed to be run-of-river, the only consideration of storage is where the effect of upstream storage already exists. In those cases the effect is included in the derived duration curve.

The theoretical annual energy available from the previously computed plant capacities was determined by applying an integration technique to the flow duration curve. For each capacity level the plant factor was also calculated. This is the ratio of the energy previously calculated to that which would be produced were that capacity fully productive 100% of the time.

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is arranged in several paragraphs, but the characters are too light and blurry to be transcribed accurately. The right edge of the page shows the binding holes of a spiral notebook.

The results of the energy and power computations are displayed on Reach Characteristic Sheets contained in the appendices of this report. They contain information on physical location of the reach, hydrologic and hydraulic characteristics of the reach, flow duration and theoretical power and energy values for the reach. A typical annual hydrograph for each reach and a map showing the reach location are also included.

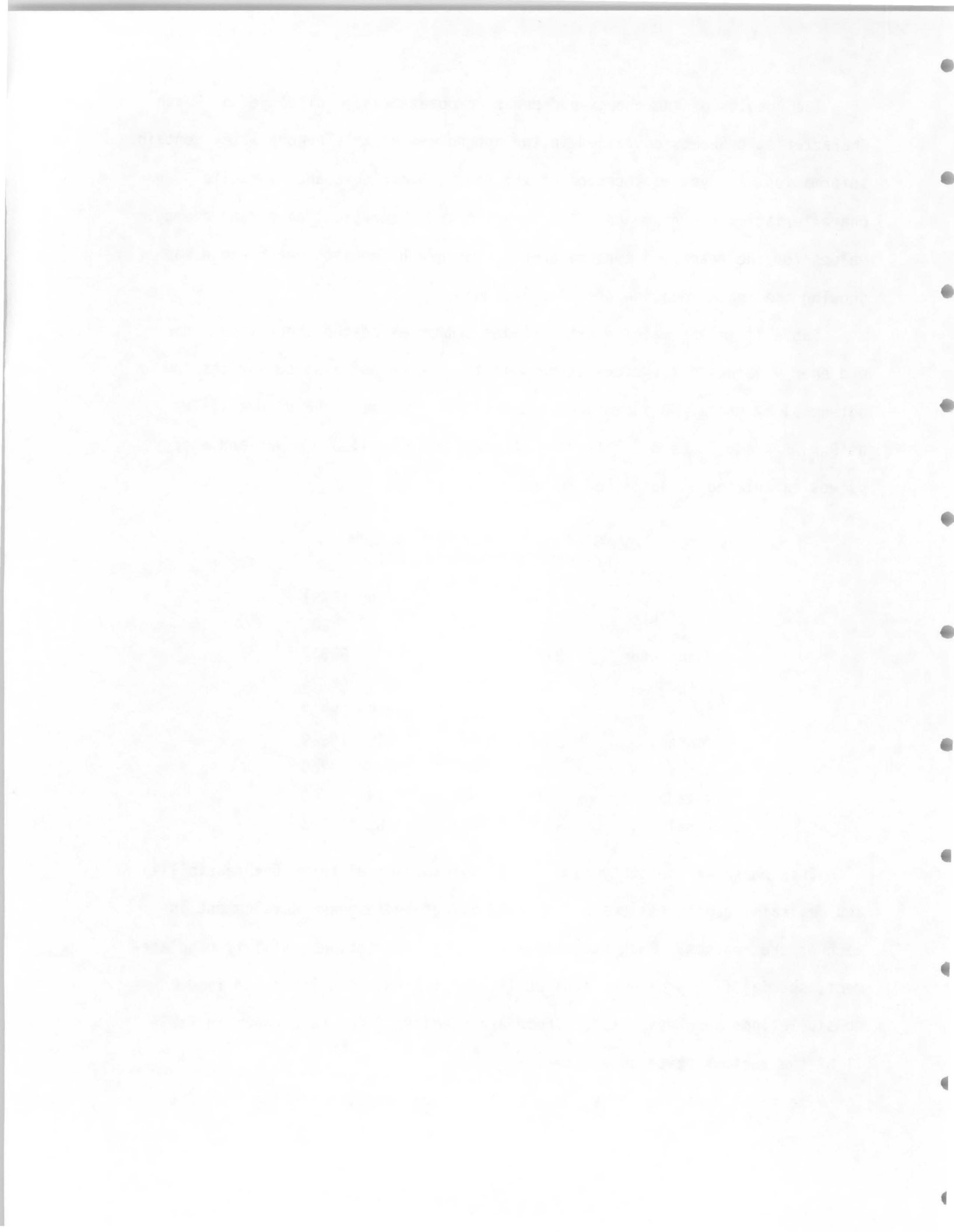
Table II in the main report contains summaries of the theoretical power and energy values for various streams in the region and also summarizes the potential by state. A summary of these tables follows. The values listed as P_{30} , P_{50} and E_{30} and E_{50} are the theoretically available power and energy values calculated as described above.

SUMMARY OF THEORETICAL MAXIMUM
DEVELOPABLE POWER POTENTIAL

STATE	Power (MW)		Energy (GWH)	
	P_{30}	P_{50}	E_{30}	E_{50}
Washington	13928	8862	80124	61314
Oregon	12105	6786	64951	46324
Idaho	9147	5443	53365	38338
Montana	3576	2044	19848	14689
Wyoming	620	295	3345	2205
Nevada	15	8	76	53
Total	39391	23439	221709	162923

This phase of the study also identifies in general terms the feasibility and restraint considerations which could affect hydro power development in each of the reaches. Such aspects as land-use restrictions, utility displacement, special fish problems, availability of transmission lines and load considerations were evaluated. These are summarized for each reach in Table II of the various state appendices.

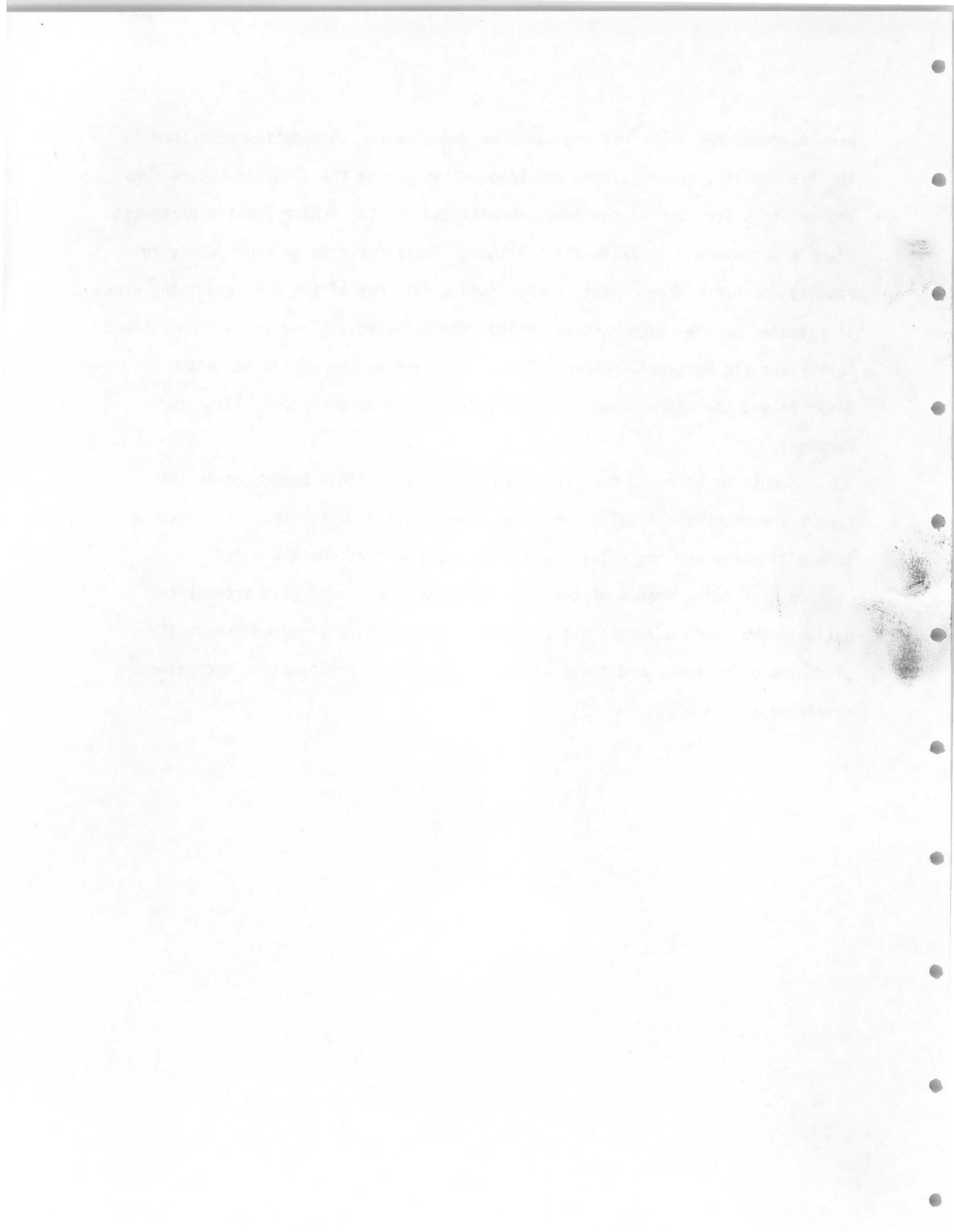
The final aspect of this phase of the study involved ranking the most



promising reaches. The ranking was done based on the information contained in the feasibility, transmission, and load tables and on the flows in the reaches. The rankings for each of the four subunits and for the entire Pacific Northwest study are contained in Table III. Although there seems to be many promising reaches for hydro development in the study area, some of the more promising areas as revealed by the reach ranking include the Willamette River (in Oregon), Clark Fork River (in Montana), Kootenai River (in Idaho and Montana), and Snake River (along the Idaho-Oregon and Idaho-Washington Border and in Idaho and Wyoming).

It must be stressed that the power and energy values presented in this report are theoretical values based on development of total head in a reach at 100% efficiency and the results should be used in that context only.

In continuing phases of this project, the study teams will attempt to evaluate the low head/small hydro potential at existing sites not presently producing hydro power and those sites that have been proposed for hydroelectric development in the past.



REPORT VOLUME CONTENTS

- Volume A Main Report and Sample Appendices
- Volume B Appendix I, Washington Reach Data Tables
- Volume C Appendix I, Washington Reach Data Tables continued
- Volume D Appendix I, Washington Reach Data Tables continued
- Volume E Appendix II Oregon Reach Data Tables
- Volume F Appendix II Oregon Reach Data Tables continued
- Volume G Appendix II Oregon Reach Data Tables continued
- Volume H Appendix III Idaho, Nevada and Wyoming Reach Data Tables
- Volume I Appendix III Idaho, Nevada and Wyoming Reach Data Tables continued
- Volume J Appendix IV Montana Reach Data Tables

CONFIDENTIAL

MEMORANDUM FOR THE DIRECTOR

FROM: SAC, NEW YORK (100-100000)

SUBJECT: [Illegible]

RE: [Illegible]

On [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

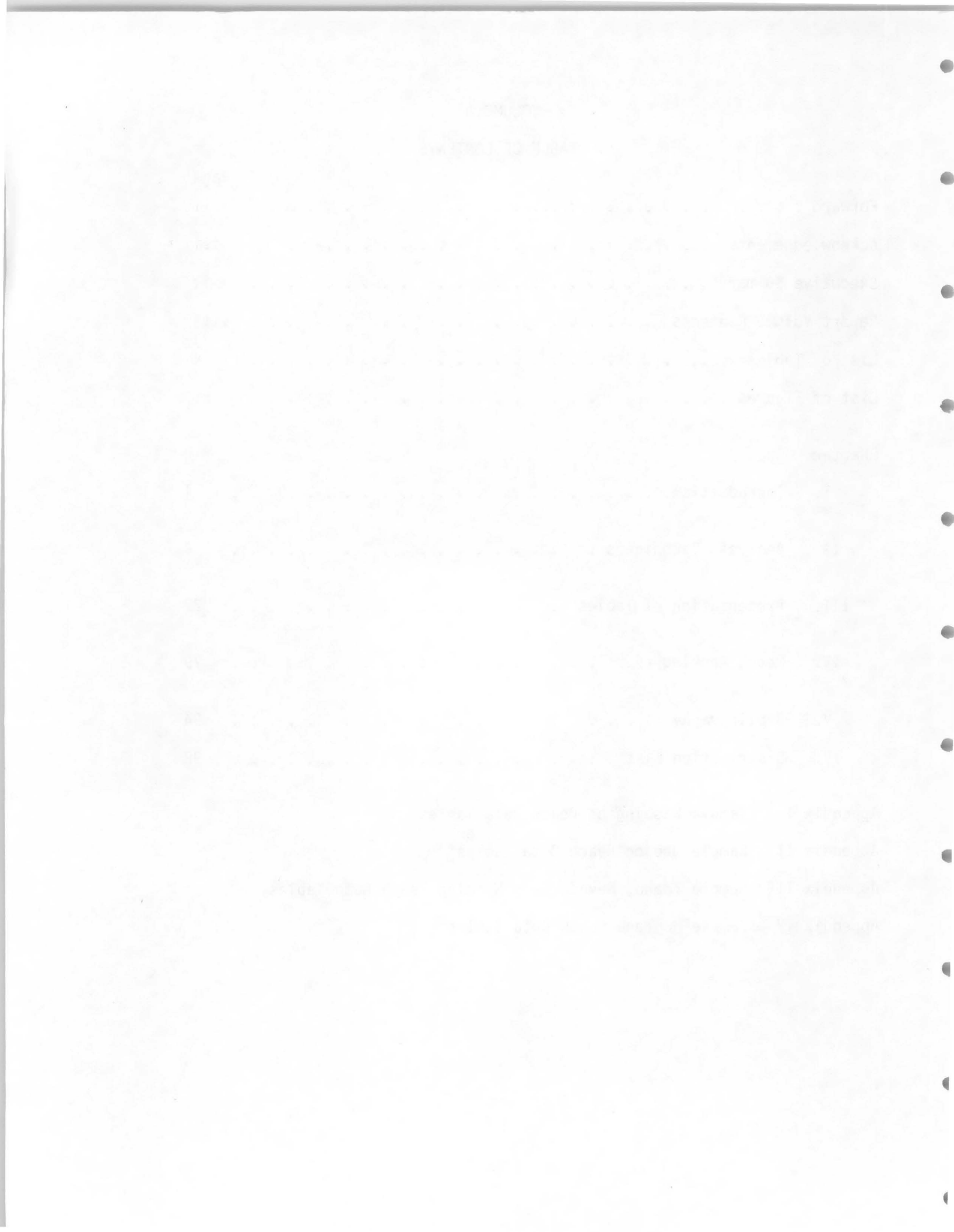
[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

VOLUME A

TABLE OF CONTENTS

	Page
Forward	ii
Acknowledgements	iii
Executive Summary	iv
Report Volume Contents	viii
List of Tables	x
List of Figures	xi
Chapter	
I. Introduction	1
II. Analysis Techniques	4
III. Presentation of Tables	27
IV. Reach Ranking	79
V. Bibliography	94
IV. Distribution List	98
Appendix I Sample Washington Reach Data Tables	
Appendix II Sample Oregon Reach Data Tables	
Appendix III Sample Idaho, Nevada, and Wyoming Reach Data Tables	
Appendix IV Sample Montana Reach Data Tables	



LIST OF TABLES

Table		Page
I.	Hydroelectric Potential Analysis Techniques	
	A. Washington	34
	B. Oregon	39
	C. Idaho	48
	D. Montana	54
II.	Maximum Developable Power	
	A. Washington	55
	B. Oregon	59
	C. Idaho	71
	D. Montana	77
	E. Pacific Northwest Region	78
III.	Reach Ranking	
	A. Washington	80
	B. Oregon	82
	C. Idaho	86
	D. Montana	88
	E. Pacific Northwest Region	92

1971

...

...

...

...

...

...

...

...

...

...

...

...

...

LIST OF FIGURES

Figure		Page
1.	Study Area Map	3
2.	Typical Duration Curve	5
3.	Basin Duration Curves	8
4.	Parametric Duration Curves	9
5.	Dimensionless Duration Curves Washington Method	11
6.	Dimensionless Duration Curves Montana Method	13
7.	Normal Annual Precipitation Map	18
8.	Energy and Load Factor Relationships	25

PROOF OF WORK

DATE

NAME OF THE PARTY

ADDRESS

CITY

STATE

COUNTY

TOWNSHIP

SECTION

RANGE

TOWNSHIP

COUNTY

STATE

DATE

BY

NOTARY PUBLIC

COMMISSION EXPIRES

DATE

I. INTRODUCTION

In September of 1977, the University of Idaho Water Resources Research Institute entered into a contract with the then named Energy Research and Development Administration, (now the U.S. Department of Energy) to make a study entitled, "A Resource Survey of Low-Head Hydroelectric Potential -- Pacific Northwest Region." The University of Idaho Water Resources Research Institute in turn entered into subcontracts with the water resources research institutes of Oregon, Washington and Montana to do portions of the study involving their respective states.

The first formal meeting of all the state study teams was held during October, 1977. Study methodologies and logistics were discussed at this meeting. A representative of the newly formed Department of Energy which replaced the Energy Research and Development Administration was present at the meeting. On the day following this meeting, members of interested state and federal agencies were invited to a briefing meeting on the study. At this meeting, study objectives and outlines were discussed and comments were received from the agencies. Study team coordination meetings have been held at the end of each quarter to discuss study progress and problems encountered in applying study techniques. Part of the June Quarterly Meeting was used as an agency briefing meeting. Interested agency officials were invited to a general briefing on the progress and early results of the study. Many useful recommendations were made by those attending the meeting.

The purpose of this first phase study was to evaluate the theoretical low-head hydroelectric potential of the Pacific Northwest Region. For purposes of this study, low-head hydroelectric power was defined as power pro-

duced from power sites with gross hydraulic heads from 3m to 20m and with power plant sizes greater than 200 kW.

The study area includes all of the Columbia River Basin and all other river basins in Idaho, Oregon and Washington. Columbia River Basin areas of the states of Montana, Wyoming, Utah and Nevada are also included in this area. A map of the study area is contained in Figure 1. The total area studied is approximately 292,000 square miles.

The second phase of this study which will be completed by September 1979, will be an evaluation of the small-scale hydro potential at existing dams without power and at already identified potential dam sites in the Pacific Northwest region. The study criteria has been changed somewhat for this phase of the study. Instead of the 3m to 20m limitation as in phase 1, the new criteria will be to make detailed analyses of proposed and existing non-generating dams with generating capabilities of 200 kW to 15MW.

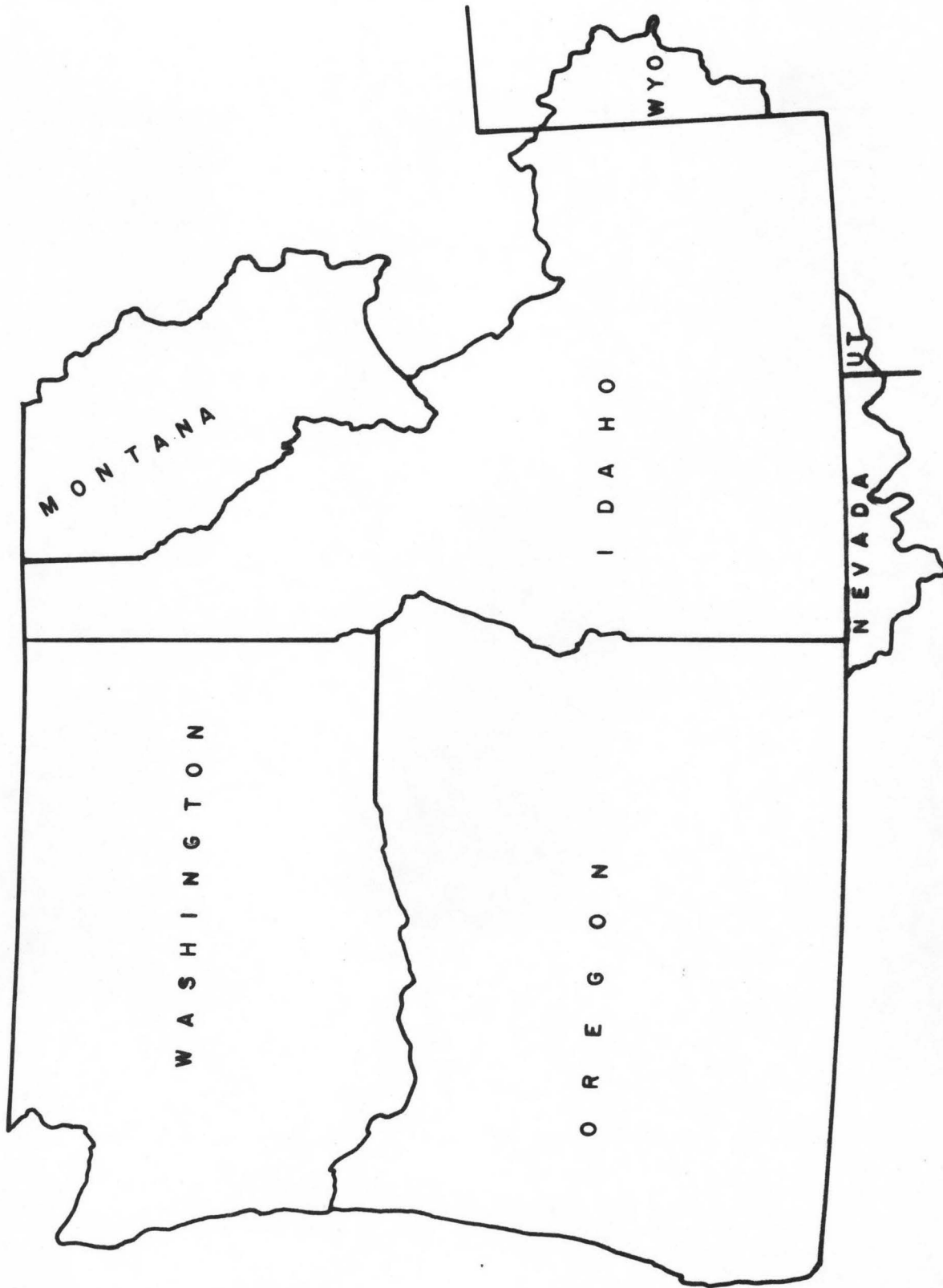
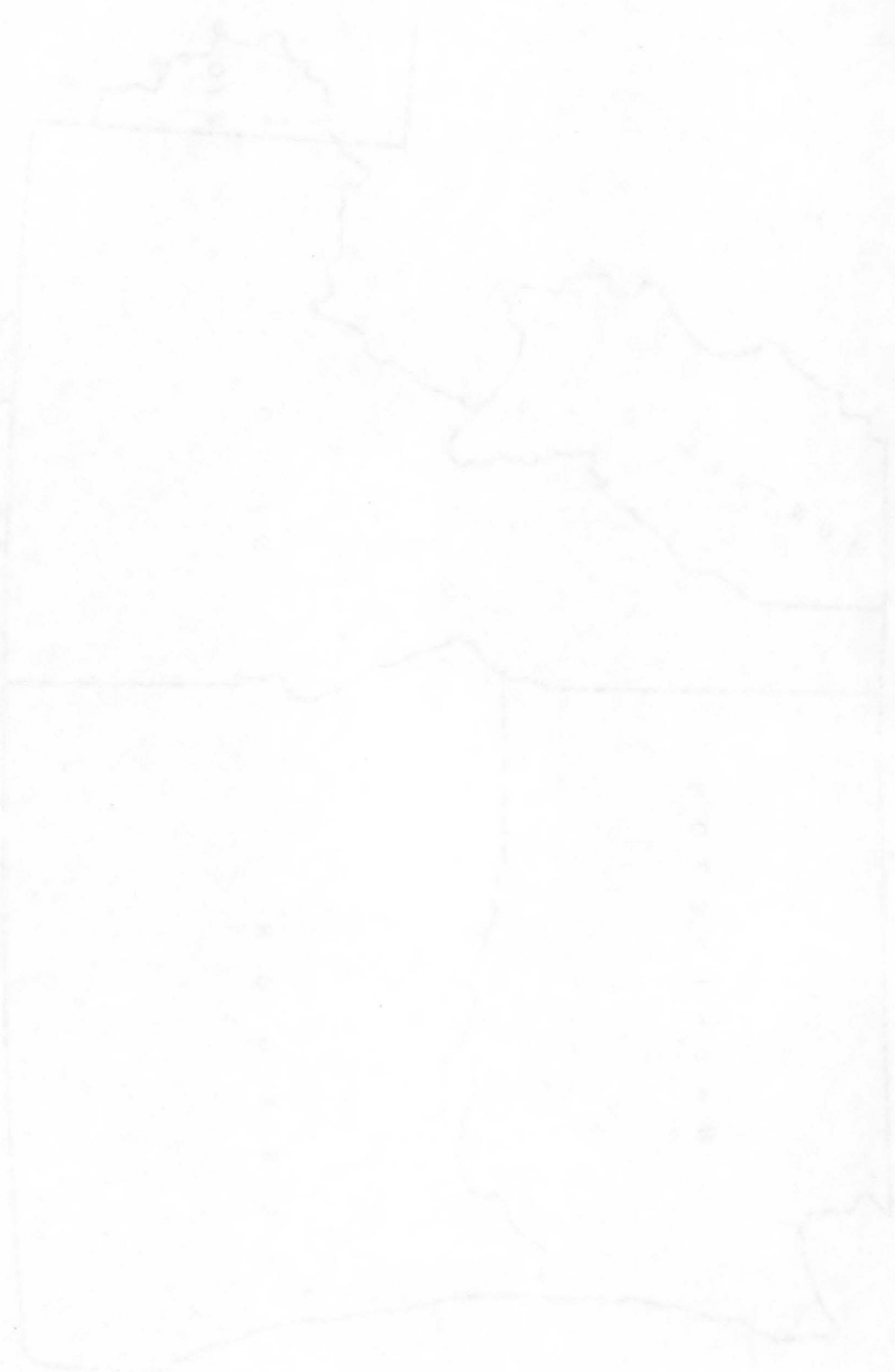


FIGURE I
STUDY AREA MAP

STATE OF NEW YORK
COUNTY OF ...



II. ANALYSIS TECHNIQUES

The initial study assignment was to define the low-head hydro potential by identifying all possible sites. It was determined that the task of identifying every possible low-head hydroelectric site was too formidable under the project time and cost limitation. It was determined that a better approach would be to define the theoretical power potential for sections of the streams called reaches. These reaches were arranged so that each reach contained a fairly homogeneous stream segment. Reaches were assigned to all segments of streams that had flow capabilities of 36 CFS at least 50% of the time. This corresponds to the flow required to produce 200 kW at 20 meters of head. Reaches were chosen so that major tributaries to the stream would enter at either the upstream or downstream end point of the reaches.

In order to define the regime of flows available in a reach over time, a duration curve approach was used. A typical duration curve is shown in Figure 2. The abscissa is exceedance percentage and the ordinate scale is flow. The duration curve technique was chosen because it was considered that this method would yield the most information concerning streamflow variability while staying within the time and cost limitations of this study. The duration curves developed for this study will also be very useful to those doing preliminary feasibility studies of hydro sites on any of the streams in the study area, since the availability of these curves will eliminate some of the preliminary hydrology work that would normally be required.

For purposes of this study it has been assumed that any new low-head hydro projects would operate essentially as run-of-river power plants. Any storage that would be made available at new sites would make more power

UNIT 1

The first of these is the fact that the world is becoming more and more interconnected. This is due to a number of factors, including the rapid growth of the world economy, the increasing use of technology, and the growing awareness of global issues. As a result, people from different parts of the world are coming into contact with each other more frequently than ever before. This has led to a greater understanding of different cultures and a more global perspective on many issues.

Another important factor is the increasing use of technology. This has made it easier for people to communicate and share information across the globe. The internet, in particular, has revolutionized the way we live and work. It has allowed us to access information from anywhere in the world and to connect with people from different parts of the globe. This has led to a more globalized world and a greater awareness of global issues.

The third factor is the growing awareness of global issues. This is due to a number of factors, including the increasing use of mass media, the growing awareness of environmental issues, and the growing awareness of human rights. As a result, people are becoming more concerned about global issues and are more likely to take action to address them. This has led to a more globalized world and a greater awareness of global issues.

In conclusion, the world is becoming more and more interconnected. This is due to a number of factors, including the rapid growth of the world economy, the increasing use of technology, and the growing awareness of global issues. As a result, people from different parts of the world are coming into contact with each other more frequently than ever before. This has led to a greater understanding of different cultures and a more global perspective on many issues.

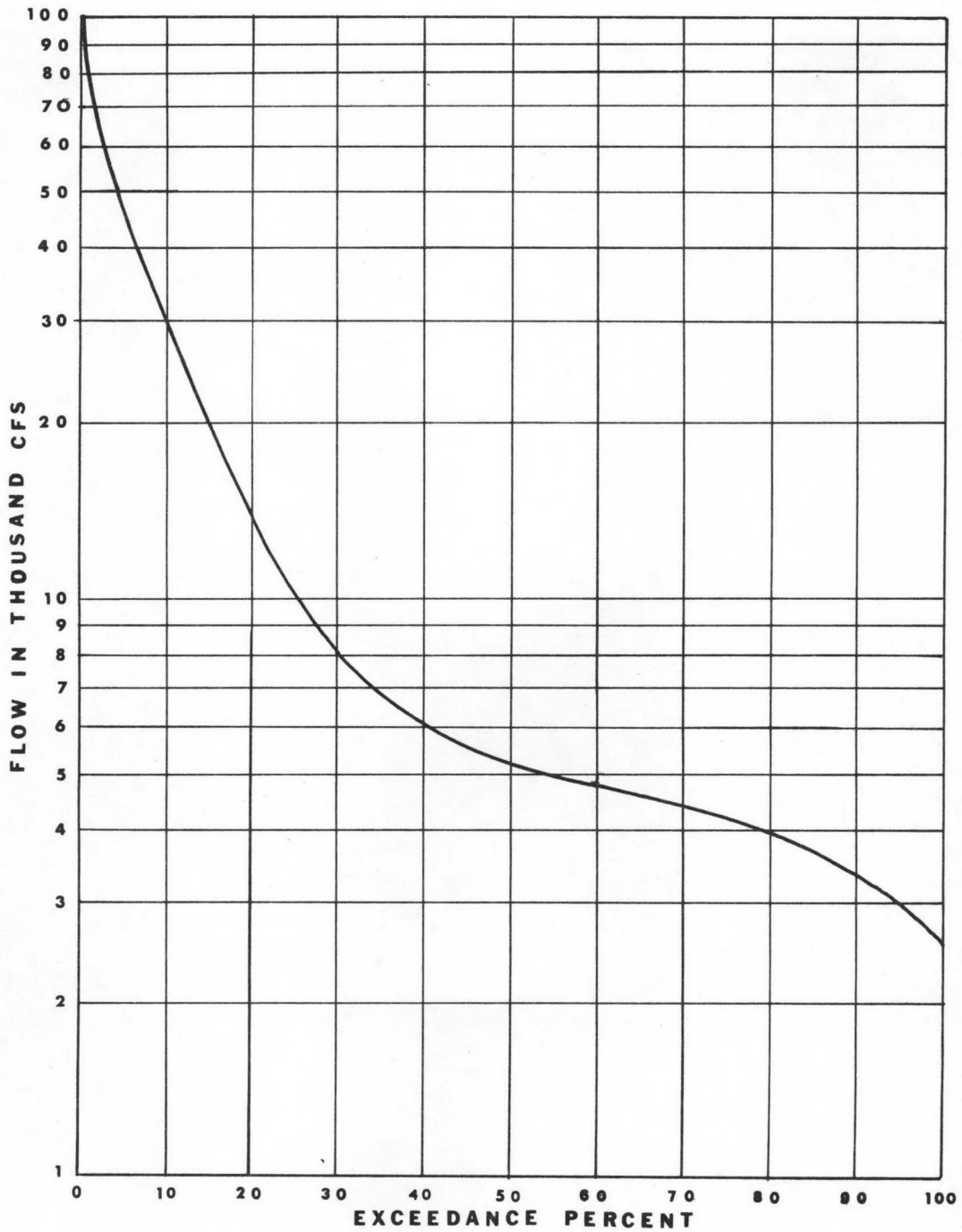
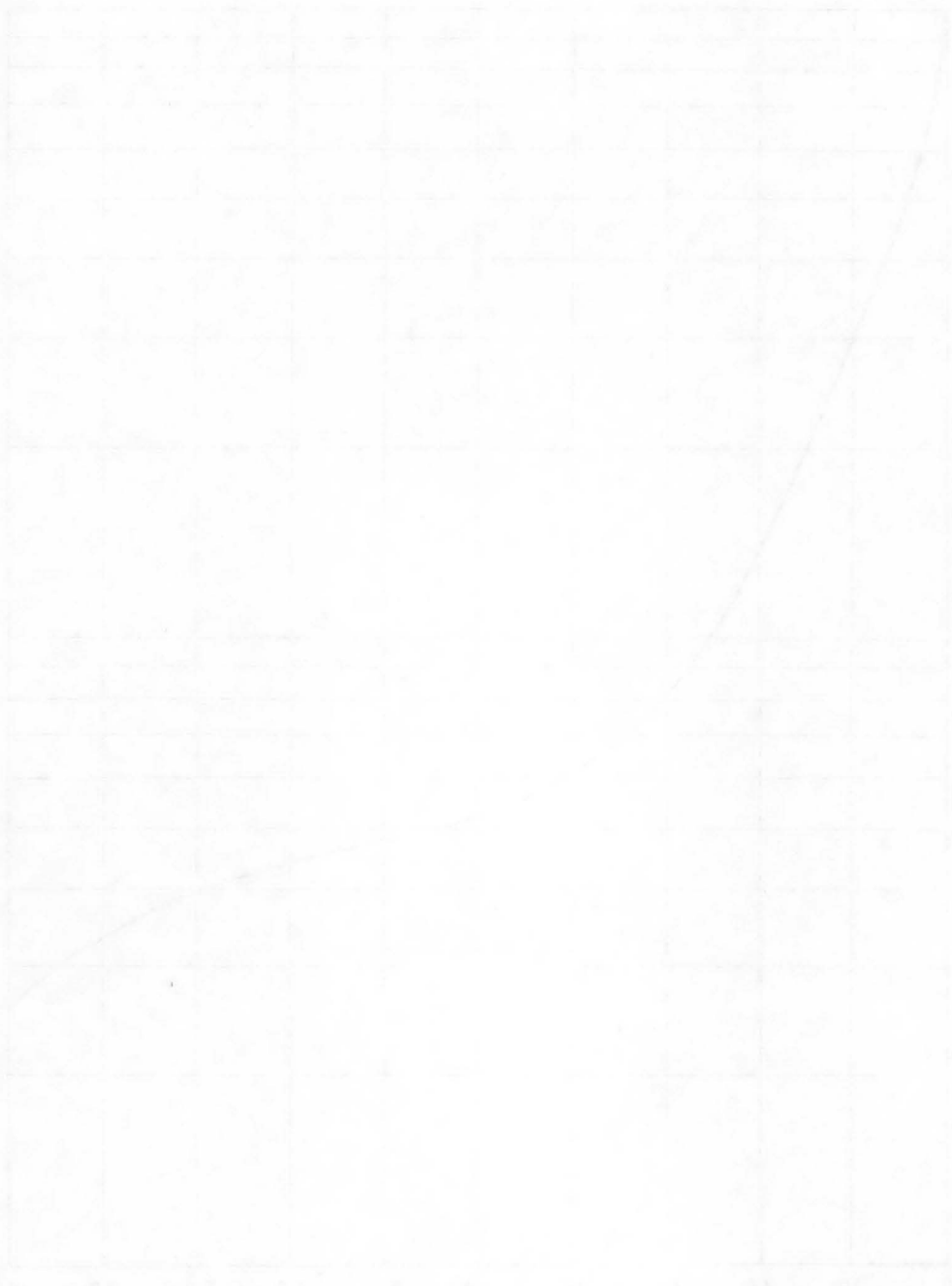


figure 2
TYPICAL DURATION CURVE



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

THE UNIVERSITY OF CHICAGO
 LIBRARY

available than is computed using the run of river assumption. Therefore, power estimates in this study are conservative as far as the effect of on site storage is concerned.

Duration Curve Development

Since duration curves are normally developed from data at gage locations, methods had to be developed to construct synthetic duration curves for reaches of the stream where no stream gages were available. These techniques for developing synthetic duration curves were developed for both unregulated and regulated streams.

The first techniques that will be described will be those that are applicable to natural, unregulated streams. The approach in this technique was to develop generalized duration curves at known gage locations that could be applied to ungaged locations.

The first step in this procedure was to develop duration curves of daily flows for all gage locations within the basins of interest. For the states of Washington, Oregon and Montana, daily flow duration curves were provided by the U.S. Geological Survey using their computerized streamflow data access system. The duration curves for Idaho gage locations were developed using the University of Idaho's Hydrologic Information Storage and Retrieval System (HISARS) which contains U.S.G.S. streamflow data. In either case, the duration values were determined using the same method. First each daily flow for the period of record was categorized into one of a series of pre-selected flow intervals. The number of daily flows in each interval was then determined. The exceedance percentage for each interval was computed by first determining the number of flow values contained in intervals with flow magnitudes higher than the interval of interest. This number was divided

1. The first part of the document is a list of names of people who have been mentioned in the course of the investigation.

2. The second part of the document is a list of names of people who have been mentioned in the course of the investigation.

3. The third part of the document is a list of names of people who have been mentioned in the course of the investigation.

4. The fourth part of the document is a list of names of people who have been mentioned in the course of the investigation.

5. The fifth part of the document is a list of names of people who have been mentioned in the course of the investigation.

6. The sixth part of the document is a list of names of people who have been mentioned in the course of the investigation.

7. The seventh part of the document is a list of names of people who have been mentioned in the course of the investigation.

8. The eighth part of the document is a list of names of people who have been mentioned in the course of the investigation.

9. The ninth part of the document is a list of names of people who have been mentioned in the course of the investigation.

10. The tenth part of the document is a list of names of people who have been mentioned in the course of the investigation.

11. The eleventh part of the document is a list of names of people who have been mentioned in the course of the investigation.

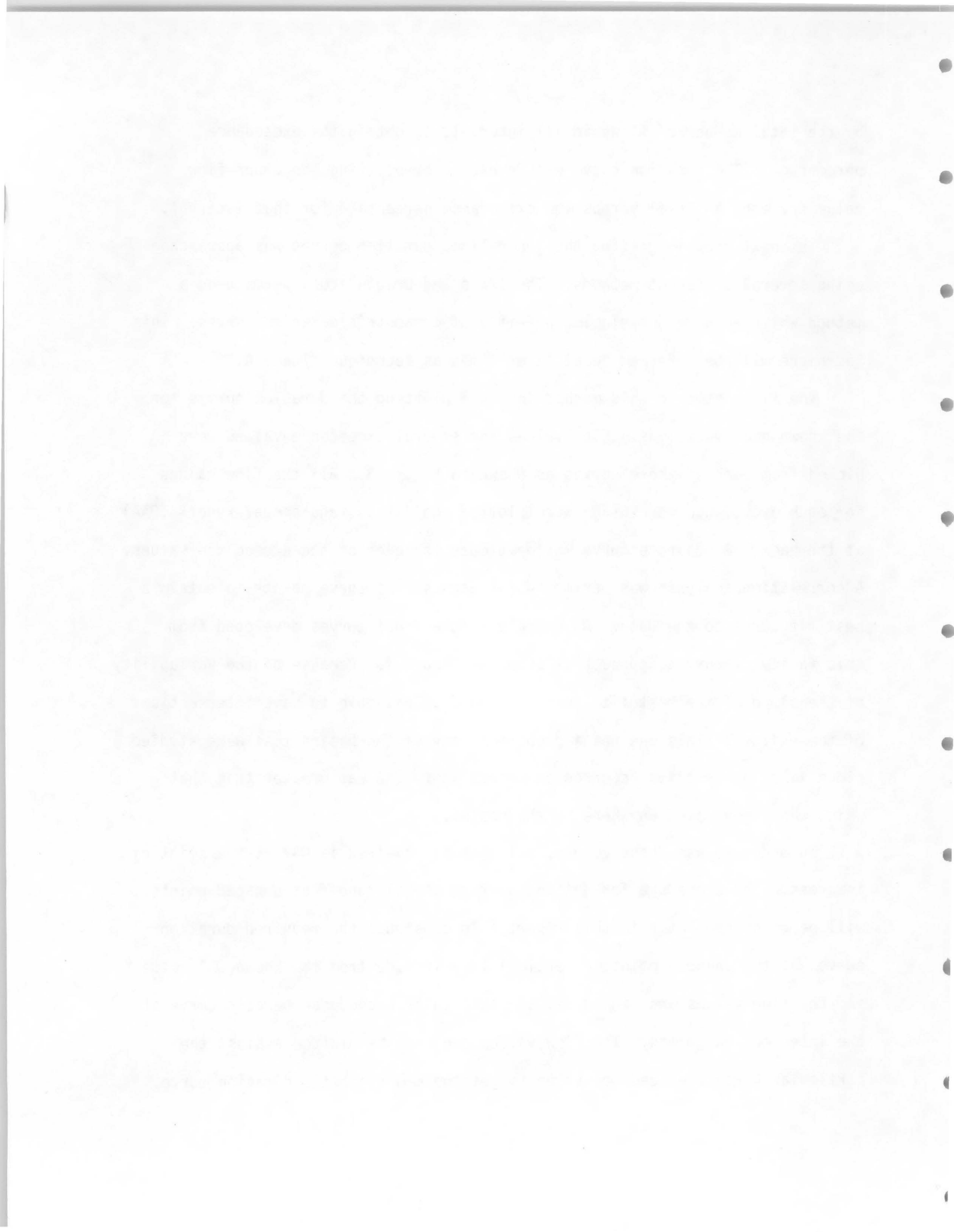
12. The twelfth part of the document is a list of names of people who have been mentioned in the course of the investigation.

by the total number of flows in all intervals to obtain the exceedance percentage. The duration curve was developed by plotting the upper flow value for each interval versus the exceedance percentage for that interval.

The next step in getting the generalized duration curves was approached using several different methods. The Idaho and Oregon study teams used a method which involved developing a family of parametric duration curves. This technique will be referred to at later times as technique "Idaho A."

The first step in this method involved plotting the duration curves for the known gage locations. Flow values for several exceedance values were picked from each of these curves as shown in Figure 3. All the flow values for each exceedance percentage were plotted against average annual runoff (QAA) at the gage. A separate curve was developed for each of the exceedance values. A correlation analysis was performed for each set of curve points to obtain a best fit curve to the data. An example of the final curves developed from this family of curves approach is shown in Figure 4. Because of the variability of the slope of the best fit lines, it would be possible to have intersections of these lines. This was not a problem in any of the basins that were studied since line intersection occurred at points where QAA was greater than that which was experienced anywhere in the basins.

In order to use these curves, all that is required is QAA at the point of interest. The procedure for getting average annual runoff at ungaged points will be discussed later in this report. To construct the required duration curves at the unknown point, a vertical line is made from the known QAA value and the flow values are picked off the particular exceedance percent curve at the intersection points. The flow values can then be plotted against the particular percent exceedance value to get the new synthetic duration curve.



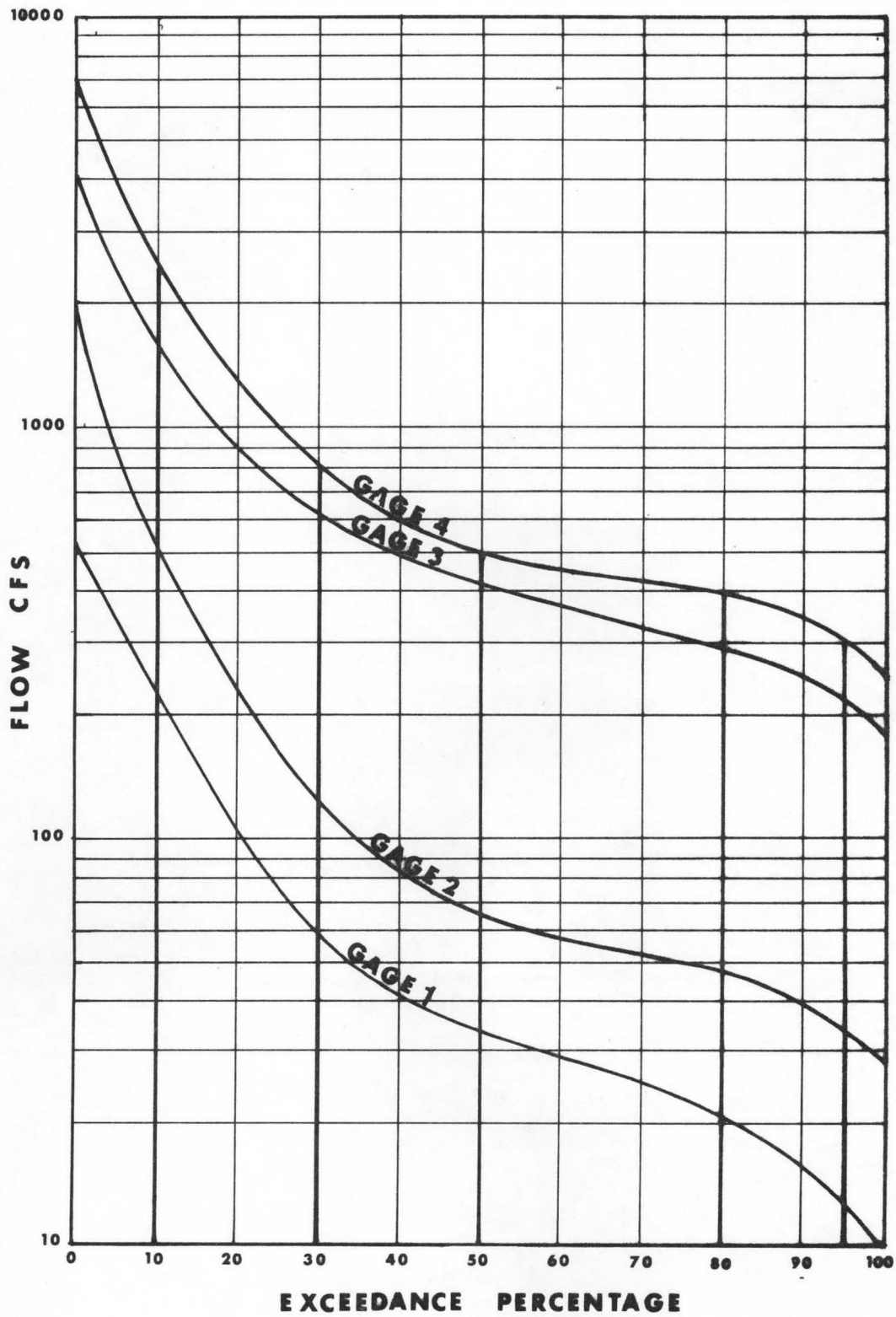
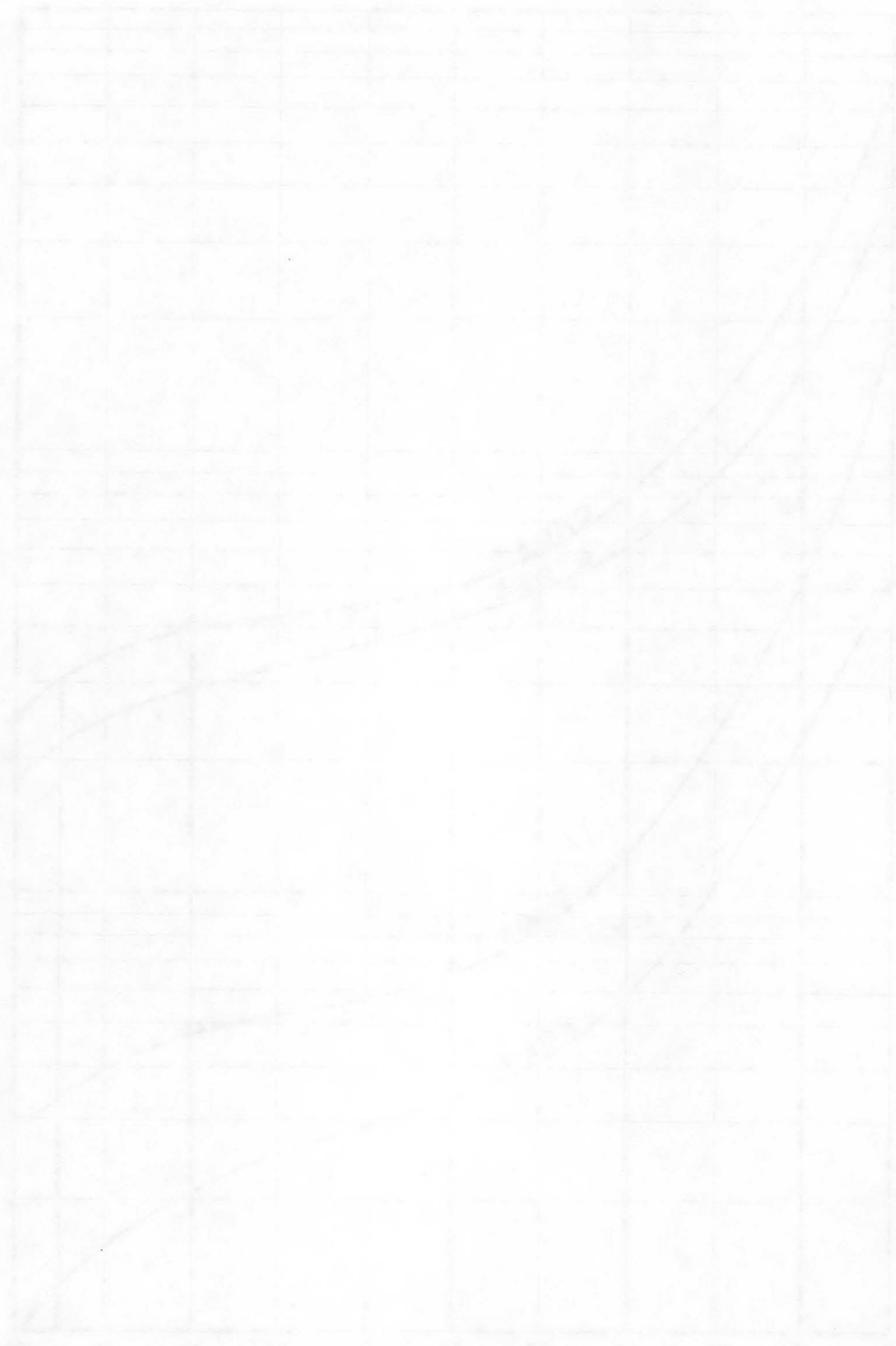


figure 3
 BASIN DURATION CURVES



Wavelength (microns)

Absorbance

Figure 1

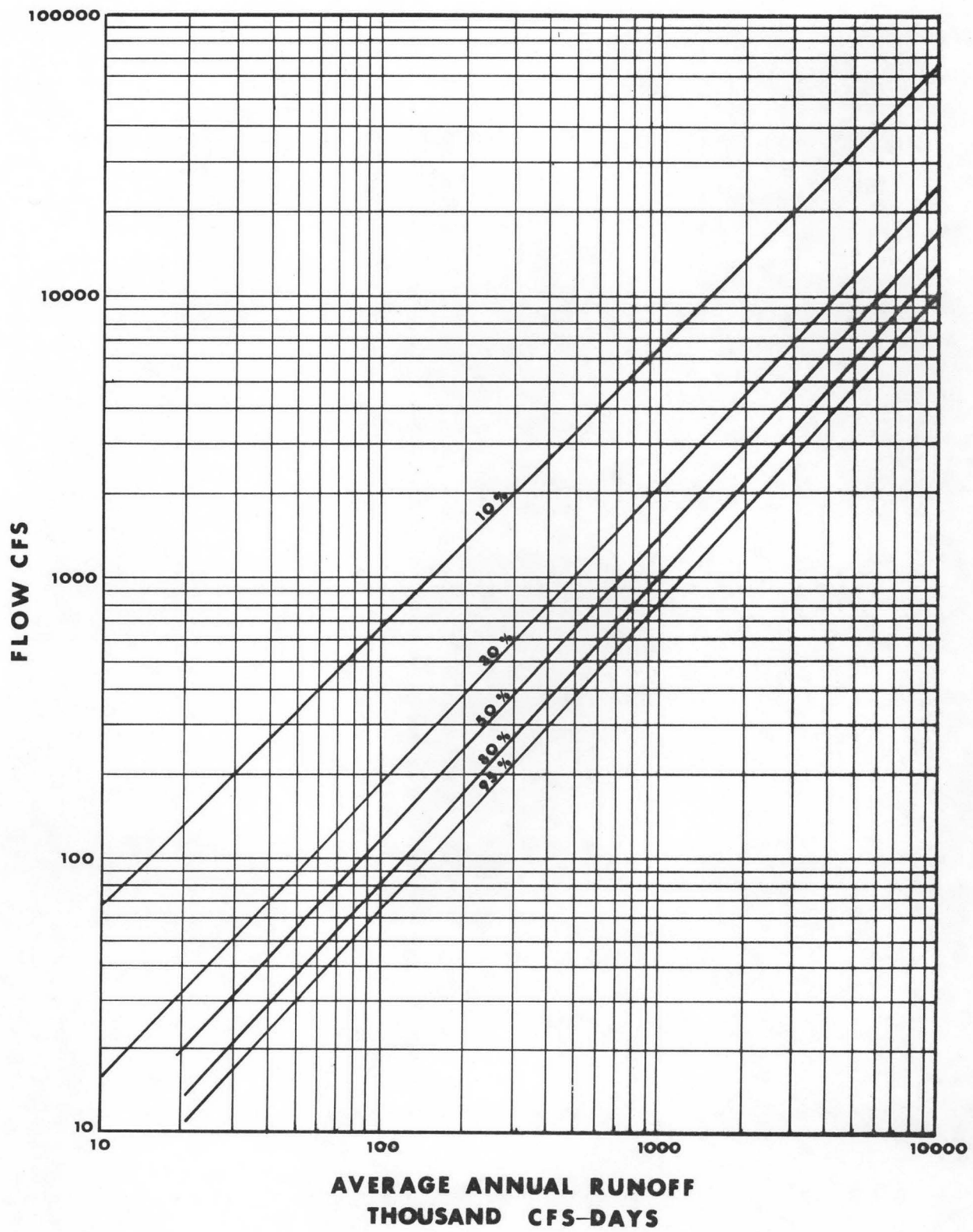
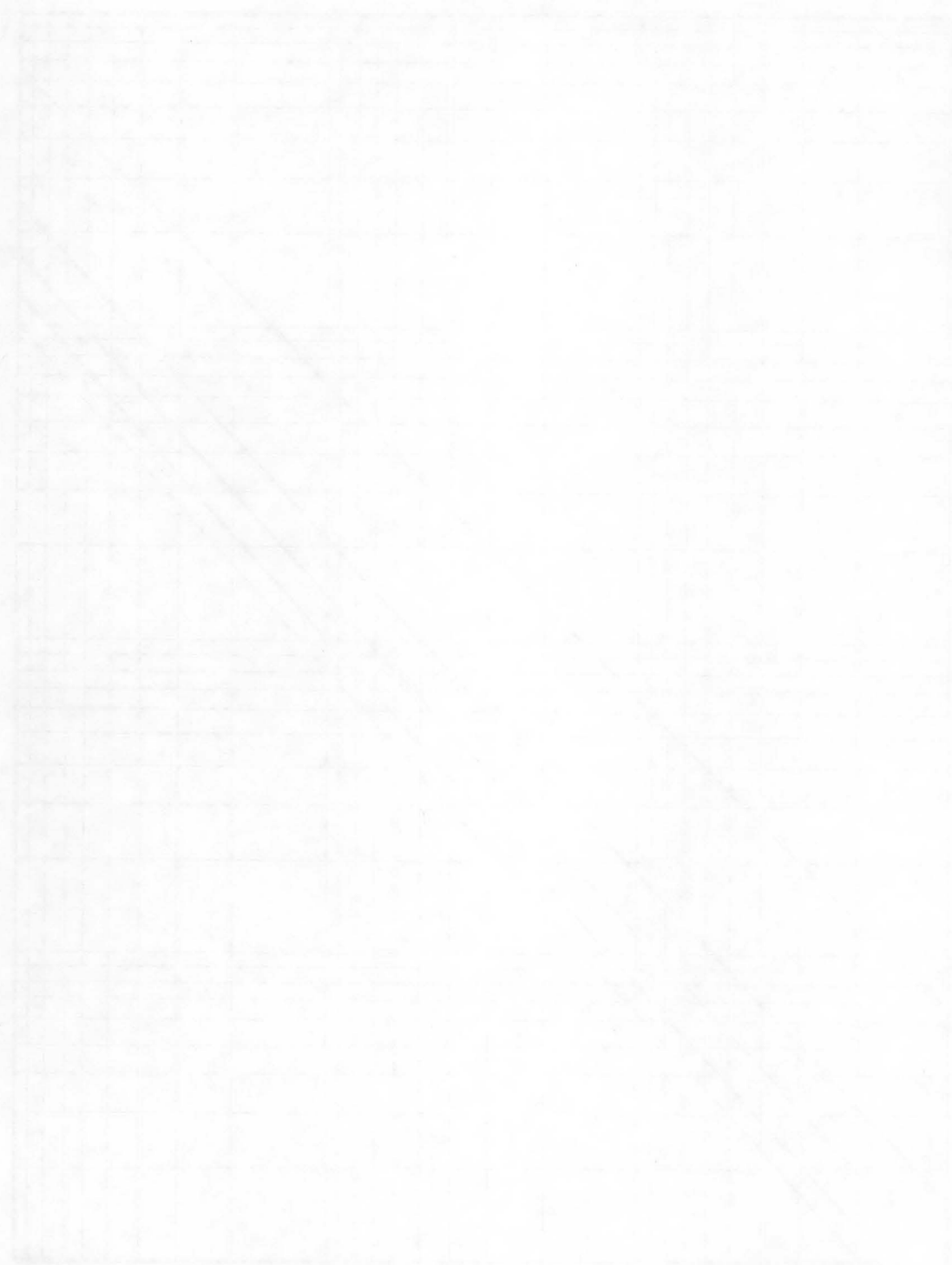


figure 4
PARAMETRIC DURATION CURVES



UNIVERSITY OF CALIFORNIA
LIBRARY
400 TOWN HALL
BERKELEY, CALIF. 94720

Instead of a graphical technique, the Oregon study team used a computer subroutine. The parametric flow duration curves developed for each of the 18 major drainage basins (see earlier discussion) were used in a regression analysis to develop equations of the form

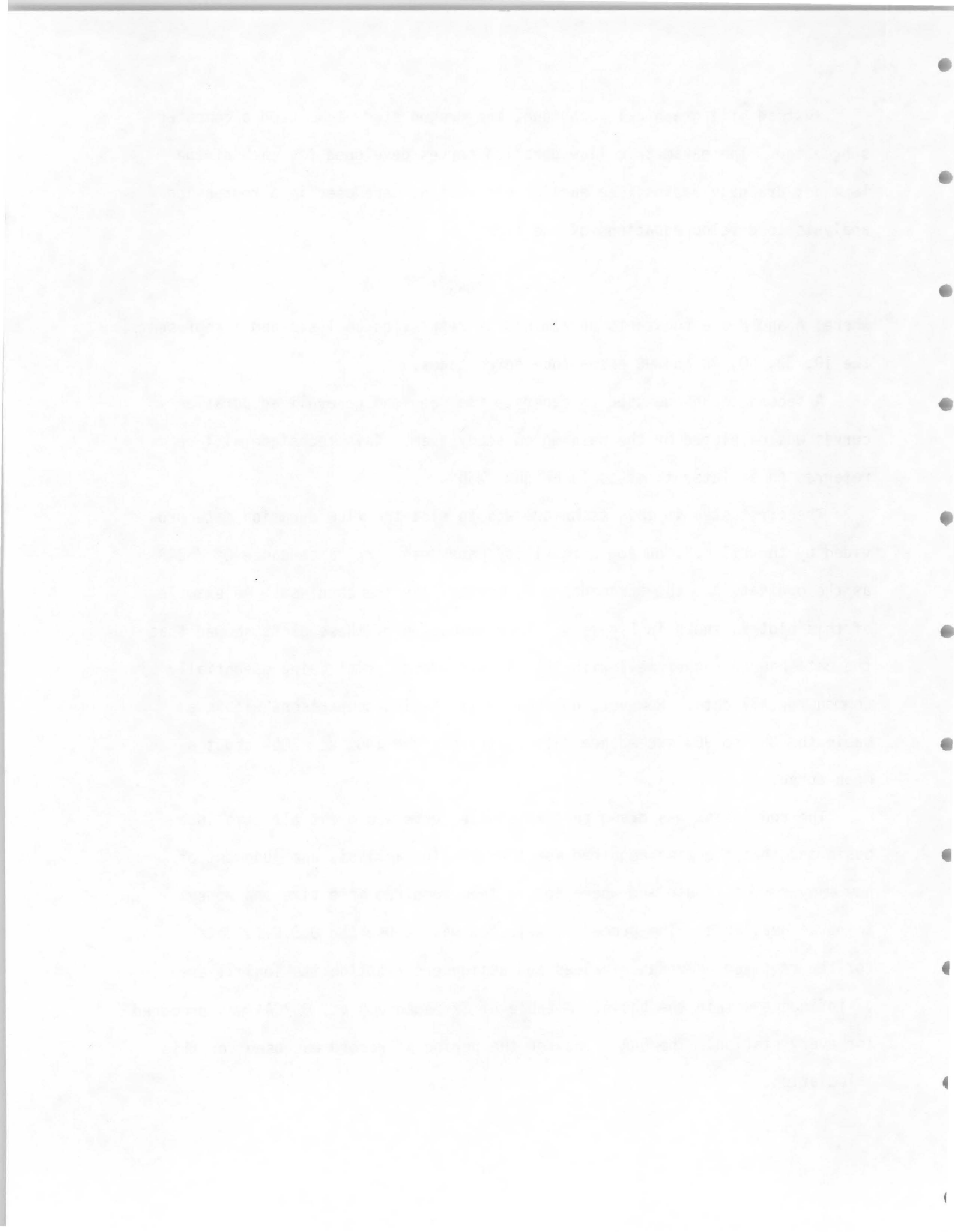
$$Q_i = A_i [QAA]^{B_i}$$

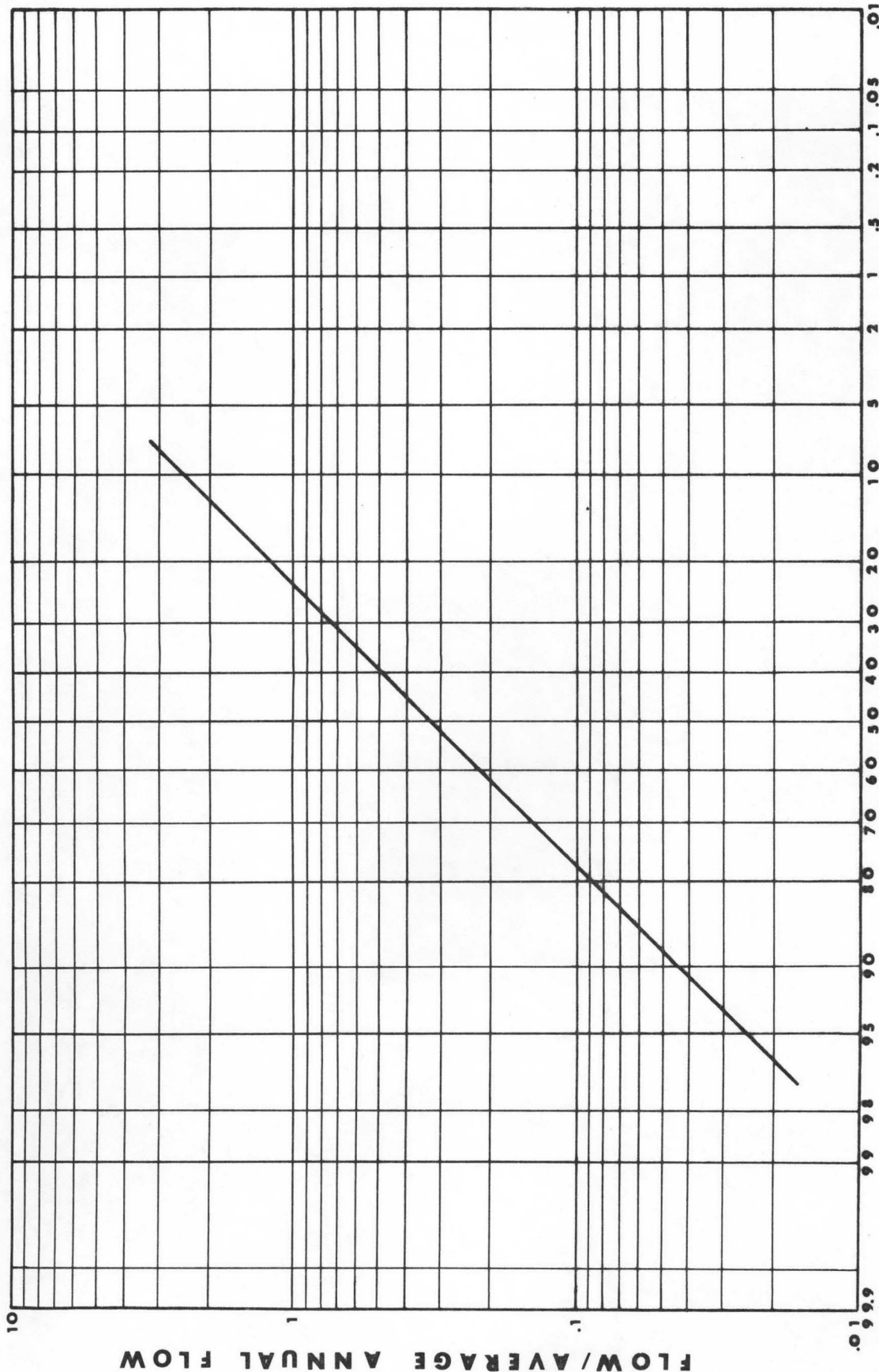
where: A and B are constants determined by regression analysis and i represents the 10, 30, 50, 80 and 95 exceedance percentages.

A second technique used to generate the required generalized duration curves was developed by the Washington study team. This technique will be referred to at later times as technique "WSU".

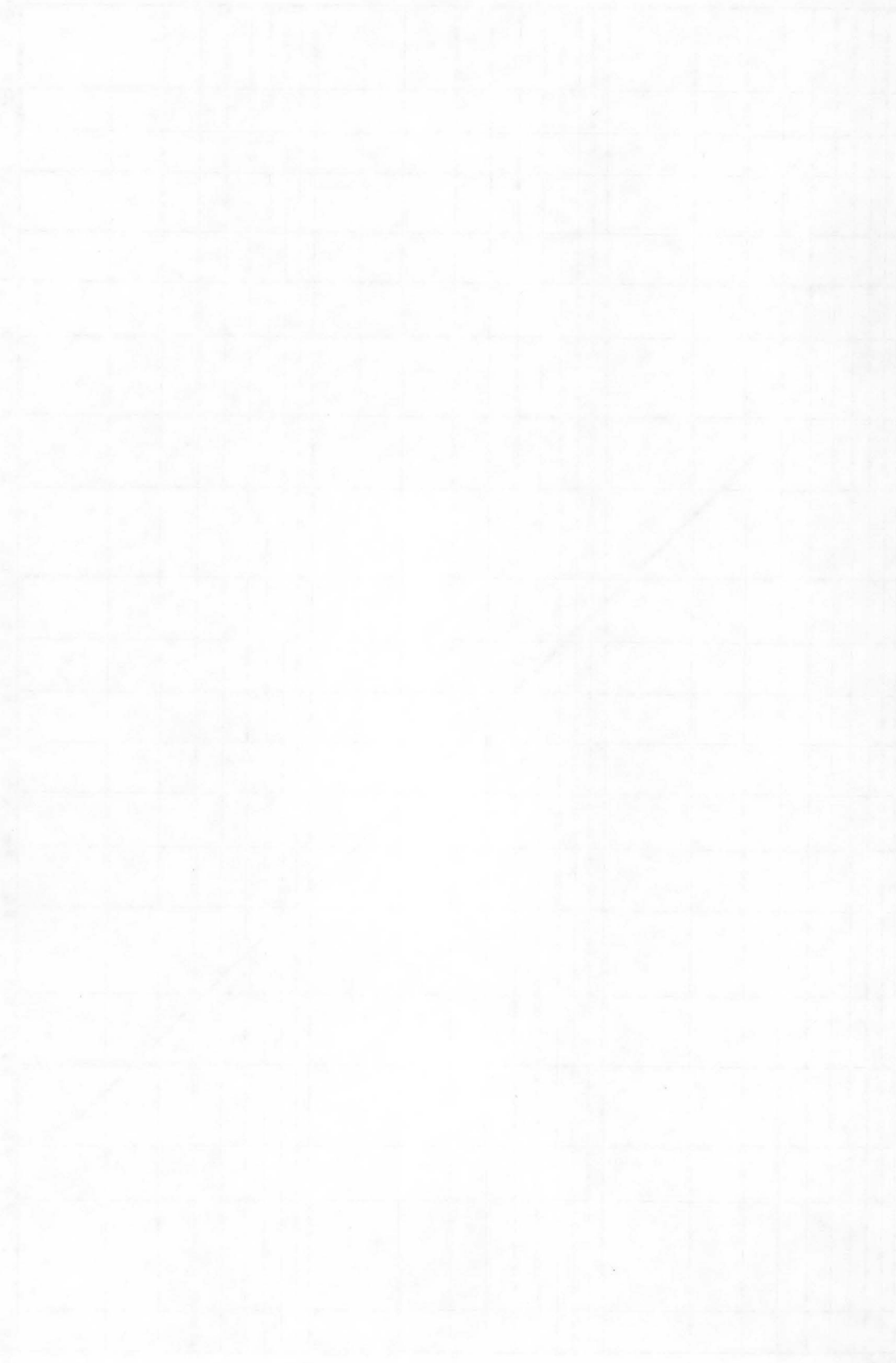
The first step in this technique was to plot the flow duration data provided by the U.S.G.S. on log probability paper with the "Exceedance Q" / QAA as the ordinate and the "Exceedance Percentage" as the abscissa. An example of this plot is shown in Figure 5. An examination of these plots showed that the data banded rather well with the 25% exceedance point being essentially common for all data. However, on individual station comparisons within a basin the 80% to 90% exceedance data scattered from $\pm 40\%$ to $\pm 200\%$ about a mean curve.

The conclusion was drawn that no single curve would fit all data in a basin and that the time required for a regression analysis and judgment of how many curves to use and where to use them required more time and money than was available. The procedure selected was to use the U.S.G.S. data for the required exceedance values and assign each station its logical area of influence within the basin. A table of Exceedance % vs. $Q_{\%}/QAA$ was prepared for every station. The QAA value for the period of record was used for this calculation.





EXCEEDANCE PERCENTAGE
figure 5
DIMENSIONLESS DURATION CURVE
WASHINGTON METHOD



100
10
1

100
10
1

A third slightly different technique was developed by the Montana study team. This technique will be referred to as technique "Montana A." The first step in this technique involved plotting the flow duration curves in dimensionless form for the known gage locations. Once the individual flow duration curves were plotted, they were subjected to a smoothing procedure to develop average curve profiles representative of conditions in specific sub-reaches. The specific steps involved in this procedure were as follows:

1. Flow values obtained from the U.S.G.S. data were first non-dimensionalized by expressing them as ratios of Q/Q_{10} .
2. Flow duration curves for all gaged sites were next plotted in dimensionless form using probability of exceedance values of 95, 90, 80, 75, 50, 25, and 10 years. Plotting was accomplished by way of a special plotting subroutine on the XDS Sigma 7 computer together with a Cal Comp plotter. A sample of these dimensionless curves is shown in Figure 6.
3. Where possible, several dimensionless flow duration curves were smoothed or averaged by visual inspection and the resulting smoothed profile assumed to be representative of conditions in hydrologically similar subreaches of a given river basin. At least two factors were found to have a significant effect upon the shaping of the dimensionless flow duration curves. These factors were: (1) the magnitude of the mean annual stream flow at a given site and (2) the degree of regulation or other human influence occurring in the reaches above the specific site. The smoothing process undertaken here allowed river reaches possessing similar flow duration curve characteristics to be represented by a single average flow duration curve.

Faint, illegible text covering the page, likely bleed-through from the reverse side. The text is mirrored and difficult to decipher.

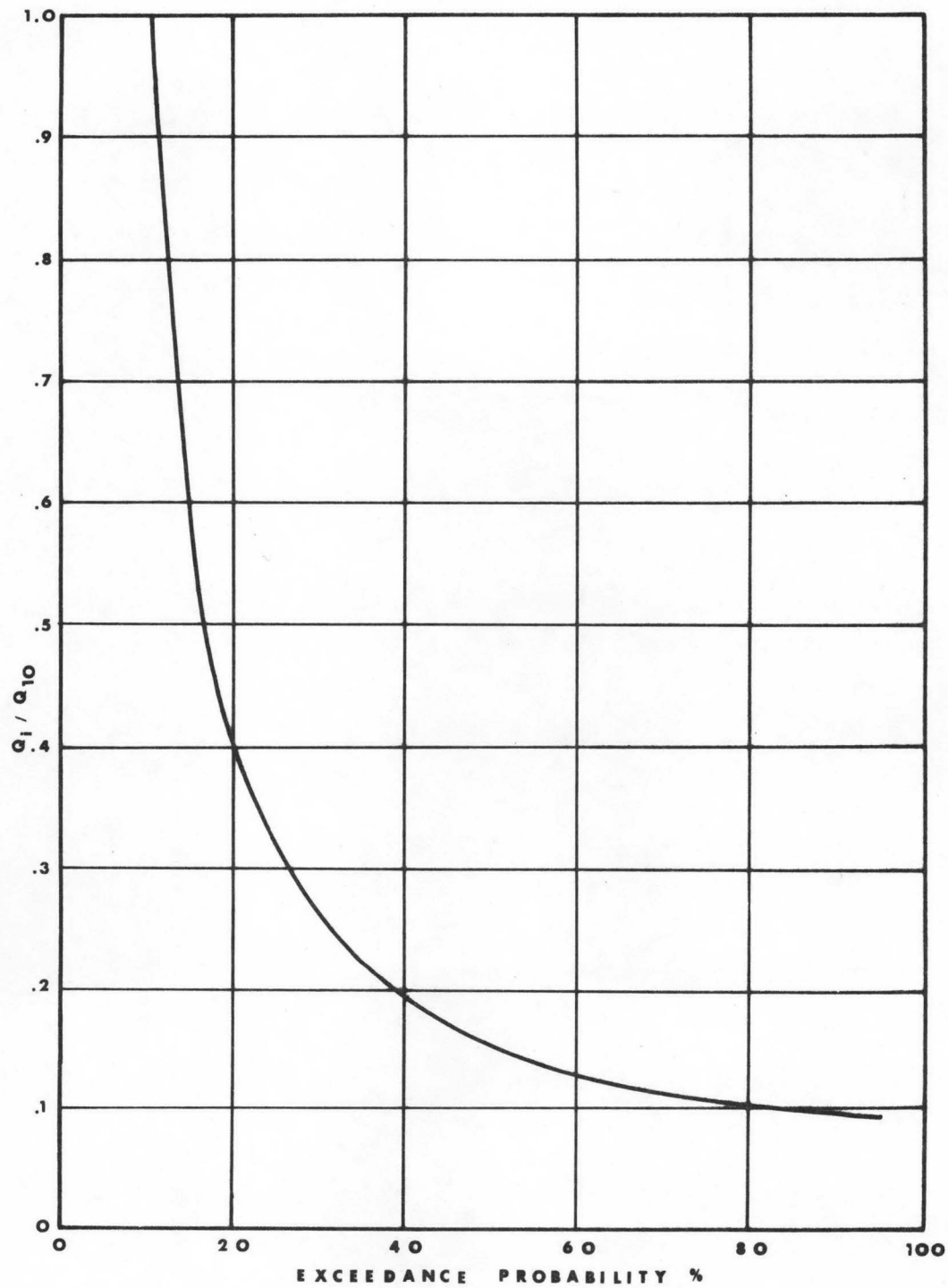


figure 6
DIMENSIONLESS DURATION CURVE
MONTANA METHOD

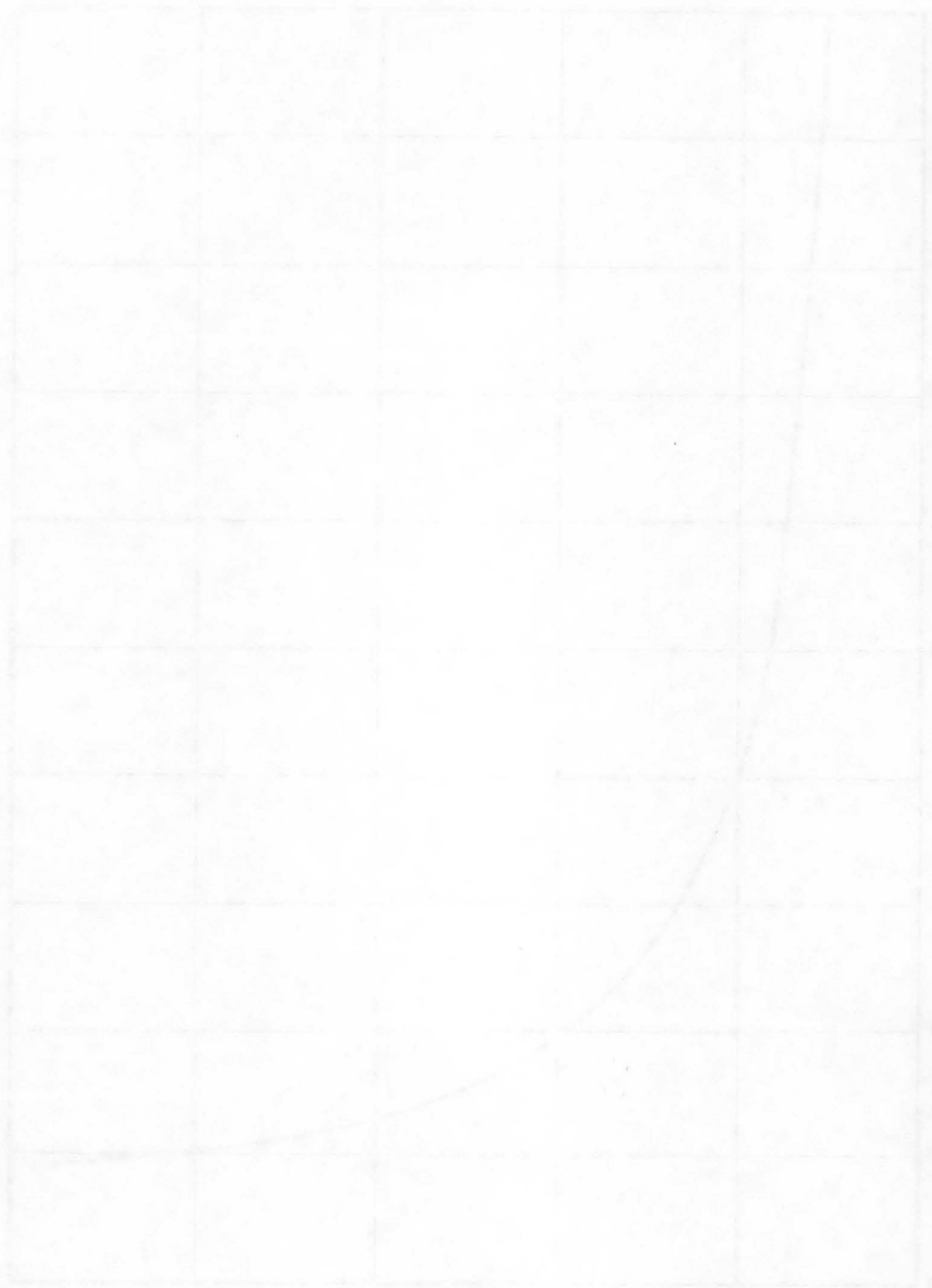


Figure 1
A graph showing the relationship between
the variables x and y.

4. The averaged dimensionless flow duration curve was next used to synthesize flow duration curve profiles for ungaged sites. This was accomplished by first estimating the average annual flow, QAA, for the reach using techniques that will be described later. The Q_{10} value was then estimated by a Q_{10} vs QAA regression equation that was developed for the Columbia Basin in Montana. The regression equation that was developed is:

$$Q_{10} = 2.98 \text{ QAA}$$

Next, the Q_{10} values were multiplied by the ordinates of the dimensionless flow duration curve to obtain the ordinates of the synthetic flow duration curve for the given reach.

The method of obtaining duration curves for regulated sections of streams in many cases is different than that used on natural streams. Regulated stream flow data for the major streams in the region were obtained from the Bonneville Power Administration. These data were developed in connection with power studies that they were making. These studies were monthly operational studies in which the streamflows for the period 1930 through 1968 were adjusted to reflect a 1978 level of depletion for irrigation and reservoir evaporation. These flows were then used in a system-power and streamflow-simulation model using 1978 loads with reasonable secondary-power demands. An output of flows was developed for most major power producing dam sites in the region. Duration curve development using this data will be referred to as technique "BPA".

One special use of the BPA data was made for the Clearwater River in Idaho. In this case the North Fork of the Clearwater River, a large tributary to the main stem of the river, is controlled by Dworshak Reservoir. BPA regulated data were available only for the North Fork and not for the main stem.

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is too light to transcribe accurately.

To get controlled flows in the main stem first the unregulated North Fork inflow was subtracted from the gaged flows downstream of the confluence of the North Fork and the mainstem. Next the BPA regulated flow data for the North Fork were added to the resulting difference. The regulated flow values were then processed through a duration value computation program to determine a regulated duration curve. This technique will be referred to later as "BPA special".

Regulated flow data for some Idaho streams were obtained from the Idaho Department of Water Resources (IDWR). These data were generated on a monthly basis using a reach loss-gain model developed by the Idaho Department of Water Resources. Depletions used in the model were based on 1975 levels of development. Actual reach duration curves were found by interpolating between points where duration curves were known. Duration curve development using this method will be referred to as technique "Idaho B".

A second method used to generate reach duration curves also used the IDWR data but in a different manner than the interpolation technique used in the "Idaho B" method. In reaches where there was inadequate regulated flow data available from the Idaho Department of Water Resources, it was necessary to synthesize flows both downstream and upstream of the IDWR regulated flow data points. The technique developed was to use the IDWR data as a starting point and to develop flows downstream and upstream by either adding or subtracting tributary inflow between the points of interest.

The following method was used to generate the tributary inflow data for the period of record of interest:

1. Select a gaging station which overlaps as long as possible with the period of record for the IDWR data and would substantially reflect the response of natural tributaries which are flowing into the main stream.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud. The text also mentions the need for regular audits and the role of internal controls in ensuring the reliability of the data.

In addition, the document highlights the significance of transparency and accountability in financial reporting. It states that stakeholders, including investors and regulators, have a right to know the true financial position of the organization. This requires the implementation of robust reporting mechanisms and the adoption of best practices in financial disclosure.

The second part of the document focuses on the challenges faced by organizations in the current economic environment. It identifies key areas such as market volatility, increased competition, and the impact of technological advancements. The text suggests that organizations must adapt their strategies and operations to remain competitive and resilient in the face of these challenges.

Furthermore, the document addresses the issue of risk management. It discusses the various types of risks, including financial, operational, and reputational risks, and provides guidance on how to identify, assess, and mitigate these risks. The text stresses that a proactive risk management approach is crucial for the long-term success of the organization.

The document also touches upon the importance of human resources and talent management. It notes that organizations need to attract, develop, and retain top talent to drive innovation and growth. This involves creating a supportive work environment, offering competitive compensation, and providing opportunities for professional development and career advancement.

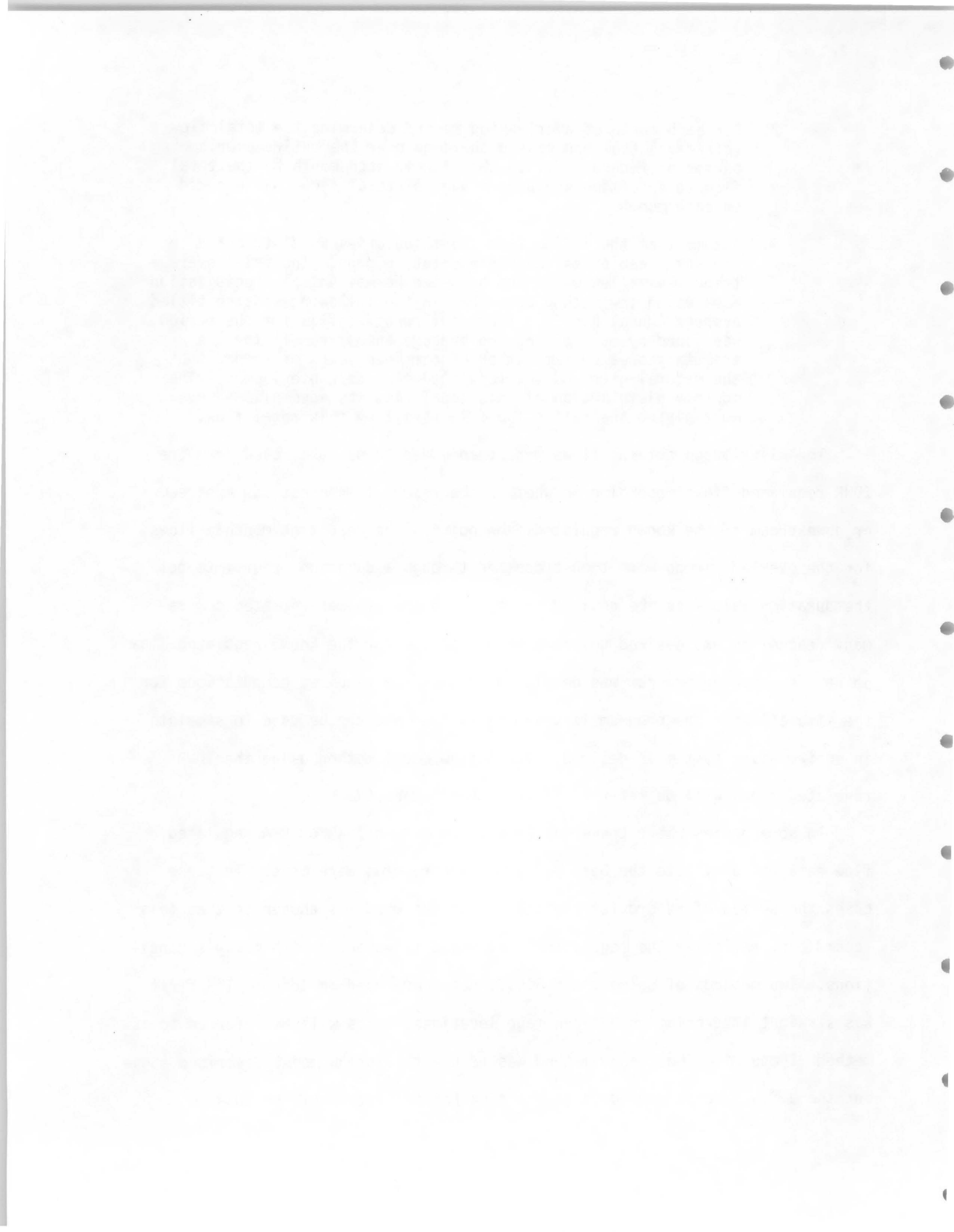
Finally, the document concludes by emphasizing the need for continuous improvement and innovation. It encourages organizations to embrace change, experiment with new ideas, and seek out opportunities for growth. The text suggests that a culture of innovation and a commitment to excellence are essential for staying ahead in a rapidly evolving market.

In summary, this document provides a comprehensive overview of the key factors that influence the success of an organization. It covers a wide range of topics, from financial management and risk control to human resources and innovation. By following the principles and practices outlined in this document, organizations can enhance their performance, manage their risks effectively, and achieve their long-term goals.

2. For each month of overlapping record determine the total flow (cfs-days) that had passed the gage over the entire overlapping period of record. Divide the flow in each month by the total flow to determine the percentages of total flow that occurred in each month.
3. Assume that the inflow from the tributaries is distributed in the same fashion as the representative gage. The total average tributary inflow was found by using Normal Annual Precipitation Maps using the method described in the following section titled Average Annual Runoff. The total runoff inflow for the period was found by multiplying the average annual runoff for the tributary area by the number of complete years of record that the natural gage and the regulated flow data overlapped. The monthly distribution of this total flow was accomplished by multiplying the ratios found in step 2 by this total flow.

The distributed natural flows were then added to or subtracted from the IDWR regulated flows depending on whether the reach of interest was upstream or downstream of the known regulated flow point. The resultant monthly flows for the overlap period were then processed through a duration program to get the duration values at the desired points. The process was repeated for as many reaches as was desired upstream or downstream for the known regulated flow point. A computer program was developed to make the required computations for the simulations. The program is very generalized and can be used to simulate an entire river system if desired. The inflow model method using the IDWR regulated flows will be referred to as method "Idaho C".

In some basins where there was regulation but no IDWR or BPA regulated flow data was available the best U.S.G.S. gage records were used. In these cases the period of record for the gages that was used was chosen so that this record best reflected the regulation that would be expected with today's conditions. Two methods of using the U.S.G.S. data were used in Idaho. The first was straight interpolation between gage locations. This will be referred to as method "Idaho D". The second method was to use the inflow model described above but the U.S.G.S. data were used as starting points instead of the IDWR



regulated-flow data. The method will be referred to as method "Idaho E".

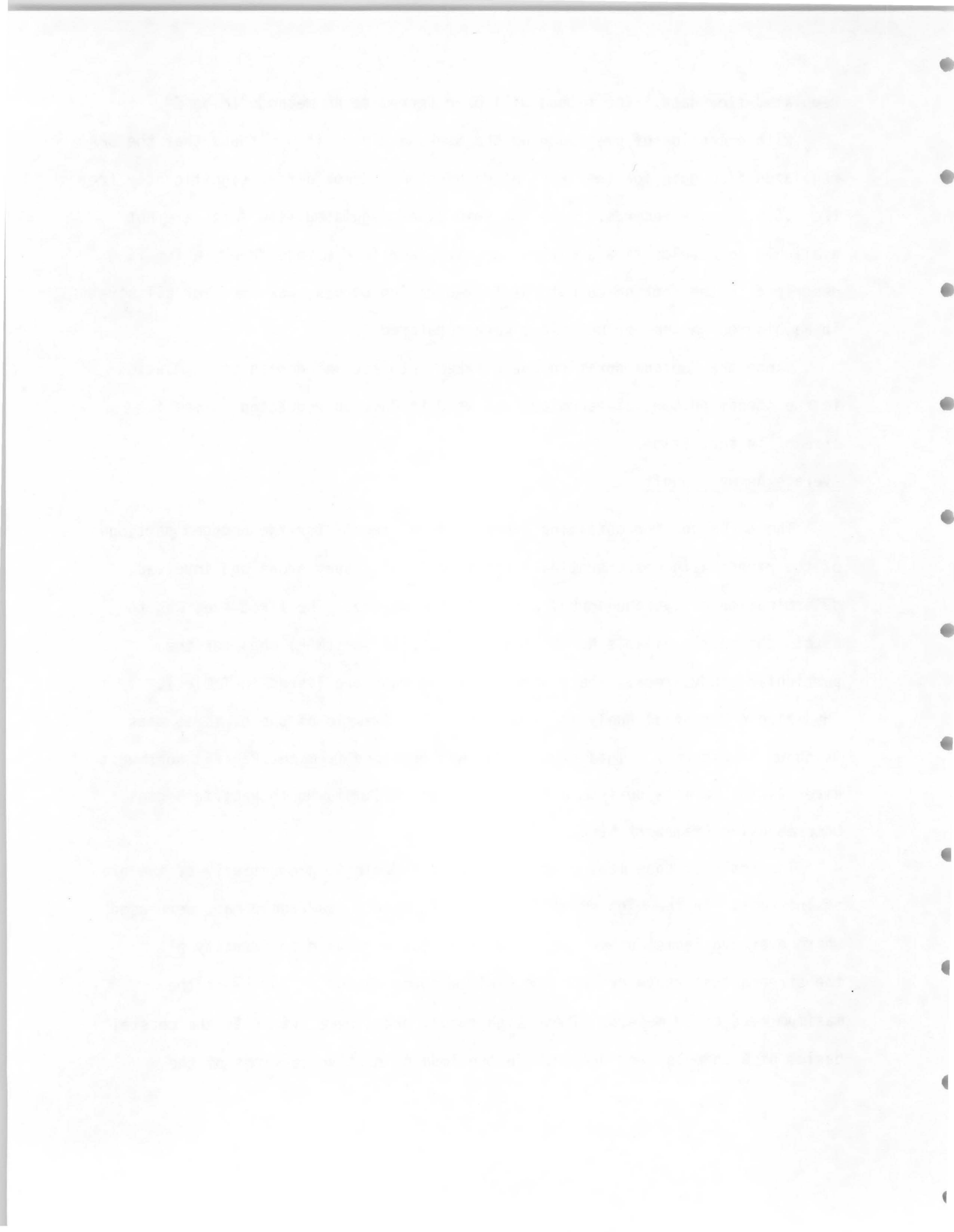
With exception of one reach on the Spokane River, it was found that the BPA regulated flow data for the State of Washington did not differ significantly from the U.S.G.S. gage records. Also for some cases regulated flow data were not available to develop flow duration curves. Therefore method "WSU", which is described in the section on natural flow-duration curves, was used for all streams in Washington whether or not flows were regulated.

Since the Montana duration curve takes into account degree of regulation in the stream no special technique was used to develop regulated curves for streams in that State.

Average Annual Runoff

The technique for obtaining average annual runoff for the ungaged portions of the river basin was essentially the same in all study areas and involved determination of average annual precipitation volume. The first step was to obtain the best available Normal Annual Precipitation (NAP) maps for the particular study areas. The sources of these maps are listed in Table 1, "Hydrologic Potential Analysis Techniques." An example of one of these maps is shown in Figure 7. This example map was obtained from the Pacific Northwest River Basins Commission from a study entitled "Columbia-North Pacific Region Comprehensive Framework Study."

The scale of base maps used varied with hydrologic productivity of the area of interest. In the high runoff areas, 7 1/2 minute quadrangle maps were used where ever available; otherwise, 15 minute maps were used to identify all the streams that could produce the minimum power output of 200 kW at the maximum head of 20 meters. These high runoff areas were primarily the coastal basins of Washington and Oregon. In the less productive sections of the



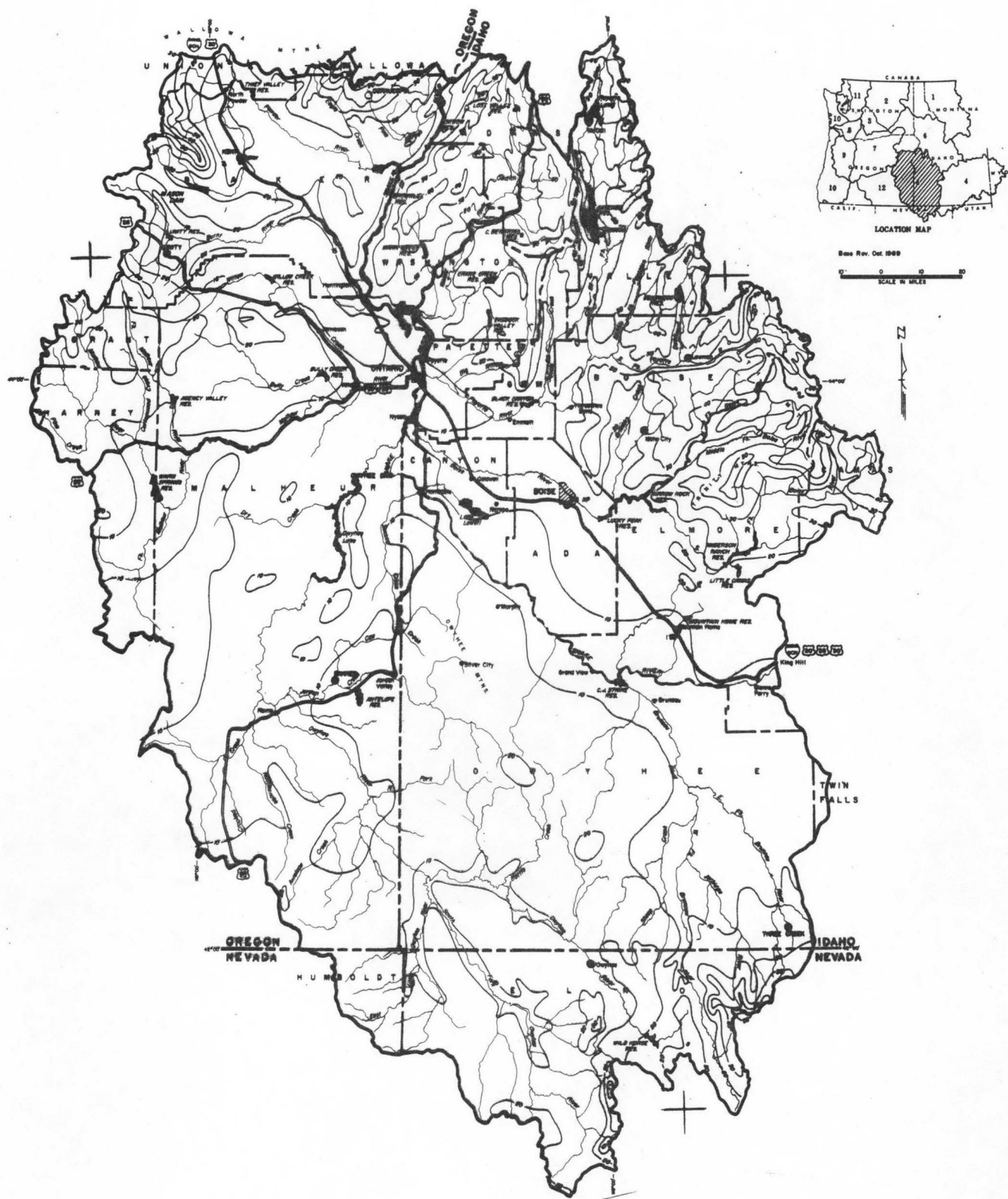
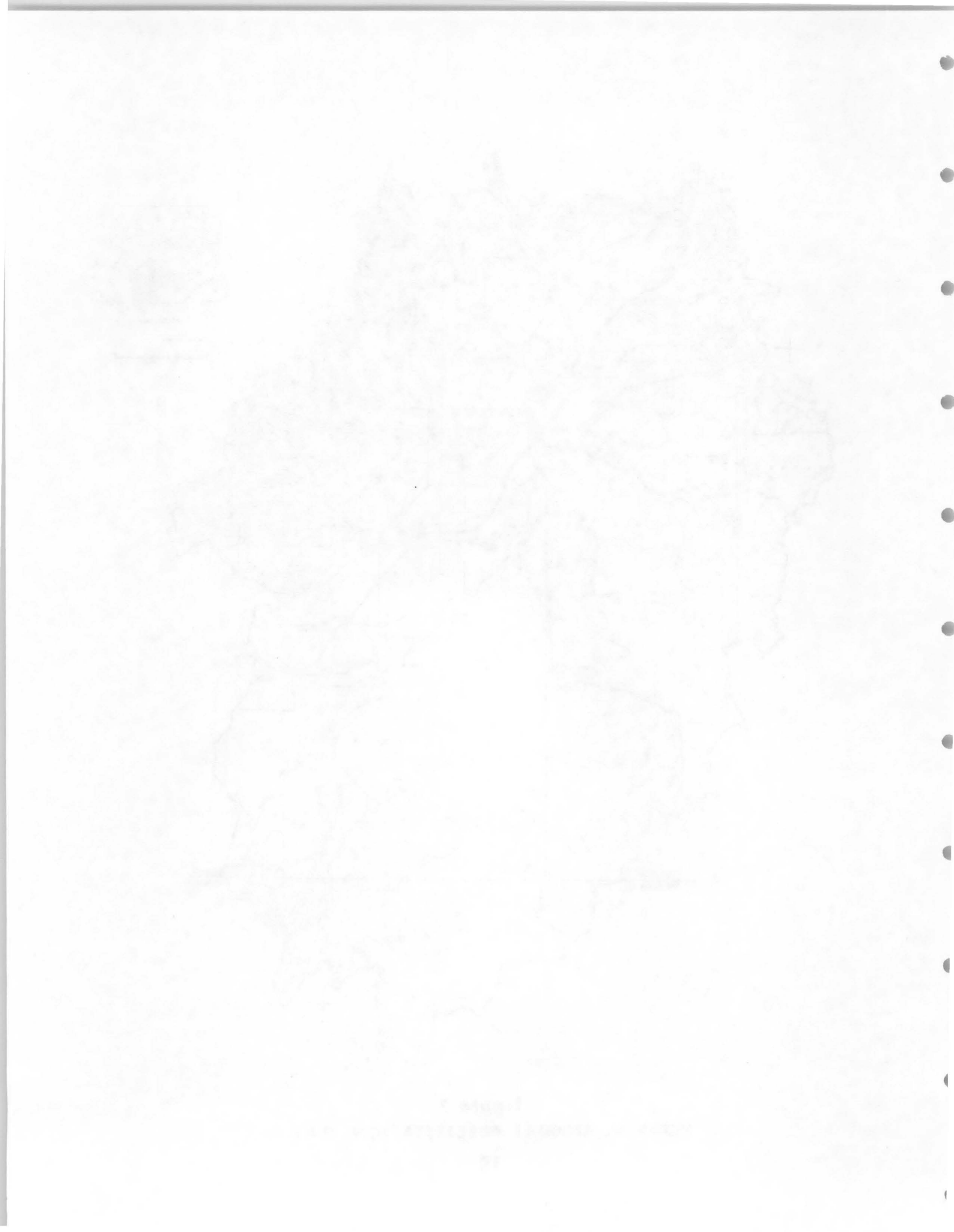


Figure 7
NORMAL ANNUAL PRECIPITATION MAP



1991
U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
WASHINGTON, D.C. 20503

study regions, map scales of 1-250,000 proved to be quite adequate. U.S.G.S. topographic maps were used to develop basin description maps. Each sub-basin outline with reach end-point locations was delineated on the topographic maps. Following this, the drainage divides were delineated for each reach. In some cases, part of this work had been done previously by the U.S.G.S. and by using projection techniques the basin boundaries could be transferred from the U.S.G.S. basin maps to a suitable scale map with only minor corrections required.

The next step involved getting the NAP map's scale to match the scale of the maps which were used to delineate the various reaches. This problem was solved by using optical projection techniques. Two slightly different techniques were used. The first involved making 35 mm slides of portions of the original NAP maps. By projecting the slides through a normal slide projector, scales of sub-basin and NAP maps could be matched very easily. The second technique involved using large (8-1/2" x 11") transparencies of the NAP maps. These transparencies were projected onto the sub-basin maps using a standard overhead projector. Either of these methods resulted in good scale and placement accuracy when care was taken in adjusting the location and magnification of the projection.

The next step was to measure the areas between the isohyetal lines within each individual reach area. Several techniques were explored to accomplish this task. Use of an electronic planimeter or electronic digitizer-computer combination has proven to be very accurate and by far the quickest method for obtaining these values. Each of the areas was assigned an average precipitation amount based on the values of the surrounding isohyetal lines. The areas were then multiplied by the average precipitation to obtain the

The first part of the report is devoted to a general survey of the situation in the country. It is followed by a detailed analysis of the economic and social conditions. The author then discusses the political and administrative aspects of the situation. The report concludes with a series of recommendations for the improvement of the country's situation.

The author's analysis is based on a thorough study of the available data. He has taken into account the various factors that influence the country's development. His conclusions are well supported by the facts and figures presented in the report.

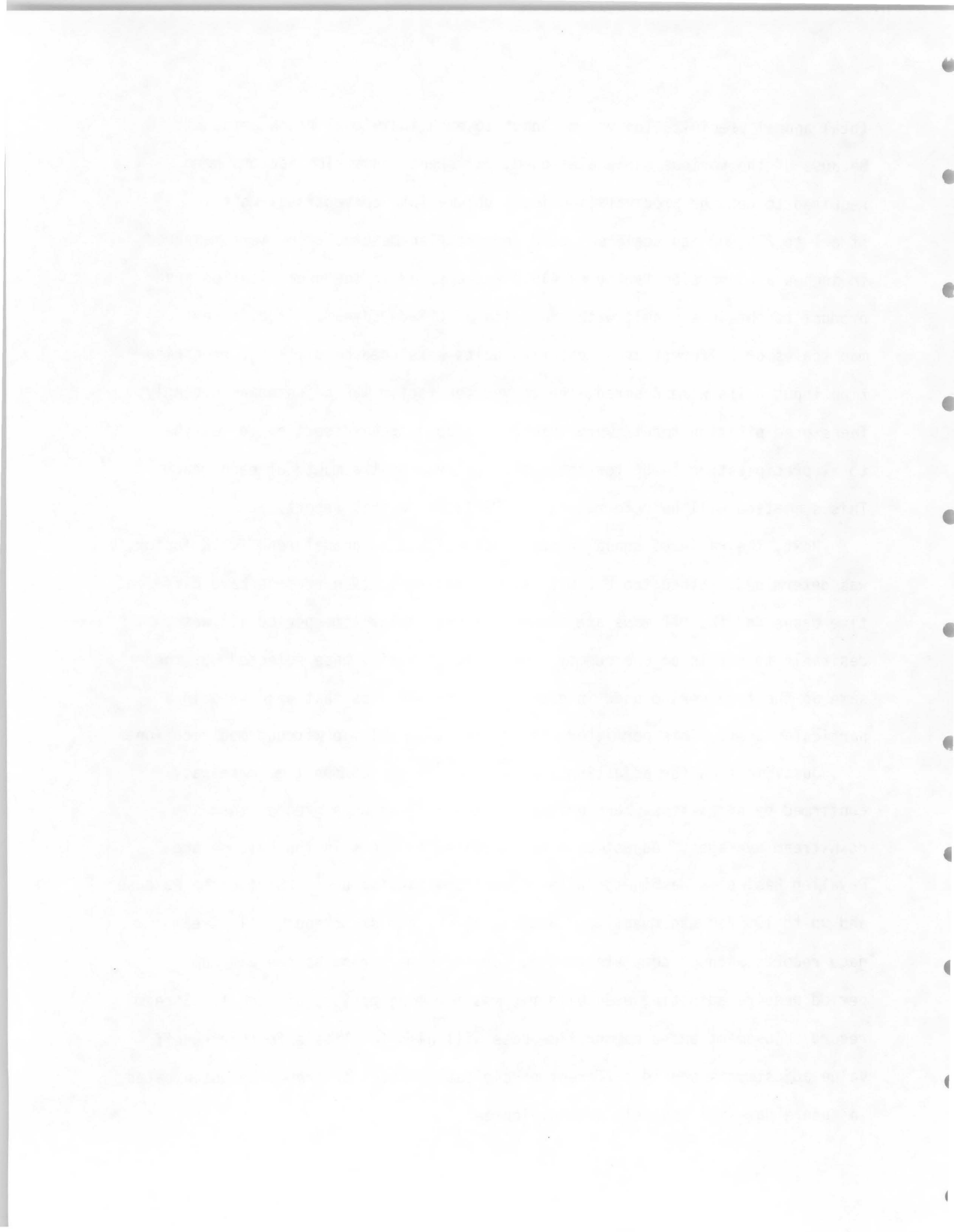
The report is a valuable contribution to the study of the country's situation. It provides a clear and concise overview of the current state of affairs. The author's recommendations are practical and feasible. They offer a way forward for the country's development.

The report is well written and easy to read. It is a pleasure to read and a valuable source of information. It is highly recommended to all those who are interested in the country's situation.

total annual precipitation volume input to each individual reach area. Because of the various map scales used, different conversion factors were required to get the precipitation input volume into conventional units. If a 1 to 250,000 map scale was used and the planimetered areas were measured in inches a conversion factor of 419.4 was applied to the precipitation area product to obtain a result with the units of CFS-days/year. If different map scales or different area measuring units were used or different precipitation input units were desired, the conversion factor was adjusted accordingly. These precipitation inputs were summed in a downstream direction to get the total precipitation input for the basin upstream of the mouth of each reach. This summation will be referred to as $\sum PA$ later in this report.

Next, the ratio of annual precipitation input to annual runoff, "K factor," was determined. Since the U.S.G.S. stream gaging station records have different time bases and the NAP maps are based on a particular time period, it was desirable to settle on one common time base. The time base selected was the same as the time period used in developing the NAP maps that were used in a particular area. This permitted use of the isohyetal map without modification.

Justification for adjusting stream flows to the common time base was confirmed by situations where upstream average flows were greater than the downstream averages. Adjustments were applied to gages in the Palouse and Puyallup Basins in Washington with corrections ranging up to 25% for the Palouse and up to 10% for the Puyallup. Because of wet and dry trends, all stream gage records without complete records for the same period as the NAP map period require adjusting even with records for long periods of runoff. Stream record adjustment and a common time base will also facilitate further runoff value adjustments should different precipitation rates or trends be anticipated in future dam-site analysis and development.



When gaging stations had records for the NAP map period, QAA values were calculated for that span of years. However, if any part of the NAP map period record was missing from the gage record the following procedure was used.

A reference station with a long period of record spanning the NAP map period and earlier years, if possible, was selected. The choice was limited to stations typical for the drainage area, free of significant flow regulation, and free of abnormal conditions. In some cases the reference station had to be selected from those in an adjacent basin. Values of QAA for the adjusted stations that agree with the period for which the NAP map was made were obtained from the following equation:

$$QAA_{\text{NAP period Adj. Sta.}} = QAA_{\text{NAP Period Ref. Sta.}} \left[\frac{QAA_{\text{Comparison yrs. Adj. Sta.}}}{QAA_{\text{Comparison yrs. Ref. Sta.}}} \right]$$

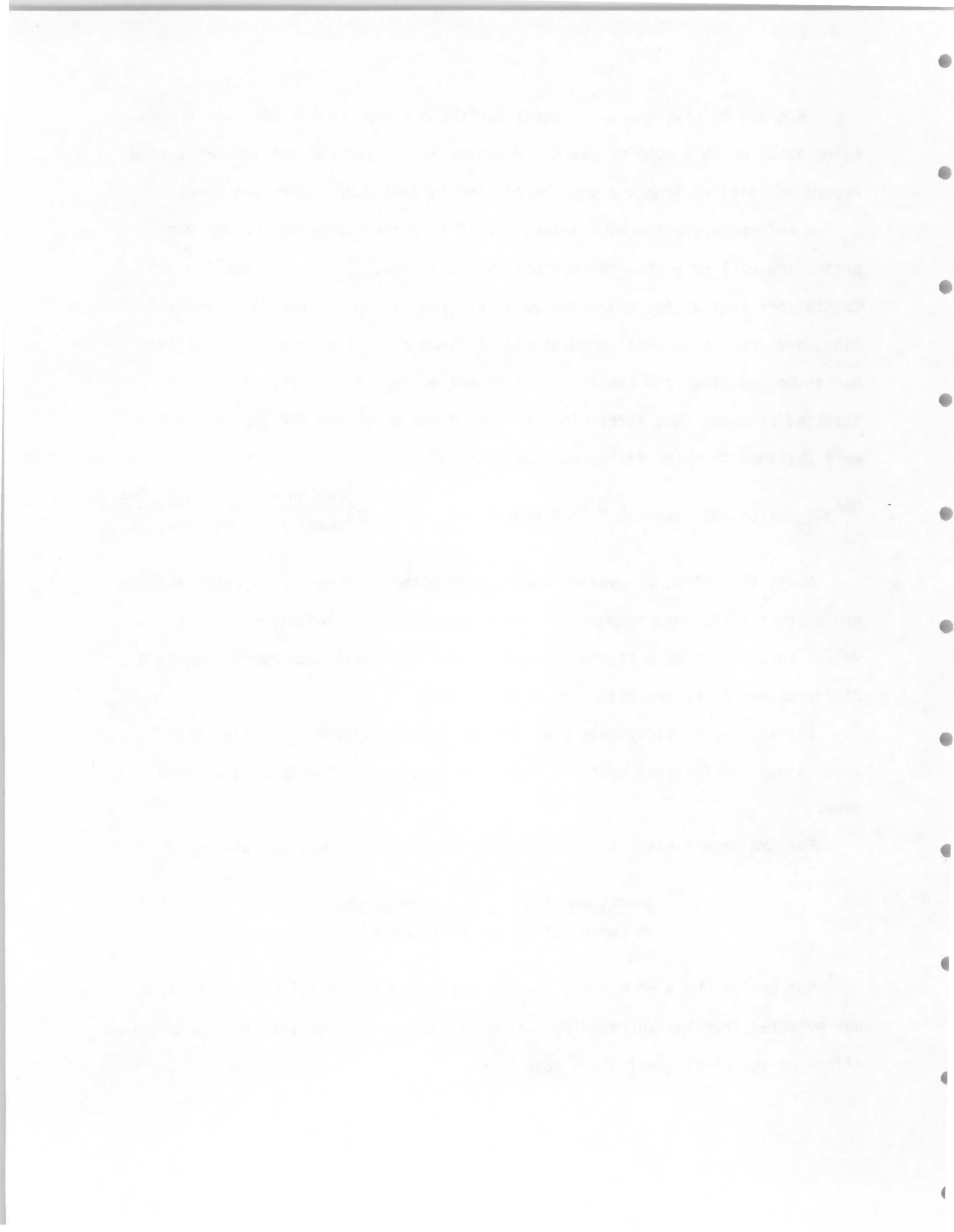
Next, the ratios of average annual precipitation input to adjusted average annual runoff (K) were computed for each gage station. Adjusting these K values to be applicable to the ungaged areas of the basin was approached in a different manner by the different study teams.

The Washington study team used the following approach. K values for areas above the farthest upstream gage were taken to be the same as at that gage.

For drainage areas between two U.S.G.S. stations, K was calculated by:

$$K = \frac{QAA_{\text{downstream sta.}} - QAA_{\text{upstream sta.}}}{\sum \text{PA contributing the difference}}$$

For basins where no U.S.G.S. gaging stations were established, a K value was selected from the surrounding basins on the basis of similarity of conditions affecting the precipitation and runoff.



The Idaho study team used a slightly different technique. K values for reaches between gage locations were calculated by linear interpolation of the known gage K values. K values for reaches upstream of gages were found by extrapolation of K value data from adjacent areas with similar hydrologic conditions and from interpretation of factors that would effect the rainfall runoff relationship, e.g. aspect of basin, mean elevation of basin, and slope of basin. A certain amount of sound engineering judgment is required in applying this technique especially when extrapolations are being made from the known gage data. A good knowledge of the general hydrology of the area is also important in this process.

The Montana study team used a slightly different technique to predict the average annual streamflow at ungaged points. Their technique consisted of correlating observed average annual flow values (QAA) for gaged drainage basins with an index variable indicative of average annual precipitation conditions over the basins. This analysis resulted in the development of the following prediction equation for the Columbia Basin within Montana.

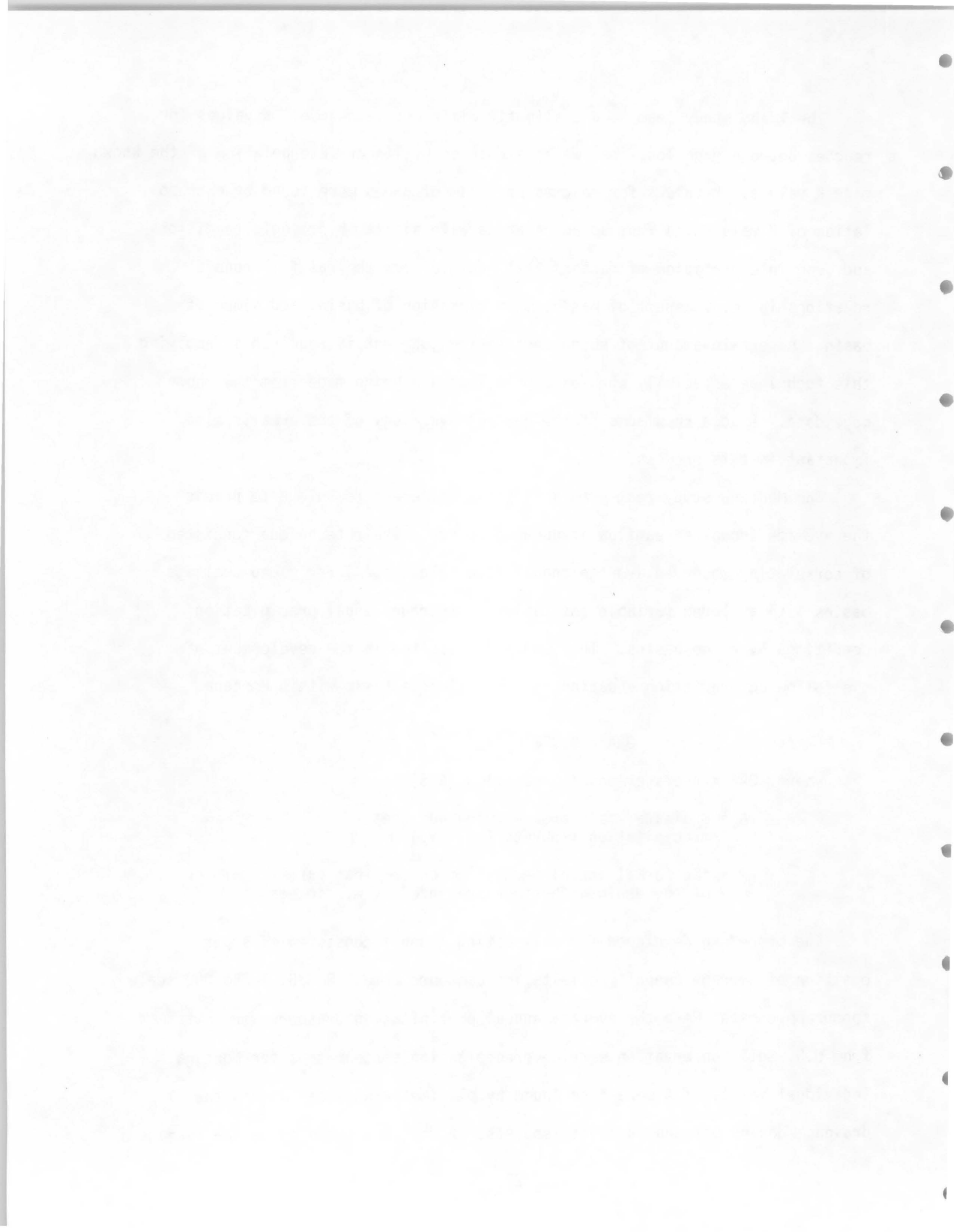
$$QAA = 0.326 [\sum PA]^{0.982}$$

where: QAA = Average Annual Streamflow (CFS)

A = drainage basin area between adjacent precipitation isohyets (sq. mi.)

P = the normal annual precipitation for that part of the drainage basin represented by A. (inches)

The procedure developed for delineating A and P consisted of superposition of average annual precipitation contours onto U.S.G.S. 1-250,000 scale topographic maps. Here the average annual precipitation contours were obtained from U.S. Soil Conservation service precipitation contour maps for Montana. Individual values of A were then found by planimetering areas within the drainage basins between adjacent isohyets. P was then taken to be the average



of the adjacent precipitation isohyetal values. Once the index variable, $\sum PA$, was found for a given drainage basin mean annual flow for the site could be estimated from the above equation.

The Oregon study team used a method involving correlation analysis between average annual flow at each gaging station, and the product of drainage area and normal annual precipitation for the area tributary to the station. This was done for each of the 18 major basins in the state or for hydrologically similar portions thereof. This analysis resulted in the development of prediction equations of the form

$$Q_{AA} = A[(P) \cdot (DA)]^B$$

where: A,B are constants determined by regression analysis

P = normal annual precipitation for the drainage area

DA = drainage basin area tributary to the gaging station.

To apply the equation to reaches, the corresponding P and DA values were determined at each end of the reach, the average annual discharge was then calculated at each end, and these were averaged to obtain the mean value of average annual discharge for the reach.

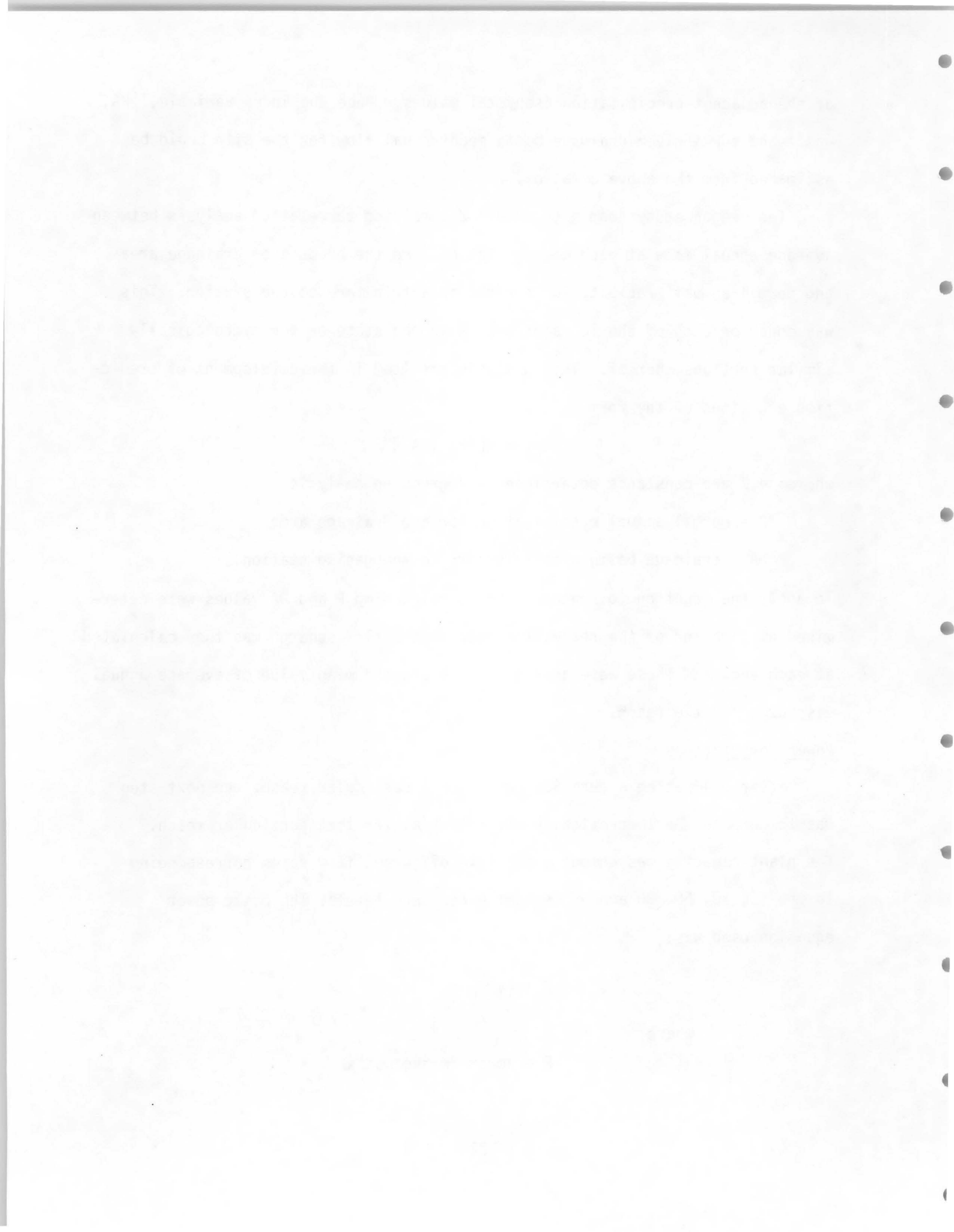
Power Computations

After generating a duration curve for a particular reach, the next step was to compute the theoretical power potential for that particular reach. The plant capacity was computed for five different flow rates corresponding to the 10, 30, 50, 80 and 95 percent exceedance levels. The basic power equation used was:

$$P = \frac{QH}{11800} e$$

where:

P = power in megawatts



Q = flow in CFS
H = head available in the reach in feet
e = efficiency
11800 = conversion factor

The Q value used was that flow which would be available at the midpoint of the reach. In all but the farthest upstream reach the head used was the total usable head in the reach which was computed by subtracting the elevation of the downstream point of the reach from the elevation of the upstream point of the reach. In the farthest upstream reaches of a stream, an additional 20 meters of head was added to the total head available in that reach. This was done to account for the fact that there is sufficient discharge at the farthest upstream point in a reach to generate the minimum power with 20 meters of head. The efficiency used for all power computations was 1.0. It is recognized that no hydro power generating system could operate at this efficiency. Since it would be impossible to predict the actual efficiencies that would be used, it was felt that using a common efficiency of 1.0 would be better than trying to second guess what the actual power generation system efficiency would be. The user can then apply his own particular efficiencies directly to the values represented in the tables and figures to find his own estimate of the actual power generated.

The theoretical annual energy available from the power plants sized at the specific exceedance values of Q was computed by integrating the area under the curve of Q versus exceedance and multiplying this by the head available and the proper conversion factors to get the average energy output per year. Figure 8 shows the area under the curve at the 30% exceedance value. Another value that is computed is the plant factor. This is the ratio of the actual energy generated computed by using the area under the duration curve to the energy that would be generated if the plant was operated at full capacity for a given exceedance value of discharge 100% of the time. Figure 8 shows the relationship between

The following information is for your information only. It is not intended to be used as a substitute for professional advice. The information is based on the current laws and regulations in effect at the time of publication. It is subject to change without notice. The information is provided for your information only and should not be relied upon for any specific purpose. The information is not intended to be used as a substitute for professional advice. The information is based on the current laws and regulations in effect at the time of publication. It is subject to change without notice. The information is provided for your information only and should not be relied upon for any specific purpose.

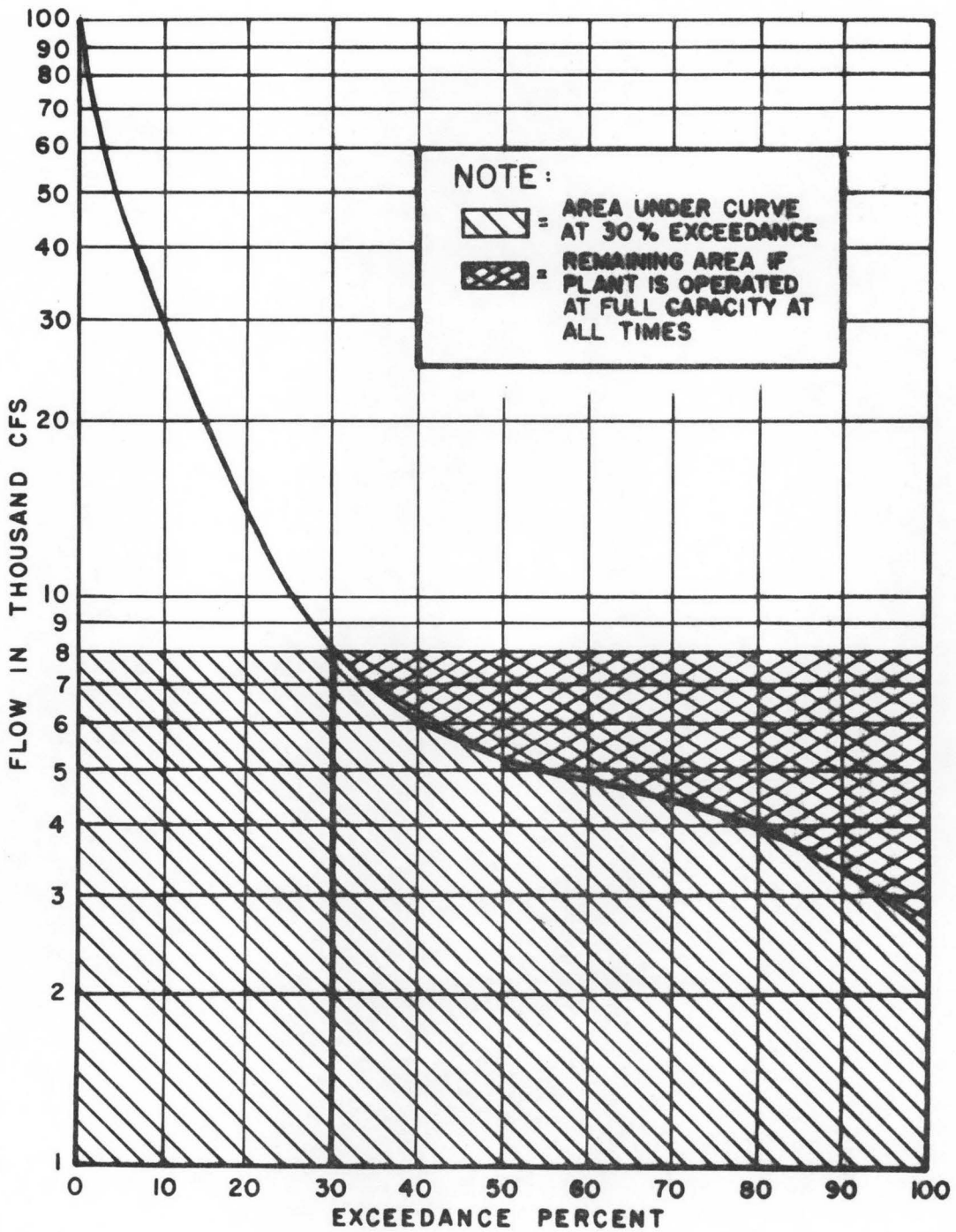
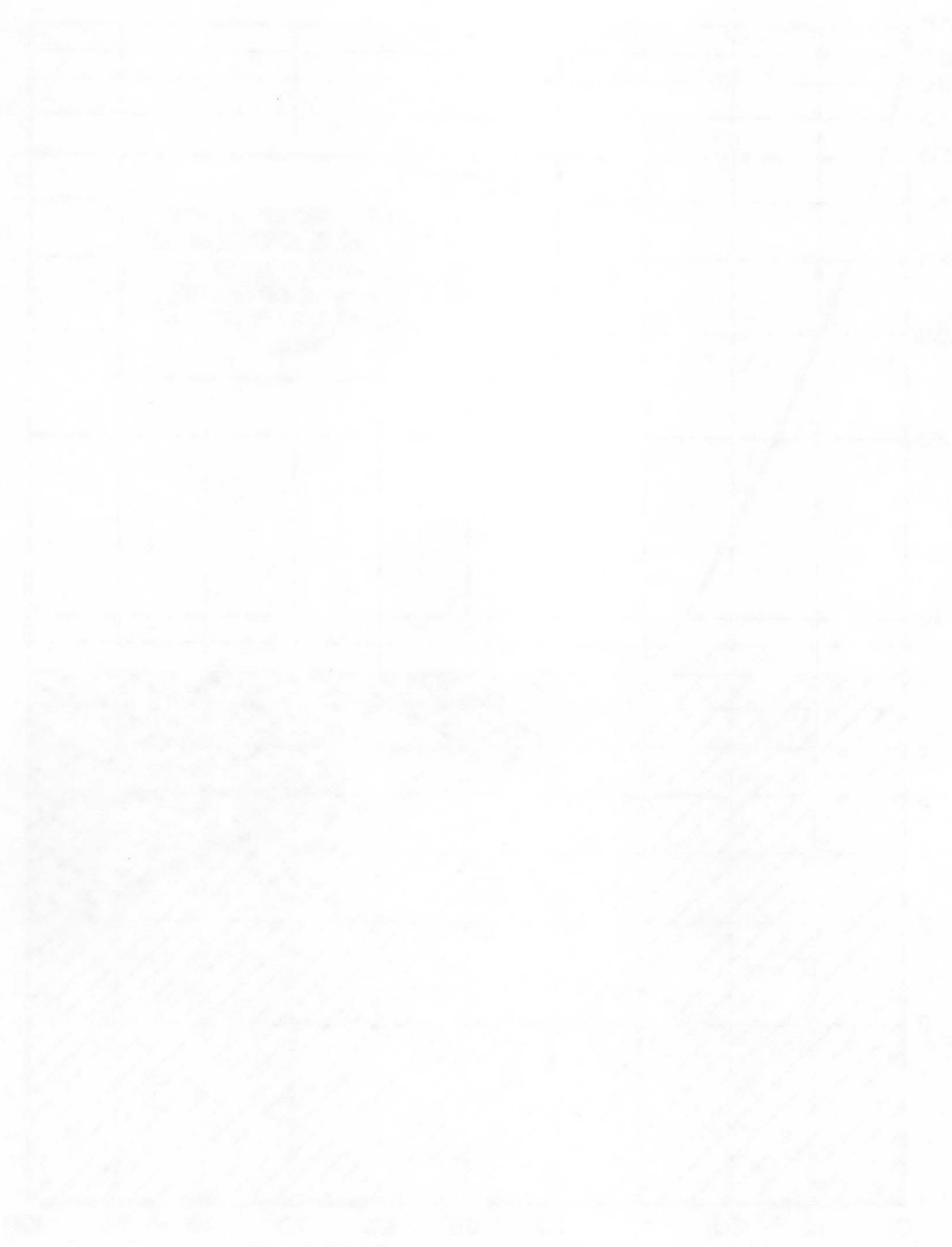


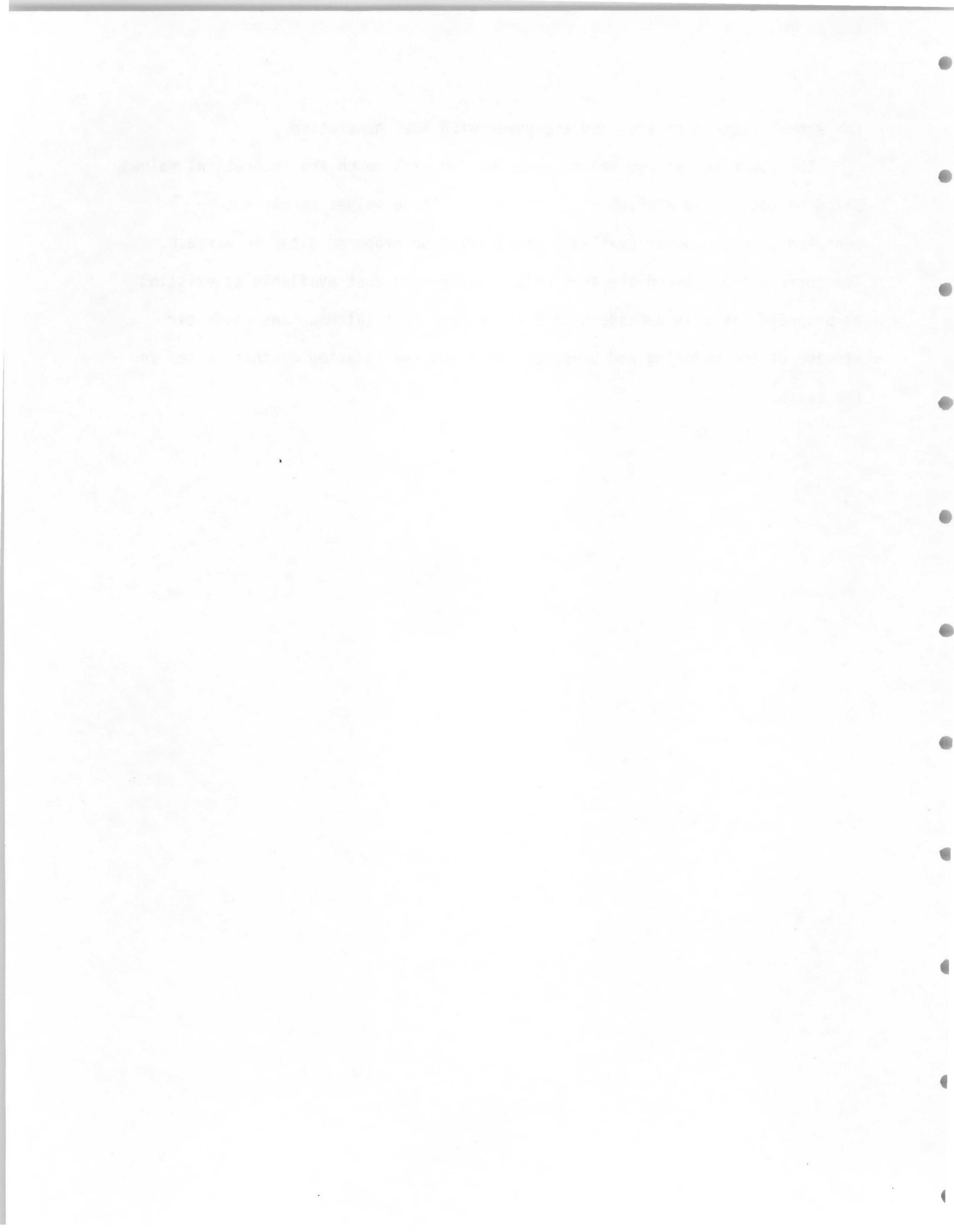
figure 8
**ENERGY AND PLANT FACTOR
 RELATIONSHIP**



Faint, illegible text located at the bottom center of the page, possibly a title or footer.

the actual power generated and the power with 100% generation.

The power and energy values computed for each reach are theoretical values based on total head available in the reach. These values should not be confused with the power available at existing or proposed sites in a reach. The correlation between the theoretical values and that available at existing or proposed sites is dependent on such factors as total head and reservoir storage at the existing and proposed sites and the location of these sites in the reach.



III. PRESENTATION OF DATA TABLES

This section of the report will be primarily used to describe the various tables and appendices that are used to display the results of the studies made in connection with this project.

The first table that will be described will be Table I, "Analysis Techniques Table." The purpose of this table is to identify some of the more important data sources and analysis techniques that were applied to a particular basin. The first column, "Basin Name" is self-explanatory. The next column under "Basin Characteristics" is used to describe what the flow classification is; e.g. whether it was a natural flow system or whether there was regulation for irrigation, power production, flood control, etc. The regulation type column is simply used to list the type of regulation on the stream, if any. The "Source of Flow Data" column is used to document the source of flow data used in a particular basin. The "Duration Curve Development" column and the "Duration Curve for Regulated Stream" column are used to identify what technique was used to generate the duration curves for a particular basin. The different techniques have been described in the chapter on analysis techniques and each technique has been assigned an identifier which is listed in this column. The column entitled "Map Scale Used" is used to describe the scale of maps used in the analysis techniques. The column entitled "NAP Maps" is used to identify the source of the normal annual precipitation maps used in determining the average annual runoff.

The next table that will be discussed is Table II, "Maximum Developable Power Potential." Summaries of theoretical power potential are presented for each major basin in each state and also a summary for each state and the entire Pacific Northwest Study Region is presented. The power and energy values

Faint, illegible text covering the majority of the page, likely bleed-through from the reverse side.

listed are merely a summation of the values computed for each reach within a particular area. The state totals for Washington, Oregon and Idaho were adjusted so that the power and energy totals for the Snake River common boundary reaches are shared on a 50 percent each basis between the bordering states. Columbia Basin reaches that are in Wyoming and Nevada are contained in the Idaho Summary Table. No entries for Utah are made since no Columbia Basin streams in that state met the minimum power requirement.

The next three data tables that will be described are contained in the appendices of this report. Appendix I, II, and III contain all the reach data tables for reaches of streams meeting the minimum flow requirements in the State of Washington, Oregon and Idaho respectively. Appendix III also contains reach data tables for all Columbia basin streams meeting the minimum flow requirements in Nevada and Wyoming. Appendix IV contains data tables for all Columbia River Basin streams in Montana meeting the minimum flow requirements. Appendix Table I is the Reach Index table. This table is provided to expedite finding the location of a particular Reach Hydro-Potential Characteristic Sheet in the appendix. The items contained in this table are the stream name, reach numbers for that particular stream and the inclusive page numbers for the Reach Hydro-Potential Characteristic Sheets for that particular stream.

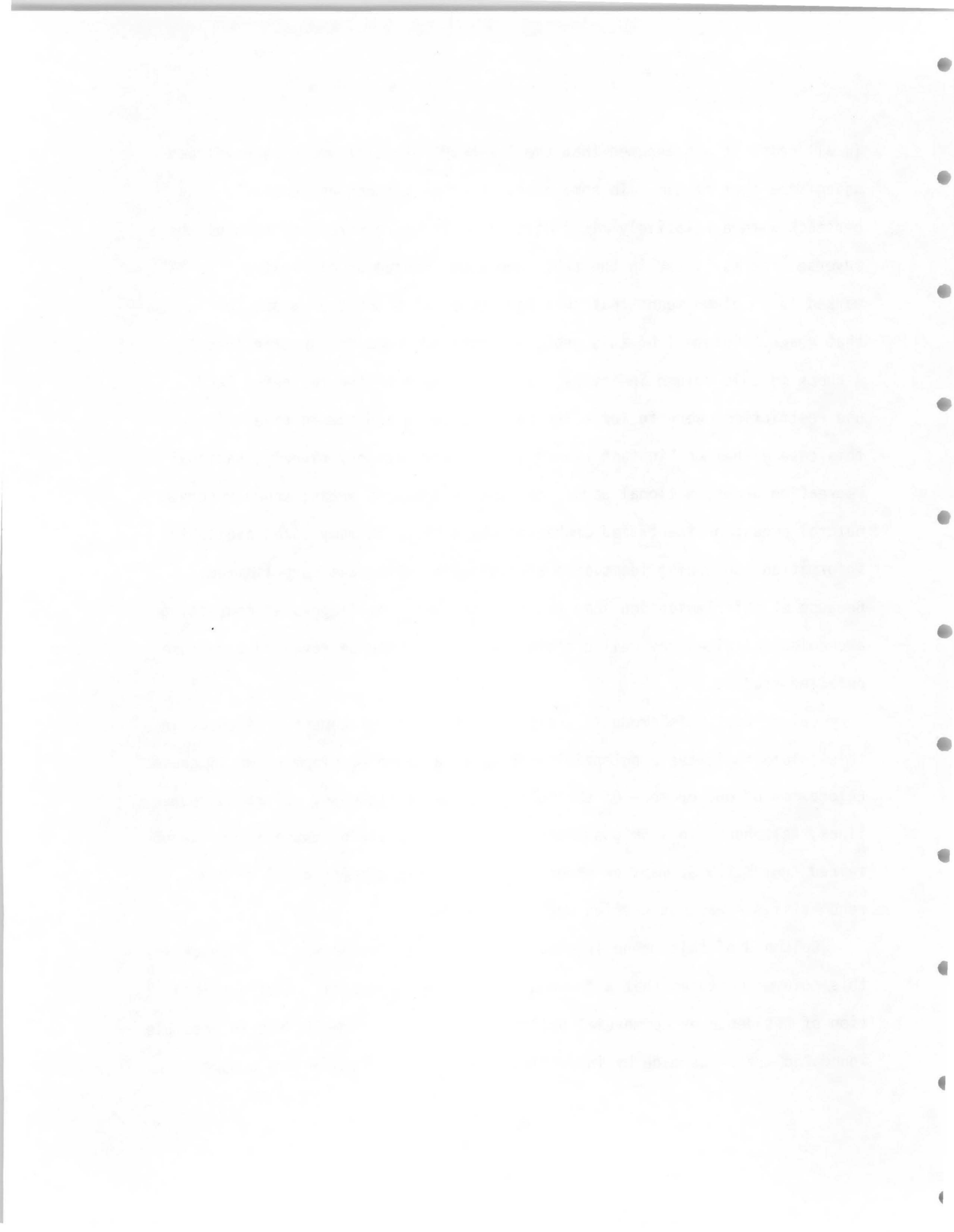
The next table that will be discussed is appendix Table II, the Feasibility, Transmission and Load Restraint table. The first column of this table contains the Reach Identification number. This is the same number that is described on page 31 in the section on the reach hydro potential characteristic tables. The next section of the table is entitled "Feasibility Restraints." Under this heading there are four columns of items that could cause problems related to the development of a low-head hydro project in a particular reach.

Faint, illegible text covering the page, possibly bleed-through from the reverse side. The text is too light to transcribe accurately.

In all cases it was assumed that the low-head potential would be developed using some sort of dam. In some cases if other techniques such as a long penstock with a relatively minor diversion structure were used some of the adverse effects listed in the table could be reduced or eliminated. An "X" marked in a column means that this particular item could be a problem in that reach. Column 1 of this group is entitled "Land Use Restrictions." A check in this column indicates that one or more of the following land use restrictions were in force in the area: wild and scenic rivers (in this case either an "instant river" or a "study category river"); national recreation areas; national parks; national wilderness areas; known reserved natural areas; or identified archeological sites. In many cases available information concerning identified archeological sites was very limited. Because of this limitation some reaches that were not flagged as containing archeological sites may well contain sites that would be revealed with more detailed studies.

Column 2 of this group is entitled "Utility Displacement." A check in this column indicates a potential problem if a hydro development would cause relocation of one or more of the following: major highways, railroads, power lines, telephone lines or gas and oil lines. Location of these items was obtained from U.S.G.S. maps or other easily accessible mapping. A ground reconnaissance was not carried out for each reach.

Column 3 of this group is entitled "Building Displacement." A check in this column indicates that a low-head hydro development may require relocation of residence or commercial buildings. Location of buildings in possible inundated areas was made by inspection of U.S.G.S. quad maps. A ground



reconnaissance was not carried out for each reach. In general, no check was recorded unless more than four residences or commercial buildings per mile in any section of a reach seemed to be in danger of inundation.

Under the column labeled "Fish Problem," a check was recorded if the reach supports a known run of salmonids or if a sturgeon population which is an endangered species is present.

The next major heading is "Transmission and Load Considerations." The first two columns under this heading are concerned with transmission facilities. The first item gives the distance from the center of the reach to the nearest power line shown on detailed transmission line maps published by the Bonneville Power Administration. The second column is used to identify the size of the transmission line and the utility operating the line shown on the maps. The next two columns are concerned with Load Considerations. The first column identifies the type of local load that was present in the area that was closer than the transmission line identified above. The type of load was shown by a number representing the following:

- 1) Known local residential load
- 2) Known local industrial load
- 3) Known local water pumping load

Again, there was no ground reconnaissance made for each reach to identify these loads. Load information was obtained from available maps. The last column under load factors contains the distance in miles from the center of the reach to the nearest town with a population greater than 1000 people. U.S.G.S. maps were used to determine these distances.

Appendix Table II immediately follows Table I in all of the appendices with exception of Appendix II which is the Oregon appendix. This appendix is organized by major basins and Table II is contained separately in the section for each basin.



The next item that will be discussed will be the reach Hydro-Potential Characteristic sheets. These sheets contain the vital statistics for all the reaches that were studied.

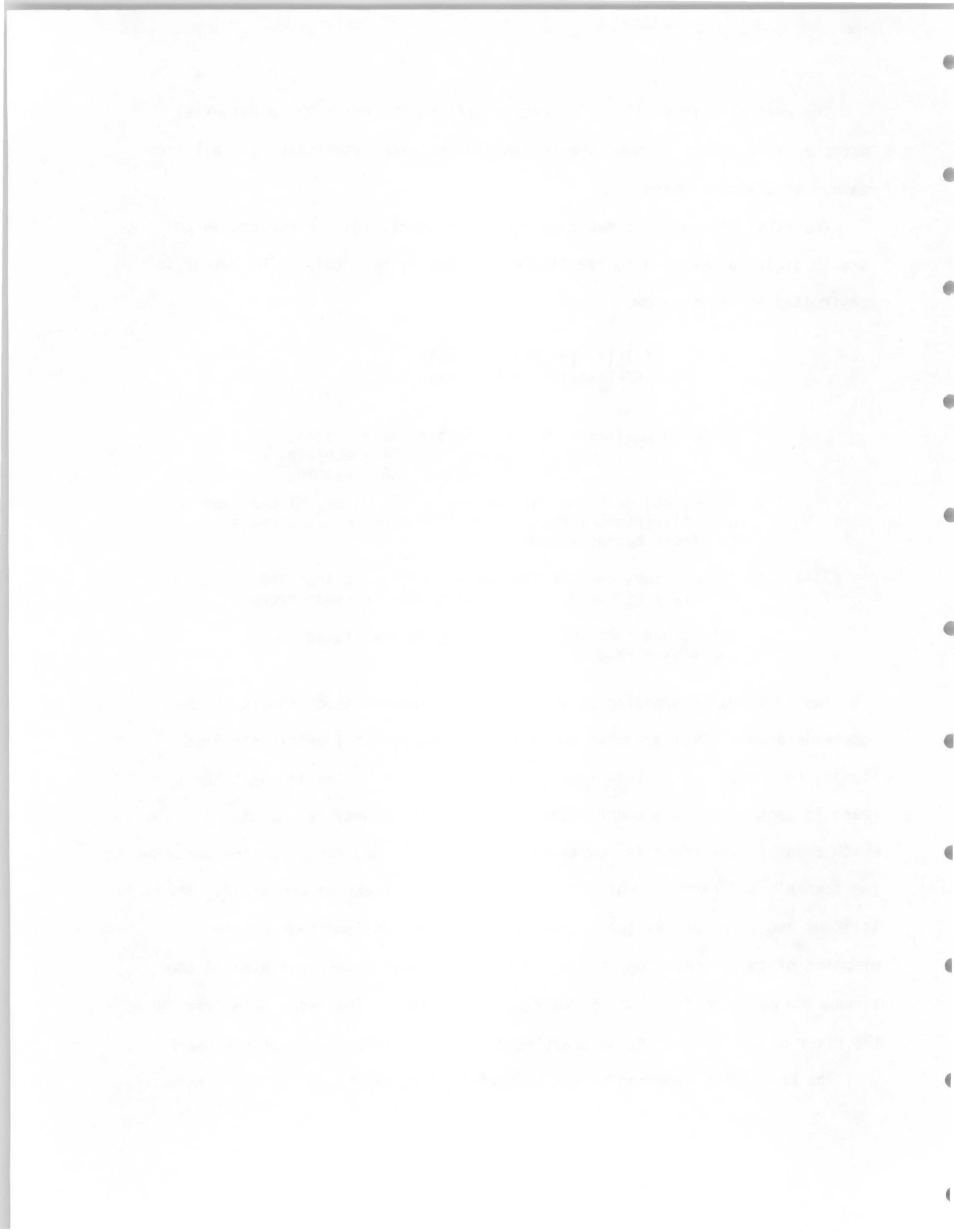
The first item on this table is the reach identification number, which is a 19 digit number used to identify each reach in the study. The number is constructed as shown below:

(1) (2) (3) (4) (5) (6)
XX-XXX-XXX-XXX-XXX-XXXXX

- (1) State Identifier: 01 = Washington, 02 = Oregon,
03 = Idaho, 04 = Montana,
05 = Nevada, 06 = Wyoming.
- (2) This group contains the numbers of all rivers discharging directly into the Pacific Ocean or first order streams in closed basin systems.
- (3)(4)(5) These groups contain the numbers of rivers that are tributary to the rivers listed in the previous group.
- (6) This group contains the actual number assigned to a particular reach.

The first major grouping of items on the characteristics sheets is the locations group. This group is there to help the reader identify the location of the reach. The state item lists the state or states in which the reach is contained. The county item identifies the county or counties in which a particular reach is contained. The township and range portion describe the township and range in which the midpoint of the reach is contained. The latitude and longitude is the approximate latitude and longitude of the midpoint of the reach. The stream and major basin items are the name of the stream and major basin on which the reach is located. The river mile item is the river miles for the farthest upstream and downstream points of the reach.

The next major grouping on the characteristics sheets is the hydrologic



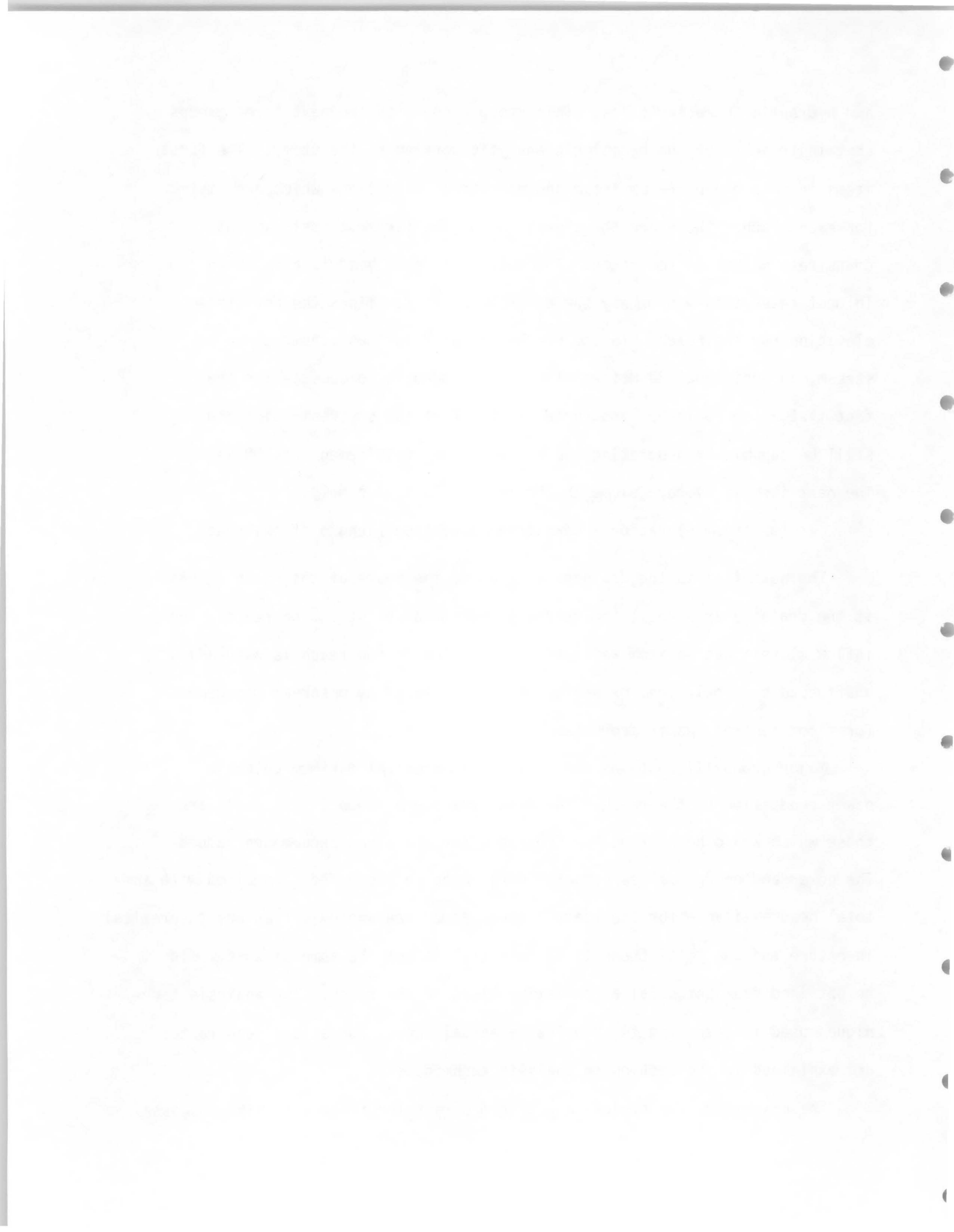
and hydraulic characteristics. This group along with the next three groups contains results of the hydrologic analysis portion of the study. The first items in this group are upstream and downstream elevations which are listed for each reach. These are the elevations of the farthest upstream and downstream points in the reach. The total available head is also shown. In most cases this was merely the upstream elevation minus the downstream elevation for the reach. In the reaches located farthest upstream on a stream, an additional 20 meters of head was added to compensate for the fact that a dam could be constructed at the farthest upstream point and still be capable of generating the minimum power requirement of 200 kW. The next item is average slope in the reach. This is simply:

$$\text{(upstream elevation - downstream elevation)/length of the reach}$$

The next item is the drainage area above the mouth of the reach. This is the drainage area above the farthest downstream point in the reach. The inflow classification item reflects whether flow in the reach is naturally, unaffected by regulation, or whether it is regulated by upstream management for flood control, power production, irrigation, etc.

Major group III contains the flow and theoretical maximum potential power production in the reach. The flows which are shown in the table are those which would be average for the reach for the given exceedance values. The power and energy values computed were based on these flows combined with the total head available for the reach. These power and energy values are theoretical in nature and the total theoretical potential is not the same as what would be obtained from potential and existing sites in the reach. The analysis techniques used in computing the plant size annual energy output and load factor are explained in the section on analysis techniques.

The next item is a typical annual hydrograph for the reach. The abscissa



for this graph is time in months and the ordinate is average monthly flow divided by average annual flow. The values presented in the graph were obtained from analyzing the record of a stream gage that would be characteristic for the reach. To obtain the approximate annual distribution of discharges for the reach, all that is required is to multiply the graph ratios by the average annual flow which is listed on the graph. In the case of Washington reaches, the average annual flow is listed above the graph as QMR. In some cases there may appear to be a discrepancy between the distribution of flows shown in the power table and the distribution of flows as represented on the average annual hydrographs. The reason for this apparent discrepancy is due to the fact that the hydrograph ratios are for the most representative gage in the area, and the flow values at this gage may or may not have a distribution of flows that is in complete agreement with the reach duration values.

The upper map shown on the reach characteristic sheets is merely a locator map to show the approximate location of the reach. The lower map shows the actual location of the reach. The reach is denoted by a heavy dark line traced over the reach. The arrowhead denotes the direction of flow and the downstream point of the reach. The page number assigned to the reach characteristics table was handled slightly differently by the different state study teams. The Idaho and Montana table page numbers are simply the letter "I" or "M" respectively followed by a number indicating the numerical sequence of that particular sheet. The Washington reach characteristic sheet page number begins with the letter "W" followed by a number indicating the Washington State Water Resources Inventory Area that the reach is contained in followed by the numerical sequence number of that table.

The Oregon page number system is identical to the Washington system with the exceptions that the identifying letter is "O" and the numerical sequence number is initialized to 1 at the beginning of each new major basin.

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is too light to transcribe accurately.

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Washington

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|-----------------|-----------------------|-----------------|---|----------------------------|-----------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Nooksack R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Silesia R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Chilliwack R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Sumas R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Samish | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Skagit R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Stillaguamish R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Snohomish R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Sammamish R | Regulated | Power/Pot.W | USGS | WSU | 7.5' & 15' | SCS | NA |
| Cedar R | Regulated | Power/Pot.W | USGS | WSU | 7.5' & 15' | SCS | NA |
| Green R | Regulated | Power/Pot.W | USGS | WSU | 7.5' & 15' | SCS | NA |
| Puyallup R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Nisqually R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Chambers R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Deschutes R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Sherwood Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Gosnell Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Kennedy Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Goldsborough Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Tahuya R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Lilliwaup Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Dosewallips R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Ducksbush R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Hamma Hamma R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |

USGS = U.S. Geological Survey

Pot. W = Potable Water Supply

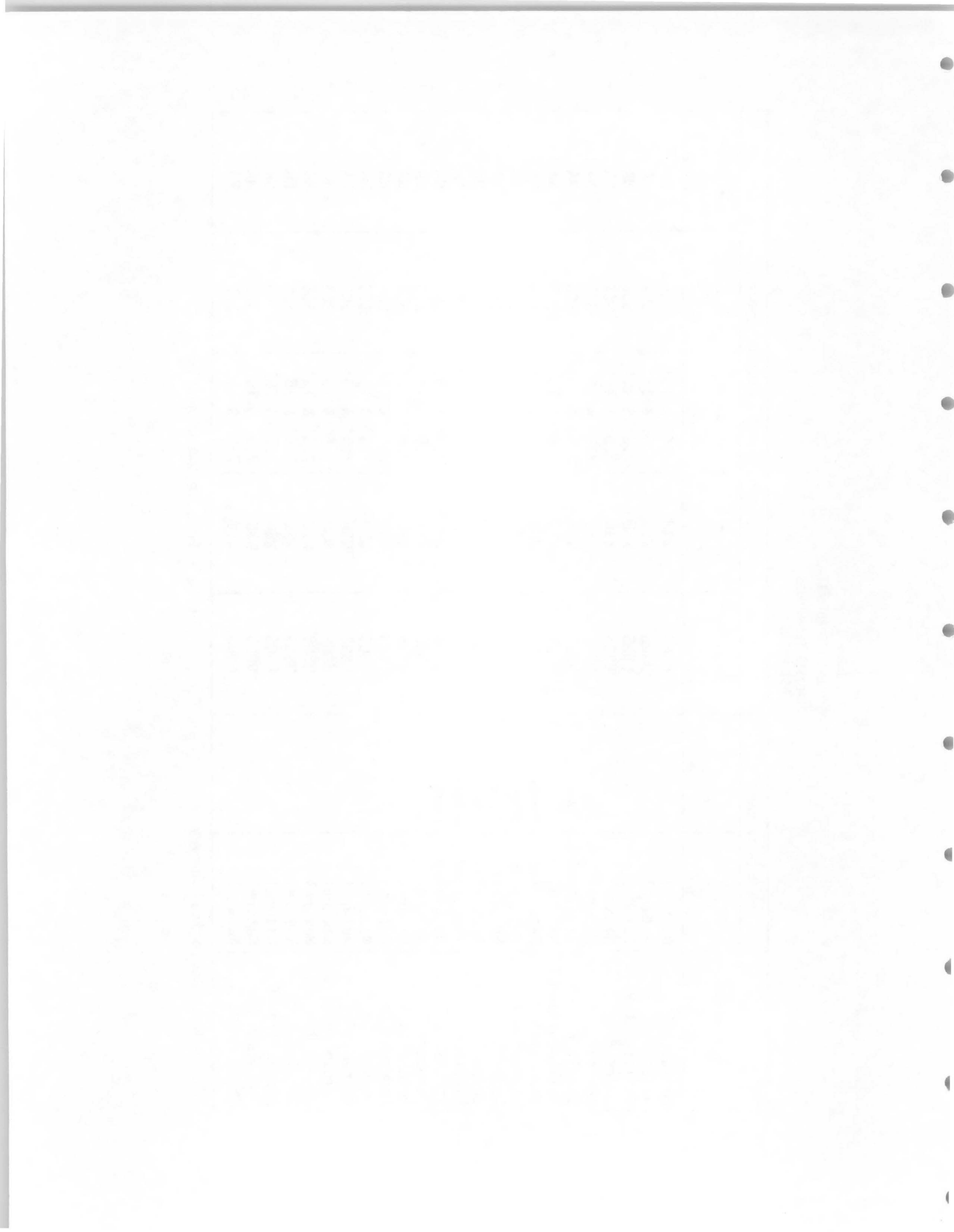


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Washington

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|-----------------|-----------------------|-----------------|---|----------------------------|-----------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF MAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Skokomish R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Little Quileene | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Big Quileene | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Elwha R | Regulated | Potable W | USGS | WSU | 7.5' & 15' | SCS | NA |
| Morse Cr | Regulated | Potable W | USGS | WSU | 7.5' & 15' | SCS | NA |
| Dungeness R | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Sekiu R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Hoko R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Clallam R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Pysht R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Deep Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Lyre R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Sooes R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Ozette Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Quillayute R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Dickey R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Goodman Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Hoh R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Cedar Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Mosquito Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Queets R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Raft R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Quinault R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Moclips R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |

USGS = U.S. Geological Survey

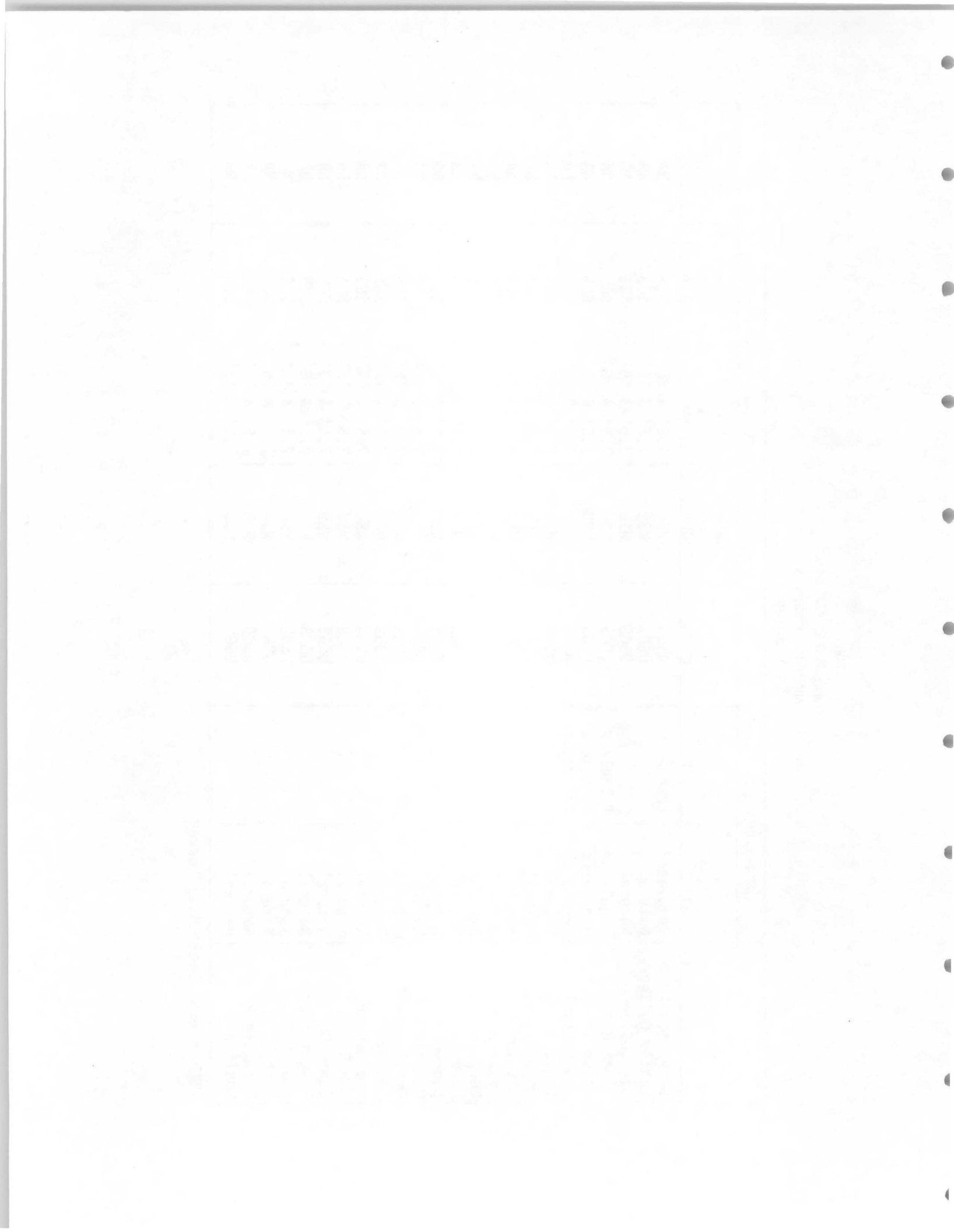


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Washington

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---------------|-----------------------|-----------------|---|----------------------------|-----------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Copalis R | Natural | Power/Irri. | USGS | WSU | 7.5' & 15' | SCS | NA |
| Humtulpis R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Hoquiam R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Wishkah R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Elk R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Johns R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Chehalis R | Regulated | | USGS | WSU | 7.5' & 15' | SCS | NA |
| North R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Smith Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Willapa Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| North Nemah R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Bear R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Naselle R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Palix R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Grays R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Skamokawa R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Elochoman R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Mill Cr | Natural | USGS | WSU | 7.5' & 15' | SCS | NA | |
| Abernathy Cr | Natural | USGS | WSU | 7.5' & 15' | SCS | NA | |
| German Cr | Natural | USGS | WSU | 7.5' & 15' | SCS | NA | |
| Coal Cr | Natural | USGS | WSU | 7.5' & 15' | SCS | NA | |
| Cowlitz R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Kaloma R | Natural | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Lewis R | Regulated | | USGS | WSU | 7.5' & 15' | SCS | NA |

USGS = U.S. Geological Survey

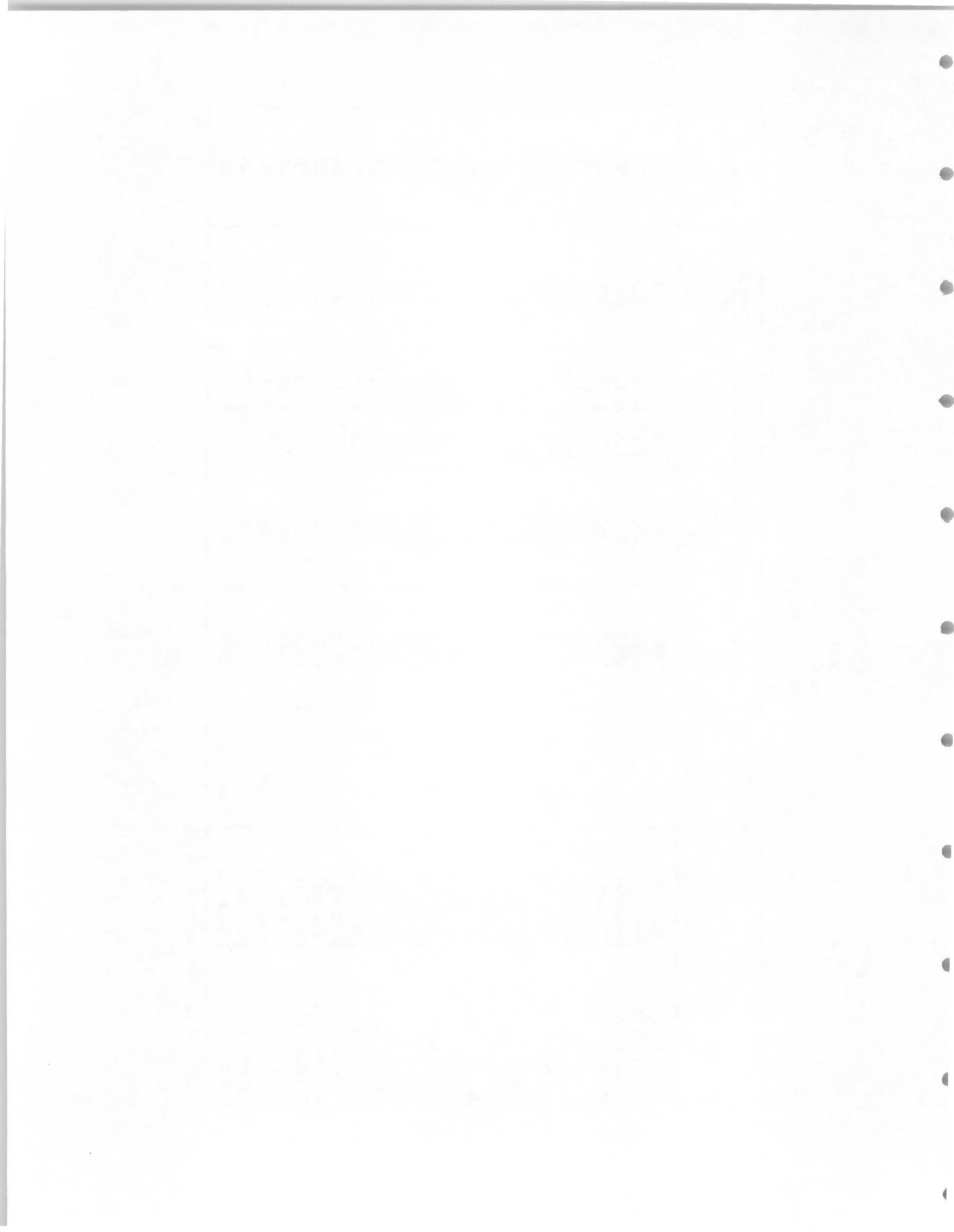


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Washington

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---------------------|-----------------------|-----------------|---|----------------------------|-----------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Salmon Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| LaCamas Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Washougal R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Hamilton Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Rock Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Wind R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Little White Salmon | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| White Salmon R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Klickitat R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Walla Walla R | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Palouse R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Grande Ronde R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Asotin Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Tucannon R | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Yakima R | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Columbia R | Regulated | Irri./Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Crab Cr | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Wenatchee R | Regulated | Irri./Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Entiat R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Chelan R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Pasayten | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Methow R | Regulated | Irrigation | USGS | WSU | 7.5' & 15' | SCS | NA |
| Okanogan R | Regulated | Irri./Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Newpelem R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |

USGS = U.S. Geological Survey

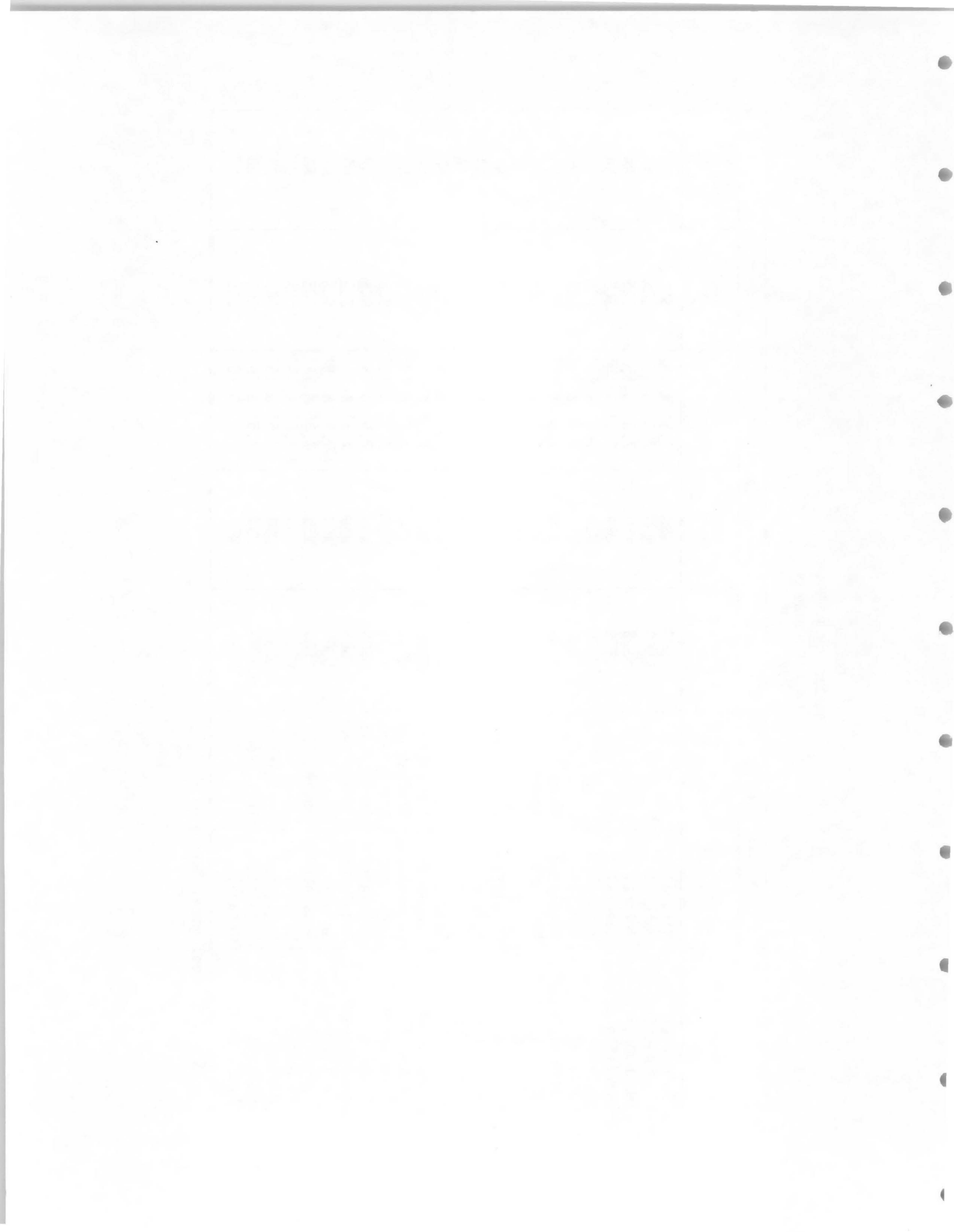


TABLE I
 HYDROELECTRIC POTENTIAL
 ANALYSIS TECHNIQUES
 Washington

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|----------------|-----------------------|-----------------|---|----------------------------|-----------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Sanpoil R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Spokane R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | BPA |
| Colville R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |
| Kettle R | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Big Sheep Cr | Natural | | USGS | WSU | 7.5' & 15' | SCS | NA |
| Pend Oreille R | Regulated | Power | USGS | WSU | 7.5' & 15' | SCS | NA |

USGS = U.S. Geological Survey



TABLE I
 HYDROELECTRIC POTENTIAL
 ANALYSIS TECHNIQUES
 OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| <u>1. North Coast Basin</u> | | | | | | | |
| Nestucca R. | Natural & Regulated | M&I | USGS/OWRD ² | Idaho A | 1:240,000
1:62,500
1:24,000 | OWRD | USGS |
| Other Streams | Natural | none | " | " | " | " | " |
| <u>2A. Upper Willamette Basin</u> | | | | | | | |
| Willamette R.
Main Stem
(R0021 - R0024) | Natural & Regulated | MP | USGS/OWRD ² | Idaho A | 1:250,000
1:64,500
1:24,000 | OWRD | USGS |
| Long Tom R. | " | " | " | " | " | " | " |
| McKenzie R. | " | " | " | " | " | " | " |
| Coast Fork
Willamette R. | " | " | " | " | " | " | " |
| Middle Fork
Willamette R. | " | " | " | " | " | " | " |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| <u>2B. Mid-Willamette Basin</u> | | | | | | | |
| Willamette R. Main Stem (R0005 - R0020) | Natural & Regulated | MP | USGS/OWRD ² | Idaho A | 1:360,000
1:64,500
1:24,000 | OWRD | USGS |
| Yamhill R. | " | I, M&I | " | " | " | " | " |
| Rickreall Cr. | " | M&I | " | " | " | " | " |
| Santiam R. | " | MP | " | " | " | " | " |
| Other Streams | Natural | none | " | " | " | " | " |
| <u>2C. Lower Willamette Basin</u> | | | | | | | |
| Scapoose Cr. | Natural | none | USGS/OWRD ² | Idaho A | 1:250,000
1:64,500
1:24,000 | OWRD | USGS |
| Willamette R. Main Stem (R0001 - R0004) | Natural & Regulated | MP | " | " | " | " | " |
| Clackamas R. | " | P, R | " | " | " | " | " |
| Tualatin R. | " | I | " | " | " | " | " |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

Faint, illegible text at the top of the page, possibly a header or title.

Main body of faint, illegible text, appearing to be several lines of a document or letter.

Faint text at the bottom of the page, possibly a footer or signature area.

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---------------------------|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| <u>3. Sandy Basin</u> | | | | | | | |
| Sandy R. Main Stem | Natural & Regulated | M&I,P | USGS/OWRD ² | Idaho A | 1:250,000
1:64,500
1:24,000 | OWRD | USGS |
| Bull Run R. Other Streams | "
Natural | "
none | "
" | "
" | "
" | "
" | "
" |
| <u>4. Hood Basin</u> | | | | | | | |
| All Streams | Natural | none | USGS/OWRD ² | Idaho A | 1:125,000
1:64,500
1:24,000 | OWRD | USGS |
| <u>5. Deschutes Basin</u> | | | | | | | |
| Deschutes R. Main Stem | Natural & Regulated | I,P | USGS/OWRD ² | Idaho A | 1:350,000
1:64,500
1:24,000 | OWRD | USGS |
| Crooked R. | " | I | " | " | " | " | " |
| Little Deschutes R. | " | " | " | " | " | " | " |
| Other Streams | Natural | none | " | " | " | " | " |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

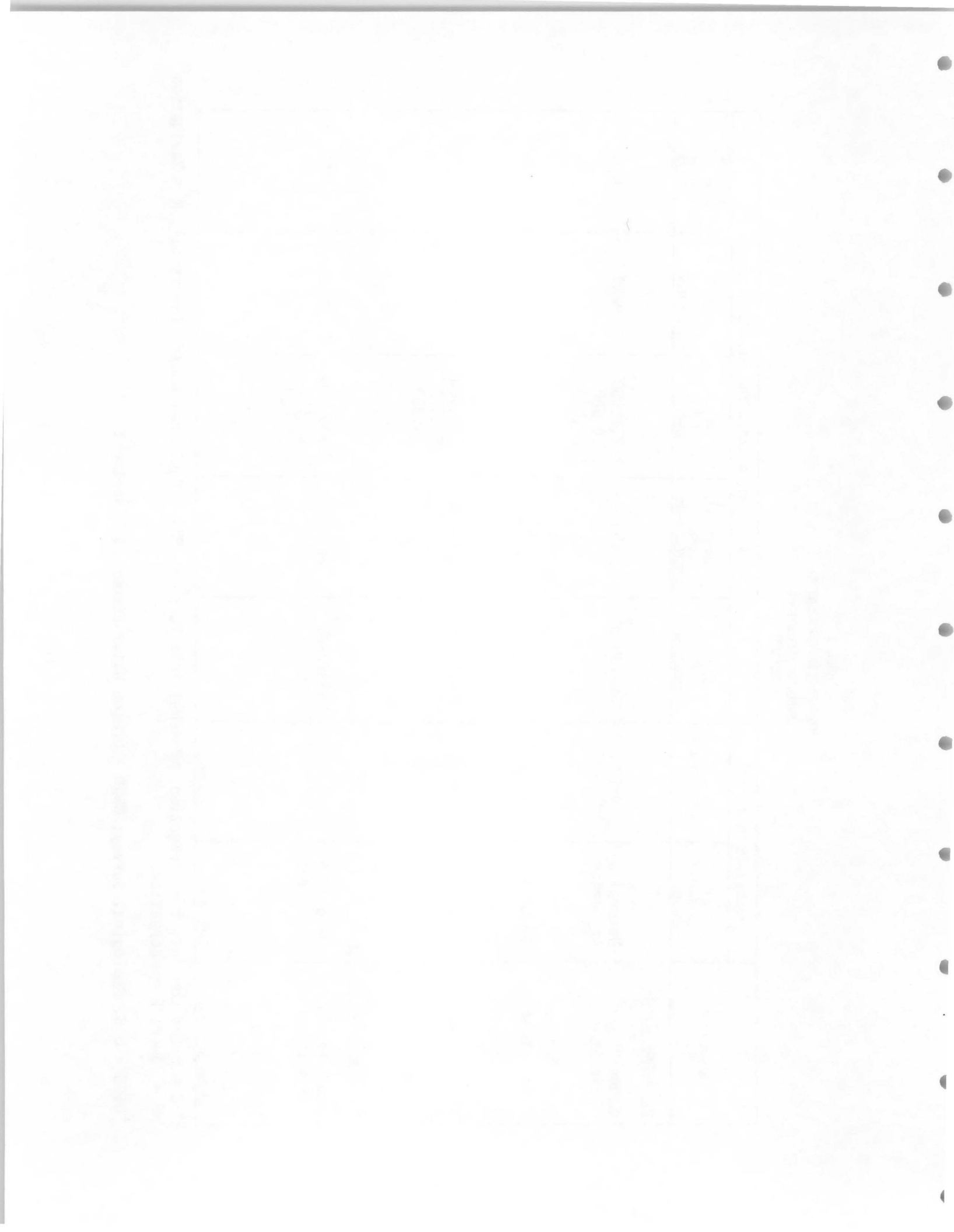


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|------------------------------|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| <u>6. John Day Basin</u> | | | | | | | |
| John Day R. Main Stem | Natural & Regulated | I | USGS/OWRD ² | Idaho A | 1:300,000
1:64,500
1:24,000 | OWRD | USGS |
| North Fork John Day R. | " | " | " | " | " | " | " |
| Other Streams | Natural | none | " | " | " | " | " |
| <u>7. Umatilla Basin</u> | | | | | | | |
| Umatilla R. Main Stem | Natural & Regulated | I,R | USGS/OWRD ² | Idaho A | 1:200,000
1:24,000 | OWRD | USGS |
| Other Streams | Natural | none | " | " | " | " | " |
| <u>8. Grande Ronde Basin</u> | | | | | | | |
| Grande Ronde R. Main Stem | Natural & Regulated | I | USGS/OWRD ² | Idaho A | 1:220,000
1:64,500
1:24,000 | OWRD | USGS |
| (cont.) | | | | | | | |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

1. The first part of the document is a list of names and addresses.

2. The second part of the document is a list of names and addresses.

3. The third part of the document is a list of names and addresses.

4. The fourth part of the document is a list of names and addresses.

5. The fifth part of the document is a list of names and addresses.

6. The sixth part of the document is a list of names and addresses.

7. The seventh part of the document is a list of names and addresses.

8. The eighth part of the document is a list of names and addresses.

9. The ninth part of the document is a list of names and addresses.

10. The tenth part of the document is a list of names and addresses.

11. The eleventh part of the document is a list of names and addresses.

12. The twelfth part of the document is a list of names and addresses.

13. The thirteenth part of the document is a list of names and addresses.

14. The fourteenth part of the document is a list of names and addresses.

15. The fifteenth part of the document is a list of names and addresses.

16. The sixteenth part of the document is a list of names and addresses.

17. The seventeenth part of the document is a list of names and addresses.

18. The eighteenth part of the document is a list of names and addresses.

19. The nineteenth part of the document is a list of names and addresses.

20. The twentieth part of the document is a list of names and addresses.

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|------------------------------------|------------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| (8. Grande Ronde | Basin cont.) | | | | | | |
| Wallowa R. | " | I, M&I | " | " | " | " | " |
| Other Streams | Natural | none | " | " | " | " | " |
| <u>9. Powder Basin</u> | | | | | | | |
| Pine Cr. | Natural | none | USGS/OWRD ² | Idaho A | 1:190,000
1:64,500
1:24,000 | OWRD | USGS |
| Powder R.
Main Stem | Natural &
Regulated | I | " | " | " | " | " |
| Eagle Cr. | Natural | none | " | " | " | " | " |
| Burnt R. | Regulated | I | " | " | " | " | " |
| <u>10. Malheur Basin</u> | | | | | | | |
| Malheur R.
Main Stem
(cont.) | Natural &
Regulated | I | USGS/OWRD ² | Idaho A | 1:300,000
1:64,500
1:24,000 | OWRD | USGS |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---------------------------|-----------------------|-----------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| (10. Malheur Basin cont.) | | | | | | | |
| North Fork Malheur R. | " | " | " | " | " | " | " |
| 11. Owyhee Basin | | | | | | | |
| Owyhee R. Main Stem | Natural & Regulated | I | USGS/OWRD ² | Idaho A | 1:250,000
1:62,500
1:24,000 | OWRD | USGS |
| Crooked Cr. | Natural | none | " | " | " | " | " |
| Jordon Cr. | Regulated | I | " | " | " | " | " |
| 12. Malheur Lake Basin | | | | | | | |
| Silvies R. | Natural | none | USGS/OWRD ² | Idaho A | 1:330,000
1:64,500
1:24,000 | OWRD | USGS |
| Donner & Blitzen R. | " | " | " | " | " | " | " |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

1. The first part of the document is a list of names and addresses.

2. The second part is a list of names and addresses.

3. The third part is a list of names and addresses.

4. The fourth part is a list of names and addresses.

5. The fifth part is a list of names and addresses.

6. The sixth part is a list of names and addresses.

7. The seventh part is a list of names and addresses.

8. The eighth part is a list of names and addresses.

9. The ninth part is a list of names and addresses.

10. The tenth part is a list of names and addresses.

11. The eleventh part is a list of names and addresses.

12. The twelfth part is a list of names and addresses.

13. The thirteenth part is a list of names and addresses.

14. The fourteenth part is a list of names and addresses.

15. The fifteenth part is a list of names and addresses.

16. The sixteenth part is a list of names and addresses.

17. The seventeenth part is a list of names and addresses.

18. The eighteenth part is a list of names and addresses.

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| <u>13. Goose & Summer Lakes Basin</u> | | | | | | | |
| Chewaucan R. | Natural | none | USGS/OWRD ² | Idaho A | 1:315,000
1:64,500
1:24,000 | OWRD | USGS |
| <u>14. Klamath Basin</u> | | | | | | | |
| Jenny Cr. | Regulated | I | USGS/OWRD ² | Idaho A | 1:280,000
1:64,500
1:24,000 | OWRD | USGS |
| Klamath R. | " | I,P | " | " | " | " | " |
| Sprague R. | Natural & Regulated | I | " | " | " | " | " |
| Williamson R. | " | " | " | " | " | " | " |
| <u>15. Rogue Basin</u> | | | | | | | |
| Rogue R.
Main Stem
(cont.) | Natural & Regulated | MP | USGS/OWRD ² | Idaho A | 1:260,000
1:64,500 | OWRD | USGS |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

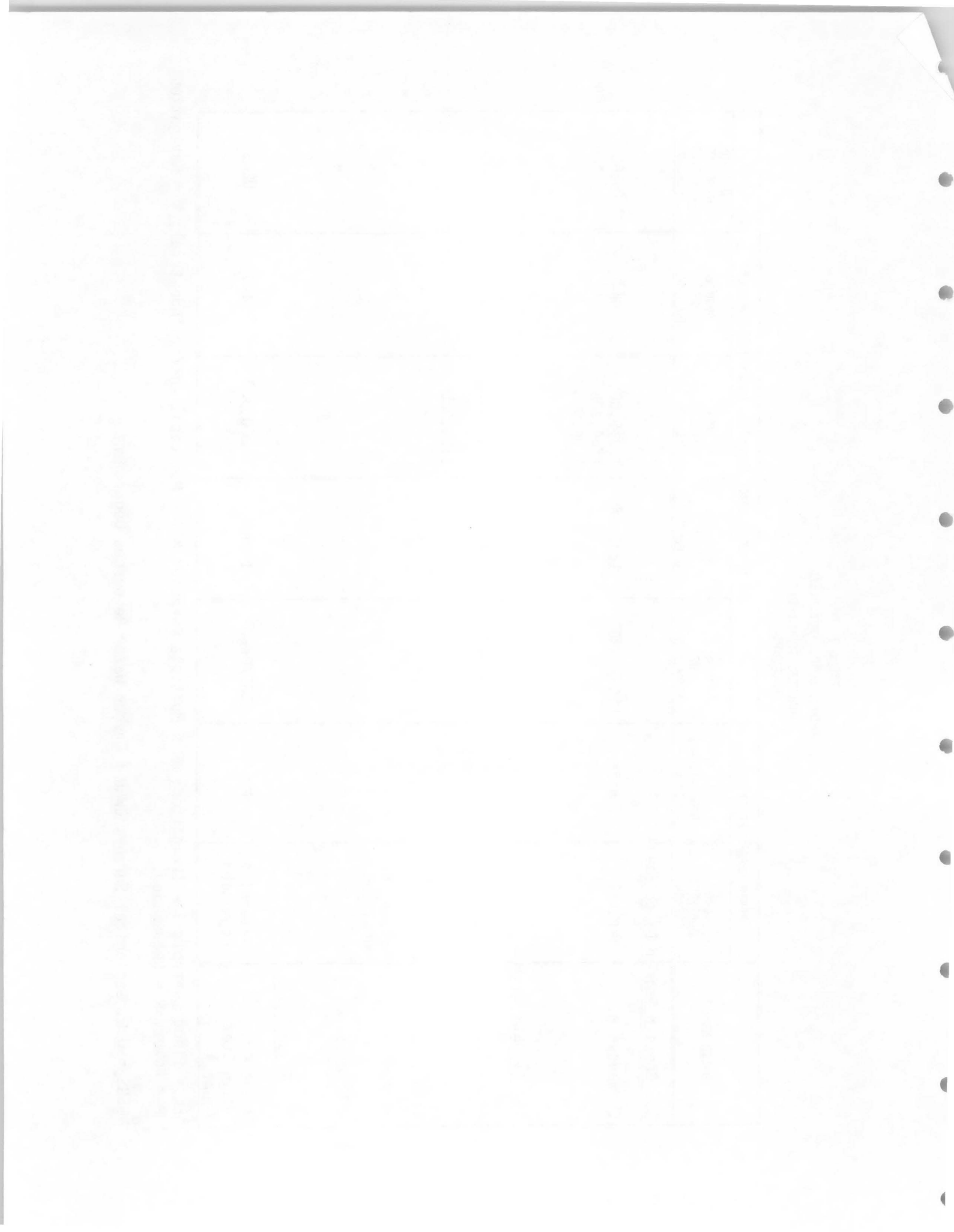


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|--------------------------|-----------------------|-------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| (15. Rogue Basin cont.) | | | | | | | |
| Applegate R. | " | I | " | " | " | " | " |
| Evans Cr. | " | " | " | " | " | " | " |
| Bear Cr. | " | " | " | " | " | " | " |
| Big Butte Cr. | " | I, M&I | " | " | " | " | " |
| Little Butte Cr. | " | " | " | " | " | " | " |
| Other Streams | Natural | none | " | " | " | " | " |
| 16. Umpqua Basin | | | | | | | |
| North Umpqua R. & Tribs. | Natural & Regulated | P,R | USGS/OWRD ² | Idaho A | 1:260,000
1:62,500 | OWRD | USGS |
| Other Streams | Natural | none | " | " | " | " | " |
| 17. South Coast Basin | | | | | | | |
| All Streams | Natural | none | USGS/OWRD ² | Idaho A | 1:200,000
1:62,500
1:24,000 | OWRD | USGS |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

3. The third part of the document is a list of names and addresses of the members of the committee.

4. The fourth part of the document is a list of names and addresses of the members of the committee.

5. The fifth part of the document is a list of names and addresses of the members of the committee.

6. The sixth part of the document is a list of names and addresses of the members of the committee.

7. The seventh part of the document is a list of names and addresses of the members of the committee.

8. The eighth part of the document is a list of names and addresses of the members of the committee.

9. The ninth part of the document is a list of names and addresses of the members of the committee.

10. The tenth part of the document is a list of names and addresses of the members of the committee.

11. The eleventh part of the document is a list of names and addresses of the members of the committee.

12. The twelfth part of the document is a list of names and addresses of the members of the committee.

13. The thirteenth part of the document is a list of names and addresses of the members of the committee.

14. The fourteenth part of the document is a list of names and addresses of the members of the committee.

15. The fifteenth part of the document is a list of names and addresses of the members of the committee.

16. The sixteenth part of the document is a list of names and addresses of the members of the committee.

17. The seventeenth part of the document is a list of names and addresses of the members of the committee.

18. The eighteenth part of the document is a list of names and addresses of the members of the committee.

19. The nineteenth part of the document is a list of names and addresses of the members of the committee.

20. The twentieth part of the document is a list of names and addresses of the members of the committee.

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
OREGON

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|---------------------|-----------------------|-------------------|---|----------------------------|-----------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION 1 TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| 18. Mid-Coast Basin | | | | | | | |
| Siletz R. | Natural & Regulated | M&I | USGS/OWRD ² | Idaho A | 1:180,000
1:62,500 | OWRD | USGS |
| Other Streams | Natural | none | " | " | " | " | " |

¹FC = Flood Control; I = Irrigation; MP = Multiple Purpose; M&I = Municipal and/or Industrial; N = Navigation; P = Power; R = Recreation.

²USGS = U.S. Geological Survey; OWRD = Oregon Water Resources Department

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|--------------------------|--------------------------|--|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF MAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Bear River | Regulated | Flood-Control
Irrigation
Power | USGS
IDWR
Utah Power
and Light | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho C
Idaho D |
| Kootenai | Regulated
and Natural | Flood-Control
Power | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | Montana A |
| Pend O'Reille | Regulated
and Natural | Power
Recreation | USGS
IDWR | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho C |
| Spokane | Regulated
and Natural | Irrigation
Power
Recreation | USGS
BPA | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | BPA |
| Snake River
Main Stem | Regulated
and Natural | Irrigation
Power
Flood-Control
Recreation | USGS
IDWR | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho C |

USGS = U.S. Geological Survey

IDWR = Idaho Department of Water Resources

BPA = Bonneville
Power Administration

1. Name of the person
2. Address

3. Date of birth
4. Sex
5. Religion
6. Education
7. Occupation
8. Marital status
9. Family members
10. Other details

11. Signature
12. Date
13. Place
14. Other details

15. Other details

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|------------|-----------------------|--------------------------------------|---|-------------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF MAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Palouse | Natural | None | USGS | WSU | 1:250,000
1:62,500
1:24,000 | PNWRBC | NA |
| Clearwater | Regulated and Natural | Flood-Control
Power
Recreation | USGS
BPA | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | BPA
(Special) |
| Salmon | Regulated and Natural | Irrigation | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | WSU |
| Wildhorse | Natural | None | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | NA |
| Weiser | Regulated and Natural | Irrigation | USGS
IDWR | Idaho A
Idaho D
Idaho E | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D
Idaho E |

USGS = U.S. Geological Survey BPA = Bonneville Power Administration IDWR = Idaho Dept. of Water Resources

TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|------------|-----------------------|---|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Payette | Regulated and Natural | Irrigation Power | USGS
IDWR | Idaho A
Idaho E | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho C |
| Boise | Regulated and Natural | Irrigation Power
Recreation
Flood-Control | USGS
IDWR | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho C |
| Owyhee | Natural and Regulated | Irrigation | USGS | Idaho D | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Bruneau | Natural and Regulated | Irrigation | USGS | Idaho D | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Wood River | Natural and Regulated | Irrigation | USGS
IDWR | Idaho A | 1:250,000
1:62,500
1:24,500 | PNWRBC | Idaho B
Idaho D |

USGS = U.S. Geological Survey IDWR = Idaho Department of Water Resources BPA = Bonneville Power Administratio

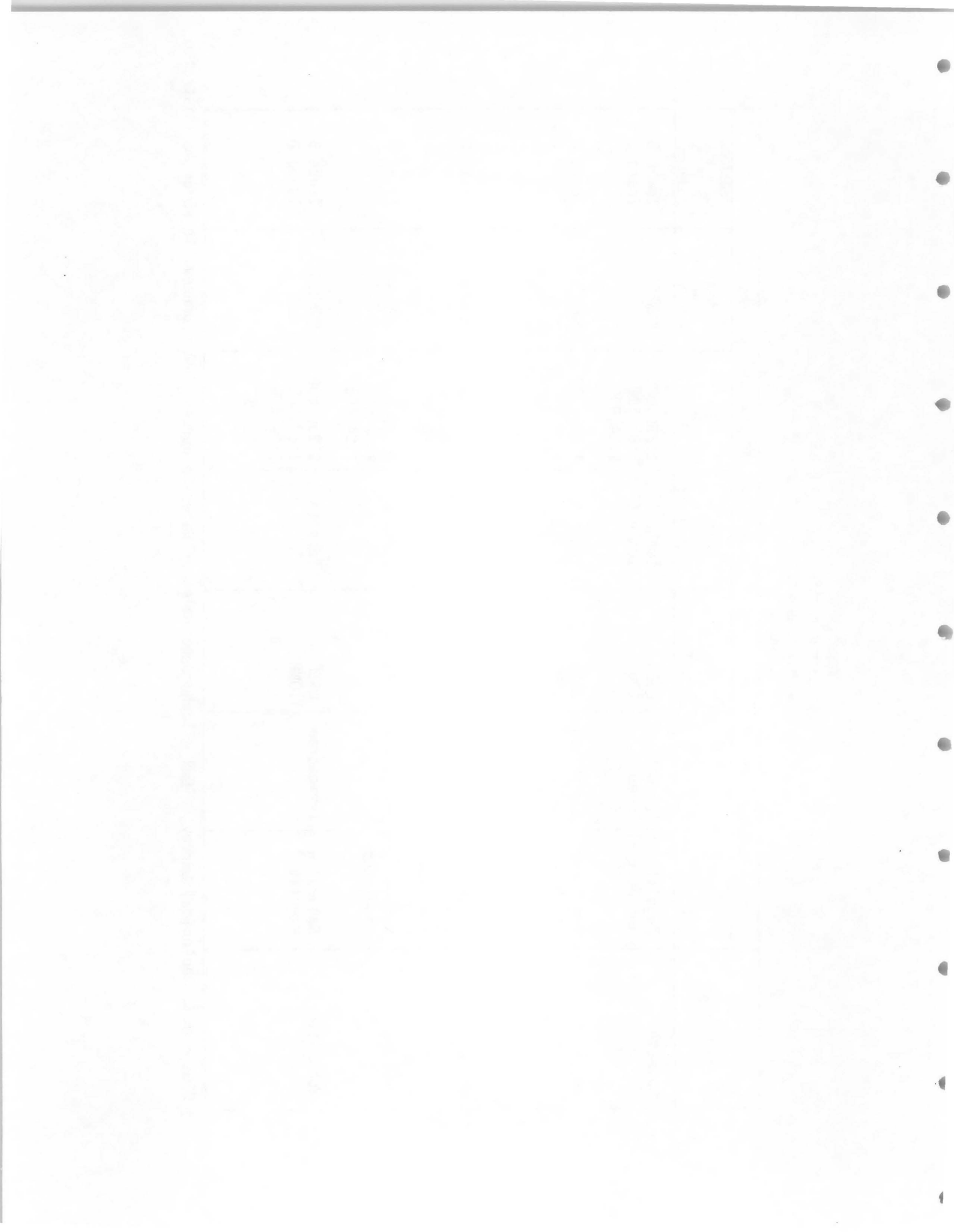


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|--------------------|-----------------------|-----------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Salmon Falls Creek | Regulated | Irrigation | USGS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Box Canyon Springs | Regulated | Irrigation | USGS | NA | 1:250,000
1:24,000 | PNWRBC | Idaho D |
| Deep Creek | Regulated | Irrigation | ARS | NA | 1:250,000
1:24,000 | PNWRBC | Idaho D |
| Lost River | Regulated | Irrigation | USGS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Mud Creek | Regulated | Irrigation | ARS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Niagara Springs | Regulated | Irrigation | ARS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |

USGS = U.S. Geological Survey

ARS = Agricultural Research Service



TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|--------------|-----------------------|-----------------------------|---|----------------------------|-----------------------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF MAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Cedar Draw | Regulated | Irrigation | ARS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Rock Creek | Regulated | Irrigation | USGS | NA | 1:250,000
1:24,000 | PNWRBC | Idaho D |
| Portneuf | Regulated | Water-Supply and Irrigation | USGS
IDWR | NA | 1:250,00
1:62,500
1:24,000 | PNWRBC | Idaho B |
| Mud Lake | Regulated | Irrigation | USGS | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Blackfoot | Regulated and Natural | Water-Supply Irrigation | USGS
IDWR | Idaho A | 1,250,000
1:62,500
1:24,000 | PNWRBC | Idaho B |
| Willow Creek | Regulated | Flood-Control Irrigation | USGS
IDWR | NA | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho D |

ARS = Agricultural Research Service USGS = U.S. Geological Survey IDWR = Idaho Department of Water Resources

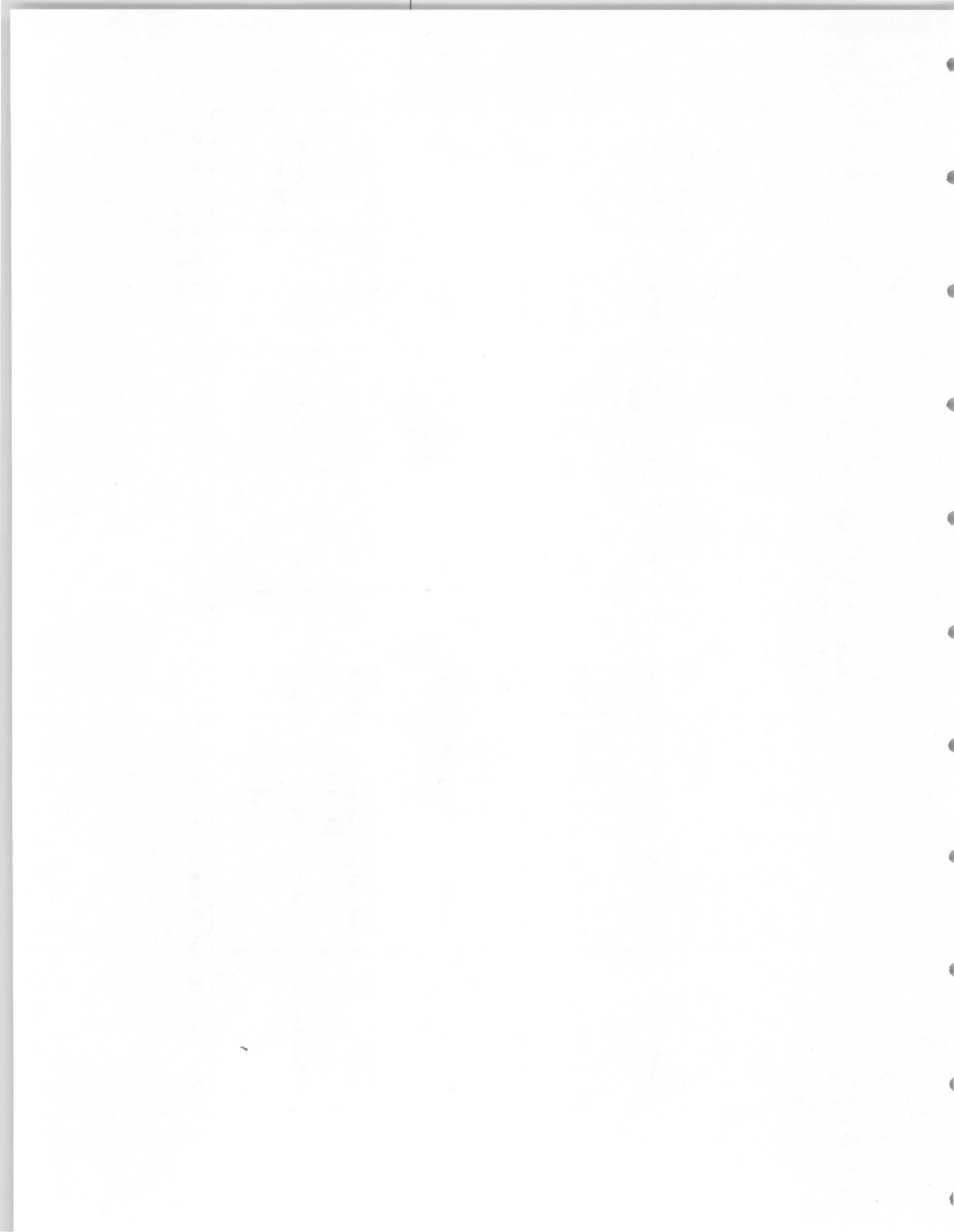


TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Idaho

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|--|-----------------------|--------------------------------|---|----------------------------|-----------------------------------|--------------------|--|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF NAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Henry's Fork | Natural and Regulated | Irrigation Flood-Control Power | USGS
IDWR | WSU
Idaho D | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho B
Idaho C
Idaho D
Idaho E |
| Salt River | Natural and Regulated | Irrigation | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | Idaho D |
| Greys River | Minor Regulation | Irrigation | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | NA |
| Tributaries to Snake River Above Palisades Reservoir | Natural | None | USGS | Idaho A | 1:250,000
1:62,500
1:24,000 | PNWRBC | NA |

USGS = U.S. Geological Survey

IDWR = Idaho Department of Water Resources



TABLE I
HYDROELECTRIC POTENTIAL
ANALYSIS TECHNIQUES
Montana

| BASIN NAME | BASIN CHARACTERISTICS | | HYDROELECTRIC POTENTIAL ANALYSIS TECHNIQUES | | | | |
|------------------|---------------------------|----------------------|---|----------------------------|---------------------|--------------------|-------------------------------------|
| | FLOW CLASSIFICATION | REGULATION TYPE | SOURCE OF FLOW DATA | DURATION CURVE DEVELOPMENT | MAP SCALES USED | SOURCE OF MAP MAPS | DURATION CURVE FOR REGULATED STREAM |
| Clark Fork River | Unregulated and Regulated | Power, Flood Control | U.S.G.S. | Montana A | 1-250000
1-62500 | USDA SCS | N.A. |
| Kootenai River | Unregulated and Regulated | Power, Flood Control | U.S.G.S. | Montana A | 1-250000
1-62500 | USDA SCS | N.A. |
| Blackfoot River | Unregulated and Regulated | Irrigation | U.S.G.S. | Montana A | 1-250000
1-62500 | USDA SCS | N.A. |
| Bitterroot River | Unregulated and Regulated | Irrigation | U.S.G.S. | Montana A | 1-250000
1-62500 | USDA SCS | N.A. |
| Flathead River | Unregulated and Regulated | Power, Flood Control | U.S.G.S. | Montana A | 1-250000
1-62500 | USDA SCS | N.A. |

U.S.G.S. = U.S. Geological Survey

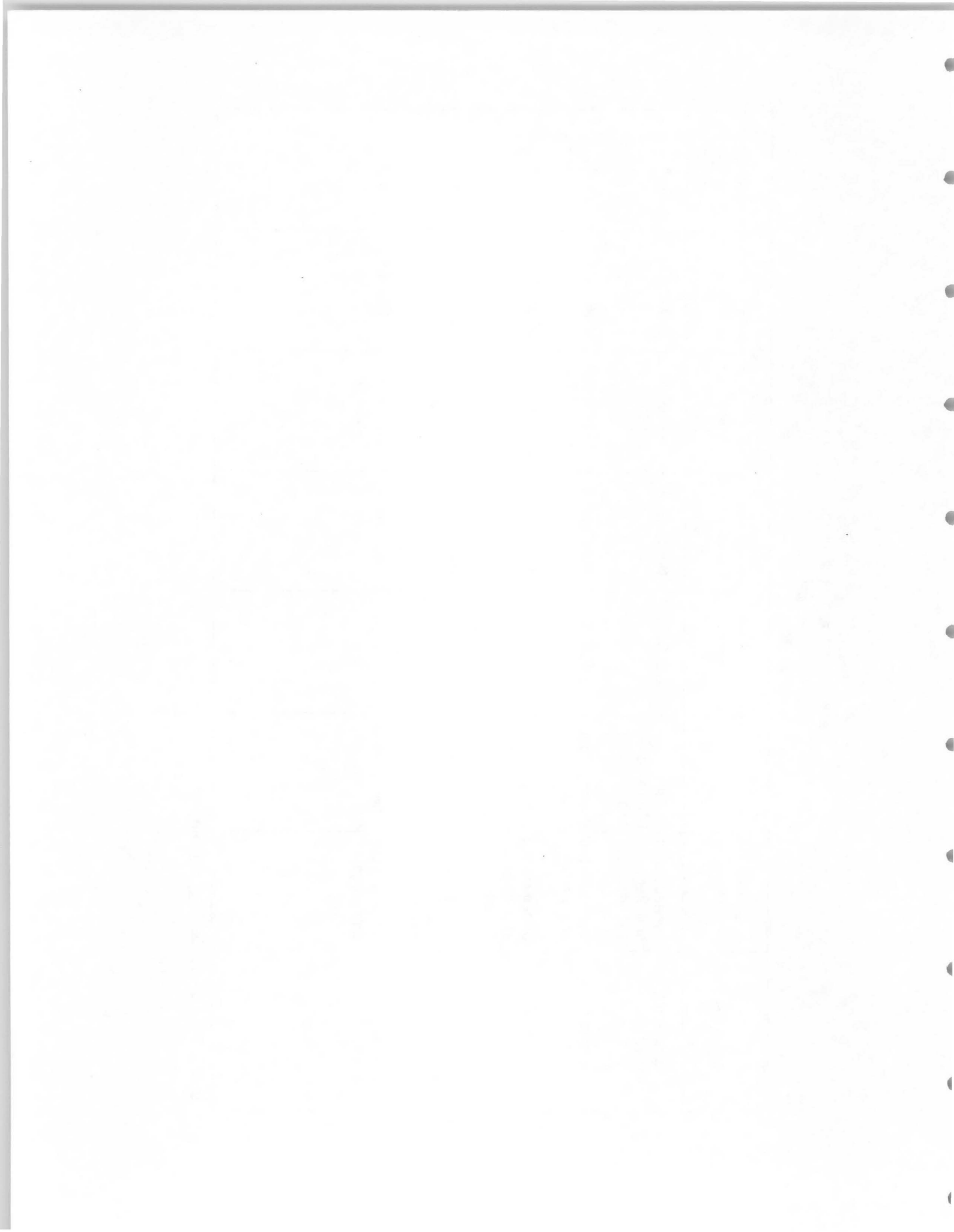


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 Washington

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Nooksack R | 991.62 | 601.36 | 429.76 | 251.53 | 162.69 | 4362.09 | 3726.68 | 3115.47 | 2108.64 | 1426.11 |
| Silesia Cr | 47.43 | 21.23 | 116.80 | 2.91 | 1.74 | 150.50 | 106.00 | 72.74 | 24.11 | 9.18 |
| Chilliwack R | 52.85 | 23.57 | 12.97 | 3.23 | 1.95 | 166.90 | 118.39 | 80.59 | 26.69 | 17.05 |
| Sumas R | 2.24 | 1.39 | 1.00 | 0.58 | 0.31 | 10.02 | 8.68 | 7.26 | 4.81 | 3.40 |
| Samish R | 10.92 | 5.71 | 3.27 | 0.70 | 0.39 | 37.19 | 28.42 | 22.14 | 5.87 | 3.47 |
| Skagit R | 5011.03 | 2186.23 | 1429.62 | 837.48 | 552.11 | 15904.08 | 13094.19 | 10457.06 | 7035.66 | 5650.11 |
| Stillaguamish R | 769.02 | 408.43 | 258.71 | 95.13 | 40.76 | 2815.09 | 2220.89 | 1697.64 | 771.48 | 357.21 |
| Snohomish R | 2621.32 | 1430.12 | 888.57 | 409.65 | 211.71 | 9972.06 | 7972.06 | 6071.12 | 3369.18 | 1855.76 |
| Sammamish R | 5.05 | 2.81 | 1.61 | 0.71 | 0.50 | 18.94 | 15.21 | 11.00 | 5.97 | 4.27 |
| Cedar R | 133.35 | 64.12 | 43.51 | 19.70 | 11.30 | 437.10 | 370.00 | 294.94 | 163.79 | 98.82 |
| Green R | 282.24 | 197.39 | 90.69 | 34.65 | 21.33 | 1376.71 | 1064.88 | 601.45 | 289.34 | 186.83 |
| Puyallup R | 1031.03 | 634.81 | 454.94 | 269.59 | 181.61 | 4605.40 | 4001.00 | 3298.63 | 2264.26 | 1592.43 |
| Nisqually R | 488.66 | 296.71 | 200.54 | 102.48 | 64.95 | 1991.93 | 1725.30 | 1409.87 | 856.94 | 539.97 |
| Chambers Cr | 2.77 | 1.71 | 1.05 | 0.53 | 0.37 | 11.42 | 9.57 | 7.29 | 4.48 | 3.27 |
| Deschutes R | 40.90 | 18.69 | 10.95 | 4.28 | 3.04 | 137.50 | 99.30 | 72.70 | 36.20 | 26.55 |
| Sherwood Cr | 0.98 | 0.48 | 0.27 | 0.11 | 0.08 | 3.36 | 2.51 | 1.77 | 0.90 | 0.70 |
| Gosnell Cr | 2.73 | 1.33 | 0.74 | 0.30 | 0.22 | 9.34 | 6.97 | 4.95 | 2.51 | 1.96 |
| Goldsborough Cr | 5.95 | 2.89 | 1.61 | 0.72 | 0.49 | 20.35 | 15.22 | 10.72 | 5.43 | 4.25 |
| Tahuya R | 6.12 | 2.41 | 1.30 | 0.61 | 0.46 | 18.80 | 12.90 | 8.96 | 5.18 | 4.03 |
| Lilliwaup Cr | 9.59 | 4.68 | 2.69 | 1.02 | 0.49 | 32.80 | 25.00 | 17.90 | 8.28 | 4.26 |
| Dosewallips R | 173.03 | 104.31 | 70.99 | 35.85 | 24.31 | 729.50 | 620.50 | 503.50 | 310.20 | 212.58 |
| Duckabush R | 114.22 | 68.34 | 45.19 | 22.61 | 11.89 | 470.30 | 395.70 | 312.90 | 186.19 | 104.23 |
| Hamma Hamma R | 83.23 | 46.16 | 37.60 | 13.91 | 6.91 | 324.98 | 264.33 | 209.14 | 114.39 | 60.34 |
| Skokomish R | 218.19 | 111.09 | 69.77 | 26.56 | 13.71 | 781.16 | 606.47 | 462.56 | 218.76 | 120.15 |
| Little Quilcene | 9.69 | 5.78 | 4.06 | 2.19 | 1.04 | 41.57 | 34.42 | 28.49 | 17.99 | 9.16 |
| Big Quilcene R | 33.67 | 20.08 | 14.12 | 7.59 | 3.63 | 144.52 | 119.65 | 98.96 | 62.61 | 31.71 |
| Elwha R | 392.25 | 244.95 | 157.40 | 94.53 | 62.65 | 1679.35 | 1424.83 | 1166.84 | 786.61 | 516.88 |
| Morse Cr | 25.10 | 14.09 | 9.65 | 4.56 | 2.55 | 101.00 | 82.70 | 66.80 | 37.50 | 22.30 |

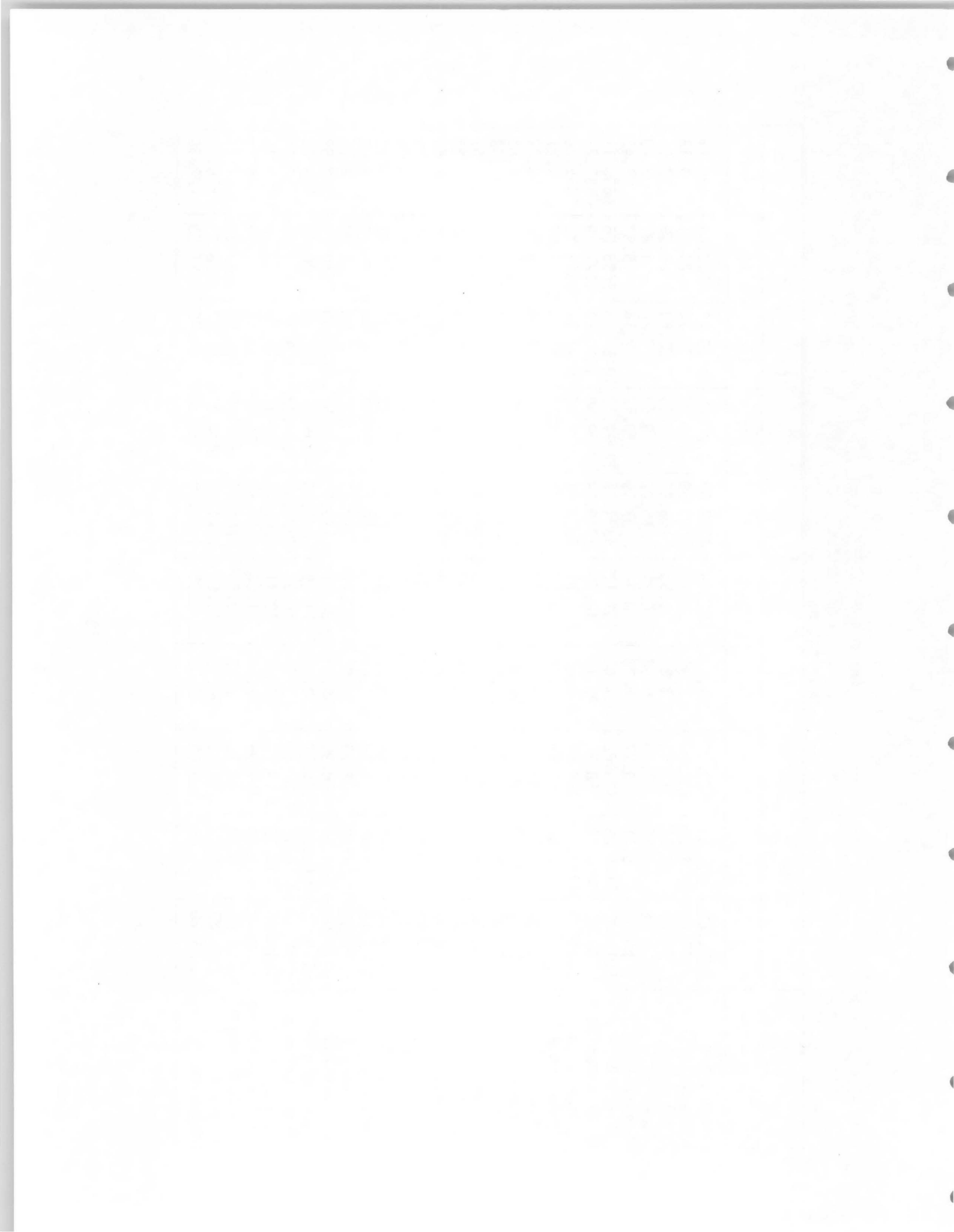


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 Washington

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Willapa Cr | 42.15 | 17.14 | 8.25 | 1.97 | 0.97 | 123.88 | 82.08 | 50.86 | 16.21 | 8.35 |
| North Nemah R | 4.12 | 1.68 | 0.82 | 0.24 | 0.13 | 12.26 | 8.27 | 5.21 | 2.00 | 1.13 |
| Bear R | 2.14 | 0.99 | 0.49 | 0.15 | 0.07 | 6.75 | 4.86 | 3.14 | 1.23 | 0.61 |
| Naselle R | 46.75 | 18.98 | 9.18 | 2.48 | 1.37 | 138.58 | 92.54 | 57.62 | 20.56 | 12.01 |
| Palix R | 4.19 | 2.10 | 1.22 | 0.44 | 0.27 | 14.70 | 11.00 | 7.92 | 3.64 | 2.40 |
| Grays R | 85.33 | 35.65 | 18.32 | 5.38 | 2.78 | 257.99 | 175.98 | 115.52 | 44.20 | 18.13 |
| Skamokawa R | 6.76 | 2.95 | 1.54 | 0.41 | 0.22 | 20.72 | 14.49 | 9.63 | 3.41 | 1.93 |
| Elochoman R | 29.70 | 12.98 | 6.80 | 1.82 | 0.97 | 91.19 | 63.70 | 42.38 | 14.99 | 8.50 |
| Mill Cr | 4.10 | 1.94 | 0.76 | 0.20 | 0.10 | 12.60 | 8.82 | 4.76 | 1.68 | 0.89 |
| Abernathy Cr | 6.19 | 2.75 | 1.23 | 0.31 | 0.17 | 18.34 | 12.99 | 7.64 | 2.58 | 1.47 |
| German Cr | 12.10 | 5.35 | 2.39 | 0.61 | 0.33 | 35.90 | 25.30 | 14.90 | 5.02 | 2.88 |
| Coal Cr | 1.80 | 0.80 | 0.36 | 0.09 | 0.05 | 5.36 | 3.78 | 2.22 | 0.75 | 0.43 |
| Cowlitz R | 2194.10 | 1169.36 | 714.33 | 308.19 | 194.28 | 8034.49 | 6448.07 | 4909.73 | 2582.90 | 1703.27 |
| Kalama R | 201.08 | 104.97 | 63.02 | 25.76 | 17.17 | 722.61 | 570.92 | 419.97 | 216.50 | 150.55 |
| Lewis R | 738.79 | 377.56 | 223.39 | 80.90 | 48.58 | 2604.44 | 2000.66 | 1464.91 | 673.14 | 424.90 |
| Salmon Cr | 9.77 | 3.84 | 1.74 | 0.33 | 0.19 | 27.40 | 17.78 | 10.35 | 2.69 | 1.59 |
| LaCamas Cr | 6.31 | 2.83 | 1.47 | 0.43 | 0.19 | 19.87 | 13.88 | 9.13 | 3.48 | 1.63 |
| Washougal R | 166.31 | 76.63 | 41.06 | 10.02 | 5.65 | 524.60 | 376.00 | 252.13 | 82.30 | 49.45 |
| Hamilton Cr | 4.32 | 2.27 | 1.23 | 0.21 | 0.10 | 14.40 | 11.20 | 7.45 | 1.71 | 0.84 |
| Rock Cr | 34.30 | 18.10 | 9.80 | 1.68 | 0.76 | 114.30 | 88.90 | 59.30 | 13.59 | 6.71 |
| Wind R | 256.32 | 145.64 | 90.50 | 30.12 | 20.11 | 964.71 | 781.26 | 585.67 | 252.96 | 176.04 |
| Ltl White Salmon | 116.86 | 71.86 | 50.66 | 20.54 | 11.63 | 489.00 | 365.10 | 341.10 | 169.31 | 101.72 |
| White Salmon | 319.58 | 193.81 | 122.68 | 81.47 | 58.57 | 1407.34 | 1177.68 | 932.83 | 689.69 | 513.60 |
| Klickitat R | 624.76 | 331.09 | 213.39 | 142.10 | 109.72 | 2512.77 | 2029.14 | 1614.82 | 1217.16 | 949.03 |
| Walla Walla R | 115.21 | 58.29 | 29.36 | 11.54 | 6.74 | 394.78 | 296.26 | 194.19 | 96.87 | 659.20 |
| Palouse R | 187.60 | 60.40 | 18.50 | 4.82 | 1.40 | 474.00 | 260.50 | 113.70 | 38.90 | 12.28 |
| Grande Ronde R | 461.40 | 215.67 | 102.09 | 48.66 | 36.83 | 1547.80 | 1116.40 | 718.60 | 412.80 | 322.43 |
| Asotin Cr | 14.36 | 7.26 | 4.77 | 3.49 | 2.99 | 58.00 | 45.80 | 12.71 | 29.95 | 16.14 |

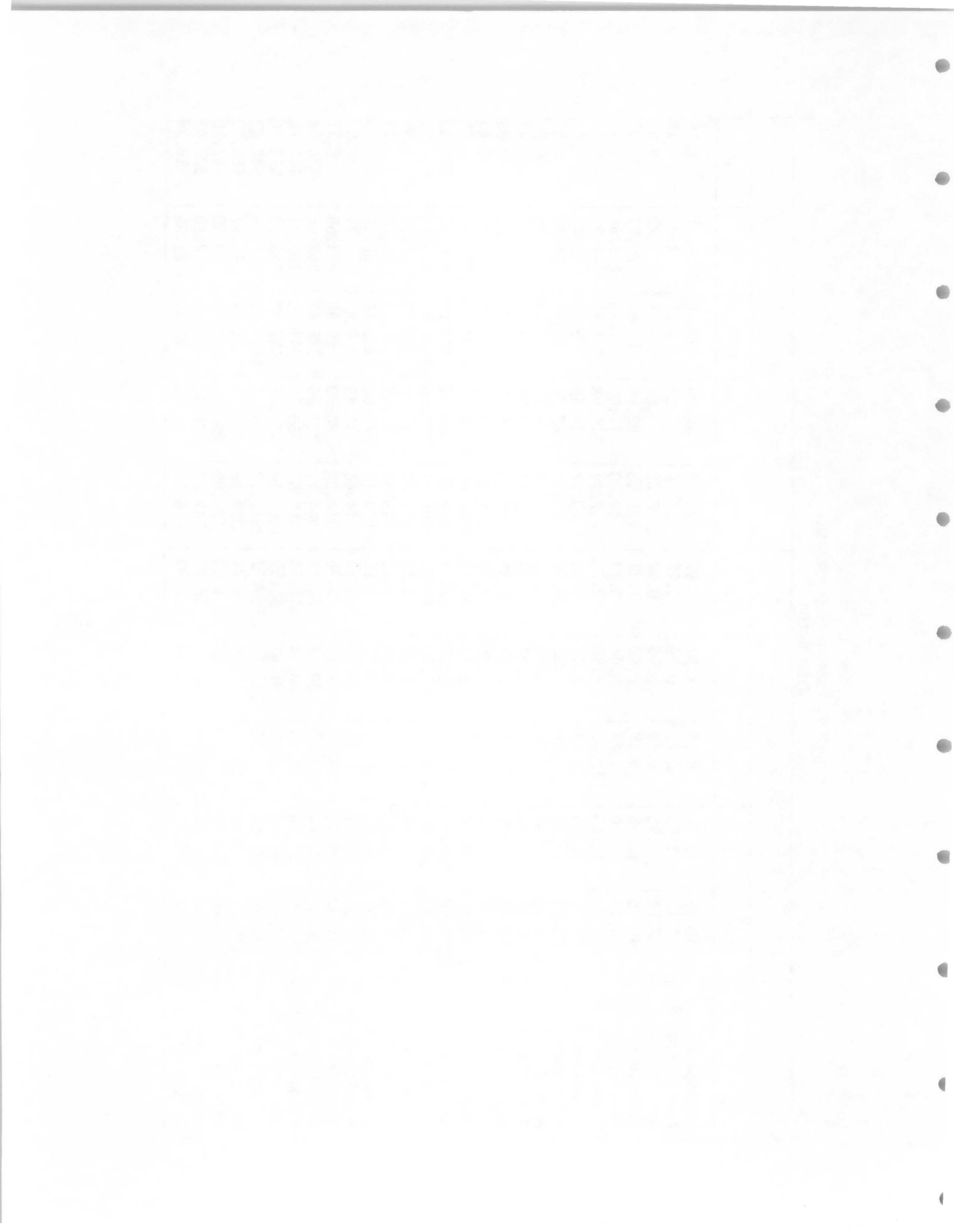


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 Washington

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Dungeness R | 140.57 | 82.40 | 55.43 | 32.86 | 22.41 | 590.90 | 498.17 | 387.12 | 276.15 | 132.34 |
| Sekiu R | 4.53 | 1.96 | 0.91 | 0.22 | 0.11 | 13.49 | 9.27 | 5.63 | 1.81 | 0.97 |
| Hoko R | 20.86 | 9.04 | 4.12 | 1.04 | 0.51 | 62.27 | 42.78 | 25.99 | 8.33 | 4.48 |
| Clallam R | 3.07 | 1.33 | 0.61 | 0.15 | 0.07 | 9.14 | 6.28 | 3.82 | 1.22 | 0.66 |
| Pysht R | 6.51 | 2.82 | 1.30 | 0.31 | 0.16 | 19.42 | 13.34 | 8.11 | 2.60 | 1.39 |
| Deep Cr | 2.32 | 0.98 | 0.53 | 0.10 | 0.06 | 6.92 | 4.71 | 3.18 | 0.85 | 0.49 |
| Lyre R | 27.93 | 17.05 | 12.04 | 4.42 | 2.38 | 115.00 | 96.80 | 80.10 | 36.47 | 20.57 |
| Sooes R | 7.33 | 2.85 | 1.30 | 0.31 | 0.14 | 20.53 | 13.48 | 7.95 | 2.50 | 1.24 |
| Ozette Cr | 4.89 | 1.90 | 0.86 | 0.21 | 0.09 | 13.69 | 8.98 | 5.30 | 1.66 | 0.83 |
| Quillayute R | 498.34 | 216.57 | 133.49 | 41.50 | 17.07 | 1618.00 | 1159.91 | 861.07 | 336.76 | 150.67 |
| Dickey R | 20.00 | 7.83 | 3.56 | 0.82 | 0.37 | 56.46 | 36.87 | 21.76 | 6.62 | 3.19 |
| Goodman Cr | 9.06 | 3.96 | 2.07 | 0.70 | 0.34 | 28.63 | 19.79 | 13.33 | 5.59 | 3.01 |
| Hoh R | 417.46 | 242.89 | 181.03 | 115.62 | 77.91 | 1843.60 | 1567.89 | 1351.12 | 972.92 | 682.64 |
| Cedar R | 2.17 | 0.95 | 0.49 | 0.16 | 0.08 | 6.85 | 4.74 | 3.19 | 1.34 | 0.72 |
| Mosquito Cr | 2.66 | 1.16 | 0.60 | 0.20 | 0.10 | 8.29 | 5.80 | 3.91 | 1.64 | 0.88 |
| Queets R | 649.19 | 294.45 | 175.79 | 75.80 | 37.92 | 2186.65 | 1593.75 | 1180.69 | 617.63 | 332.21 |
| Raft R | 18.08 | 7.89 | 4.12 | 1.38 | 0.68 | 56.96 | 39.54 | 26.61 | 11.15 | 5.99 |
| Quinalt R | 530.44 | 306.99 | 212.23 | 106.47 | 54.97 | 2194.50 | 1819.24 | 1486.22 | 872.71 | 481.99 |
| Moclips R | 8.65 | 3.83 | 2.21 | 0.74 | 0.41 | 28.02 | 20.15 | 14.32 | 4.23 | 3.55 |
| Copalis R | 4.20 | 1.86 | 1.07 | 0.36 | 0.20 | 13.58 | 9.76 | 6.94 | 2.93 | 1.72 |
| Humptulips R | 169.04 | 74.82 | 43.16 | 14.40 | 7.93 | 548.25 | 393.49 | 279.94 | 118.51 | 66.41 |
| Hoquium R | 9.76 | 4.32 | 2.50 | 0.84 | 0.45 | 31.66 | 22.69 | 16.14 | 6.85 | 4.01 |
| Wishkah R | 21.62 | 10.24 | 6.53 | 2.35 | 1.43 | 75.78 | 56.21 | 43.39 | 19.50 | 12.59 |
| Elk R | 1.15 | 0.45 | 0.21 | 0.04 | 0.03 | 3.22 | 2.12 | 1.29 | 0.39 | 0.23 |
| Johns River | 2.54 | 0.99 | 0.47 | 0.10 | 0.06 | 7.12 | 4.68 | 2.86 | 0.86 | 0.50 |
| Chehalis R | 676.48 | 296.32 | 155.97 | 49.87 | 27.03 | 2112.57 | 1471.99 | 995.78 | 411.99 | 236.80 |
| North R | 41.95 | 18.47 | 9.00 | 2.13 | 1.11 | 128.50 | 88.24 | 55.58 | 17.69 | 9.65 |
| Smith Cr | 12.49 | 4.89 | 1.96 | 0.51 | 0.19 | 35.07 | 22.29 | 12.18 | 4.14 | 1.63 |



TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 Washington

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Tucannon R | 27.37 | 15.44 | 9.52 | 5.77 | 3.89 | 110.49 | 90.71 | 69.29 | 48.58 | 34.13 |
| Yakima | 1623.43 | 732.79 | 458.97 | 126.90 | 90.20 | 5680.49 | 4390.36 | 2935.31 | 1221.74 | 677.56 |
| Columbia R | 762.00 | 573.00 | 487.00 | 396.00 | 341.00 | 4540.00 | 4220.00 | 3930.00 | 3400.00 | 2990.00 |
| Crab Cr | 4.57 | 3.21 | 2.74 | 1.41 | 1.19 | 24.13 | 21.40 | 19.17 | 12.22 | 10.51 |
| Wenatchee R | 1435.38 | 526.47 | 266.94 | 134.47 | 94.56 | 4285.77 | 2678.71 | 1871.41 | 1236.39 | 818.20 |
| Entiat R | 201.92 | 49.25 | 24.83 | 14.19 | 10.64 | 512.70 | 266.41 | 180.24 | 120.57 | 93.20 |
| Chelan R | 739.44 | 296.70 | 141.15 | 61.77 | 39.31 | 2265.09 | 1506.63 | 957.03 | 516.92 | 344.41 |
| Pasayten R | 34.52 | 7.69 | 3.68 | 2.29 | 1.72 | 84.77 | 41.11 | 26.98 | 19.54 | 15.08 |
| Methow R | 615.35 | 149.53 | 70.76 | 46.86 | 35.93 | 1528.40 | 805.33 | 529.66 | 402.20 | 351.86 |
| Okanogan R | 280.21 | 68.73 | 38.78 | 24.42 | 17.36 | 742.40 | 391.99 | 288.28 | 206.62 | 152.16 |
| Nespelem R | 22.71 | 4.56 | 2.31 | 1.67 | 1.29 | 56.00 | 25.50 | 17.76 | 14.17 | 11.25 |
| Sanpoil R | 69.52 | 20.05 | 12.24 | 7.53 | 4.69 | 200.96 | 117.66 | 90.10 | 63.64 | 41.06 |
| Spokane R | 313.48 | 151.37 | 70.65 | 32.00 | 20.63 | 1051.92 | 750.99 | 480.14 | 267.27 | 180.60 |
| Colville R | 9.53 | 4.17 | 2.67 | 1.78 | 1.26 | 35.08 | 25.57 | 20.01 | 15.04 | 11.09 |
| Kettle R | 184.00 | 35.83 | 13.41 | 6.63 | 4.10 | 414.10 | 172.66 | 92.42 | 55.62 | 36.03 |
| Big Sheep Cr | 63.90 | 13.99 | 5.64 | 2.53 | 1.36 | 145.60 | 67.40 | 37.50 | 21.27 | 14.91 |
| Pend Oreille R | 34.60 | 10.00 | 5.06 | 2.53 | 1.57 | 94.00 | 52.60 | 35.50 | 21.30 | 15.73 |
| Snake R | 310.38 | 182.65 | 133.11 | 92.63 | 75.29 | 1415.13 | 1191.35 | 1017.81 | 787.29 | 654.41 |
| TOTAL | 28307.23 | 13928.40 | 8861.75 | 4443.07 | 2905.73 | 102024.84 | 80124.47 | 61313.91 | 37499.61 | 26628.64 |

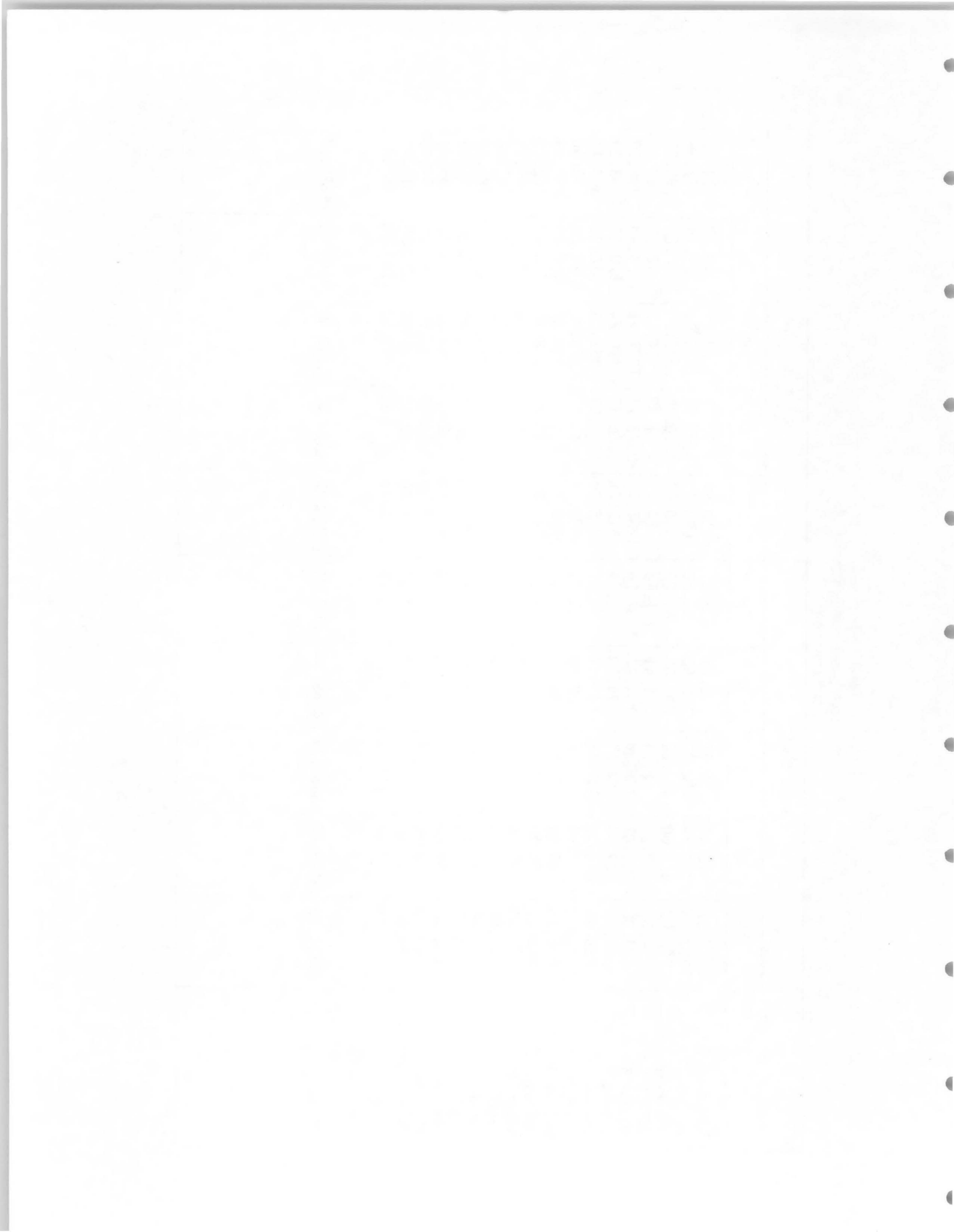


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| 1. North Coast | 970.24 | 377.74 | 172.67 | 37.84 | 19.97 | 2336.27 | 1798.20 | 1079.64 | 311.89 | 174.90 |
| 2. Willamette | 7036.17 | 3484.58 | 2040.66 | 781.32 | 517.59 | 24906.06 | 18785.83 | 13726.39 | 6555.69 | 4543.90 |
| 3. Sandy | 790.59 | 445.45 | 265.67 | 84.91 | 51.30 | 2970.91 | 2366.23 | 1736.28 | 707.01 | 449.42 |
| 4. Hood | 265.17 | 138.34 | 78.91 | 37.97 | 25.61 | 982.67 | 760.46 | 552.22 | 319.11 | 224.35 |
| 5. Deschutes | 1936.76 | 1283.35 | 981.49 | 713.48 | 585.16 | 9836.16 | 8691.40 | 7633.72 | 6101.70 | 5125.98 |
| 6. John Day | 1193.75 | 475.44 | 193.95 | 78.27 | 31.52 | 3537.97 | 2279.49 | 1293.12 | 634.46 | 276.13 |
| 7. Umatilla | 274.29 | 132.64 | 54.46 | 16.18 | 1.67 | 865.92 | 617.75 | 343.80 | 125.85 | 14.60 |
| 8. Grand Ronde | 1663.19 | 573.98 | 255.21 | 132.31 | 95.33 | 4843.60 | 2935.31 | 1818.32 | 1118.45 | 835.07 |
| 9. Powder | 181.65 | 64.24 | 28.09 | 10.54 | 4.94 | 518.49 | 312.79 | 186.15 | 86.19 | 43.25 |
| 10. Malheur | 62.99 | 27.84 | 13.72 | 6.37 | 3.65 | 205.76 | 144.15 | 94.75 | 52.90 | 32.01 |
| 11. Owyhee | 528.02 | 125.05 | 47.11 | 24.41 | 16.85 | 1313.91 | 607.90 | 334.83 | 205.56 | 147.59 |
| 12. Malheur Lake | 9.59 | 2.49 | 1.16 | 0.48 | 0.21 | 24.87 | 12.43 | 7.78 | 3.91 | 1.84 |
| 13. Goose&SummerL | 9.68 | 2.83 | 1.34 | 0.73 | 0.47 | 26.82 | 14.83 | 9.62 | 6.13 | 4.14 |
| 14. Klamath | 2441.81 | 1311.35 | 678.76 | 67.90 | 37.75 | 8241.56 | 6261.02 | 4051.44 | 561.84 | 330.69 |
| 15. Rogue | 2875.26 | 1462.19 | 787.13 | 281.28 | 165.05 | 10058.14 | 7582.45 | 5217.03 | 2336.73 | 1445.85 |
| 16. Umpqua | 2000.27 | 912.05 | 444.36 | 135.17 | 85.79 | 6435.89 | 4529.31 | 2890.53 | 1130.01 | 751.55 |
| 17. South Coast | 1092.38 | 373.01 | 131.01 | 20.53 | 9.81 | 2906.18 | 1645.83 | 799.01 | 168.12 | 85.96 |
| 18. Mid-Coast | 738.37 | 272.38 | 116.76 | 25.82 | 13.74 | 2092.48 | 1276.06 | 730.78 | 212.99 | 120.37 |
| State Total* | 25023.80 | 12105.02 | 6786.55 | 2812.39 | 1954.17 | 87482.88 | 64951.45 | 46323.65 | 23675.56 | 17114.74 |

*This total includes Potential from the Snake River in Oregon and 1/2 of the Potential from the Common Idaho - Oregon Boundary Reaches. See page 70 for total values for these Snake River reaches.

[Faint, illegible text, likely bleed-through from the reverse side of the page]

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| 1. North Coast Basin | | | | | | | | | | |
| Lewis & Clark R. | 21.42 | 8.35 | 3.70 | 0.84 | 0.43 | 62.40 | 39.49 | 23.21 | 6.90 | 3.80 |
| Youngs R. | 25.85 | 10.08 | 4.45 | 1.01 | 0.52 | 75.26 | 47.62 | 27.91 | 8.33 | 4.57 |
| Big Cr. | 18.82 | 7.34 | 3.23 | 0.74 | 0.38 | 54.78 | 34.66 | 20.27 | 6.07 | 3.33 |
| Gnat Cr. | 1.58 | 0.62 | 0.27 | 0.06 | 0.03 | 4.60 | 2.91 | 1.70 | 0.51 | 0.28 |
| Clatskanie R. | 19.63 | 7.65 | 3.41 | 0.77 | 0.40 | 57.20 | 36.21 | 21.36 | 6.32 | 3.49 |
| Beaver Cr. | 9.39 | 3.66 | 1.61 | 0.37 | 0.19 | 27.32 | 17.28 | 10.08 | 3.03 | 1.66 |
| Necanicum R. | 11.08 | 4.32 | 1.94 | 0.43 | 0.23 | 32.31 | 20.46 | 12.12 | 3.57 | 1.98 |
| Elk Cr. | 2.72 | 1.06 | 0.47 | 0.11 | 0.05 | 7.91 | 5.00 | 2.92 | 0.88 | 0.48 |
| Nehalem R. | 409.83 | 159.47 | 74.14 | 15.95 | 8.51 | 1200.51 | 761.88 | 462.88 | 131.56 | 74.56 |
| Miami R. | 6.53 | 2.54 | 1.12 | 0.26 | 0.13 | 18.99 | 12.01 | 7.01 | 2.11 | 1.15 |
| Kilchis R. | 27.86 | 10.86 | 4.83 | 1.09 | 0.57 | 81.20 | 51.40 | 30.29 | 8.98 | 4.95 |
| Wilson R. | 149.15 | 58.07 | 26.52 | 5.82 | 3.07 | 435.96 | 276.38 | 165.82 | 47.95 | 26.87 |
| Trask R. | 124.92 | 48.64 | 22.10 | 4.88 | 2.56 | 364.89 | 231.26 | 138.25 | 40.17 | 22.44 |
| Tillamook R. | 5.06 | 1.97 | 0.87 | 0.20 | 0.10 | 14.74 | 9.33 | 5.47 | 1.63 | 0.90 |
| Nestucca R. | 116.11 | 45.21 | 20.51 | 4.53 | 2.38 | 339.10 | 214.89 | 128.33 | 37.35 | 20.84 |
| Little Nestucca R. | 18.19 | 7.09 | 3.15 | 0.71 | 0.37 | 53.00 | 33.55 | 19.77 | 5.86 | 3.23 |
| Neskowin R. | 2.10 | 0.82 | 0.36 | 0.08 | 0.04 | 6.11 | 3.86 | 2.24 | 0.68 | 0.37 |
| Basin Total | 970.24 | 377.74 | 172.67 | 37.84 | 19.97 | 2836.27 | 1798.20 | 1079.64 | 311.89 | 174.90 |

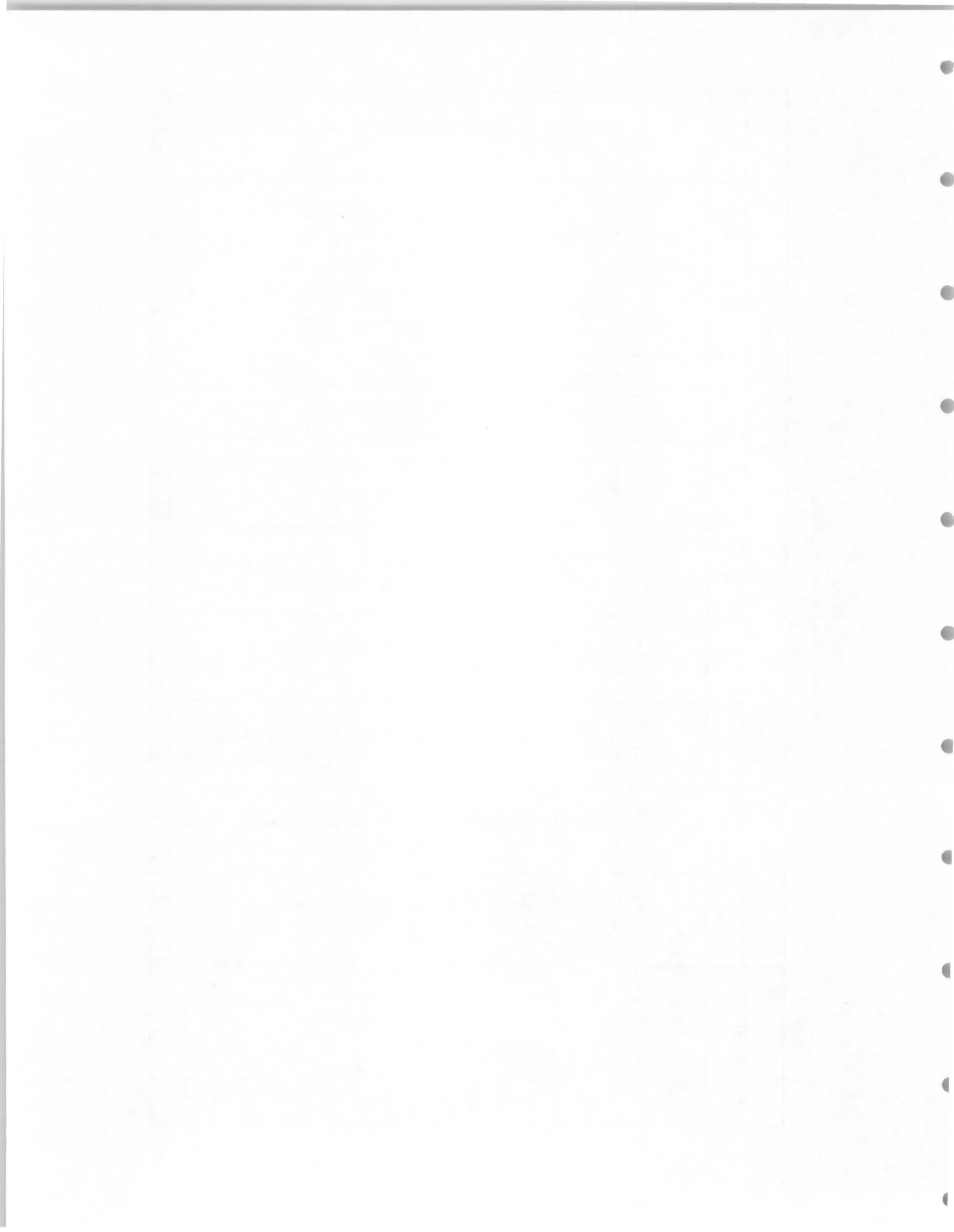


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| <u>2A. Upper Willamette Basin</u> | | | | | | | | | | |
| Willamette R.
Main Stem | 356.48 | 178.09 | 106.65 | 43.32 | 27.49 | 1285.63 | 973.09 | 722.75 | 362.18 | 240.83 |
| Long Tom R. | 24.12 | 10.44 | 4.86 | 1.43 | 0.82 | 74.91 | 50.96 | 31.38 | 11.90 | 7.22 |
| McKenzie R. | 1177.11 | 679.53 | 454.82 | 215.69 | 159.32 | 4848.49 | 3976.70 | 3189.32 | 1827.73 | 1395.67 |
| Coast Fork
Willamette R. | 155.54 | 67.56 | 31.74 | 9.92 | 5.67 | 486.13 | 331.98 | 206.46 | 82.22 | 49.67 |
| Middle Fork
Willamette R. | 876.26 | 386.62 | 187.10 | 64.06 | 36.39 | 2788.44 | 1930.57 | 1231.49 | 630.91 | 318.69 |
| Sub-Basin Total | 2589.52 | 1322.24 | 785.16 | 344.42 | 229.69 | 9483.60 | 7263.30 | 5381.40 | 2814.94 | 2012.07 |
| <u>2B. Mid-Willamette Basin</u> | | | | | | | | | | |
| Willamette R.
Main Stem | 664.29 | 311.99 | 193.77 | 82.67 | 54.46 | 2357.37 | 1740.14 | 1325.88 | 693.27 | 477.03 |
| Molalla R. | 438.89 | 203.72 | 109.98 | 25.90 | 12.43 | 1431.37 | 1019.34 | 690.90 | 212.17 | 108.86 |
| Yamhill R. | 133.81 | 48.63 | 18.61 | 2.89 | 1.29 | 367.50 | 218.26 | 113.06 | 23.59 | 11.27 |
| Rickreall Cr. | 16.26 | 6.11 | 2.25 | 0.34 | 0.15 | 44.94 | 27.16 | 13.66 | 2.74 | 1.28 |
| Luckiamute R. | 39.33 | 14.60 | 5.46 | 0.83 | 0.36 | 108.45 | 65.13 | 33.10 | 6.73 | 3.16 |
| Santiam R.
Main Stem | 70.38 | 35.80 | 20.91 | 5.98 | 3.06 | 246.95 | 186.37 | 134.22 | 49.18 | 26.80 |

| Year | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|
| Population | 150,000 | 155,000 | 160,000 | 165,000 | 170,000 | 175,000 | 180,000 | 185,000 | 190,000 | 195,000 | 200,000 | 205,000 | 210,000 | 215,000 | 220,000 | 225,000 | 230,000 | 235,000 | 240,000 | 245,000 | 250,000 | 255,000 | 260,000 | 265,000 | 270,000 | 275,000 | 280,000 | 285,000 | 290,000 | 295,000 | 300,000 | 305,000 | 310,000 | 315,000 | 320,000 | 325,000 | 330,000 | 335,000 | 340,000 | 345,000 | 350,000 | 355,000 | 360,000 | 365,000 | 370,000 | 375,000 | 380,000 | 385,000 | 390,000 | 395,000 | 400,000 | 405,000 | 410,000 | 415,000 | 420,000 | 425,000 | 430,000 | 435,000 | 440,000 | 445,000 | 450,000 | 455,000 | 460,000 | 465,000 | 470,000 | 475,000 | 480,000 | 485,000 | 490,000 | 495,000 | 500,000 | 505,000 | 510,000 | 515,000 | 520,000 | 525,000 | 530,000 | 535,000 | 540,000 | 545,000 | 550,000 | 555,000 | 560,000 | 565,000 | 570,000 | 575,000 | 580,000 | 585,000 | 590,000 | 595,000 | 600,000 | 605,000 | 610,000 | 615,000 | 620,000 | 625,000 | 630,000 | 635,000 | 640,000 | 645,000 | 650,000 | 655,000 | 660,000 | 665,000 | 670,000 | 675,000 | 680,000 | 685,000 | 690,000 | 695,000 | 700,000 | 705,000 | 710,000 | 715,000 | 720,000 | 725,000 | 730,000 | 735,000 | 740,000 | 745,000 | 750,000 | 755,000 | 760,000 | 765,000 | 770,000 | 775,000 | 780,000 | 785,000 | 790,000 | 795,000 | 800,000 | 805,000 | 810,000 | 815,000 | 820,000 | 825,000 | 830,000 | 835,000 | 840,000 | 845,000 | 850,000 | 855,000 | 860,000 | 865,000 | 870,000 | 875,000 | 880,000 | 885,000 | 890,000 | 895,000 | 900,000 | 905,000 | 910,000 | 915,000 | 920,000 | 925,000 | 930,000 | 935,000 | 940,000 | 945,000 | 950,000 | 955,000 | 960,000 | 965,000 | 970,000 | 975,000 | 980,000 | 985,000 | 990,000 | 995,000 | 1,000,000 |

TABLE II
MAXIMUM DEVELOPABLE POWER POTENTIAL
OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| North Santiam R. | 909.62 | 435.48 | 241.44 | 60.85 | 29.87 | 3035.91 | 2207.38 | 1527.41 | 499.23 | 271.80 |
| South Santiam R. | 750.77 | 352.83 | 192.43 | 46.60 | 22.57 | 2371.49 | 1774.31 | 1212.30 | 381.80 | 197.67 |
| Calapooia R. | 120.37 | 56.21 | 30.47 | 7.24 | 3.48 | 394.17 | 281.77 | 191.57 | 59.29 | 30.49 |
| Mary's R. | 42.46 | 15.51 | 5.90 | 0.91 | 0.40 | 116.74 | 69.52 | 35.84 | 7.42 | 3.53 |
| Rest of Basin | 29.48 | 13.47 | 7.16 | 1.62 | 0.77 | 94.98 | 66.92 | 44.82 | 13.28 | 6.73 |
| Sub-Basin Total | 3215.66 | 1494.35 | 828.38 | 235.83 | 128.86 | 10569.87 | 7656.30 | 5322.76 | 1948.70 | 1138.62 |
| 2C. Lower Willamette Basin | | | | | | | | | | |
| Scappoose Cr. | 2.55 | 0.99 | 0.37 | 0.07 | 0.03 | 7.18 | 4.46 | 2.27 | 0.58 | 0.25 |
| Willamette R.
Main Stem | 284.66 | 128.75 | 81.76 | 35.94 | 24.21 | 1000.70 | 727.53 | 562.91 | 301.96 | 212.10 |
| Johnson Cr. | 0.89 | 0.41 | 0.19 | 0.05 | 0.03 | 2.84 | 2.01 | 1.23 | 0.44 | 0.28 |
| Clackamas R. | 872.44 | 511.25 | 335.82 | 173.31 | 134.24 | 3648.26 | 3015.47 | 2400.74 | 1475.43 | 1175.94 |
| Tualatin R. | 70.45 | 26.59 | 8.98 | 1.70 | 0.53 | 193.61 | 116.76 | 55.08 | 13.64 | 4.64 |
| Sub-Basin Total | 1230.99 | 667.99 | 427.12 | 211.07 | 159.04 | 4852.59 | 3866.23 | 3022.23 | 1792.05 | 1393.21 |
| Basin Total
(Upper, Middle
& Lower Basins) | 7036.17 | 3484.58 | 2040.66 | 781.32 | 517.59 | 24906.06 | 18785.83 | 13726.39 | 6555.69 | 4543.90 |

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (Gwh) | | | | |
|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| <u>3. Sandy Basin</u> | | | | | | | | | | |
| Sandy R. Main Stem | 369.13 | 201.76 | 114.59 | 29.73 | 17.15 | 1328.52 | 1035.28 | 729.85 | 246.67 | 150.24 |
| Tributaries | 421.46 | 243.70 | 151.09 | 55.18 | 34.15 | 1642.39 | 1330.95 | 1006.44 | 460.34 | 299.18 |
| Basin Total | 790.59 | 445.45 | 265.67 | 84.91 | 51.30 | 2970.91 | 2366.23 | 1736.28 | 707.01 | 449.42 |
| <u>4. Hood Basin</u> | | | | | | | | | | |
| Eagle Cr. | 14.93 | 7.00 | 3.68 | 1.81 | 1.24 | 51.41 | 37.52 | 25.90 | 15.25 | 10.83 |
| Hood R. | 243.20 | 127.84 | 73.30 | 35.22 | 23.74 | 906.01 | 703.90 | 512.81 | 295.99 | 207.96 |
| Fifteenmile Cr. | 7.04 | 3.51 | 1.93 | 0.94 | 0.63 | 25.24 | 19.04 | 13.51 | 7.87 | 5.56 |
| Basin Total | 265.17 | 138.34 | 78.91 | 37.97 | 25.61 | 982.67 | 760.46 | 552.22 | 319.11 | 224.35 |
| <u>5. Deschutes Basin</u> | | | | | | | | | | |
| Deschutes R. Main Stem | 1080.58 | 812.88 | 658.44 | 487.29 | 403.88 | 6162.02 | 5693.01 | 5151.86 | 4177.32 | 3538.02 |
| White R. | 82.91 | 45.75 | 28.10 | 17.36 | 13.58 | 336.04 | 270.93 | 209.08 | 147.90 | 118.93 |
| Wapinitia Cr. | 7.81 | 3.92 | 2.39 | 1.49 | 1.16 | 30.00 | 23.19 | 17.82 | 12.66 | 10.20 |
| Warm Springs R. | 131.51 | 73.88 | 45.44 | 28.04 | 21.92 | 538.62 | 437.64 | 337.99 | 238.90 | 192.04 |
| Trout Cr. | 36.98 | 19.73 | 12.09 | 7.48 | 5.86 | 147.00 | 116.78 | 89.99 | 63.75 | 51.30 |
| Shitike Cr. | 32.79 | 16.76 | 10.23 | 6.35 | 4.97 | 127.19 | 99.11 | 76.24 | 54.10 | 43.57 |

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Metolius R. | 137.51 | 111.00 | 98.98 | 82.74 | 73.64 | 895.87 | 849.43 | 807.33 | 714.83 | 645.05 |
| Crooked R. | 147.35 | 41.87 | 19.91 | 3.74 | 0.58 | 383.13 | 198.32 | 121.39 | 29.29 | 5.08 |
| Squaw Cr. | 185.47 | 102.42 | 67.97 | 51.22 | 39.79 | 797.76 | 652.27 | 531.55 | 436.12 | 348.57 |
| Tumalo Cr. | 75.37 | 41.62 | 27.62 | 20.81 | 16.17 | 324.18 | 265.05 | 216.00 | 177.22 | 141.64 |
| Little Deshutes R. | 15.56 | 11.38 | 8.69 | 5.03 | 3.05 | 79.50 | 72.19 | 62.77 | 41.90 | 26.70 |
| Fall R. & Cultus R. | 2.92 | 2.14 | 1.63 | 0.93 | 0.56 | 14.85 | 13.48 | 11.70 | 7.71 | 4.88 |
| Basin Total | 1936.76 | 1283.35 | 981.49 | 713.48 | 585.16 | 9836.16 | 8691.40 | 7633.72 | 6101.70 | 5125.98 |
| <u>6. John Day Basin</u> | | | | | | | | | | |
| John Day R.
Main Stem | 883.64 | 370.29 | 154.72 | 66.13 | 27.50 | 2696.18 | 1796.79 | 1041.40 | 537.00 | 240.91 |
| Rock Cr. | 25.40 | 7.72 | 2.70 | 0.68 | 0.19 | 65.49 | 34.51 | 16.94 | 5.45 | 1.69 |
| N. Fk. John Day R.
(except Middle Fk.) | 201.76 | 71.23 | 27.15 | 8.92 | 3.08 | 558.67 | 329.98 | 175.54 | 71.74 | 26.95 |
| Middle Fk. John
Day R. | 62.45 | 20.01 | 7.21 | 1.99 | 0.60 | 164.84 | 90.47 | 45.65 | 15.91 | 5.24 |
| South Fk. John
Day R. | 20.50 | 6.20 | 2.17 | 0.55 | 0.15 | 52.78 | 27.73 | 13.59 | 4.35 | 1.34 |
| Basin Total | 1193.75 | 475.44 | 193.95 | 78.27 | 31.52 | 3537.97 | 2279.49 | 1293.12 | 634.46 | 276.13 |
| <u>7. Umatilla Basin</u> | | | | | | | | | | |
| Umatilla R. | 274.29 | 132.64 | 54.46 | 16.18 | 1.67 | 865.92 | 617.75 | 343.80 | 125.85 | 14.60 |

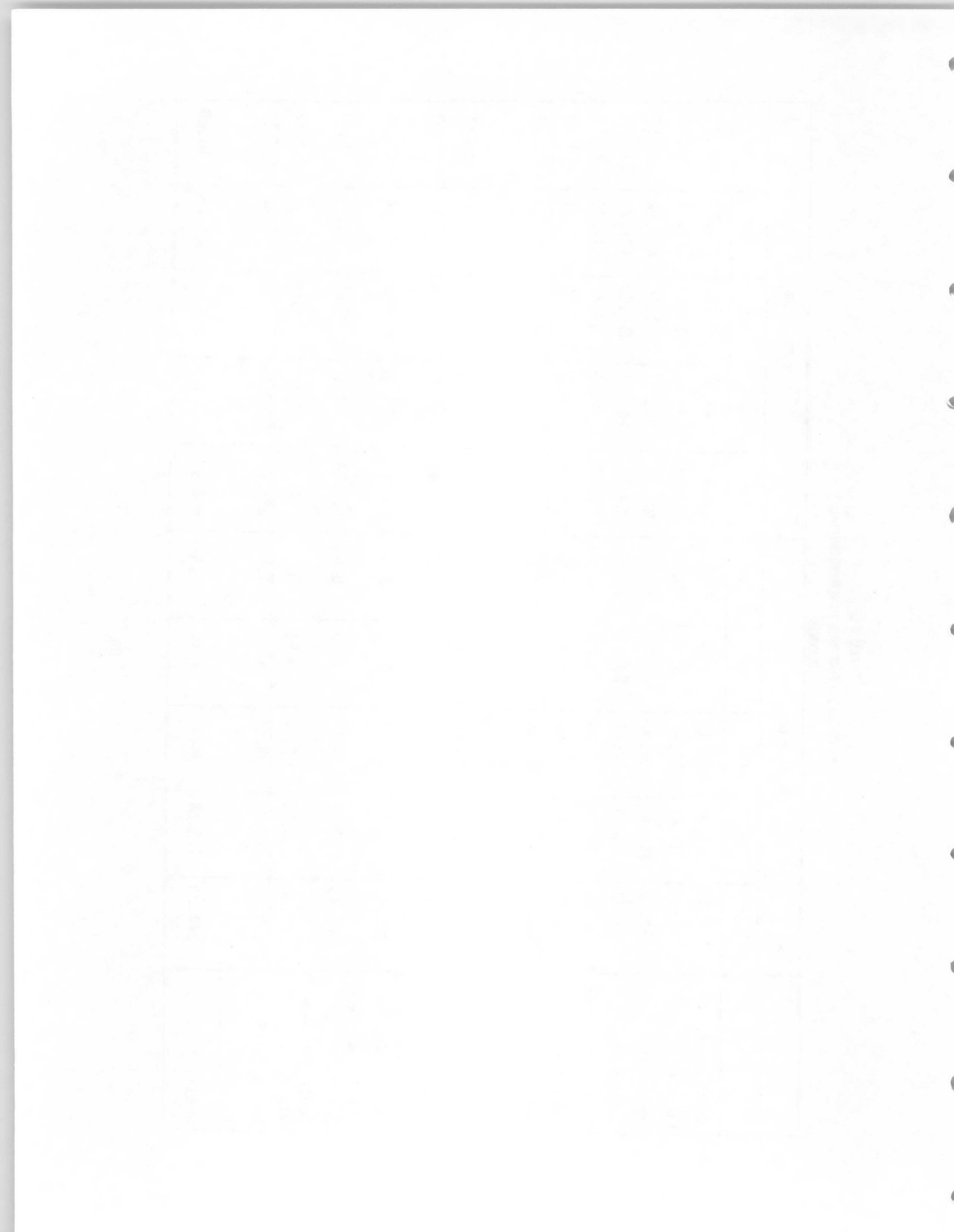


TABLE II
MAXIMUM DEVELOPABLE POWER POTENTIAL
OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| 8. Grande Ronde Basin | | | | | | | | | | |
| Grande Ronde R.
Main Stem | 549.80 | 240.50 | 102.57 | 47.44 | 33.24 | 1739.14 | 1197.26 | 713.94 | 400.06 | 291.22 |
| Joseph Creek | 104.18 | 30.56 | 14.06 | 7.74 | 5.25 | 287.86 | 158.88 | 101.06 | 65.04 | 45.95 |
| Wenaha R. | 125.10 | 37.38 | 17.12 | 9.51 | 6.89 | 348.45 | 194.76 | 123.77 | 80.40 | 60.32 |
| Wallowa R.
(except Minam R.) | 215.95 | 65.68 | 29.95 | 16.78 | 12.96 | 606.27 | 343.00 | 217.79 | 142.79 | 113.51 |
| Minam R. | 191.41 | 56.99 | 26.12 | 14.48 | 10.34 | 532.26 | 296.75 | 188.61 | 122.29 | 90.59 |
| Other Tribs. of
Grande Ronde R. | 21.37 | 6.25 | 2.88 | 1.58 | 1.06 | 58.97 | 32.48 | 20.66 | 13.28 | 9.28 |
| Imnaha R. | 455.38 | 136.62 | 62.51 | 34.78 | 25.59 | 1270.65 | 712.18 | 452.49 | 294.59 | 224.20 |
| Basin Total | 1663.19 | 573.98 | 255.21 | 132.31 | 95.33 | 4843.6 | 2935.31 | 1818.32 | 1118.45 | 835.07 |
| 9. Powder Basin | | | | | | | | | | |
| Pine Creek | 18.12 | 6.78 | 3.09 | 1.12 | 0.51 | 53.15 | 33.28 | 20.35 | 9.15 | 4.46 |
| Powder R.
(except Eagle Cr.) | 76.37 | 26.06 | 11.09 | 4.25 | 2.03 | 214.34 | 126.20 | 73.77 | 34.82 | 17.81 |
| Eagle Cr. | 28.83 | 10.85 | 4.96 | 1.80 | 0.81 | 84.82 | 53.33 | 32.70 | 14.66 | 7.12 |
| Burnt R. | 58.33 | 20.55 | 8.95 | 3.37 | 1.58 | 166.17 | 99.98 | 59.33 | 27.56 | 13.86 |
| Basin Total | 181.65 | 64.24 | 28.09 | 10.54 | 4.94 | 518.49 | 312.79 | 186.15 | 86.19 | 43.25 |

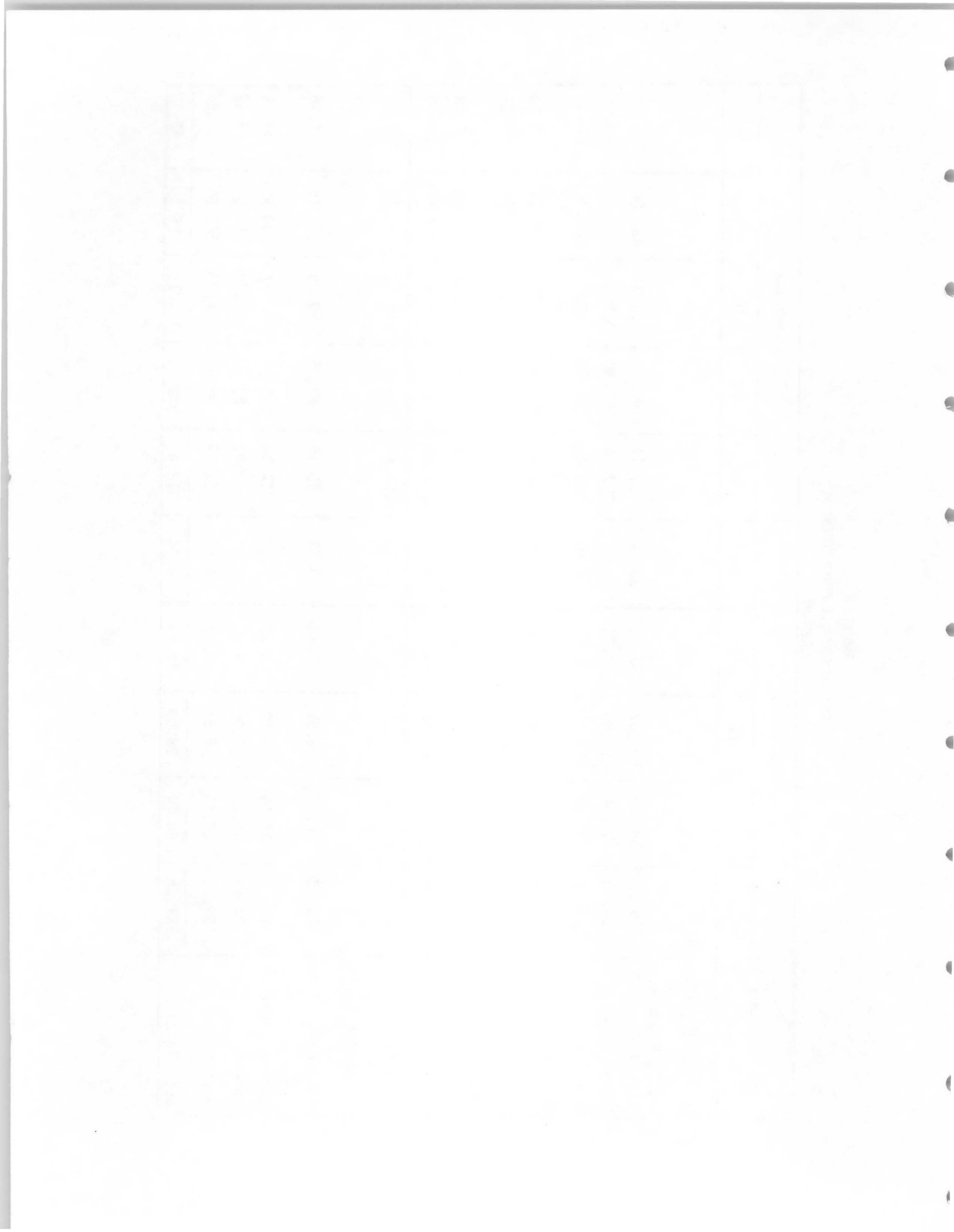


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| <u>10. Malheur Basin</u> | | | | | | | | | | |
| Malheur R. Main Stem below Warm Springs Dam | 30.56 | 17.47 | 8.47 | 3.80 | 1.94 | 112.31 | 89.37 | 57.87 | 31.29 | 17.02 |
| N. Fk. Malheur R. | 14.38 | 5.35 | 2.87 | 2.02 | 1.62 | 46.62 | 30.78 | 22.12 | 17.27 | 14.17 |
| Malheur R. above Warm Springs Reservoir | 18.05 | 5.02 | 2.38 | 0.55 | 0.09 | 46.83 | 24.00 | 14.76 | 4.34 | 0.82 |
| Basin Total | 62.99 | 27.84 | 13.72 | 6.37 | 3.65 | 205.76 | 144.15 | 94.75 | 52.90 | 32.01 |
| <u>11. Owyhee Basin</u> | | | | | | | | | | |
| Owyhee R. below Owyhee Dam | 62.63 | 14.63 | 6.03 | 3.39 | 2.35 | 157.81 | 73.72 | 43.60 | 28.55 | 20.56 |
| Owyhee R. Main Stem above Owyhee Reservoir | 359.70 | 84.23 | 34.58 | 19.47 | 13.48 | 906.63 | 424.00 | 250.01 | 164.00 | 118.08 |
| Crooked Cr. | 20.25 | 4.84 | 1.24 | 0.41 | 0.30 | 47.82 | 20.82 | 8.23 | 3.51 | 2.66 |
| Jordon Cr. | 85.44 | 21.35 | 5.26 | 1.14 | 0.72 | 201.65 | 89.36 | 32.99 | 9.50 | 6.29 |
| Basin Total | 528.02 | 125.05 | 47.11 | 24.41 | 16.85 | 1313.91 | 607.90 | 334.83 | 205.56 | 147.59 |

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| <u>12. Malheur Lake Basin</u> | | | | | | | | | | |
| Silvies R. | 6.47 | 1.54 | 0.67 | 0.24 | 0.10 | 16.09 | 7.46 | 4.41 | 1.97 | 0.84 |
| Donner & Blitzen R. | 3.12 | 0.94 | 0.49 | 0.24 | 0.11 | 8.78 | 4.97 | 3.38 | 1.94 | 1.00 |
| Basin Total | 9.59 | 2.49 | 1.16 | 0.48 | 0.21 | 24.87 | 12.43 | 7.78 | 3.91 | 1.83 |
| <u>13. Goose & Summer Lakes Basin</u> | | | | | | | | | | |
| Chewaucan R. | 9.68 | 2.83 | 1.34 | 0.73 | 0.47 | 26.82 | 14.83 | 9.62 | 6.13 | 4.14 |
| <u>14. Klamath Basin</u> | | | | | | | | | | |
| Jenny Cr. | 21.79 | 18.67 | 14.01 | 4.09 | 0.12 | 109.75 | 104.30 | 87.94 | 31.50 | 1.02 |
| Klamath R. | 194.67 | 108.15 | 69.22 | 49.75 | 34.61 | 818.09 | 666.51 | 530.08 | 419.23 | 303.17 |
| Williamson R.
Main Stem | 2210.35 | 1176.20 | 590.20 | 10.23 | 0.35 | 7250.69 | 5438.86 | 3392.58 | 78.81 | 3.14 |
| Sprague R. | 15.00 | 8.33 | 5.33 | 3.83 | 2.67 | 63.03 | 51.35 | 40.84 | 32.30 | 23.36 |
| Basin Total | 2441.81 | 1311.35 | 678.76 | 67.90 | 37.75 | 8241.56 | 6261.02 | 4051.44 | 561.84 | 330.69 |
| <u>15. Rogue Basin</u> | | | | | | | | | | |
| Illinois R. | 642.44 | 320.65 | 167.90 | 59.00 | 32.56 | 2206.98 | 1643.21 | 1107.95 | 487.92 | 285.19 |
| Applegate R. | 158.16 | 78.93 | 41.28 | 14.49 | 7.94 | 543.05 | 404.24 | 272.32 | 119.77 | 69.55 |

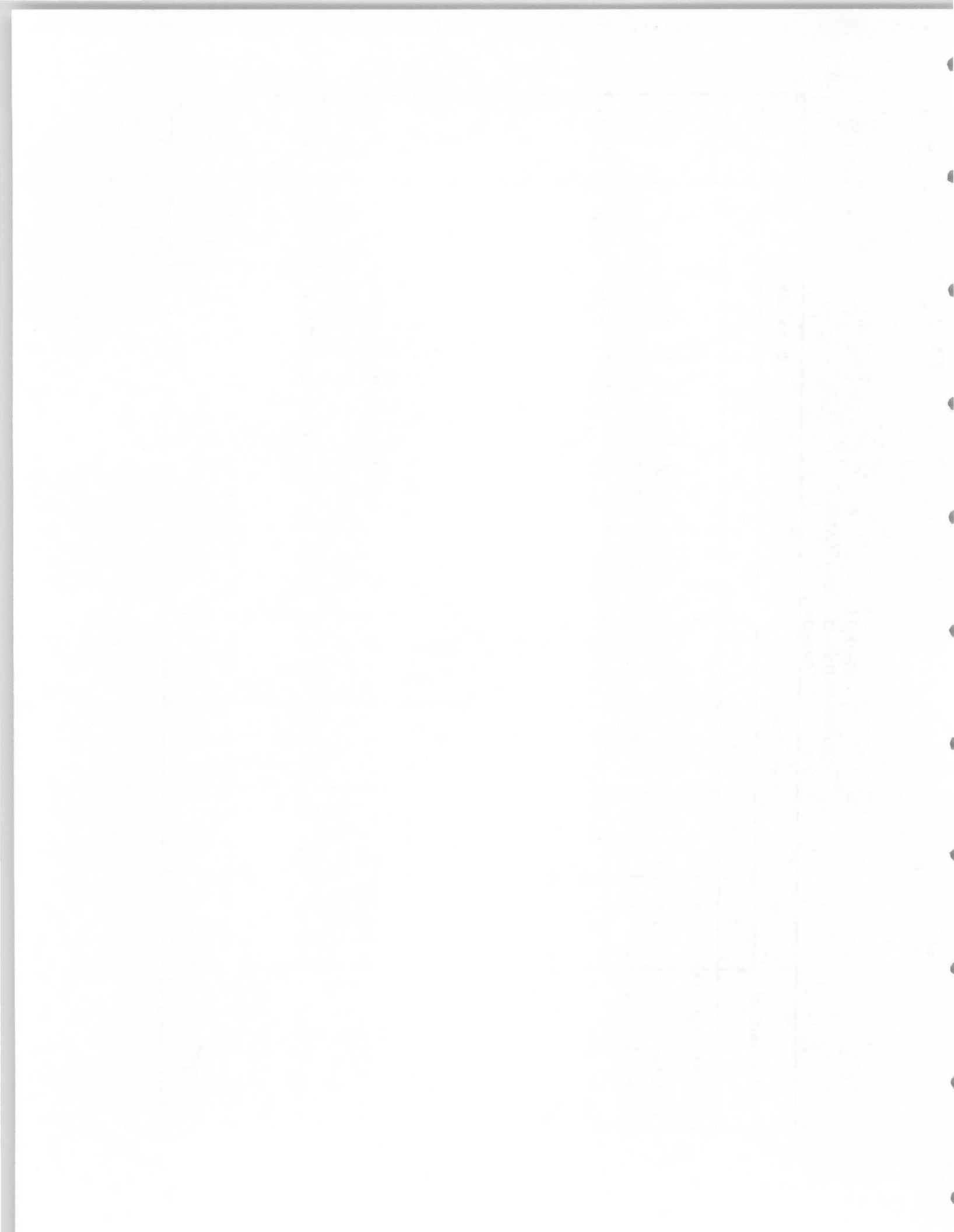


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Bear Cr. | 28.86 | 13.96 | 6.97 | 2.38 | 1.18 | 96.29 | 70.17 | 45.70 | 19.56 | 10.37 |
| S. Fk. Rogue R. | 176.51 | 85.11 | 42.36 | 14.44 | 7.13 | 587.41 | 427.27 | 277.46 | 118.50 | 62.46 |
| Rogue R. Main Stem & all tribs. not listed above | 1869.28 | 963.54 | 528.62 | 190.96 | 116.24 | 6624.42 | 5037.56 | 3513.60 | 1590.99 | 1018.29 |
| Basin Total | 2875.26 | 1462.19 | 787.13 | 281.28 | 165.05 | 10058.14 | 7582.45 | 5217.03 | 2336.73 | 1445.85 |
| <u>16. Umpqua Basin</u> | | | | | | | | | | |
| Smith R. | 47.35 | 19.49 | 7.76 | 1.45 | 0.73 | 137.75 | 88.94 | 47.85 | 11.91 | 6.35 |
| North Umpqua R. | 884.02 | 390.16 | 177.63 | 45.19 | 26.16 | 2739.08 | 1873.84 | 1129.12 | 374.99 | 229.13 |
| South Umpqua R. | 472.14 | 207.51 | 93.85 | 23.66 | 13.68 | 1457.89 | 994.25 | 596.01 | 196.36 | 119.80 |
| Umpqua R. Main Stem & local tribs. | 596.76 | 294.89 | 165.11 | 64.87 | 45.24 | 2101.17 | 1572.28 | 1117.54 | 546.75 | 396.27 |
| Basin Total | 2000.27 | 912.05 | 444.36 | 135.17 | 85.79 | 6435.89 | 4529.31 | 2890.53 | 1130.01 | 751.55 |
| <u>17. South Coast Basin</u> | | | | | | | | | | |
| Coos R. | 182.37 | 63.58 | 22.29 | 3.31 | 1.46 | 487.83 | 279.72 | 135.03 | 26.97 | 12.80 |
| Coquille R. | 371.85 | 129.22 | 45.48 | 6.87 | 3.09 | 994.42 | 569.34 | 275.91 | 56.07 | 27.11 |
| Floras Cr. | 24.55 | 8.7 | 2.99 | 0.40 | 0.16 | 65.76 | 38.00 | 17.98 | 3.25 | 1.38 |
| Sixes R. | 29.46 | 10.30 | 3.60 | 0.52 | 0.22 | 78.81 | 45.25 | 21.76 | 4.24 | 1.95 |



TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Elk Cr. | 50.11 | 17.63 | 6.11 | 0.86 | 0.35 | 134.13 | 77.24 | 36.86 | 6.94 | 3.08 |
| Euchre Cr. | 2.95 | 1.07 | 0.36 | 0.04 | 0.02 | 7.92 | 4.62 | 2.14 | 0.35 | 0.13 |
| Hunter Cr. | 3.94 | 1.30 | 0.46 | 0.08 | 0.04 | 10.38 | 5.77 | 2.82 | 0.64 | 0.36 |
| Pistol R. | 62.36 | 20.61 | 7.31 | 1.23 | 0.65 | 164.53 | 91.38 | 44.75 | 10.17 | 5.71 |
| Chetco R. | 311.47 | 102.95 | 36.49 | 6.16 | 3.26 | 821.69 | 456.37 | 223.48 | 50.79 | 28.54 |
| Winchuck R. | 21.09 | 6.97 | 2.47 | 0.42 | 0.22 | 55.63 | 30.90 | 15.13 | 3.44 | 1.93 |
| N. Fk. Smith R. | 32.25 | 10.66 | 3.78 | 0.64 | 0.34 | 85.08 | 47.25 | 23.14 | 5.26 | 2.96 |
| Basin Total | 1092.38 | 373.01 | 131.01 | 20.53 | 9.81 | 2906.18 | 1645.83 | 799.01 | 168.12 | 85.96 |
| <u>18. Mid-Coast Basin</u> | | | | | | | | | | |
| Salmon R. | 27.84 | 10.43 | 4.57 | 1.03 | 0.54 | 79.68 | 49.18 | 28.63 | 8.51 | 4.74 |
| Schooner Cr. | 3.09 | 1.17 | 0.52 | 0.12 | 0.06 | 8.93 | 5.57 | 3.29 | 1.00 | 0.55 |
| Drift Cr. | 19.86 | 7.44 | 3.26 | 0.74 | 0.39 | 56.84 | 35.07 | 20.41 | 6.06 | 3.38 |
| Siletz R. | 219.53 | 80.55 | 34.27 | 7.52 | 4.02 | 620.03 | 376.55 | 214.39 | 62.05 | 35.25 |
| Yaquina R. | 29.99 | 11.16 | 4.84 | 1.08 | 0.57 | 85.46 | 52.48 | 30.34 | 8.94 | 5.01 |
| Beaver Cr. | 2.22 | 0.84 | 0.37 | 0.09 | 0.04 | 6.41 | 3.99 | 2.34 | 0.71 | 0.39 |
| Alsea R. | 174.42 | 64.48 | 27.72 | 6.15 | 3.26 | 494.94 | 302.32 | 173.52 | 50.71 | 28.60 |
| Yachats R. | 8.16 | 3.07 | 1.35 | 0.31 | 0.16 | 23.43 | 14.51 | 8.49 | 2.54 | 1.41 |
| Tenmile Cr. | 8.41 | 3.18 | 1.41 | 0.32 | 0.17 | 24.24 | 15.08 | 8.87 | 2.67 | 1.47 |

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 OREGON

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Big Cr. | 2.53 | 0.96 | 0.43 | 0.10 | 0.05 | 7.30 | 4.56 | 2.70 | 0.82 | 0.45 |
| Siuslaw R. | 236.07 | 86.72 | 36.96 | 8.13 | 4.34 | 667.25 | 405.59 | 231.24 | 67.04 | 38.04 |
| Siltcoos R. | 3.96 | 1.50 | 0.66 | 0.15 | 0.08 | 11.39 | 7.08 | 4.16 | 1.25 | 0.69 |
| Tahkenitch Cr. | 2.30 | 0.86 | 0.38 | 0.09 | 0.05 | 6.59 | 4.08 | 2.38 | 0.71 | 0.39 |
| Basin Total | 738.37 | 272.38 | 116.76 | 25.82 | 13.74 | 2092.48 | 1276.06 | 730.78 | 212.99 | 120.37 |
| Snake River in Oregon and 1/2 Ore-Ida Border Reaches | 953.62 | 640.15 | 494.09 | 356.88 | 287.76 | 4879.22 | 4330.01 | 3818.24 | 3037.02 | 2507.14 |

| Time | Temp | Pressure | Humidity | Wind | Clouds | Remarks |
|------|------|----------|----------|---------|--------|---------|
| 0800 | 25.0 | 1013.2 | 75% | 10 km/h | 0-100 | Clear |
| 0900 | 25.5 | 1013.1 | 76% | 12 km/h | 0-100 | Clear |
| 1000 | 26.0 | 1013.0 | 77% | 15 km/h | 0-100 | Clear |
| 1100 | 26.5 | 1012.9 | 78% | 18 km/h | 0-100 | Clear |
| 1200 | 27.0 | 1012.8 | 79% | 20 km/h | 0-100 | Clear |
| 1300 | 27.5 | 1012.7 | 80% | 22 km/h | 0-100 | Clear |
| 1400 | 28.0 | 1012.6 | 81% | 25 km/h | 0-100 | Clear |
| 1500 | 28.5 | 1012.5 | 82% | 28 km/h | 0-100 | Clear |
| 1600 | 29.0 | 1012.4 | 83% | 30 km/h | 0-100 | Clear |
| 1700 | 29.5 | 1012.3 | 84% | 32 km/h | 0-100 | Clear |
| 1800 | 30.0 | 1012.2 | 85% | 35 km/h | 0-100 | Clear |
| 1900 | 30.5 | 1012.1 | 86% | 38 km/h | 0-100 | Clear |
| 2000 | 31.0 | 1012.0 | 87% | 40 km/h | 0-100 | Clear |
| 2100 | 31.5 | 1011.9 | 88% | 42 km/h | 0-100 | Clear |
| 2200 | 32.0 | 1011.8 | 89% | 45 km/h | 0-100 | Clear |
| 2300 | 32.5 | 1011.7 | 90% | 48 km/h | 0-100 | Clear |
| 0000 | 33.0 | 1011.6 | 91% | 50 km/h | 0-100 | Clear |
| 0100 | 33.5 | 1011.5 | 92% | 52 km/h | 0-100 | Clear |
| 0200 | 34.0 | 1011.4 | 93% | 55 km/h | 0-100 | Clear |
| 0300 | 34.5 | 1011.3 | 94% | 58 km/h | 0-100 | Clear |
| 0400 | 35.0 | 1011.2 | 95% | 60 km/h | 0-100 | Clear |
| 0500 | 35.5 | 1011.1 | 96% | 62 km/h | 0-100 | Clear |
| 0600 | 36.0 | 1011.0 | 97% | 65 km/h | 0-100 | Clear |
| 0700 | 36.5 | 1010.9 | 98% | 68 km/h | 0-100 | Clear |

Station:
 Date:
 Observer:
 Instrument:

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Bear R. Basin | 75.66 | 48.57 | 33.22 | 15.38 | 8.42 | 328.75 | 281.28 | 227.52 | 125.92 | 72.50 |
| Bear River | 74.94 | 48.18 | 32.99 | 15.26 | 8.34 | 325.98 | 279.10 | 225.87 | 124.92 | 71.83 |
| Malad River | 0.72 | 0.39 | 0.23 | 0.12 | 0.08 | 2.77 | 2.18 | 1.65 | 1.00 | 0.67 |
| Kootenai River Basin | 454.78 | 141.07 | 66.40 | 31.52 | 20.94 | 1273.84 | 724.20 | 462.56 | 264.00 | 182.84 |
| Kootenai River | 131.37 | 59.38 | 29.43 | 14.72 | 11.03 | 439.50 | 313.37 | 208.41 | 124.64 | 96.43 |
| Moyie River | 186.24 | 49.13 | 23.00 | 11.09 | 7.08 | 492.15 | 251.93 | 160.35 | 92.58 | 61.82 |
| Pend Oreille R. Basin | 262.49 | 78.63 | 41.67 | 20.71 | 10.94 | 740.59 | 418.45 | 288.97 | 169.63 | 94.67 |
| Priest River | 178.73 | 58.37 | 32.84 | 16.99 | 9.01 | 529.63 | 318.76 | 229.31 | 139.06 | 77.85 |
| Pack River | 34.44 | 8.38 | 3.67 | 1.56 | 0.82 | 87.00 | 41.33 | 24.84 | 12.84 | 7.17 |
| Spokane R. Basin | 1034.93 | 376.34 | 150.66 | 62.74 | 38.41 | 2966.77 | 1812.91 | 1022.13 | 521.51 | 335.01 |
| Spokane River | 68.64 | 29.66 | 14.83 | 5.51 | 2.97 | 218.54 | 150.24 | 98.27 | 45.19 | 25.70 |
| Coeur d'Alene R. | 341.75 | 122.04 | 47.97 | 20.09 | 12.24 | 970.20 | 585.26 | 325.74 | 166.98 | 106.82 |
| St. Joe River | 624.54 | 224.64 | 87.86 | 37.14 | 23.20 | 1778.03 | 1077.41 | 598.12 | 309.34 | 202.49 |
| Snake River Basin | 4119.50 | 2389.95 | 1466.46 | 1013.90 | 812.69 | 17464.23 | 14434.05 | 11198.13 | 8621.33 | 7079.05 |
| Snake River in Idaho | 2079.29 | 1173.50 | 689.76 | 477.80 | 389.18 | 8557.69 | 6970.75 | 5275.72 | 4068.83 | 3389.61 |
| Snake River in Wyoming | 792.89 | 405.54 | 159.35 | 94.87 | 67.64 | 2707.74 | 2029.10 | 1166.43 | 799.31 | 590.59 |
| Palouse River | 8.61 | 2.73 | 0.85 | 0.15 | 0.06 | 22.10 | 11.78 | 5.22 | 1.22 | 0.53 |

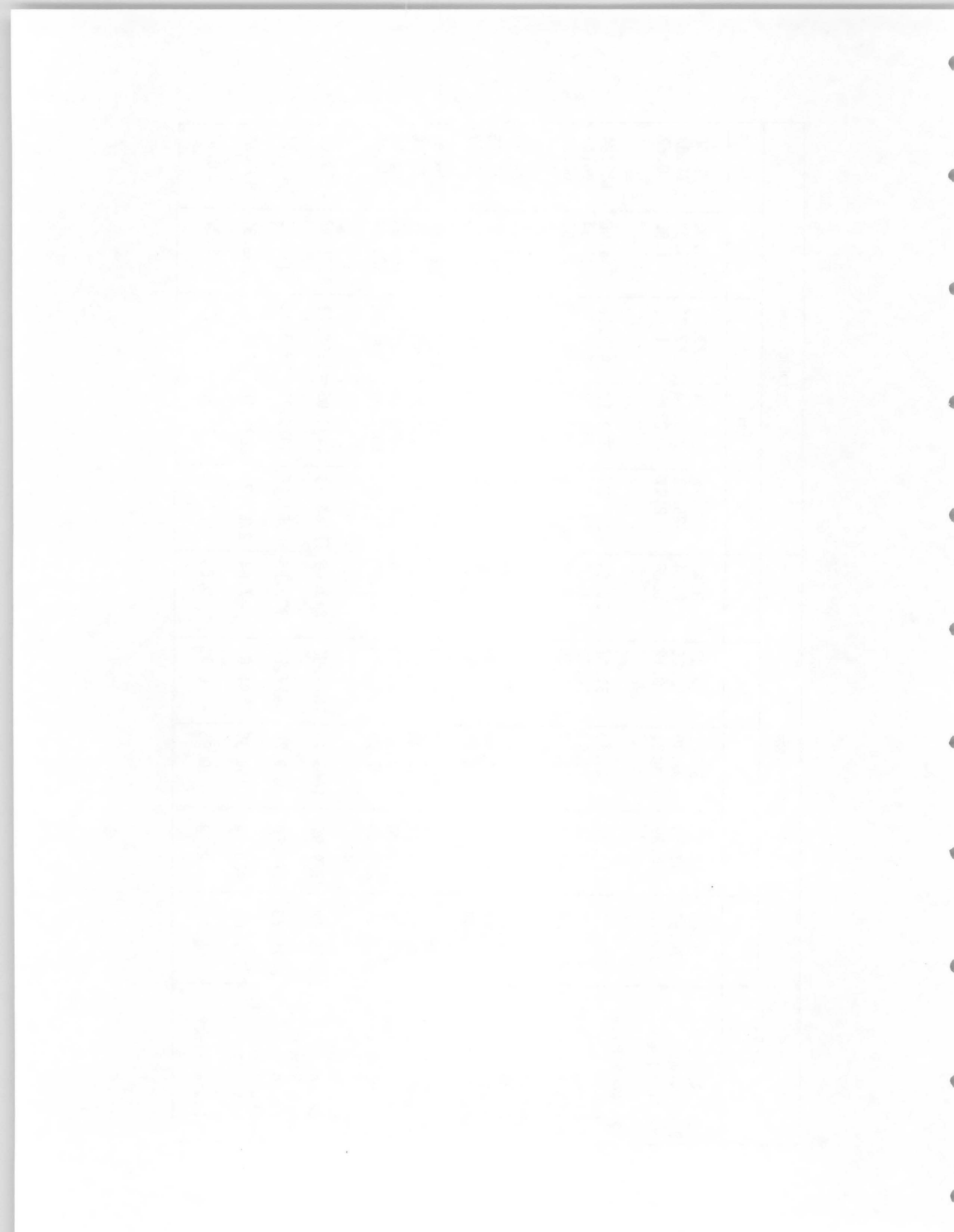


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Clearwater River Basin | 7527.60 | 2079.81 | 1059.35 | 554.40 | 352.34 | 20620.70 | 11076.22 | 5271.78 | 4631.06 | 3074.63 |
| Clearwater River | 1147.04 | 481.58 | 278.48 | 142.37 | 95.15 | 3843.99 | 2678.46 | 1966.81 | 1191.89 | 829.88 |
| NF Clearwater River | 1752.79 | 438.22 | 213.99 | 113.16 | 70.45 | 4605.19 | 2302.08 | 1516.38 | 942.23 | 614.92 |
| SF Clearwater River | 490.16 | 120.35 | 58.47 | 30.84 | 19.18 | 1278.85 | 630.95 | 414.12 | 256.79 | 167.40 |
| Lochsa River | 1587.66 | 397.57 | 194.22 | 102.72 | 63.96 | 4173.89 | 2088.86 | 1376.30 | 855.31 | 558.24 |
| Selway River | 1846.41 | 461.71 | 225.48 | 119.23 | 74.24 | 4851.53 | 2425.54 | 1597.79 | 992.85 | 647.97 |
| Salmon R. Basin | 8530.03 | 2620.97 | 1705.90 | 1261.99 | 973.90 | 26717.26 | 16274.47 | 13248.24 | 10720.57 | 8512.31 |
| Salmon River | 5217.48 | 1587.05 | 1046.27 | 785.25 | 608.14 | 16415.67 | 10055.09 | 8160.18 | 6673.93 | 5316.35 |
| SF Salmon River | 1110.46 | 321.57 | 214.61 | 156.06 | 121.39 | 3417.27 | 2035.13 | 1660.34 | 1326.95 | 1061.20 |
| MF Salmon River | 1459.80 | 425.19 | 283.78 | 207.42 | 160.40 | 4505.53 | 2692.92 | 2197.39 | 1762.59 | 1402.18 |
| Lemhi River | 58.57 | 40.75 | 33.93 | 22.69 | 13.91 | 306.94 | 275.72 | 251.83 | 187.81 | 120.53 |
| Pahsimeroi | 26.19 | 19.32 | 16.21 | 10.91 | 7.78 | 144.62 | 132.60 | 121.71 | 91.51 | 67.53 |
| Wildhorse River | 57.16 | 18.37 | 7.08 | 2.86 | 1.77 | 155.35 | 87.39 | 47.81 | 23.79 | 15.44 |
| Weiser River | 208.24 | 92.09 | 31.88 | 9.74 | 5.58 | 620.75 | 417.26 | 206.29 | 80.20 | 48.35 |
| Payette R. Basin | 1499.24 | 729.32 | 435.83 | 233.35 | 156.41 | 5481.51 | 4132.59 | 3104.23 | 1951.32 | 971.42 |
| Payette River | 364.20 | 141.02 | 71.63 | 44.75 | 35.61 | 1168.46 | 776.46 | 534.27 | 381.27 | 311.18 |
| NF Payette River | 466.84 | 302.42 | 190.10 | 81.65 | 45.23 | 1972.09 | 1684.01 | 1290.45 | 672.90 | 393.77 |
| MF Payette River | 76.57 | 19.14 | 11.98 | 9.15 | 7.25 | 219.77 | 119.15 | 94.07 | 77.94 | 63.35 |
| SF Payette River | 534.84 | 219.02 | 101.41 | 56.95 | 44.65 | 1702.93 | 1149.62 | 737.51 | 484.40 | 390.10 |



TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Boise River Basin | 1053.30 | 315.23 | 181.93 | 99.44 | 56.14 | 3049.53 | 1756.43 | 1289.38 | 819.86 | 487.76 |
| Boise River | 245.68 | 70.50 | 42.99 | 19.36 | 10.14 | 696.92 | 390.00 | 293.59 | 159.02 | 90.39 |
| NF Boise River | 158.80 | 41.07 | 22.11 | 12.79 | 7.93 | 432.25 | 226.00 | 159.57 | 106.50 | 69.23 |
| MF Boise River | 225.47 | 59.41 | 32.22 | 18.92 | 11.91 | 619.64 | 328.70 | 233.45 | 157.71 | 103.94 |
| SF Boise River | 369.87 | 130.89 | 77.52 | 44.38 | 23.49 | 1157.69 | 738.99 | 551.98 | 363.26 | 203.20 |
| Owyhee River Basin | 137.92 | 34.84 | 16.87 | 6.39 | 3.23 | 355.46 | 178.87 | 111.87 | 52.25 | 27.92 |
| Owyhee River in Idaho | 102.07 | 25.64 | 11.67 | 4.70 | 2.58 | 261.37 | 127.46 | 78.83 | 38.63 | 22.35 |
| Owyhee River in Nevada | 35.85 | 9.20 | 5.11 | 1.69 | 0.65 | 94.09 | 47.41 | 33.04 | 13.62 | 5.57 |
| Bruneau River Basin | 195.12 | 49.08 | 22.31 | 12.21 | 8.10 | 508.79 | 252.92 | 159.11 | 101.62 | 70.15 |
| Bruneau River in Idaho | 189.17 | 47.40 | 21.50 | 11.86 | 7.92 | 492.78 | 244.39 | 153.65 | 98.77 | 68.56 |
| Bruneau River in Nevada | 5.95 | 1.68 | 0.81 | 0.35 | 0.18 | 16.01 | 8.53 | 5.46 | 2.85 | 1.59 |
| Wood River Basin | 272.98 | 109.61 | 64.42 | 43.83 | 32.68 | 932.00 | 645.77 | 487.44 | 370.16 | 284.73 |
| Malad River | 24.36 | 15.47 | 14.04 | 13.14 | 12.64 | 140.25 | 124.66 | 119.67 | 114.54 | 110.72 |
| Big Wood River | 185.97 | 53.51 | 28.96 | 17.29 | 12.07 | 529.67 | 297.61 | 211.58 | 145.11 | 105.08 |
| Little Wood River | 62.65 | 40.63 | 21.42 | 13.40 | 7.97 | 262.08 | 223.50 | 156.19 | 110.51 | 68.93 |

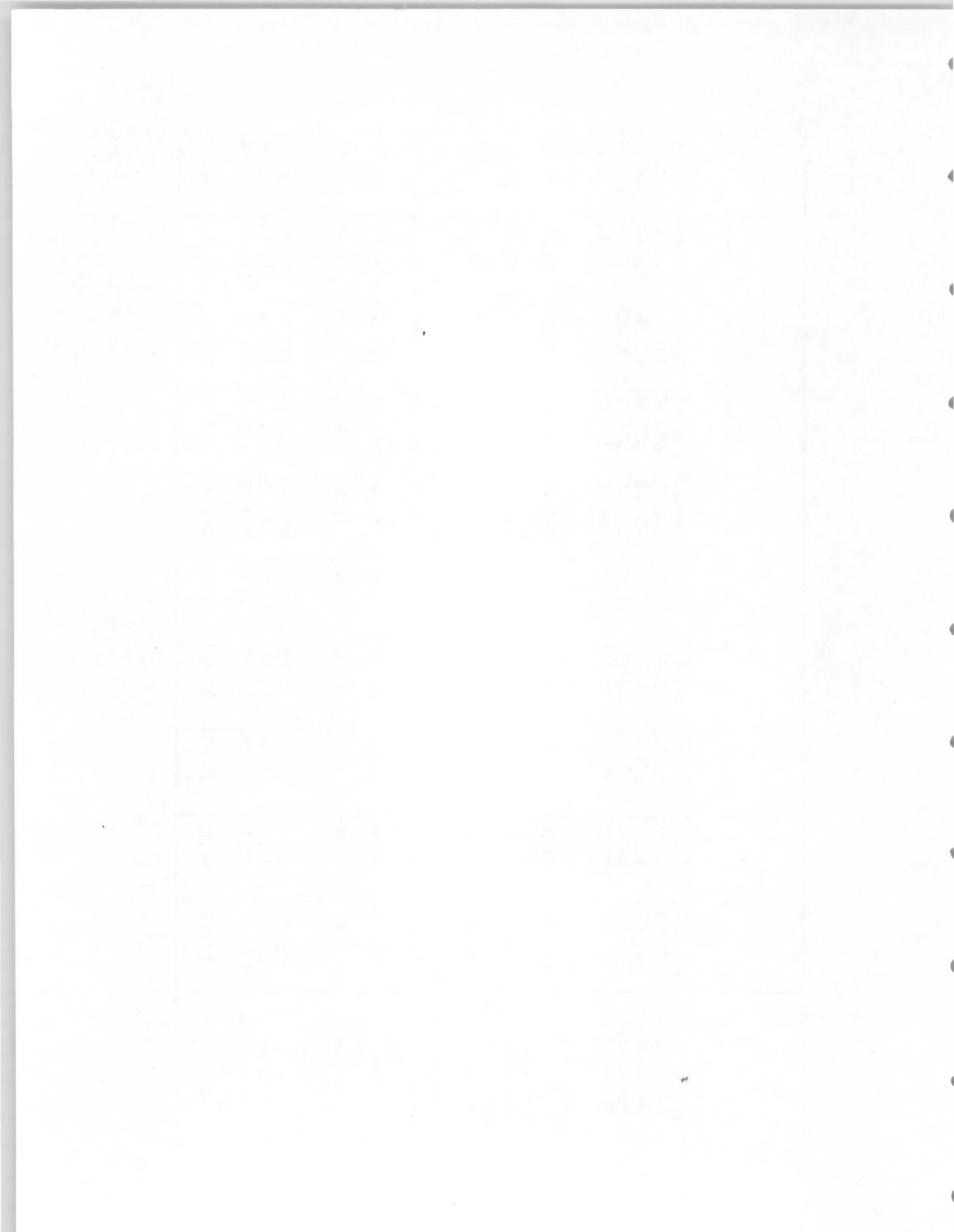


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Salmon Falls
Creek Basin | 34.90 | 15.59 | 11.24 | 8.96 | 5.14 | 135.82 | 101.97 | 86.72 | 73.74 | 44.47 |
| Salmon Falls
Creek in Idaho | 20.48 | 11.96 | 9.19 | 7.67 | 4.36 | 96.39 | 81.45 | 71.75 | 63.12 | 37.69 |
| Salmon Falls
Creek in Nevada | 14.42 | 3.63 | 2.05 | 1.29 | 0.78 | 39.43 | 20.52 | 14.97 | 10.62 | 6.78 |
| Lost R. Basin | 123.96 | 41.82 | 27.83 | 19.69 | 13.89 | 405.05 | 261.13 | 212.11 | 165.77 | 121.35 |
| Big Lost River | 103.76 | 28.15 | 16.34 | 10.92 | 7.31 | 296.18 | 163.71 | 122.32 | 91.47 | 63.85 |
| Little Lost R. | 13.34 | 6.88 | 4.77 | 2.75 | 1.54 | 52.93 | 41.60 | 34.22 | 22.71 | 13.43 |
| Box Canyon
Springs | 21.11 | 19.35 | 17.59 | 14.95 | 13.63 | 153.73 | 150.65 | 144.48 | 129.46 | 119.34 |
| Deep Creek | 10.95 | 8.21 | 5.75 | 2.52 | 0.88 | 52.01 | 47.21 | 38.58 | 20.19 | 7.60 |
| Mud Creek | 11.32 | 7.99 | 6.66 | 3.86 | 2.53 | 58.70 | 52.87 | 48.20 | 32.27 | 22.06 |
| Niagara Springs | 3.34 | 2.94 | 2.88 | 2.59 | 2.31 | 24.82 | 24.12 | 23.92 | 22.27 | 20.07 |
| Cedar Draw | 4.39 | 3.13 | 1.98 | 0.63 | 0.31 | 21.73 | 19.54 | 15.51 | 7.79 | 2.73 |
| Rock Creek | 11.62 | 10.78 | 9.45 | 6.02 | 4.97 | 77.11 | 75.64 | 70.98 | 51.45 | 43.40 |
| Portneuf River
Basin | 22.10 | 14.71 | 11.25 | 6.13 | 4.22 | 105.52 | 92.58 | 80.45 | 51.26 | 36.62 |

| Year | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Population | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | 200 | 205 | 210 | 215 | 220 | 225 | 230 | 235 | 240 | 245 | 250 | 255 | 260 | 265 | 270 | 275 | 280 | 285 | 290 | 295 | 300 | 305 | 310 | 315 | 320 | 325 | 330 | 335 | 340 | 345 | 350 | 355 | 360 | 365 | 370 | 375 | 380 | 385 | 390 | 395 | 400 | 405 | 410 | 415 | 420 | 425 | 430 | 435 | 440 | 445 | 450 | 455 | 460 | 465 | 470 | 475 | 480 | 485 | 490 | 495 | 500 | 505 | 510 | 515 | 520 | 525 | 530 | 535 | 540 | 545 | 550 | 555 | 560 | 565 | 570 | 575 | 580 | 585 | 590 | 595 | 600 | 605 | 610 | 615 | 620 | 625 | 630 | 635 | 640 | 645 | 650 | 655 | 660 | 665 | 670 | 675 | 680 | 685 | 690 | 695 | 700 | 705 | 710 | 715 | 720 | 725 | 730 | 735 | 740 | 745 | 750 | 755 | 760 | 765 | 770 | 775 | 780 | 785 | 790 | 795 | 800 | 805 | 810 | 815 | 820 | 825 | 830 | 835 | 840 | 845 | 850 | 855 | 860 | 865 | 870 | 875 | 880 | 885 | 890 | 895 | 900 | 905 | 910 | 915 | 920 | 925 | 930 | 935 | 940 | 945 | 950 | 955 | 960 | 965 | 970 | 975 | 980 | 985 | 990 | 995 | 1000 |

TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Mud Lake Basin | 2.59 | 2.02 | 1.69 | 1.15 | 0.70 | 14.80 | 13.79 | 12.64 | 9.59 | 6.12 |
| Blackfoot River Basin | 124.26 | 74.30 | 22.92 | 6.87 | 6.30 | 421.66 | 334.13 | 154.09 | 74.08 | 54.41 |
| Willow Creek | 21.03 | 5.87 | 2.91 | 1.43 | 0.86 | 57.21 | 30.64 | 20.27 | 11.86 | 7.46 |
| Henrys Fork Basin | 523.18 | 290.52 | 217.06 | 143.67 | 99.77 | 2287.16 | 1879.55 | 1622.16 | 1204.20 | 867.83 |
| Henrys Fork | 217.02 | 149.86 | 109.39 | 66.30 | 41.57 | 1055.78 | 938.12 | 796.31 | 550.96 | 361.38 |
| Teton River | 121.10 | 69.18 | 49.45 | 34.68 | 27.16 | 538.16 | 447.18 | 378.05 | 293.95 | 236.35 |
| Falls River | 167.27 | 60.38 | 48.29 | 33.94 | 23.39 | 595.39 | 408.13 | 365.80 | 284.01 | 203.25 |
| Henrys Fork Basin in Idaho | 479.37 | 273.61 | 203.47 | 133.88 | 92.23 | 2123.94 | 1763.48 | 1517.69 | 1121.36 | 802.25 |
| Henrys Fork Basin in Wyoming | 43.81 | 16.91 | 13.59 | 9.79 | 7.54 | 163.22 | 116.07 | 104.47 | 82.84 | 65.58 |
| Salt River Basin | 48.12 | 26.67 | 21.04 | 16.27 | 12.96 | 223.15 | 185.58 | 165.83 | 138.69 | 113.29 |
| Salt R. Basin in Idaho | 0.60 | 0.29 | 0.22 | 0.16 | 0.14 | 2.52 | 1.98 | 1.70 | 1.40 | 1.21 |
| Salt R. Basin in Wyoming | 47.52 | 26.38 | 20.82 | 16.11 | 12.82 | 220.63 | 183.60 | 164.13 | 137.29 | 112.08 |
| Grays River | 183.79 | 59.29 | 36.46 | 25.86 | 20.09 | 578.33 | 360.20 | 280.22 | 219.83 | 175.66 |
| Hoback River | 145.11 | 28.39 | 16.22 | 11.31 | 8.63 | 371.06 | 166.56 | 123.92 | 95.96 | 75.42 |
| Gros Ventre R. | 179.49 | 35.69 | 20.46 | 14.19 | 10.48 | 461.05 | 209.10 | 155.75 | 120.03 | 91.58 |

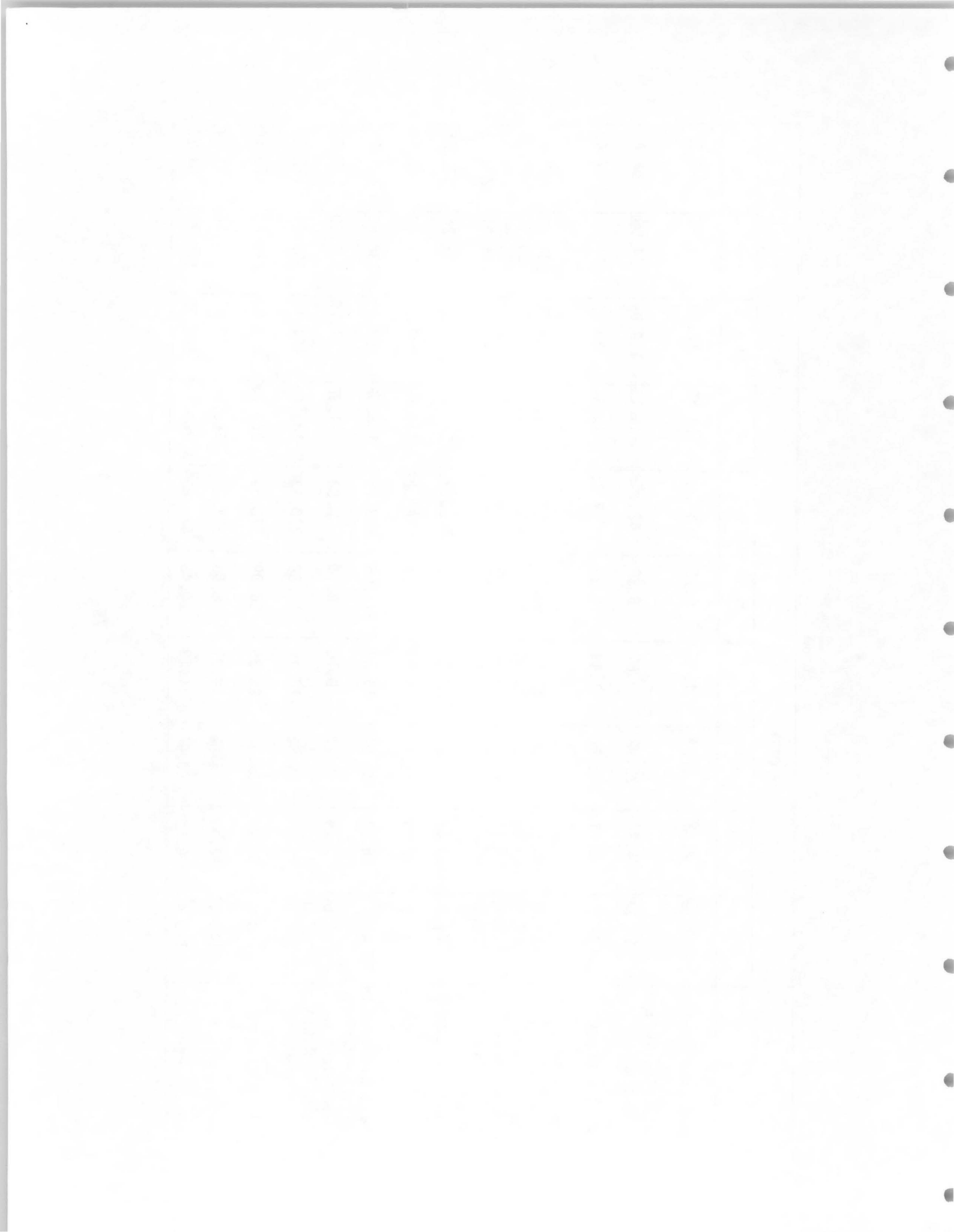


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 IDAHO

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Spread Creek | 20.70 | 4.55 | 2.67 | 1.79 | 1.09 | 54.77 | 26.47 | 19.90 | 14.86 | 9.55 |
| Buffalo Fork | 104.95 | 21.29 | 12.27 | 8.44 | 6.01 | 271.13 | 124.56 | 92.95 | 71.17 | 52.54 |
| Pacific Creek | 39.88 | 8.40 | 4.89 | 3.32 | 2.20 | 104.17 | 49.03 | 36.71 | 27.78 | 19.18 |
| Lewis River | 57.08 | 11.76 | 6.80 | 4.66 | 3.22 | 148.10 | 68.69 | 51.32 | 39.12 | 28.08 |
| Coulter Creek | 5.31 | 1.16 | 0.68 | 0.46 | 0.28 | 14.02 | 6.74 | 5.07 | 3.79 | 2.47 |
| Heart River | 3.91 | 0.87 | 0.51 | 0.34 | 0.20 | 10.39 | 5.06 | 3.81 | 2.83 | 1.78 |
| TOTALS | | | | | | | | | | |
| Wyoming | 1624.44 | 620.23 | 294.72 | 191.14 | 140.20 | 5104.61 | 3345.18 | 2204.68 | 1614.81 | 1224.51 |
| Nevada | 56.22 | 14.51 | 7.97 | 3.33 | 1.61 | 149.53 | 76.46 | 53.47 | 27.09 | 13.94 |
| Idaho | 25459.98 | 9147.16 | 5443.34 | 3479.25 | 2560.46 | 82034.97 | 53364.76 | 38338.12 | 29400.52 | 21941.87 |

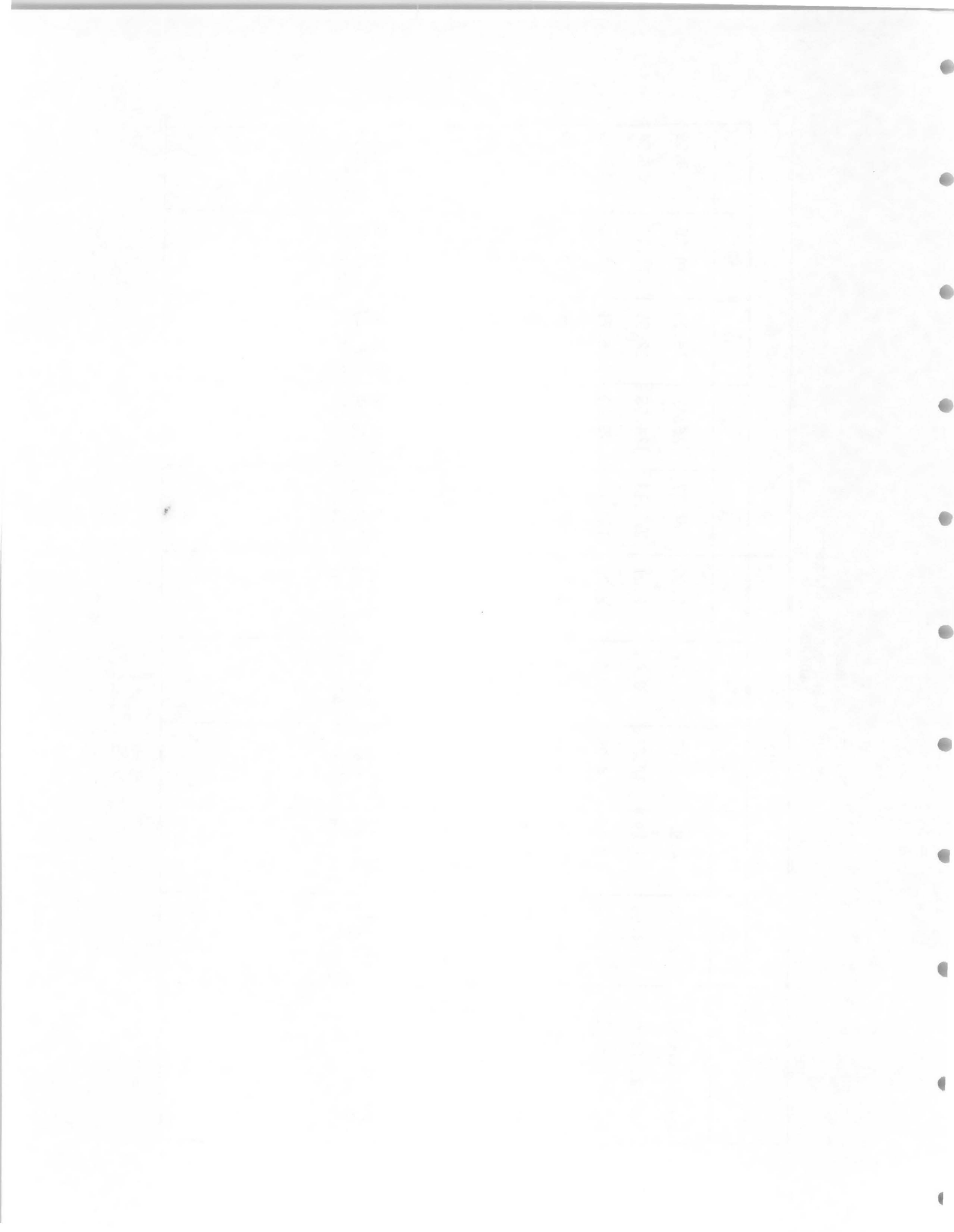


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 MONTANA

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| Bitterroot | 566.62 | 152.84 | 80.37 | 44.84 | 37.75 | 1372.57 | 820.01 | 578.99 | 381.93 | 330.56 |
| Blackfoot | 366.44 | 98.37 | 55.50 | 37.97 | 30.95 | 911.93 | 559.83 | 427.93 | 322.47 | 271.20 |
| Clark Fork | 3566.77 | 1378.80 | 927.06 | 587.71 | 421.35 | 11399.72 | 8420.34 | 6901.22 | 4970.52 | 3691.50 |
| Flathead | 3511.61 | 1131.87 | 577.60 | 270.41 | 201.99 | 9298.82 | 5831.25 | 3948.04 | 2282.71 | 1769.74 |
| Kootenai | 1969.96 | 813.95 | 403.79 | 204.33 | 154.82 | 6042.97 | 4216.93 | 2832.43 | 1719.73 | 1356.40 |
| Montana
Total | 9981.40 | 3575.83 | 2044.32 | 1145.26 | 846.86 | 29026.01 | 19848.36 | 14688.61 | 9677.36 | 7419.40 |

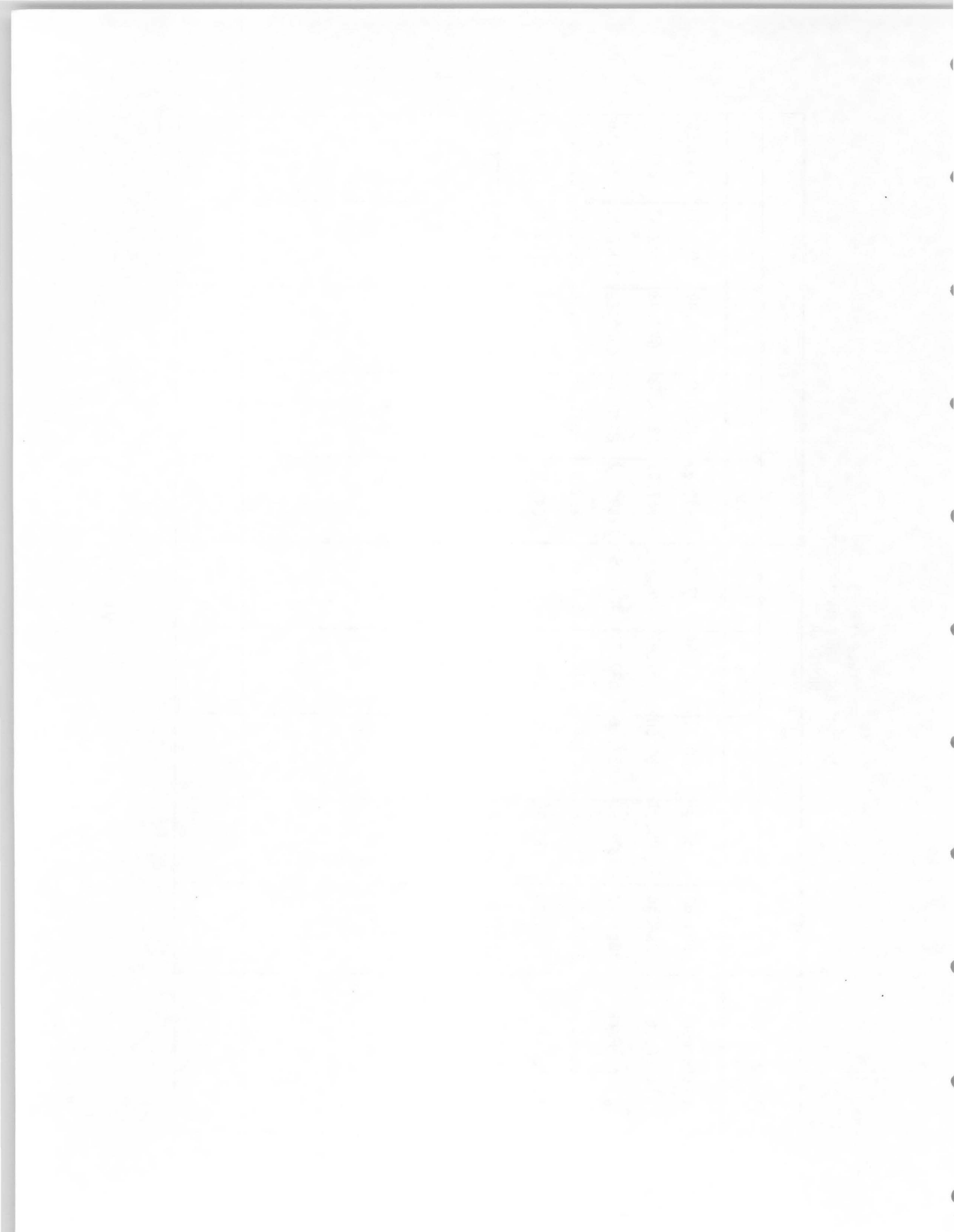
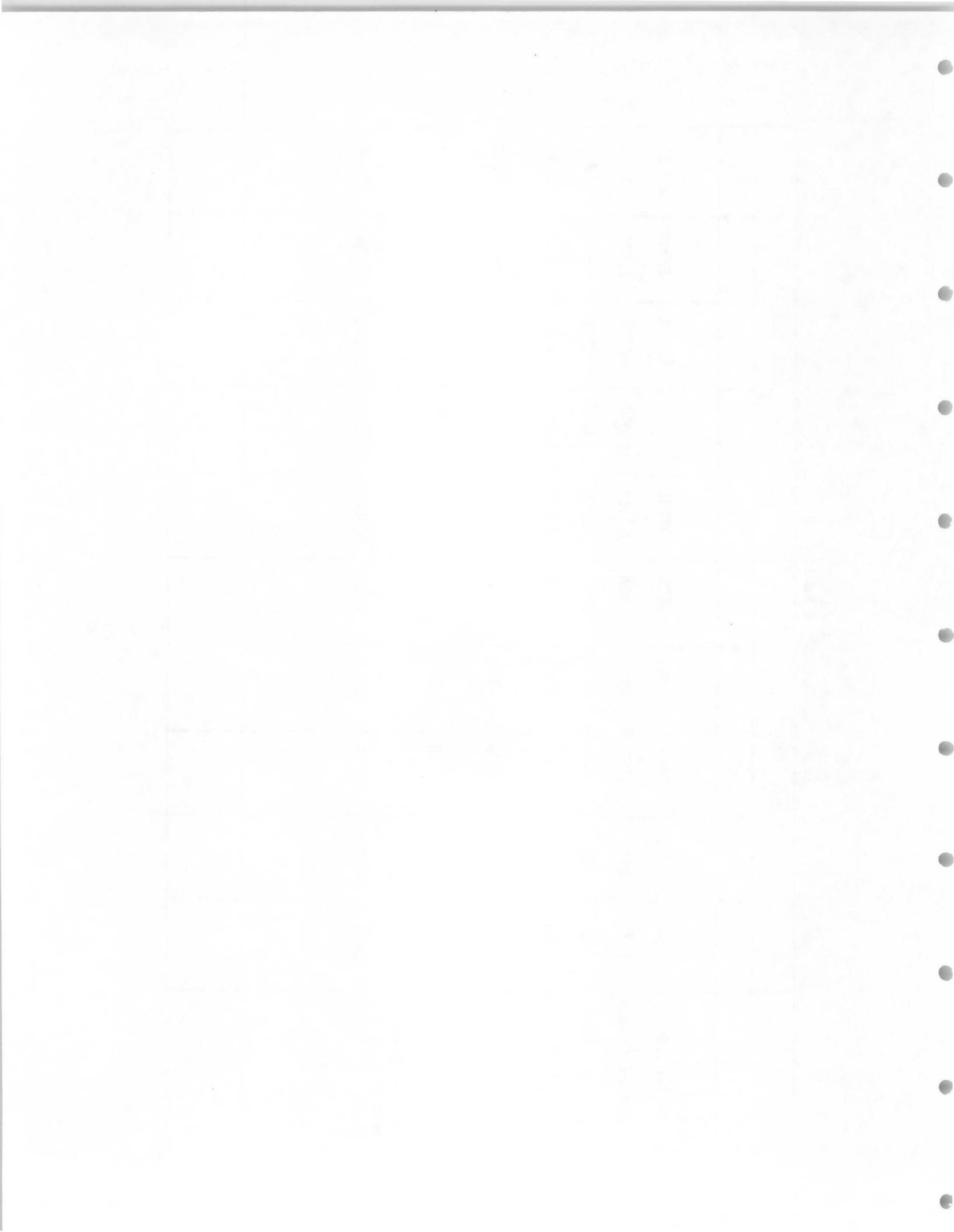


TABLE II
 MAXIMUM DEVELOPABLE POWER POTENTIAL
 PACIFIC NORTHWEST REGION

| AREA OF INTEREST | POWER (MW) | | | | | ENERGY (GWh) | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | P ₁₀ | P ₃₀ | P ₅₀ | P ₈₀ | P ₉₅ | E ₁₀ | E ₃₀ | E ₅₀ | E ₈₀ | E ₉₅ |
| State of Washington | 28307 | 13928 | 8862 | 4443 | 2906 | 102025 | 80124 | 61314 | 37500 | 26629 |
| State of Oregon | 25024 | 12105 | 6787 | 2812 | 1954 | 87483 | 64951 | 46324 | 23676 | 17115 |
| State of Idaho | 25460 | 9147 | 5443 | 3479 | 2560 | 82035 | 53365 | 38338 | 29401 | 21942 |
| State of Montana
Columbia Basin | 9981 | 3576 | 2044 | 1145 | 847 | 29026 | 19848 | 14689 | 9677 | 7419 |
| State of Wyoming
Columbia Basin | 1624 | 620 | 295 | 191 | 140 | 5105 | 3345 | 2205 | 1615 | 1225 |
| State of Nevada
Columbia Basin | 56 | 15 | 8 | 3 | 2 | 150 | 76 | 53 | 27 | 14 |
| Pacific North-
west Region
total | 90452 | 39391 | 23439 | 12073 | 8409 | 305824 | 221709 | 162923 | 101896 | 74344 |



IV. REACH RANKING

The reach ranking procedures presented in this study were developed around the data presented in the Feasibility Transmission and Load Restraints tables and the total power potential data for the reaches. The ranking parameters and criteria used are those that the investigators felt would be significant to low head hydroelectric development in the Pacific Northwest Region. The parameters used are in no way all inclusive or far superior to other schemes which could be devised. The techniques used should be viewed more as an example use of the data presented in the study, rather than an exact solution to the problem of choosing the best reaches.

The first step in the ranking process was to screen out the less desirable reaches. This was done using the data available in Table II feasibility transmission and load restraints. The basic criteria used to screen out reaches are as follows:

1. A check in the column titled land use restriction
2. More than one check in the columns titled Utility Displacement, Building Displacement, and Special Fish Problems
3. The distance to the nearest transmission line was greater than 10 miles
4. No local market exists (no 1, 2, or 3 in Local market column)

If any of the four criteria was met the reach was eliminated from further consideration. After this screening was accomplished the remaining reaches were ranked according to the value of Q_{30} in the reach. The results of these rankings are shown in Table III.

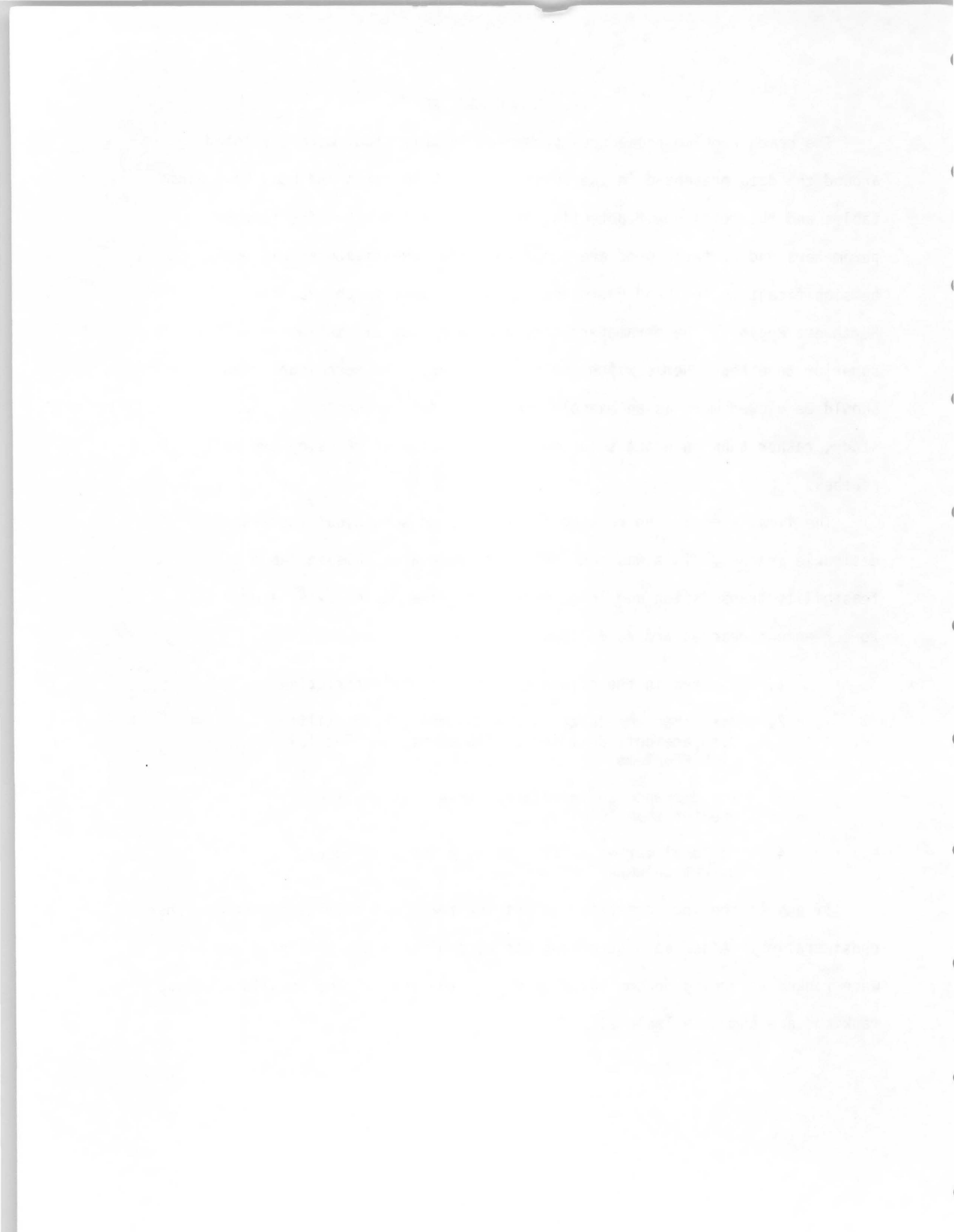


Table III
WASHINGTON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------------------|--------------------------|--------------------------|----------|
| Nisqually River | 01-029-000-000-000-R0003 | 2370 | W11- 429 |
| Sauk River | 01-061-000-000-000-R0069 | 2100 | W 4- 125 |
| Kettle River | 01-500-460-000-000-R0001 | 2043 | W60-1412 |
| Cle Elum River | 01-500-260-000-000-R0049 | 1160 | W37-1257 |
| South Fork Stillaguamish River | 01-022-000-000-000-R0022 | 1110 | W 5- 262 |
| Cle Elum River | 01-500-260-000-000-R0050 | 1110 | W37-1258 |
| White Salmon River | 01-500-120-000-000-R0003 | 993 | W29-1132 |
| South Fork Nooksack River | 01-023-000-000-000-R0005 | 807 | W 1- 5 |
| East Fork Lewis River | 01-500-040-000-000-R0011 | 685 | W27-1069 |
| South Fork Nooksack River | 01-023-000-000-000-R0006 | 624 | W 1- 6 |
| Dickey River | 01-038-000-000-000-R0002 | 550 | W20- 568 |
| Miller River | 01-034-000-000-000-R0041 | 452 | W 7- 314 |
| Pilchuck Creek | 01-022-000-000-000-R0003 | 352 | W 5- 243 |
| North Fork Skykomish River | 01-034-000-000-000-R0027 | 345 | W 7- 300 |
| Olequa Creek | 01-500-020-000-000-R0059 | 271 | W26- 962 |
| Little Naches River | 01-500-260-000-000-R0024 | 234 | W37-1232 |
| Clear Creek | 01-061-000-000-000-R0101 | 203 | W 4- 157 |
| Copalis River | 01-047-000-000-000-R0002 | 191 | W21- 715 |
| Cedar Creek | 01-021-000-000-000-R0005 | 188 | W 8- 373 |
| Big Sheep Creek | 01-500-470-000-000-R0001 | 184 | W61-1418 |
| North Fork Skykomish River | 01-034-000-000-000-R0028 | 173 | W 7- 301 |
| South Fork Tieton River | 01-500-260-000-000-R0029 | 168 | W37-1237 |
| Copalis River | 01-047-000-000-000-R0003 | 164 | W21- 716 |
| Little Naches River | 01-500-260-000-000-R0025 | 163 | W37-1233 |
| Panther Creek | 01-500-100-000-000-R0008 | 163 | W29-1121 |
| West Cady Creek | 01-034-000-000-000-R0032 | 154 | W 7- 305 |
| Abernathy Creek | 01-500-010-000-000-R0001 | 149 | W25- 900 |
| Squire Creek | 01-022-000-000-000-R0019 | 146 | W 5- 259 |
| Chambers Creek | 01-005-000-000-000-R0001 | 138 | W12- 459 |
| Salmon Creek | 01-500-020-000-000-R0065 | 124 | W26- 968 |

| No. | Name | Age | Sex | Religion | Marital Status | Education | Occupation | Income | Notes |
|-----|------------------|-----|-----|-----------|----------------|-------------|---------------------|----------|-------|
| 1 | John Doe | 25 | M | Christian | Married | High School | Farmer | \$20,000 | |
| 2 | Jane Smith | 30 | F | Buddhist | Single | College | Teacher | \$30,000 | |
| 3 | Robert Johnson | 45 | M | Muslim | Divorced | University | Engineer | \$45,000 | |
| 4 | Emily White | 20 | F | Hindu | Single | High School | Student | \$15,000 | |
| 5 | Michael Brown | 35 | M | Jewish | Married | College | Manager | \$35,000 | |
| 6 | Sarah Green | 40 | F | Christian | Married | High School | Homemaker | \$10,000 | |
| 7 | David Lee | 50 | M | Buddhist | Widowed | College | Retired | \$25,000 | |
| 8 | Lisa Black | 28 | F | Muslim | Single | College | Nurse | \$28,000 | |
| 9 | Christopher King | 32 | M | Christian | Married | High School | Worker | \$18,000 | |
| 10 | Amanda Hill | 22 | F | Hindu | Single | College | Student | \$12,000 | |
| 11 | James Scott | 42 | M | Jewish | Married | University | Professor | \$55,000 | |
| 12 | Michelle Adams | 38 | F | Christian | Married | High School | Secretary | \$22,000 | |
| 13 | Kevin Baker | 27 | M | Buddhist | Single | College | Software Developer | \$40,000 | |
| 14 | Nicole Carter | 33 | F | Muslim | Married | High School | Teacher | \$27,000 | |
| 15 | Brandon Evans | 18 | M | Hindu | Single | High School | Student | \$8,000 | |
| 16 | Stephanie Ford | 31 | F | Jewish | Married | College | Designer | \$32,000 | |
| 17 | Matthew Gray | 48 | M | Christian | Married | High School | Construction Worker | \$16,000 | |
| 18 | Olivia Hall | 29 | F | Buddhist | Single | College | Accountant | \$29,000 | |
| 19 | Ethan King | 36 | M | Muslim | Married | University | Researcher | \$42,000 | |
| 20 | Sophia Lewis | 24 | F | Hindu | Single | College | Student | \$14,000 | |

Table III
WASHINGTON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------------|--------------------------|--------------------------|----------|
| Mill Creek | 01-500-008-000-000-R0001 | 123 | W25- 899 |
| Silver Creek | 01-034-000-000-000-R0031 | 122 | W 7- 304 |
| Little Naches River | 01-500-260-000-000-R0026 | 116 | W37-1234 |
| Skookum Creek | 01-023-000-000-000-R0010 | 114 | W 1- 10 |
| Clear Creek | 01-061-000-000-000-R0102 | 113 | W 4- 158 |
| Trout Creek | 01-034-000-000-000-R0029 | 105 | W 7- 302 |
| Trout Creek | 01-500-100-000-000-R0010 | 105 | W29-1123 |
| Green River | 01-028-000-000-000-R0009 | 104 | W 9- 385 |
| Germany Creek | 01-500-012-000-000-R0001 | 103 | W25- 902 |
| West Fork Miller River | 01-034-000-000-000-R0044 | 102 | W 7- 317 |
| Silver Creek | 01-034-000-000-000-R0030 | 98.3 | W 7- 303 |
| Money Creek | 01-034-000-000-000-R0040 | 97.8 | W 7- 313 |
| Big Creek | 01-500-040-000-000-R0014 | 95.5 | W27-1072 |
| Mashel River | 01-029-000-000-000-R0018 | 93. | W11- 444 |
| Little Nisqually River | 01-029-000-000-000-R0020 | 88.5 | W11- 446 |
| Kendall Creek | 01-023-000-000-000-R0030 | 78.1 | W 1- 30 |
| South Fork Willapa River | 01-056-000-000-000-R0007 | 75.9 | W24- 860 |
| Roundtop Creek | 01-029-000-000-000-R0025 | 73.0 | W11- 451 |
| Eightmile Creek | 01-500-300-000-000-R0017 | 68.6 | W45-1286 |
| Quartz Creek | 01-034-000-000-000-R0033 | 68.4 | W 7- 306 |

Table with 4 columns and 6 rows. The first column contains numerical values, and the other three columns contain text labels.

Table 1. Data collected from the experiment. The first column represents the independent variable, and the other three columns represent the dependent variables.

TABLE III
OREGON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|---------------------------------------|--------------------------|--------------------------|----------|
| <u>1. North Coast Basin</u> | | | |
| Miami River | 02-520-000-000-000-R0002 | 111 | 0 1-72 |
| Lewis and Clark River | -500-003-000-000-R0003 | 106 | 0 1-3 |
| <u>2. Willamette Basin</u> | | | |
| <u>2A. Upper Willamette Basin</u> | | | |
| Willamette River Main Stem | 02-500-060-000-000-R0021 | 13,158 | 0 2A-1 |
| Willamette River Main Stem | -R0022 | 12,106 | 0 2A-10 |
| Willamette River Main Stem | -R0024 | 11,982 | 0 2A-12 |
| Middle Fk. Willamette River | -192-000-R0013 | 1,131 | 0 2A-118 |
| N. Fk. of Middle Fk. Willamette River | -192-010-R0001 | 718 | 0 2A-103 |
| Salmon Creek | -020-R0001 | 347 | 0 2A-111 |
| Salt Creek | -030-R0001 | 291 | 0 2A-115 |
| <u>2B. Mid Willamette Basin</u> | | | |
| Willamette River Main Stem | 02-500-060-000-000-R0005 | 30,521 | 0 2B-1 |
| Willamette River Main Stem | -R0017 | 14,738 | 0 2B-194 |
| South Santiam River | -110-020-R0001 | 4,427 | 0 2B-139 |
| South Santiam River | -R0017 | 3,278 | 0 2B-155 |
| Molalla River | -036-000-R0001 | 3,254 | 0 2B-2 |
| Calapooia River | -120-000-R0002 | 1,067 | 0 2B-186 |
| Mary's River | -131-000-R0001 | 867 | 0 2B-196 |
| Mary's River | -R0002 | 497 | 0 2B-200 |
| Muddy Creek | -134-000-R0002 | 335 | 0 2B-210 |

TABLE III
OREGON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|-----------------------------------|--------------------------|--------------------------|----------|
| Muddy Creek (West) | 02-500-060-131-010-R0001 | 304 | 0 2B-197 |
| Rickreall Creek | -089-000-R0001 | 205 | 0 2B-88 |
| Muddy Creek | -134-000-R0003 | 142 | 0 2B-213 |
| Little Pudding River | -036-005-R0016 | 84 | 0 2B-18 |
| Muddy Creek | -134-000-R0005 | 74 | 0 2B-215 |
| <u>2C. Lower Willamette Basin</u> | | | |
| Tualatin River | 02-500-060-029-000-R0003 | 1,638 | 0 2C-44 |
| Clackamas River | -024-000-R0008 | 1,431 | 0 2C-28 |
| Tualatin River | -029-000-R0005 | 1,295 | 0 2C-48 |
| Tualatin River | -000-R0006 | 675 | 0 2C-57 |
| Dairy Creek | -005-R0001 | 516 | 0 2C-49 |
| Oak Grove Fork Clackamas River | -024-009-R0001 | 429 | 0 2C-25 |
| Dairy Creek | -029-005-R0004 | 336 | 0 2C-52 |
| Eagle Creek | -024-004-R0001 | 286 | 0 2C-11 |
| Gales Creek | -029-007-R0001 | 195 | 0 2C-58 |
| Eagle Creek | -024-004-R0003 | 134 | 0 2C-13 |
| Fish Creek | -006-R0001 | 130 | 0 2C-19 |
| McKay Creek | -029-005-R0002 | 124 | 0 2C-50 |
| Rock Creek | -003-R0001 | 122 | 0 2C-46 |
| Clear Creek | -024-003-R0002 | 120 | 0 2C-8 |
| West Fork Dairy Creek | -029-005-R0005 | 118 | 0 2C-53 |
| Roaring River | -024-007-R0001 | 117 | 0 2C-22 |

TABLE III
OREGON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|------------------------------|--------------------------|--------------------------|---------|
| Clear Creek | 02-500-060-024-003-R0003 | 93 | 0 2C-9 |
| North Fork Eagle Creek | -004-R0002 | 87 | 0 2C-12 |
| <u>3. Sandy Basin</u> | None | | |
| <u>4. Hood Basin</u> | | | |
| Fifteenmile Creek | 02-500-165-000-000-R0002 | 136 | 0 4-17 |
| <u>5. Deschutes Basin</u> | | | |
| Squaw Creek | 02-500-180-040-000-R0003 | 527 | 0 5-85 |
| Tumalo Creek | -050-000-R0001 | 384 | 0 5-95 |
| Crooked River | -030-000-R0001 | 338 | 0 5-70 |
| Crooked River | -R0006 | 329 | 0 5-72 |
| Crooked River | -R0007 | 292 | 0 5-73 |
| <u>6. John Day Basin</u> | None | | |
| <u>7. Umatilla Basin</u> | None | | |
| <u>8. Grande Ronde Basin</u> | None | | |
| <u>9. Powder Basin</u> | | | |
| Powder River | 02-500-240-120-000-R0012 | 111 | 0 9-14 |
| Powder River | -R0013 | 100 | 0 9-15 |
| Eagle Creek | -010-R0002 | 96 | 0 9-19 |

TABLE III
OREGON REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|---|--|--------------------------|--------------------|
| 10. <u>Malheur Basin</u>
Malheur River | 02-500-240-180-000-R0001 | 245 | 0 10-1 |
| 11. <u>Owyhee Basin</u>
Owyhee River | 02-500-240-200-000-R0001 | 867 | 0 11-1 |
| 12. <u>Malheur Lake Basin</u> | None | | |
| 13. <u>Goose and Summer Lakes Basin</u> | None | | |
| 14. <u>Klamath Basin</u>
Klamath River | 02-000-014-002-000-R0003 | 904 | 0 14-7 |
| 15. <u>Rogue Basin</u> | None | | |
| 16. <u>Umpqua Basin</u>
Calapooya Creek
Elk Creek | 02-700-030-000-000-R0002
-020-000-000-R0006 | 328
110 | 0 16-35
0 16-27 |
| 17. <u>South Coast Basin</u>
Hunter Creek | 02-950-000-000-000-R0001 | 233 | 0 17-64 |
| 18. <u>Mid Coast Basin</u> | None | | |

Table III
IDAHO REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------------|--------------------------|--------------------------|-------|
| Kootenai River | 03-500-500-000-000-R0002 | 17517 | I 11 |
| Snake River | 03-500-240-000-000-R0026 | 9983 | I 109 |
| Snake River | 03-500-240-000-000-R0056 | 9954 | I 125 |
| Snake River | 03-500-240-000-000-R0058 | 9398 | I 126 |
| Snake River | 03-500-240-000-000-R0027 | 8274 | I 110 |
| Snake River | 03-500-240-000-000-R0048 | 7212 | I 121 |
| Snake River | 03-500-240-000-000-R0046 | 7048 | I 120 |
| Snake River | 03-500-240-000-000-R0028 | 6185 | I 111 |
| Snake River | 03-500-240-000-000-R0045 | 6029 | I 119 |
| Snake River | 03-500-240-000-000-R0054 | 6005 | I 124 |
| Snake River (Wyoming) | 06-500-240-000-000-R0002 | 5400 | I 127 |
| Snake River (Wyoming) | 06-500-240-000-000-R0006 | 4418 | I 129 |
| Snake River (Wyoming) | 06-500-240-000-000-R0008 | 4148 | I 130 |
| Payette River | 03-500-240-160-000-R0011 | 3750 | I 349 |
| Payette River | 03-500-240-160-000-R0013 | 3750 | I 350 |
| Payette River | 03-500-240-160-000-R0015 | 3750 | I 351 |
| Snake River | 03-500-240-000-000-R0030 | 3317 | I 112 |
| Payette River | 03-500-240-160-000-R0005 | 2400 | I 348 |
| Snake River | 03-500-240-000-000-R0032 | 2369 | I 113 |
| Henry's Fork | 03-500-240-300-000-R0008 | 1842 | I 497 |
| Payette River | 03-500-240-160-000-R0017 | 1800 | I 352 |
| Henry's Fork | 03-500-240-300-000-R0012 | 1699 | I 498 |
| Henry's Fork | 03-500-240-300-000-R0006 | 1677 | I 496 |
| South Fork Payette River | 03-500-240-160-180-R0003 | 1650 | I 366 |
| North Fork Payette River | 03-500-240-160-100-R0005 | 1600 | I 358 |
| South Fork Payette River | 03-500-240-160-180-R0005 | 1575 | I 367 |
| Coeur d'Alene River | 03-500-420-504-000-R0014 | 1534 | I 46 |
| Weiser River | 03-500-240-140-000-R0003 | 1403 | I 334 |
| Weiser River | 03-500-240-140-000-R0005 | 1366 | I 335 |
| Coeur d'Alene River | 03-500-420-504-000-R0018 | 1338 | I 47 |

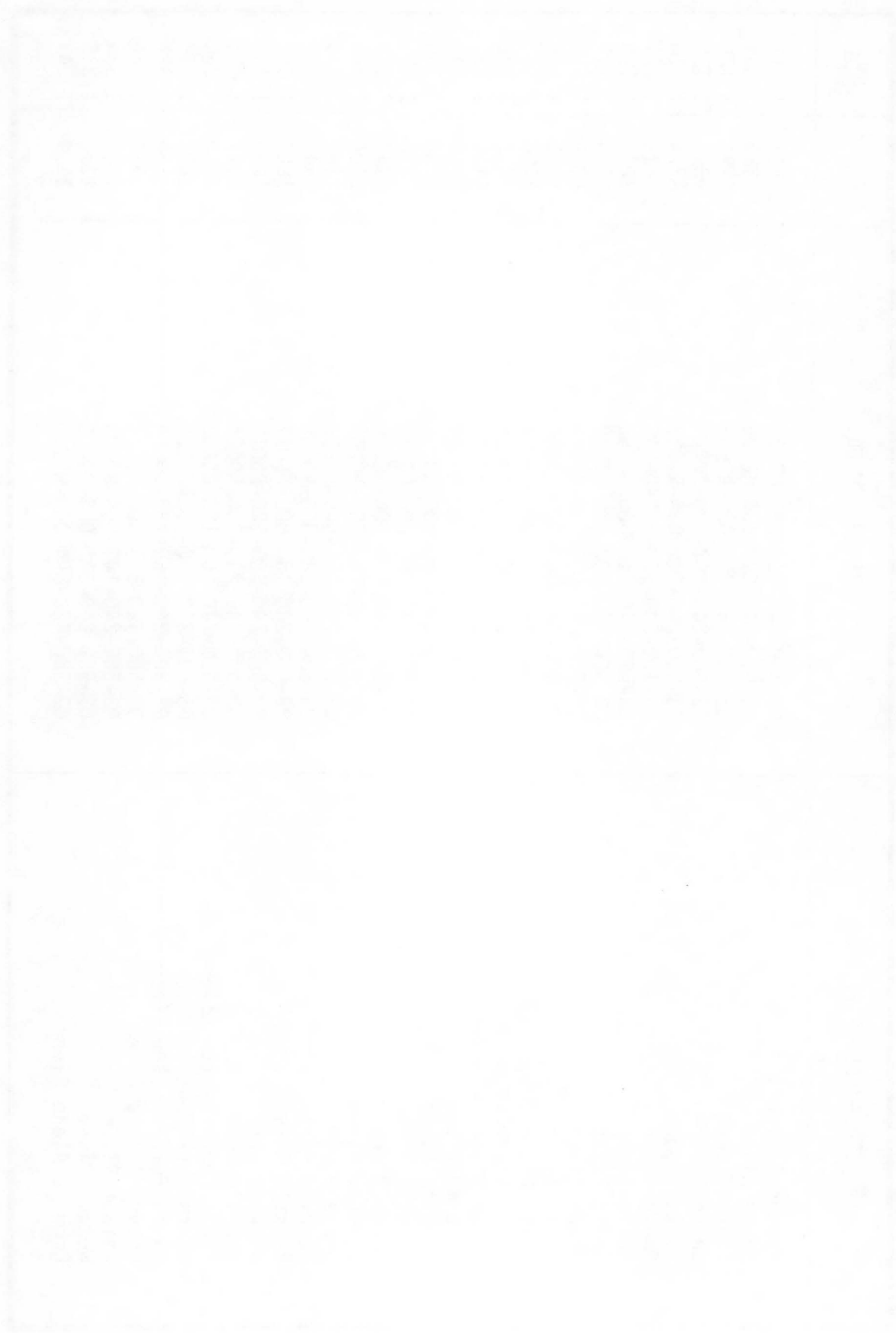


Table III
IDAHO REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|------------------------|--------------------------|--------------------------|-------|
| Weiser River | 03-500-240-140-000-R0007 | 1310 | I 336 |
| Bear River | 03-250-000-000-000-R0013 | 1040 | I 6 |
| Coeur d'Alene River | 03-500-420-504-000-R0024 | 902 | I 48 |
| Bear River | 03-250-000-000-000-R0004 | 899 | I 2 |
| Bear River | 03-250-000-000-000-R0009 | 860 | I 3 |
| Teton River | 03-500-240-300-010-R0002 | 852 | I 502 |
| Bear River | 03-250-000-000-000-R0011 | 843 | I 5 |
| Bear River | 03-250-000-000-000-R0014 | 842 | I 7 |
| Bear River | 03-250-000-000-000-R0002 | 816 | I 1 |
| Salt River | 06-500-240-307-000-R0002 | 730 | I 524 |
| Bear River | 03-250-000-000-000-R0010 | 699 | I 4 |
| Salt River | 06-500-240-307-000-R0004 | 603 | I 525 |
| Weiser River | 03-500-240-140-000-R0011 | 600 | I 338 |
| South Fork Boise River | 03-500-240-220-150-R0007 | 576 | I 394 |
| Hoback River | 06-500-240-311-000-R0002 | 516 | I 538 |
| St. Maries River | 03-500-420-502-010-R0004 | 495 | I 80 |
| Greys River | 06-500-240-309-000-R0002 | 483 | I 532 |
| Teton River | 03-500-240-300-010-R0006 | 471 | I 504 |
| Weiser River | 03-500-240-140-000-R0013 | 440 | I 339 |
| Pack River | 03-500-480-275-000-R0002 | 412 | I 33 |

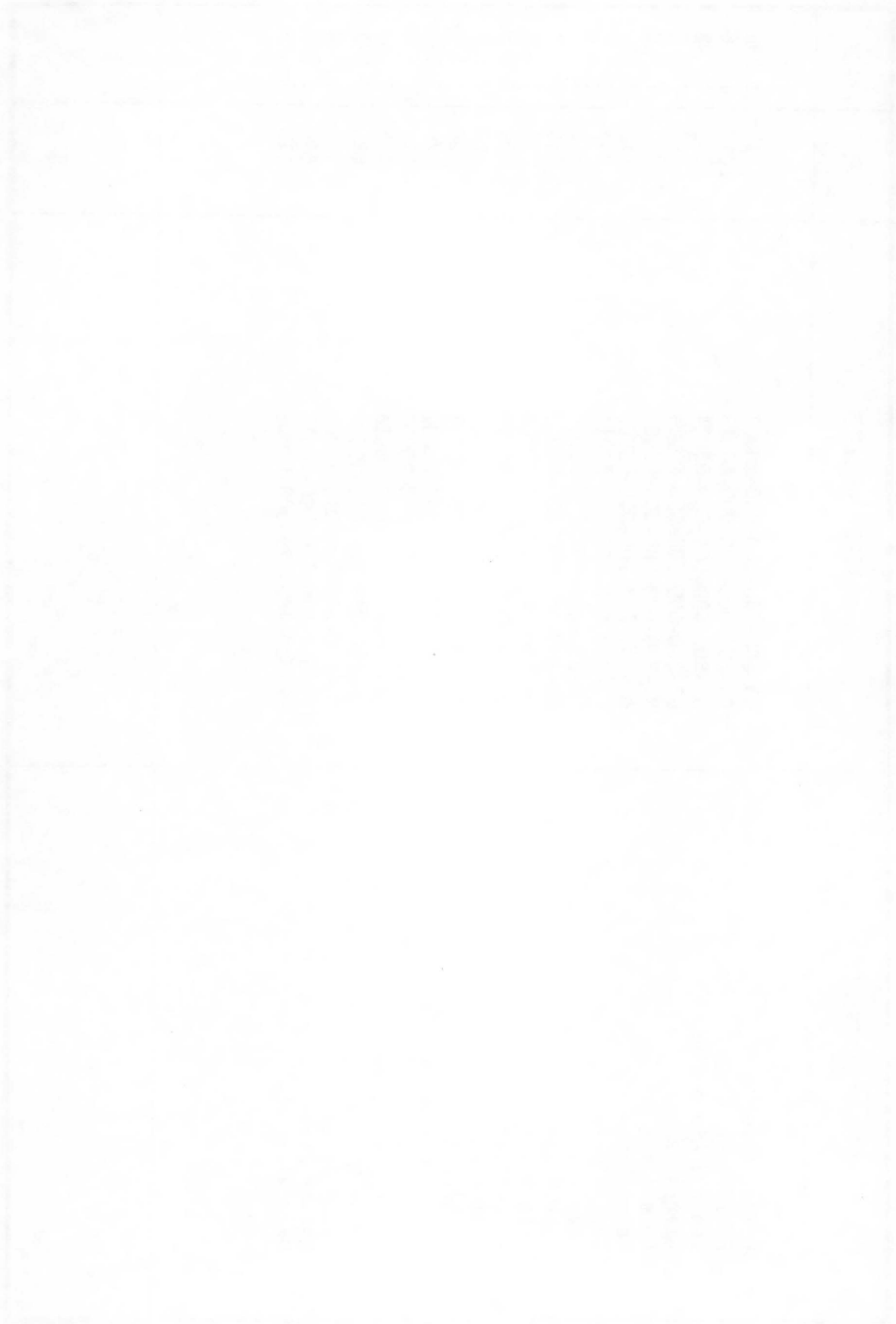


Table III
MONTANA REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------|------------------------------------|--------------------------|-------|
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0030 | 21890 | M 30 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0029 | 21260 | M 29 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0028 | 20897 | M 28 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0027 | 20818 | M 27 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0026 | 20284 | M 26 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0025 | 17000 | M 25 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0024 | 16932 | M 24 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0023 | 16858 | M 23 |
| Kootenai River | 04 - 500 - 500 - 000 - 000 - R0002 | 14454 | M 160 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0022 | 11522 | M 22 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0021 | 6202 | M 21 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0020 | 6163 | M 20 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0019 | 5964 | M 19 |



Table III
MONTANA REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------|------------------------------------|--------------------------|-------|
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0014 | 5776 | M 14 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0018 | 5749 | M 18 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0013 | 5607 | M 13 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0016 | 5533 | M 16 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0015 | 5495 | M 15 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0012 | 5483 | M 12 |
| Bitterroot River | 04 - 500 - 480 - 350 - 260 - R0024 | 1928 | M 97 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0008 | 1534 | M 8 |
| Bitterroot River | 04 - 500 - 480 - 350 - 260 - R0019 | 1466 | M 92 |
| Bitterroot River | 04 - 500 - 480 - 350 - 260 - R0018 | 1349 | M 91 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0007 | 1178 | M 7 |
| Blackfoot River | 04 - 500 - 480 - 350 - 220 - R0012 | 970 | M 71 |
| Swan River | 04 - 500 - 480 - 350 - 440 - R0048 | 956 | M 146 |

| Year | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Population | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | 200 | 205 | 210 | 215 | 220 | 225 | 230 | 235 | 240 | 245 | 250 | 255 | 260 | 265 | 270 | 275 | 280 | 285 | 290 | 295 | 300 | 305 | 310 | 315 | 320 | 325 | 330 | 335 | 340 | 345 | 350 | 355 | 360 | 365 | 370 | 375 | 380 | 385 | 390 | 395 | 400 | 405 | 410 | 415 | 420 | 425 | 430 | 435 | 440 | 445 | 450 | 455 | 460 | 465 | 470 | 475 | 480 | 485 | 490 | 495 | 500 | 505 | 510 | 515 | 520 | 525 | 530 | 535 | 540 | 545 | 550 | 555 | 560 | 565 | 570 | 575 | 580 | 585 | 590 | 595 | 600 | 605 | 610 | 615 | 620 | 625 | 630 | 635 | 640 | 645 | 650 | 655 | 660 | 665 | 670 | 675 | 680 | 685 | 690 | 695 | 700 | 705 | 710 | 715 | 720 | 725 | 730 | 735 | 740 | 745 | 750 | 755 | 760 | 765 | 770 | 775 | 780 | 785 | 790 | 795 | 800 | 805 | 810 | 815 | 820 | 825 | 830 | 835 | 840 | 845 | 850 | 855 | 860 | 865 | 870 | 875 | 880 | 885 | 890 | 895 | 900 | 905 | 910 | 915 | 920 | 925 | 930 | 935 | 940 | 945 | 950 | 955 | 960 | 965 | 970 | 975 | 980 | 985 | 990 | 995 | 1000 |

Table III
MONTANA REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|----------------------------|------------------------------------|--------------------------|-------|
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0005 | 840 | M 5 |
| Blackfoot River | 04 - 500 - 480 - 350 - 220 - R0009 | 666 | M 68 |
| Yaak River | 04 - 500 - 500 - 500 - 000 - R0004 | 577 | M 182 |
| Thompson River | 04 - 500 - 480 - 350 - 520 - R0004 | 426 | M 55 |
| Rock Creek | 04 - 500 - 480 - 350 - 200 - R0006 | 425 | M 43 |
| Blackfoot River | 04 - 500 - 480 - 350 - 220 - R0004 | 391 | M 63 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0002 | 383 | M 2 |
| Flint Creek | 04 - 500 - 480 - 350 - 180 - R0002 | 308 | M 36 |
| Stillwater River | 04 - 500 - 480 - 350 - 440 - R0040 | 294 | M 138 |
| Clark Fork River | 04 - 500 - 480 - 350 - 000 - R0001 | 256 | M 1 |
| St. Regis River | 04 - 500 - 480 - 350 - 420 - R0002 | 244 | M 51 |
| Fish Creek | 04 - 500 - 480 - 350 - 320 - R0003 | 191 | M 47 |
| North Fork Blackfoot River | 04 - 500 - 480 - 350 - 220 - R0007 | 174 | M 66 |

| | | |
|--|--|--|
| <p>1. $2x^2 + 3x - 5$</p> <p>2. $x^2 - 4x + 7$</p> <p>3. $5x^2 - 2x + 1$</p> <p>4. $x^2 + 6x - 8$</p> <p>5. $3x^2 - 7x + 4$</p> <p>6. $x^2 - 9x + 14$</p> <p>7. $4x^2 - 5x + 2$</p> <p>8. $x^2 + 8x - 12$</p> <p>9. $2x^2 - 3x + 1$</p> <p>10. $x^2 - 11x + 18$</p> | <p>1. $(2x+5)(x-1)$</p> <p>2. $(x-4)(x+7)$</p> <p>3. $(5x-2)(x+1)$</p> <p>4. $(x+6)(x-8)$</p> <p>5. $(3x-7)(x+4)$</p> <p>6. $(x-9)(x+14)$</p> <p>7. $(4x-5)(x+2)$</p> <p>8. $(x+8)(x-12)$</p> <p>9. $(2x-3)(x+1)$</p> <p>10. $(x-11)(x+18)$</p> | <p>1. $2x^2 + 3x - 5$</p> <p>2. $x^2 - 4x + 7$</p> <p>3. $5x^2 - 2x + 1$</p> <p>4. $x^2 + 6x - 8$</p> <p>5. $3x^2 - 7x + 4$</p> <p>6. $x^2 - 9x + 14$</p> <p>7. $4x^2 - 5x + 2$</p> <p>8. $x^2 + 8x - 12$</p> <p>9. $2x^2 - 3x + 1$</p> <p>10. $x^2 - 11x + 18$</p> |
| <p>11. $6x^2 - 13x + 6$</p> <p>12. $x^2 - 7x + 10$</p> <p>13. $3x^2 - 10x + 8$</p> <p>14. $x^2 - 5x + 6$</p> <p>15. $4x^2 - 12x + 9$</p> <p>16. $x^2 - 8x + 15$</p> <p>17. $2x^2 - 7x + 3$</p> <p>18. $x^2 - 9x + 14$</p> <p>19. $5x^2 - 14x + 8$</p> <p>20. $x^2 - 11x + 18$</p> | <p>11. $(2x-3)(3x-2)$</p> <p>12. $(x-2)(x-5)$</p> <p>13. $(3x-4)(x-2)$</p> <p>14. $(x-2)(x-3)$</p> <p>15. $(2x-3)^2$</p> <p>16. $(x-3)(x-5)$</p> <p>17. $(2x-3)(x-1)$</p> <p>18. $(x-3)(x-5)$</p> <p>19. $(5x-8)(x-2)$</p> <p>20. $(x-2)(x-9)$</p> | <p>11. $6x^2 - 13x + 6$</p> <p>12. $x^2 - 7x + 10$</p> <p>13. $3x^2 - 10x + 8$</p> <p>14. $x^2 - 5x + 6$</p> <p>15. $4x^2 - 12x + 9$</p> <p>16. $x^2 - 8x + 15$</p> <p>17. $2x^2 - 7x + 3$</p> <p>18. $x^2 - 9x + 14$</p> <p>19. $5x^2 - 14x + 8$</p> <p>20. $x^2 - 11x + 18$</p> |
| <p>21. $8x^2 - 14x + 5$</p> <p>22. $x^2 - 6x + 8$</p> <p>23. $3x^2 - 11x + 6$</p> <p>24. $x^2 - 7x + 10$</p> <p>25. $4x^2 - 10x + 6$</p> <p>26. $x^2 - 9x + 14$</p> <p>27. $2x^2 - 5x + 2$</p> <p>28. $x^2 - 11x + 18$</p> <p>29. $5x^2 - 14x + 8$</p> <p>30. $x^2 - 11x + 18$</p> | <p>21. $(2x-5)(4x-1)$</p> <p>22. $(x-2)(x-4)$</p> <p>23. $(3x-2)(x-3)$</p> <p>24. $(x-2)(x-5)$</p> <p>25. $(2x-3)(2x-2)$</p> <p>26. $(x-3)(x-5)$</p> <p>27. $(2x-2)(x-1)$</p> <p>28. $(x-2)(x-9)$</p> <p>29. $(5x-8)(x-2)$</p> <p>30. $(x-2)(x-9)$</p> | <p>21. $8x^2 - 14x + 5$</p> <p>22. $x^2 - 6x + 8$</p> <p>23. $3x^2 - 11x + 6$</p> <p>24. $x^2 - 7x + 10$</p> <p>25. $4x^2 - 10x + 6$</p> <p>26. $x^2 - 9x + 14$</p> <p>27. $2x^2 - 5x + 2$</p> <p>28. $x^2 - 11x + 18$</p> <p>29. $5x^2 - 14x + 8$</p> <p>30. $x^2 - 11x + 18$</p> |

1. $2x^2 + 3x - 5$

2. $x^2 - 4x + 7$

Table III
MONTANA REACH RANKING

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|-----------------------|------------------------------------|--------------------------|-------|
| Logan Creek | 04 - 500 - 480 - 350 - 440 - R0039 | 154 | M 137 |
| Prospect Creek | 04 - 500 - 480 - 350 - 560 - R0001 | 145 | M 56 |
| Silver Bow Creek | 04 - 500 - 480 - 350 - 110 - R0002 | 138 | M 32 |
| St. Regis River | 04 - 500 - 480 - 350 - 420 - R0001 | 123 | M 50 |
| North Fork Fish Creek | 04 - 500 - 480 - 350 - 320 - R0002 | 118 | M 46 |
| Lake Creek | 04 - 500 - 500 - 460 - 000 - R0001 | 114 | M 177 |
| Logan Creek | 04 - 500 - 480 - 350 - 440 - R0038 | 103 | M 136 |
| Beaver Creek | 04 - 500 - 480 - 350 - 600 - R0001 | 98 | M 57 |
| Nevada Creek | 04 - 500 - 480 - 350 - 220 - R0003 | 98 | M 62 |
| Monture Creek | 04 - 500 - 480 - 350 - 220 - R0008 | 73 | M 67 |
| Ashley Creek | 04 - 500 - 480 - 350 - 440 - R0042 | 73 | M 140 |

| | | |
|------------------------------|------------------------------|------------------------------|
| <p>1. <i>Chromolaena</i></p> | <p>1. <i>Chromolaena</i></p> | <p>1. <i>Chromolaena</i></p> |
| <p>2. <i>Chromolaena</i></p> | <p>2. <i>Chromolaena</i></p> | <p>2. <i>Chromolaena</i></p> |
| <p>3. <i>Chromolaena</i></p> | <p>3. <i>Chromolaena</i></p> | <p>3. <i>Chromolaena</i></p> |
| <p>4. <i>Chromolaena</i></p> | <p>4. <i>Chromolaena</i></p> | <p>4. <i>Chromolaena</i></p> |

10/10/10

Table III
Pacific Northwest Region
Reach Ranking

| STREAM DESCRIPTION | REACH NUMBER | Q ₃₀
(CFS) | PAGE |
|--------------------|--------------------------|--------------------------|---------|
| Willamette River | 02-500-060-000-000-R0005 | 30521 | 02B-1 |
| Clark Fork River | 04-500-480-350-000-R0030 | 21890 | M30 |
| Clark Fork River | 04-500-480-350-000-R0029 | 21260 | M29 |
| Clark Fork River | 04-500-480-350-000-R0028 | 20897 | M28 |
| Clark Fork River | 04-500-480-350-000-R0027 | 20818 | M27 |
| Clark Fork River | 04-500-480-350-000-R0026 | 20284 | M26 |
| Kootenai River | 03-500-500-000-000-R0002 | 17517 | I11 |
| Clark Fork River | 04-500-480-350-000-R0025 | 17000 | M25 |
| Clark Fork River | 04-500-480-350-000-R0024 | 16932 | M24 |
| Clark Fork River | 04-500-480-350-000-R0023 | 16858 | M23 |
| Willamette River | 02-500-060-000-000-R0017 | 14738 | 02B-194 |
| Kootenai River | 04-500-500-000-000-R0002 | 14454 | M160 |
| Willamette River | 02-500-060-000-000-R0021 | 13158 | 02A-1 |
| Willamette River | 02-500-060-000-000-R0022 | 12106 | 02A-10 |
| Willamette River | 02-500-060-000-000-R0024 | 11982 | 02A-12 |
| Clark Fork River | 04-500-480-350-000-R0022 | 11522 | M22 |
| Snake River | 03-500-240-000-000-R0026 | 9983 | I109 |
| Snake River | 03-500-240-000-000-R0056 | 9954 | I125 |
| Snake River | 03-500-240-000-000-R0058 | 9398 | I126 |
| Snake River | 03-500-240-000-000-R0027 | 8274 | I110 |
| Snake River | 03-500-240-000-000-R0048 | 7212 | I121 |
| Snake River | 03-500-240-000-000-R0046 | 7048 | I120 |
| Clark Fork River | 04-500-480-350-000-R0021 | 6202 | M21 |
| Snake River | 03-500-240-000-000-R0028 | 6185 | I111 |
| Clark Fork River | 04-500-480-350-000-R0020 | 6163 | M20 |
| Snake River | 03-500-240-000-000-R0045 | 6029 | I119 |
| Snake River | 03-500-240-000-000-R0054 | 6005 | I124 |

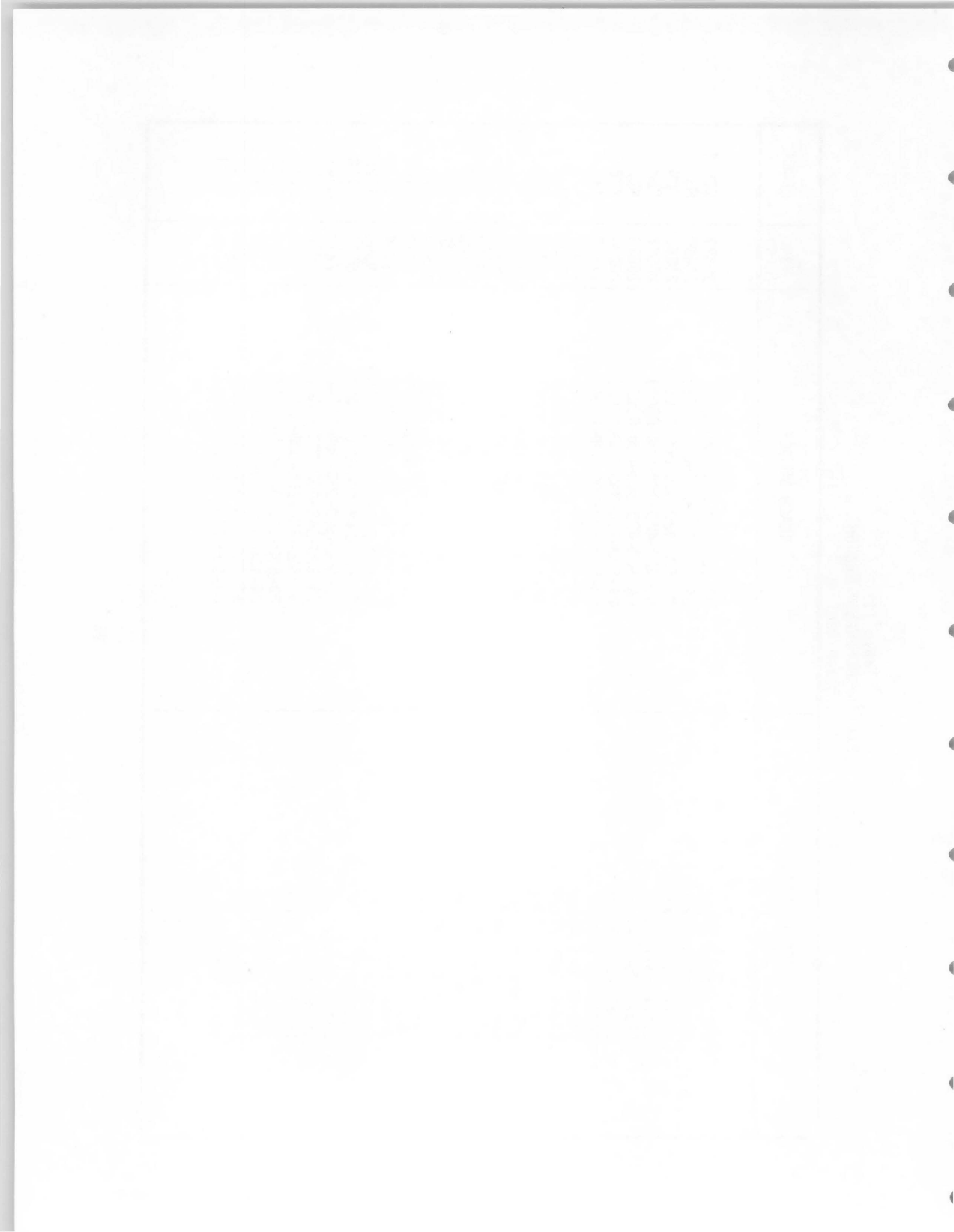


Table III
Pacific Northwest Region
Reach Ranking

| STREAM DESCRIPTION | REACH NUMBER | O ₃₀
(CFS) | PAGE |
|---------------------|--------------------------|--------------------------|----------|
| Clark Fork River | 04-500-480-350-000-R0019 | 5964 | M19 |
| Clark Fork River | 04-500-480-350-000-R0014 | 5776 | M14 |
| Clark Fork River | 04-500-480-350-000-R0018 | 5749 | M18 |
| Clark Fork River | 04-500-480-350-000-R0013 | 5607 | M13 |
| Clark Fork River | 04-500-480-350-000-R0016 | 5533 | M16 |
| Clark Fork River | 04-500-480-350-000-R0015 | 5495 | M15 |
| Clark Fork River | 04-500-480-350-000-R0012 | 5483 | M12 |
| Snake River | 06-500-240-000-000-R0002 | 5400 | I127 |
| South Santiam River | 02-500-060-110-020-R0001 | 4427 | 02B-139 |
| Snake River | 06-500-240-000-000-R0006 | 4418 | I129 |
| Snake River | 06-500-240-000-000-R0008 | 4148 | I130 |
| Payette River | 03-500-240-160-000-R0011 | 3750 | I349 |
| Payette River | 03-500-240-160-000-R0013 | 3750 | I350 |
| Payette River | 03-500-240-160-000-R0015 | 3750 | I351 |
| Snake River | 03-500-240-000-000-R0030 | 3317 | I112 |
| South Santiam River | 02-500-060-110-020-R0017 | 3278 | 02B-155 |
| Molalla River | 02-500-060-036-000-R0001 | 3254 | 02B-2 |
| Payette River | 03-500-240-160-000-R0005 | 2400 | I348 |
| Nisqually River | 01-029-000-000-000-R0003 | 2370 | W11-429 |
| Snake River | 03-500-240-000-000-R0032 | 2369 | I113 |
| Sayk River | 01-061-000-000-000-R0069 | 2100 | W4-125 |
| Kettle River | 01-500-460-000-000-R0001 | 2043 | W60-1412 |
| Bitterroot River | 04-500-480-350-260-R0024 | 1928 | M-97 |

| Date | Description | Debit | Credit | Balance |
|------|-------------|-------|--------|---------|
| | | | | |
| | | | | |
| | | | | |

BIBLIOGRAPHY

- Arthur D. Little, Inc., "Idaho Power Company's Need for Additional Generating Capacity," Cambridge, Massachusetts, 123 pp include 8 pp index.
- Batty, J. Clair, J. Paul Riley, William J. Grenney, and David A. Bell, "An Energy Accounting Evaluation of Several Alternatives for Hydropower and Geothermal Development," June 1976, 42 pp include 7 pp index.
- Croley, Thomas E. II, K.N. Raja Rao, "Stochastic Trade-offs for Reservoir Operation," January 1977, 160 pp include 12 pp index.
- Executive Office of the President Energy Policy and Planning, "The National Energy Plan," Washington DC, April 29, 1977, 103 pp and 23 pp index.
- Federal Power Commission, "Hydroelectric Power Resources of the United States - Developed and Undeveloped." Washington DC, November 1976. January 1, 1976, 125 pp.
- Gillette, Elizabeth R., "Energy, Water and the West," The Impact of Energy Development on Western Water Resources, 98 pp include 11 pp index.
- The Governor's Commission on Hydro-Electric Energy, "Hydro-Electric Energy in New Hampshire, Existing and Potential Development," April 1977, 103 pp, includes 13 pp. index.
- Gladwell, J. S., C. C. Warnick, "Low Head Hydro, on Examination of an Alternative Energy Source," Idaho Water Resources Research Institute, Moscow, Idaho, September 1978, 205 pp.
- Hamilton, Michael S., "Power Plant Siting (With Special Emphasis on Western United States)," September 1977, 100 pp include 1 pp index.
- Heitz, Leroy F., "The Potential for Nuclear and Geothermal Power Plant Siting in Idaho as Related to Water Resources," Idaho Water Resources Research Institute, Moscow, ID, March 1975. 110 pp include 10 pp index.
- Hessing, Keith D., "Potential Sites for Small Reservoirs," Technical Studies Report No. 2, Idaho Department of Water Resources, October 1976, 176 pp. include 4 pp. index.
- Idaho Department of Water Resources, "Inventory of Dams in Idaho," Statehouse, Boise, Idaho. June 1977, 85 pp.
- International Engineering Company, Inc., "Idaho Falls Hydroelectric Project, Preliminary Report," San Francisco, CA, February 1978.
- International Engineering Company, Inc., "Idaho Falls City Hydroelectric Power Plant," Preliminary Report, San Francisco, CA, February 1978.

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

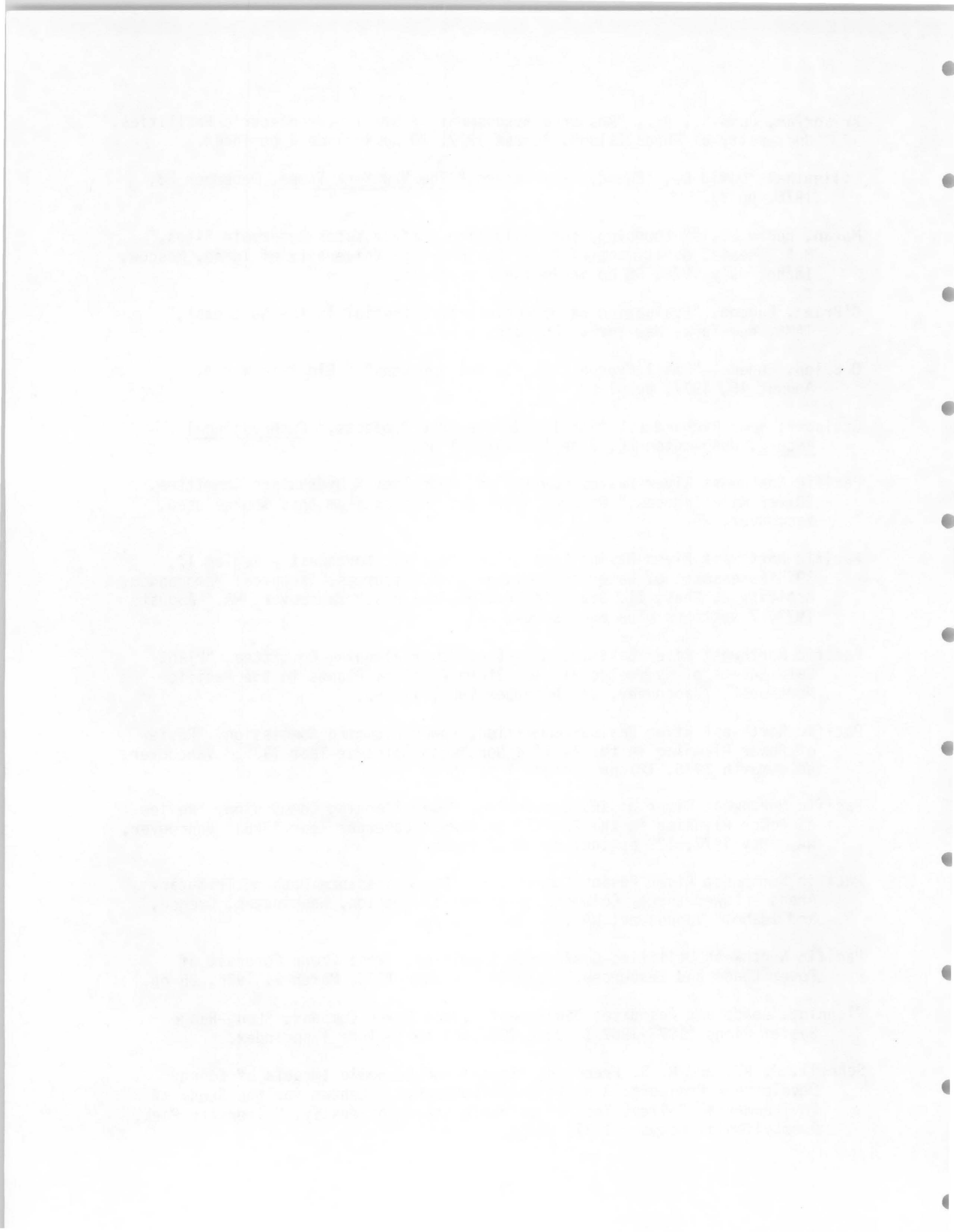
... ..

... ..

... ..

... ..

- Krikorian, John S., Jr., "Resource Assessment of Small Hydroelectric Facilities," University of Rhode Island, August 1977, 30 pp include 2 pp index.
- Lilienthal, David E., "Energy from Waters," The New York Times, December 28, 1976, pp 27.
- Moran, Henry L., "Methodology for Evaluating Surface Water Reservoir Sites," M.S. Thesis, Department of Civil Engineering, University of Idaho, Moscow, Idaho, July 1978, 68 pp including 6 pp index.
- O'Brien, Eugene, "Evaluation of Hydroelectric Potential in the Northeast," TAMS, New York, New York. No date, 6 pp.
- O'Brien, Eugene, "Small Hydroplants for the Northeast," Electric World, August 15, 1977, pp 61-62
- Ottinger, Hon. Richard L., "Small Hydroelectric Projects," Congressional Record, Washington DC, June 16, 1977, 1 pp.
- Pacific Northwest River Basins Commission, Hydrology & Hydraulics Committee, "River Mile Indexes," Several different indexes from this source used, Vancouver, WA.
- Pacific Northwest River Basins Commission, "Pacific Northwest - Region 17, 1975 Assessment of Water and Related Land Resources, Technical Memorandum, Activity 2, Phase II, Specific Problem Analysis," Vancouver, WA. August 1977, 7 sections plus enclosures.
- Pacific Northwest River Basins Commission, Power Planning Committee, "Plant Data Sheets of Hydroelectric and Steam Electric Plants in the Pacific Northwest," Vancouver, WA. December 1961, 114 pp.
- Pacific Northwest River Basins Commission, Power Planning Commission, "Review of Power Planning in the Pacific Northwest Calendar Year 1975," Vancouver, WA. March 1976, 127 pp include 7 pp index.
- Pacific Northwest River Basins Commission, Power Planning Commission, "Review of Power Planning in the Pacific Northwest Calendar Year 1976," Vancouver, WA. May 1977, 122 pp include 10 pp index.
- Pacific Northwest River Basins Commission, "Reconnaissance Data on Tributary Areas - Lower Snake, Columbia-North Pacific Region, Washington, Oregon, and Idaho," Vancouver, WA., No date, 16 pp.
- Pacific Northwest Utilities Conference Committee, "West Group Forecast of Power Loads and Resources," July 1976 - June 1978, March 1, 1976, 25 pp.
- Planning, Loads and Resources Department, Idaho Power Company, "Long-Range System Plans (1977-1987)," June 1977, 69 pp include 1 pp index.
- Schnell, J. R., and R. S. Krannich, "Social and Economic Impacts of Energy Development Projects: A Working Bibliography." Center for the Study of Environmental Policy, The Pennsylvania State University, University Park, Pennsylvania, October 1977, 22 pp.



"Small Hydro Development May Answer Near Term Power Demands," McGraw-Hill's Construction Weekly, June 2, 1977.

Smithsonian Science Information Exchange, "Data Search" "Hydroelectric Power," July 1975, 64 pp.

Stone and Webster, "Chelan County Power Rock Island Hydroelectric Project on the Columbia River," June 30, 1977; Public Utility District No. 1, Chelan County, Wenatchee, Washington, 12 pp.

Thomas, C.A., and W.A. Harenberg, "A Proposed Streamflow-Data Program for Idaho," Open File Report, U.S. Geological Survey, Water Resources Division Boise, Idaho, October 1970, 77 pp include 6 pp index.

Tippetts-Abbett-McCarthy-Stratton, "Potential Hydro-power Development at Existing Low-Head Dams in Northeastern United States," Polytechnic Institute of New York, 31 August 1977, 7 pp.

U. S. Army, Corps of Engineers, "Electric Power Plants in the Pacific Northwest and Adjacent Areas," December 31, 1976, 10 pp plus appendix.

U. S. Army, Corps of Engineers, North Pacific Division, "Inventory of Potential Hydropower in the Pacific Northwest." January 1975, Revised February 1975, 15 pp.

U. S. Army, Corps of Engineers, North Pacific Division, "Power Pondage Studies," Hourly-Daily-Weekly 1974-1975 Conditions. Portland, Oregon, October 1972, 142 pp include 5 pp index.

U. S. Army Corps of Engineers, "Summary of Northwest Hydroelectric Power Potential," January 1975, 24 pp.

U. S. Army Corps of Engineers, "Estimate of National Hydroelectric Power Potential at Existing Dams," Institute for Water Resources, Ft. Belvoir, VA, July 1977, 77 pp.

U. S. Department of the Interior Bonneville Power Administration, "Power Outlook," through 1987-88, Portland, Oregon, August 1977, 16 pp.

U. S. Department of the Interior, Geological Survey, Water Resources Data for Idaho, Oregon, Washington and Montana, Surface Water Records published annually for each state respectively.

U. S. Department of the Interior, Bureau of Reclamation, "Weiser River Division" Southwest Idaho Water Development Project, ID, Wrap-up Report, Boise, ID, March 1972, 134 pp include 16 pp index.

U. S. Department of the Interior, Bureau of Reclamation, "Western Energy Expansion Study," Denver, CO, February 1977, 161 pp include 20 pp index.



Ver Planch, W. K, W. W. Wayne, "Report on Turbo-generating Equipment for Low Head Hydroelectric Developments," Stone and Webster Engineering Co., Boston, MA, April 1978.

Wang, Flora C., Howard T. Odum, Melvin E. Lehman, "Concepts and Techniques for Evaluation of Energy-Related Water Problems," University of Florida, December 1977, 67 pp include 6 pp index.

Western States Water Council, "Bibliography of Selected Reports and Ongoing Studies Relating to Water Requirements for Energy Resource Development," April 1975, 59 pp include 6 pp index.

Young, L.L., J.L. Colbert, D.W. Neal and G.W. Flaherty, "Gross Theoretical Waterpower, Developed and Undeveloped Snake River Basin, Wyoming, Idaho, Nevada, Oregon, Washington," Open File Report, U.S. Geological Survey, Portland, Oregon, July 1963, 43 pp include 1 pp index.

Young, L.L. and J.L. Colbert, "Waterpower Resources of Idaho," Open File Report, U.S. Geological Survey, Conservation Division, Portland, Oregon, 1965, 203 pp include 11 pp index.

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

3. The third part of the document is a list of names and addresses of the members of the committee.

4. The fourth part of the document is a list of names and addresses of the members of the committee.

5. The fifth part of the document is a list of names and addresses of the members of the committee.

Report Volume Distribution

Pacific Northwest River Basins Commission
1 Columbia River
Vancouver, Washington 98666
(Volumes A-J)

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208
(Volumes A-J)

U.S. Department of Energy
12th & Pennsylvania Ave., NW
Washington, D.C. 20461
(Volumes A-J)

U.S. Army Corps of Engineers
609 Second Street - Brinley Bldg.
Davis, California 95616
(Volumes A-J)

Federal Energy Regulatory Commission
River Basins Division
825 North Capitol Street, NE
Washington, D.C. 20426
(Volumes A-J)

U.S. Department of Energy
Region VIII
P.O. Box 26247
Lakewood, Colorado 80226
(Volumes A, H, I)

U.S. Department of Energy
Region IX
111 Pine St., 3rd Floor
San Francisco, California 94111
(Volumes A, H, I)

Idaho Department of Water Resources
State House
Boise, Idaho 83720
(Volumes A, H, I)

State Engineer
Barrett Building
Cheyenne, Wyoming 82002
(Volumes A, H, I)

Water Resources Div.
Montana Div. of Natural Resources & Conserv.
32 South Ewing
Helena, Montana 59601
(Volumes A, J)

North Pacific Division
Corps of Engineers
210 Custom House
Portland, Oregon 97209
(Volumes A-J)

U.S. Geological Survey
Department of the Interior
1107 N.E. 45th St.
Seattle, Washington 98105
(Volumes A-J)

U.S. Department of Energy
550 Second Street
Idaho Falls, Idaho 83401
(Volumes A-J)

U.S. Bureau of Reclamation
Department of the Interior
P.O. Box 25007
Denver, Colorado 80225
(Volumes A-J)

U.S. Department of Energy
Oak Ridge Operations Office
Technical Information Center
P.O. Box E
Oak Ridge, Tennessee 37830
(Volumes A-J)

U.S. Department of Energy
Region X
915 Second Avenue
Seattle, Washington 98174
(Volumes A-I)

State Engineer, Div. of Water
Resources
201 South Sall Street
Carson City, Nevada 89710
(Volumes A, H, I)

Headquarters, Depart. of Ecology
Attn: Mail Stop PV II
Olympia, Washington 98504
(Volumes A-D)

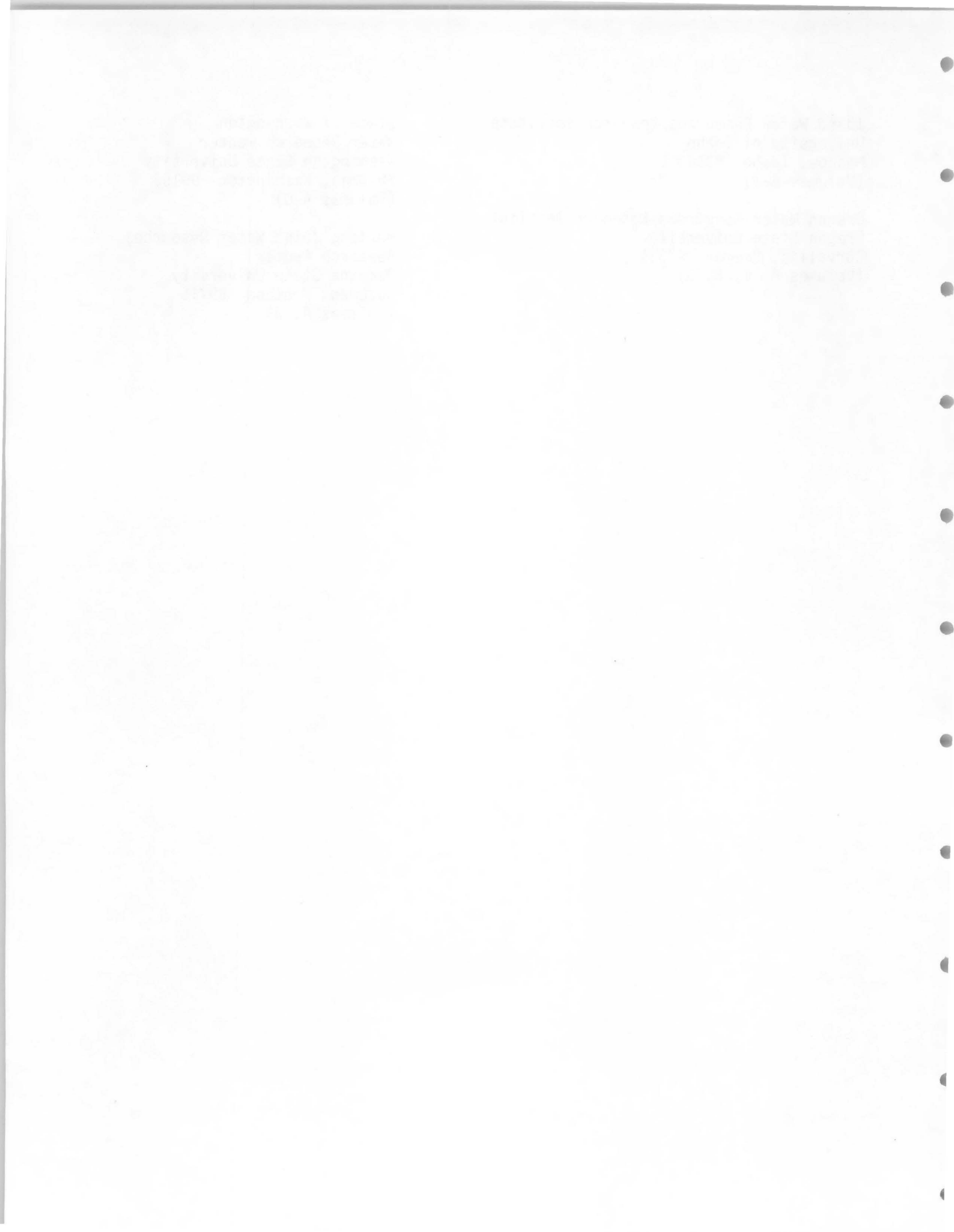
Water Resources Department
Millcreek Office Park
555 13th Street, NE
Salem, Oregon
Attn: Gary Oberholtzer
(Volumes A, E, F, G)

Idaho Water Resources Research Institute
University of Idaho
Moscow, Idaho 83843
(Volumes A-J)

Oregon Water Resources Research Institute
Oregon State University
Corvallis, Oregon 97331
(Volumes A, E, F, G)

State of Washington
Water Research Center
Washington State University
Pullman, Washington 99163
(Volumes A-D)

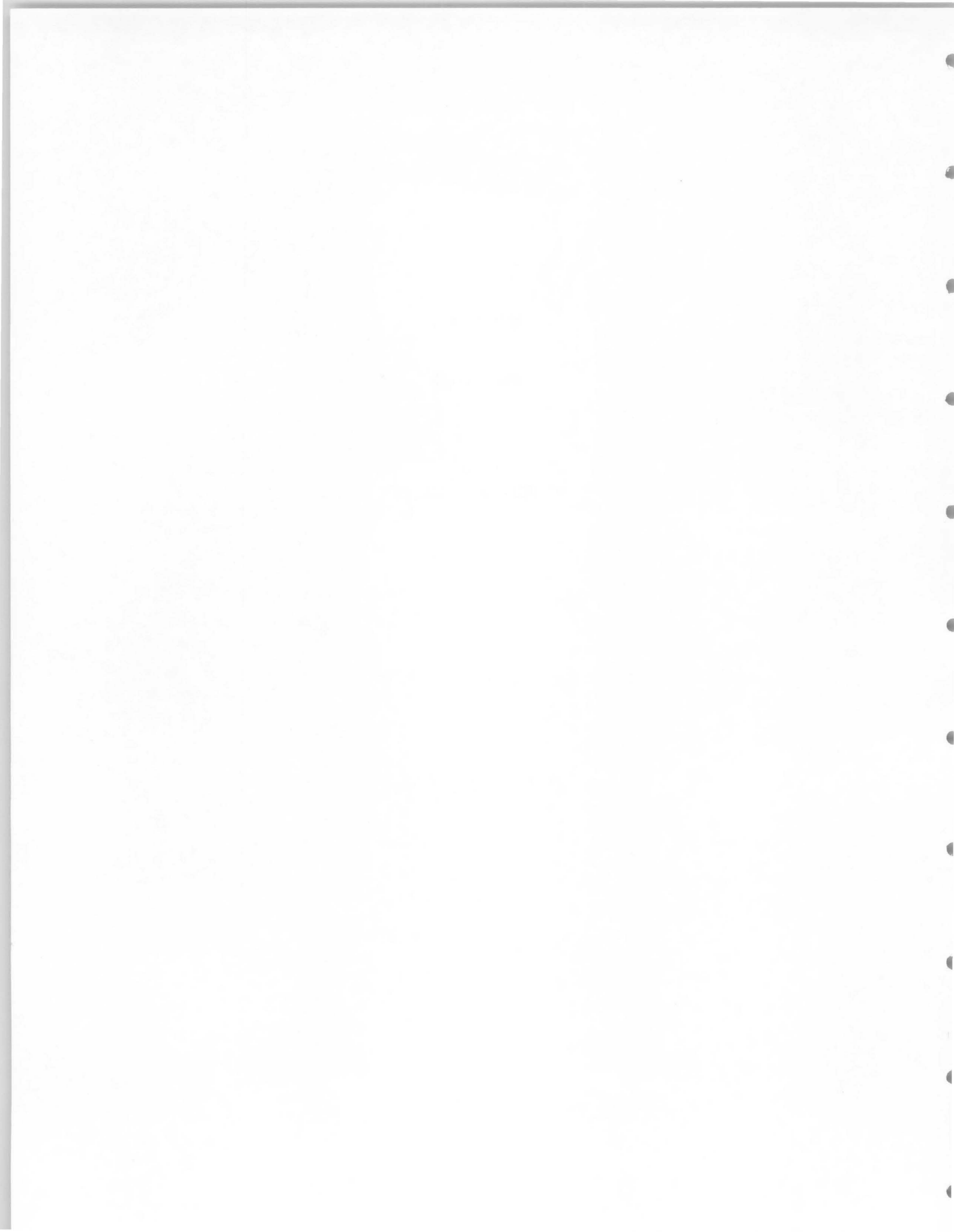
Montana Joint Water Resources
Research Center
Montana State University
Bozeman, Montana 59715
(Volumes A, J)



APPENDIX I

WASHINGTON

SAMPLE
REACH DATA TABLES



REPORT VOLUME CONTENTS

- Volume A Main Report and Sample Appendices
- Volume B Appendix I, Washington Reach Data Tables
- Volume C Appendix I, Washington Reach Data Tables continued
- Volume D Appendix I, Washington Reach Data Tables continued
- Volume E Appendix II Oregon Reach Data Tables
- Volume F Appendix II Oregon Reach Data Tables continued
- Volume G Appendix II Oregon Reach Data Tables continued
- Volume H Appendix III Idaho, Nevada and Wyoming Reach Data Tables
- Volume I Appendix III Idaho, Nevada and Wyoming Reach Data Tables
continued
- Volume J Appendix IV Montana Reach Data Tables

1970 - 1971

| | |
|------|-----|
| 1970 | ... |
| 1971 | ... |
| 1972 | ... |
| 1973 | ... |
| 1974 | ... |
| 1975 | ... |
| 1976 | ... |
| 1977 | ... |
| 1978 | ... |
| 1979 | ... |
| 1980 | ... |
| 1981 | ... |
| 1982 | ... |
| 1983 | ... |
| 1984 | ... |
| 1985 | ... |
| 1986 | ... |
| 1987 | ... |
| 1988 | ... |
| 1989 | ... |
| 1990 | ... |
| 1991 | ... |
| 1992 | ... |
| 1993 | ... |
| 1994 | ... |
| 1995 | ... |
| 1996 | ... |
| 1997 | ... |
| 1998 | ... |
| 1999 | ... |
| 2000 | ... |
| 2001 | ... |
| 2002 | ... |
| 2003 | ... |
| 2004 | ... |
| 2005 | ... |
| 2006 | ... |
| 2007 | ... |
| 2008 | ... |
| 2009 | ... |
| 2010 | ... |
| 2011 | ... |
| 2012 | ... |
| 2013 | ... |
| 2014 | ... |
| 2015 | ... |
| 2016 | ... |
| 2017 | ... |
| 2018 | ... |
| 2019 | ... |
| 2020 | ... |
| 2021 | ... |
| 2022 | ... |
| 2023 | ... |
| 2024 | ... |
| 2025 | ... |
| 2026 | ... |
| 2027 | ... |
| 2028 | ... |
| 2029 | ... |
| 2030 | ... |

TABLE OF CONTENTS
APPENDIX I
WASHINGTON

Main Report
Table of Contents ii

State Map iv

Table I
Reach Index 1

Table II
Feasibility, Transmission and
Load Considerations 4-83

Reach Hydro-Potential
Characteristic Sheets W1-1 to W62-1422

1951-52

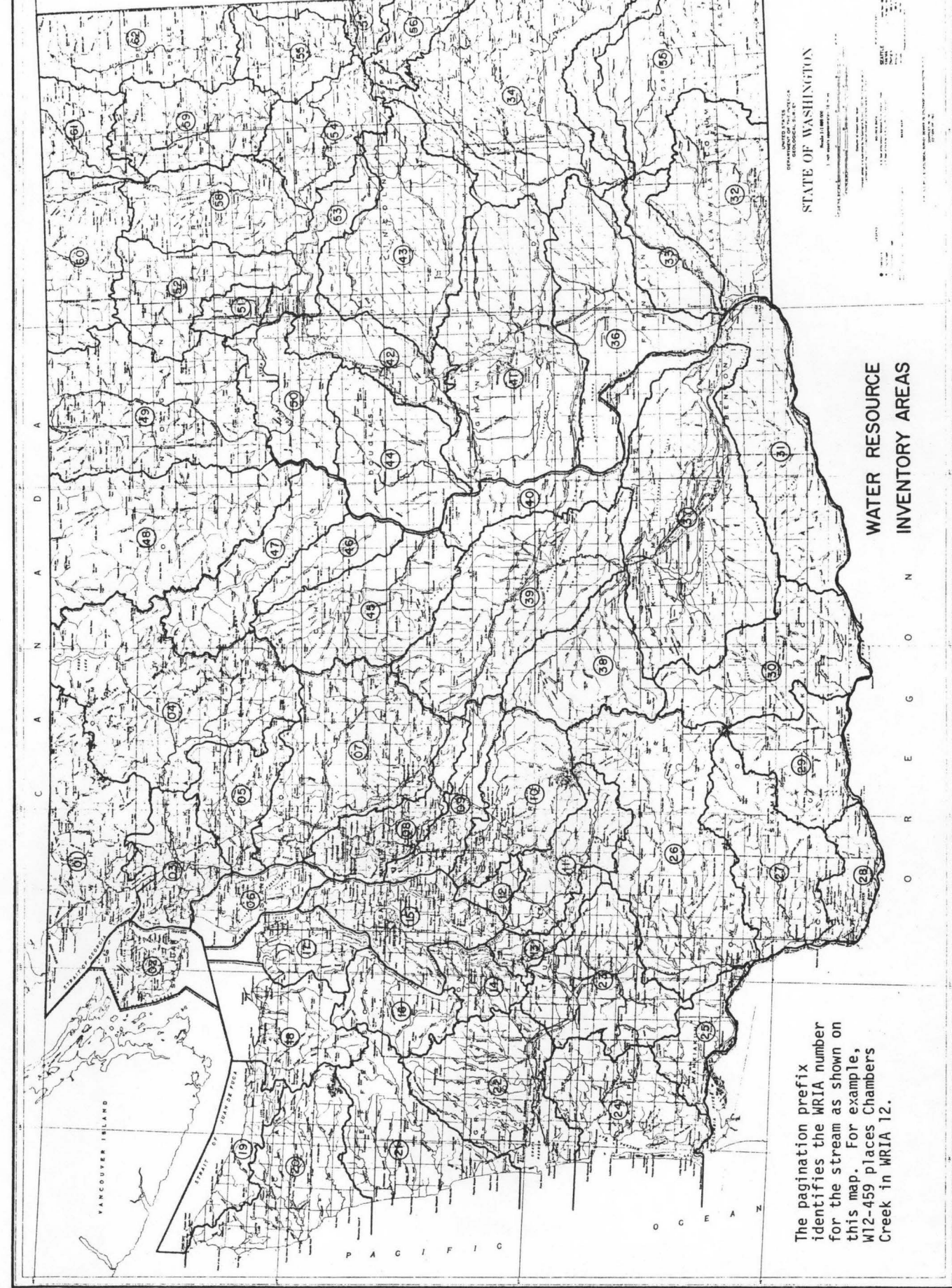
1951-52

1951-52

1951-52

1951-52

1951-52



UNITED STATES
 GEOLOGICAL SURVEY
 STATE OF WASHINGTON
 WATER RESOURCES DIVISION
 MAP NO. W-1000
 SCALE: 1:500,000
 DATE: 1968

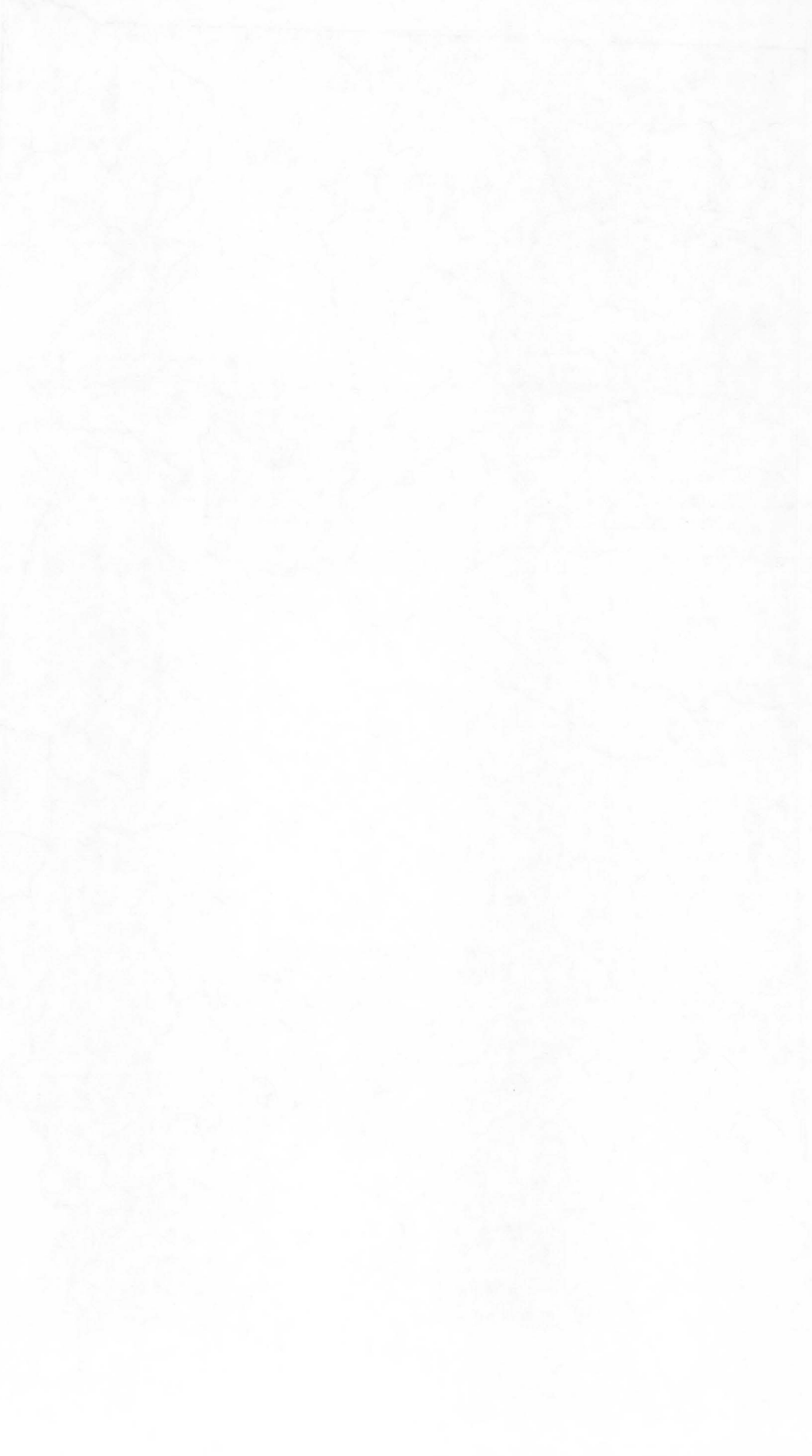
**WATER RESOURCE
 INVENTORY AREAS**

The pagination prefix identifies the WRIA number for the stream as shown on this map. For example, W12-459 places Chambers Creek in WRIA 12.

1942-1943
1944-1945

1946-1947

1948-1949
1950-1951
1952-1953
1954-1955



Washington Reach Index

| STREAM NAME | REACH NUMBER | PAGE | THRU | PAGE |
|-----------------------|----------------------------------|---------|------|---------|
| Nooksack River | 01-023-000-000-000-R0001 - R0035 | W1-1 | - | W1-35 |
| Silesia Creek | 01-024-000-000-000-R0001 - R0004 | W1-36 | - | W1-39 |
| Chilliwack River | 01-025-000-000-000-R0001 - R0007 | W1-40 | - | W1-46 |
| Sumas River | 01-026-000-000-000-R0001 - R0004 | W1-47 | - | W1-50 |
| Samish River | 01-060-000-000-000-R0001 - R0006 | W3-51 | - | W3-56 |
| Skagit River | 01-061-000-000-000-R0001 - R0184 | W4-57 | - | W4-240 |
| Stillaguamish River | 01-022-000-000-000-R0001 - R0033 | W5-241 | - | W5-273 |
| Snohomish River | 01-034-000-000-000-R0001 - R0092 | W7-274 | - | W7-365 |
| Sammamich River | 01-020-000-000-000-R0001 - R0003 | W8-366 | - | W8-368 |
| Cedar River | 01-021-000-000-000-R0001 - R0008 | W8-369 | - | W8-376 |
| Green River | 01-028-000-000-000-R0001 - R0014 | W9-377 | - | W9-390 |
| Puyallup River | 01-001-000-000-000-R0001 - R0036 | W10-391 | - | W10-426 |
| Nisqually River | 01-029-000-000-000-R0001 - R0032 | W11-427 | - | W11-458 |
| Chambers Creed | 01-005-000-000-000-R0001 | W12-459 | | |
| Deschutes River | 01-006-000-000-000-R0001 - R0002 | W13-460 | - | W13-461 |
| Sherwood Creek | 01-014-000-000-000-R0001 | W14-462 | | |
| Gosnell Creek | 01-015-000-000-000-R0001 | W14-463 | | |
| Goldsborough Creek | 01-018-000-000-000-R0001 - R0002 | W14-464 | - | W14-465 |
| Tahuya | 01-004-000-000-000-R0001 | W15-466 | | |
| Lilliwaup Creek | 01-027-000-000-000-R0001 | W16-467 | | |
| Dosewallips River | 01-030-000-000-000-R0001 - R0007 | W16-468 | - | W16-474 |
| Duckabush River | 01-031-000-000-000-R0001 - R0006 | W16-475 | - | W16-480 |
| Hamma Hamma River | 01-032-000-000-000-R0001 - R0010 | W16-481 | - | W16-490 |
| Skokomish River | 01-033-000-000-000-R0001 - R0030 | W16-441 | - | W16-510 |
| Little Quilcene River | 01-019-000-000-000-R0001 - R0002 | W17-511 | - | W17-512 |
| Big Quilcene River | 01-063-000-000-000-R0001 - R0006 | W17-513 | - | W17-518 |
| Dungeness River | 01-004-000-000-000-R0001 - R0008 | W18-519 | - | W18-526 |
| Morse Creek | 01-002-000-000-000-R0001 - R0002 | W18-527 | - | W18-528 |
| Elwha River | 01-003-000-000-000-R0001 - R0019 | W18-529 | - | W18-547 |
| Sekiu River | 01-008-000-000-000-R0001 - R0002 | W19-548 | - | W19-549 |
| Hoko River | 01-009-000-000-000-R0001 - R0005 | W19-550 | - | W19-554 |
| Clallam River | 01-010-000-000-000-R0001 - R0002 | W19-555 | - | W19-556 |
| Pysht River | 01-011-000-000-000-R0001 - R0003 | W19-557 | - | W19-559 |
| Deep Creek | 01-012-000-000-000-R0001 | W19-560 | | |
| Lyre Creek | 01-013-000-000-000-R0001 - R0002 | W19-561 | - | W19-562 |

The first part of the report discusses the general situation of the country and the progress of the work done during the year. It also mentions the various committees and sub-committees that have been formed to deal with different aspects of the work.

The second part of the report deals with the work done in the various departments. It mentions the work done in the Department of Education, the Department of Health, the Department of Agriculture, and the Department of Labour. It also mentions the work done in the various committees and sub-committees.

The third part of the report deals with the work done in the various committees and sub-committees. It mentions the work done in the Committee on Education, the Committee on Health, the Committee on Agriculture, and the Committee on Labour. It also mentions the work done in the various sub-committees.

The fourth part of the report deals with the work done in the various sub-committees. It mentions the work done in the Sub-committee on Education, the Sub-committee on Health, the Sub-committee on Agriculture, and the Sub-committee on Labour. It also mentions the work done in the various sub-sub-committees.

| STREAM NAME | REACH NUMBER | PAGE THRU PAGE |
|-------------------|----------------------------------|---------------------|
| Sooes River | 01-035-000-000-000-R0001 - R0002 | W20-563 - W20-564 |
| Ozette Creek | 01-036-000-000-000-R0001 - R0002 | W20-565 - W20-566 |
| Dickey River | 01-038-000-000-000-R0001 - R0006 | W20-567 - W20-572 |
| Quillayute River | 01-037-000-000-000-R0001 - R0039 | W20-573 - W20-611 |
| Goodman Creek | 01-039-000-000-000-R0001 - R0004 | W20-612 - W20-615 |
| Mosquito Creek | 01-040-000-000-000-R0001 - R0002 | W20-616 - W20-617 |
| Hoh River | 01-041-000-000-000-R0001 - R0020 | W20-618 - W20-637 |
| Cedar Creek | 01-042-000-000-000-R0001 | W20-638 |
| Queets River | 01-043-000-000-000-R0001 - R0027 | W21-639 - W21-665a |
| Raft River | 01-044-000-000-000-R0001 - R0007 | W21-666 - W21-672 |
| Quinault River | 01-045-000-000-000-R0001 - R0039 | W21-673 - W21-711 |
| Moclips River | 01-046-000-000-000-R0001 - R0002 | W21-712 - W21-713 |
| Copalis River | 01-047-000-000-000-R0001 - R0003 | W21-714 - W21-716 |
| Humtulpis River | 01-048-000-000-000-R0001 - R0014 | W22-717 - W22-730 |
| Hoquim River | 01-049-000-000-000-R0001 - R0006 | W22-731 - W22-736 |
| Wishkah River | 01-050-000-000-000-R0001 - R0009 | W22-737 - W22-745 |
| Johns River | 01-052-000-000-000-R0001 | W22-746 |
| Elk River | 01-053-000-000-000-R0001 | W22-747 |
| Chehalis River | 01-051-000-000-000-R0001 - R0093 | W23-748 - W23-840 |
| North River | 01-054-000-000-000-R0001 - R0009 | W24-841 - W24-849 |
| Smith River | 01-055-000-000-000-R0001 - R0004 | W24-850 - W24-853 |
| Willapa River | 01-056-000-000-000-R0001 - R0012 | W24-854 - W24-865 |
| Bear River | 01-059-000-000-000-R0001 | W24-866 |
| Palix River | 01-062-000-000-000-R0001 - R0003 | W24-867 - W24-869 |
| North Nemah River | 01-057-000-000-000-R0001 - R0003 | W24-870 - W24-872 |
| Naselle River | 01-058-000-000-000-R0001 - R0009 | W24-873 - R24-881 |
| Grays River | 01-500-002-000-000-R0001 - R0009 | W25-882 - R25-890 |
| Skamokawa River | 01-500-004-000-000-R0001 - R0005 | W25-891 - W25-895 |
| Elochoman River | 01-500-006-000-000-R0001 - R0003 | W25-896 - W25-898 |
| Mill Creek | 01-500-008-000-000-R0001 | W25-899 |
| Abernathy Creek | 01-500-010-000-000-R0001 - R0002 | W25-900 - R25-901 |
| German Creek | 01-500-012-000-000-R0001 | W25-902 |
| Coal Creek | 01-500-014-000-000-R0001 | W25-903 |
| Cowlitz River | 01-500-020-000-000-R0001 - R0144 | W26-904 - W26-1047 |
| Kalama River | 01-500-038-000-000-R0001 - R0011 | W27-1048 - W27-1058 |
| Lewis River | 01-500-040-000-000-R0001 - R0036 | W27-1059 - W27-1094 |
| Salmon Creek | 01-500-042-000-000-R0001 - R0002 | W28-1095 - W28-1096 |

| STREAM NAME | REACH NUMBER | PAGE THRU PAGE |
|---------------------------|----------------------------------|---------------------|
| LaCamas Creek | 01-500-044-000-000-R0001 - R0003 | W28-1097 - W28-1099 |
| Washougal River | 01-500-046-000-000-R0001 - R0011 | W28-1100 - W28-1110 |
| Hamilton Creek | 01-500-048-000-000-R0001 | W28-1111 |
| Rock Creek | 01-500-096-000-000-R0001 - R0002 | W29-1112 - W29-1113 |
| Wind River | 01-500-100-000-000-R0001 - R0013 | W29-1114 - W29-1126 |
| Little White Salmon River | 01-500-106-000-000-R0001 - R0003 | W29-1127 - W29-1129 |
| White Salmon River | 01-500-120-000-000-R0001 - R0016 | W29-1130 - W29-1145 |
| Klickitat River | 01-500-160-000-000-R0001 - R0029 | W30-1146 - W30-1174 |
| Walla Walla River | 01-500-238-000-000-R0001 - R0030 | W32-1175 - W32-1194 |
| Palouse River | 01-500-240-020-000-R0001 - R0003 | W34-1195 - W34-1197 |
| Asotin Creek | 01-500-240-050-000-R0001 - R0002 | W35-1198 - W35-1199 |
| Tucannon River | 01-500-240-010-000-R0001 - R0003 | W35-1200 - W35-1202 |
| Grande Ronde River | 01-500-240-060-000-R0001 - R0006 | W35-1203 - R35-1208 |
| Yakima River | 01-500-260-000-000-R0001 - R0058 | W37-1209 - W37-1266 |
| Columbia River | 01-500-000-000-000-R0001 | W40-1267 |
| Crab Creek | 01-500-280-000-000-R0001 - R0002 | W41-1268 - W41-1269 |
| Wenatchee River | 01-500-300-000-000-R0001 - R0044 | W45-1270 - W45-1313 |
| Entiat River | 01-500-320-000-000-R0001 - R0010 | W46-1314 - W47-1323 |
| Chelan River | 01-500-340-000-000-R0001 - R0026 | W47-1324 - W47-1349 |
| Pasayten River | 01-064-000-000-000-R0001 - R0002 | W48-1350 - W48-1351 |
| Methow River | 01-500-360-000-000-R0001 - R0022 | W48-1352 - W48-1373 |
| Okanogan River | 01-500-380-000-000-R0001 - R0013 | W49-1374 - W49-1386 |
| Nespelem River | 01-500-390-000-000-R0001 - R0002 | W51-1387 - W41-1388 |
| Sanpoil River | 01-500-400-000-000-R0001 - R0005 | W52-1389 - W52-1393 |
| Spokane River | 01-500-420-000-000-R0001 - R0012 | W54-1394 - W54-1405 |
| Colville River | 01-500-440-000-000-R0001 - R0006 | W59-1406 - W59-1411 |
| Kettle River | 01-500-460-000-000-R0001 - R0006 | W60-1412 - W60-1417 |
| Big Sheep Creek | 01-500-470-000-000-R0001 - R0002 | W61-1418 - W61-1419 |
| Pend Oreille River | 01-500-480-000-000-R0001 - R0002 | W62-1420 - W62-1421 |

TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
Washington

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|-----------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|-------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE* TO CITY >1000 Miles |
| Nooksack River | | | | | | | | |
| 01-023-000-000-000-R0001 | | X | | X | 1 | 55(PS) | | 1 |
| R0002 | | X | | X | 1 | 55(PS) | | 14 |
| R0003 | | X | X | X | 4 | 55(PS) | 1 | 13 |
| R0004 | | X | | X | 4 | 500(B) | 1 | 12 |
| R0005 | | | | X | 3 | 500(B) | 1 | 4 |
| R0006 | | | | X | 7 | 500(B) | 1 | 10 |
| R0007 | | | | X | 6 | 115(PS) | | 16 |
| R0008 | | | | | 9 | 115(PS) | | 18 |
| R0009 | | X | | X | 5 | 500(B) | 1 | 15 |
| R0010 | | | | X | 6 | 500(B) | 1 | 14 |
| R0011 | | | | | 6 | 500(B) | 1 | 11 |
| R0012 | | | | | 7 | 115(PS) | | 13 |
| R0013 | | | | | 7 | 115(PS) | | 19 |
| R0014 | | | | X | 4 | 55(PS) | | 15 |
| R0015 | | | | X | 7 | 500(B) | | 20 |
| R0016 | | | | | 13 | 55(PS) | | 22 |
| R0017 | | X | | X | 3 | 55(PS) | | 10 |
| R0018 | | | | | 8 | 55(PS) | | 12 |
| R0019 | | | | | 8 | 55(PS) | | 14 |
| R0020 | | | | X | 8 | 55(PS) | | 20 |
| R0021 | | | | X | 12 | 55(PS) | | 23 |

* Distance in air miles to nearest city with population greater than 100

| Date | Description | Amount |
|------|-------------|--------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
Washington

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|---------------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE TO CITY >1000 Miles |
| R0022 | | X | | X | 1 | 55 (PS) | | 15 |
| R0023 | | X | | X | 1 | 55 (PS) | | 21 |
| R0024 | | X | | X | 1 | 55 (PS) | | 24 |
| R0025 | | X | | | 3 | 55 (PS) | | 30 |
| R0026 | | | | | 6 | 55 (PS) | | 35 |
| R0027 | | | | | 8 | 55 (PS) | | 36 |
| R0028 | X | | | | 10 | 55 (PS) | | 38 |
| R0029 | | | | | 2 | 55 (PS) | | 15 |
| R0030 | | X | | | 2 | 55 (PS) | 1 | 15 |
| R0031 | | | | | 6 | 55 (PS) | | 25 |
| R0032 | | X | X | | 7 | 55 (PS) | | 25 |
| R0033 | | | | | 3 | 55 (PS) | | 33 |
| R0034 | | | | | 6 | 55 (PS) | | 35 |
| R0035 | | X | | | 9 | 55 (PS) | | 40 |
| Silesia Creek
01-024-000-000 | | | | | | | | |
| 000-R0001 | | | | X | 12 | 55 (PS) | | 40 |
| R0002 | | | | X | 12 | 55 (PS) | | 40 |
| R0003 | | | | X | 12 | 55 (PS) | | 40 |
| R0004 | | | | X | 12 | 55 (PS) | | 40 |

| Activity | Frequency | Duration | Location | Staff | Resources | Notes |
|-----------------------|---------------|----------|-----------|---------|------------------------------|--|
| 1. Morning Meeting | 10:00 - 10:15 | 15 min | Classroom | Teacher | None | Review daily schedule and goals. |
| 2. Reading Time | 10:15 - 10:45 | 30 min | Classroom | Teacher | Books, Reading Comprehension | Students read independently. |
| 3. Math | 10:45 - 11:15 | 30 min | Classroom | Teacher | Math Worksheets | Focus on multiplication and division. |
| 4. Writing | 11:15 - 11:45 | 30 min | Classroom | Teacher | Writing Paper | Students write a paragraph. |
| 5. Social Studies | 11:45 - 12:15 | 30 min | Classroom | Teacher | Textbook | Learn about the American Revolution. |
| 6. Art | 12:15 - 12:45 | 30 min | Classroom | Teacher | Art Supplies | Draw a picture related to the day's theme. |
| 7. Music | 12:45 - 1:15 | 30 min | Classroom | Teacher | Music Instruments | Play a song and sing lyrics. |
| 8. Lunch | 1:15 - 1:45 | 30 min | Cafeteria | None | None | Students eat lunch. |
| 9. Physical Education | 1:45 - 2:15 | 30 min | Gymnasium | Teacher | PE Equipment | Play a game of basketball. |
| 10. Science | 2:15 - 2:45 | 30 min | Classroom | Teacher | Science Textbook | Study the solar system. |
| 11. Language Arts | 2:45 - 3:15 | 30 min | Classroom | Teacher | Language Arts Worksheets | Grammar and spelling practice. |
| 12. Free Time | 3:15 - 3:45 | 30 min | Classroom | None | None | Students choose their own activity. |
| 13. Dismissal | 3:45 - 4:00 | 15 min | Classroom | Teacher | None | Students pack up and go home. |

Prepared by: _____ Date: _____
 Approved by: _____ Date: _____
 Principal: _____
 District Office: _____

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 01-023-000-000-000-R0001

I. LOCATION

| | |
|------------------------|-----------------------|
| A. State | <u>Washington</u> |
| B. County | <u>Whatcom</u> |
| C. Township, Range | <u>T40N R3E</u> |
| D. Latitude, Longitude | <u>48°37' 122°26'</u> |
| E. Stream Name | <u>Nooksack</u> |
| F. Major Basin Name | <u>Nooksack</u> |
| G. River Mile | <u>0.0/36.0</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

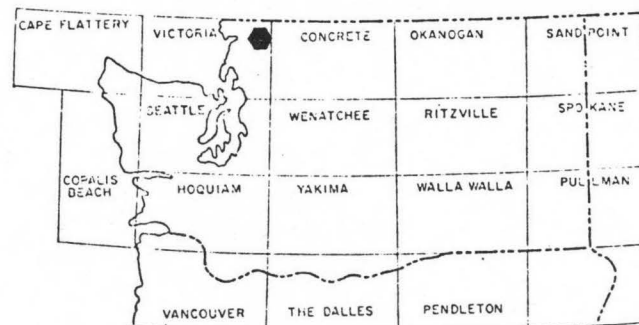
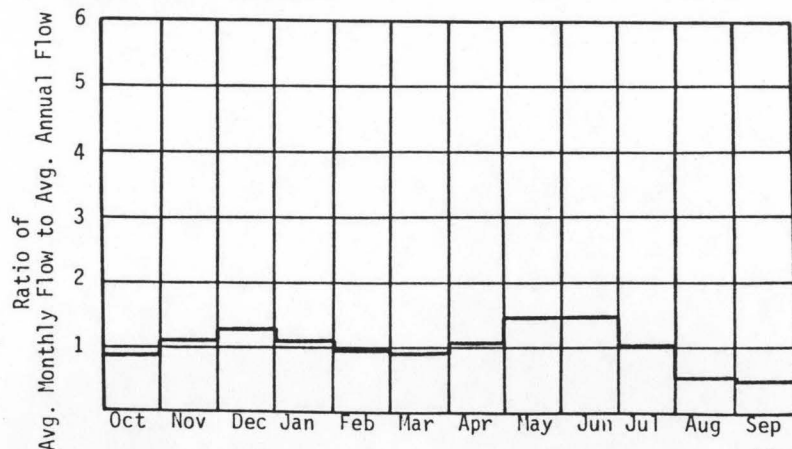
| | | |
|------------------------------------|----------------|---------|
| A. Upstream Elevation of Reach | <u>215</u> | Ft. MSL |
| B. Downstream Elevation of Reach | <u>0</u> | Ft. MSL |
| C. Total Available Head in Reach | <u>215</u> | Ft. |
| D. Average Slope in Reach | <u>6</u> | Ft./Mi. |
| E. Drainage Area above Reach Mouth | <u>807.1</u> | Sq.Mi. |
| F. Inflow Classification | <u>Natural</u> | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

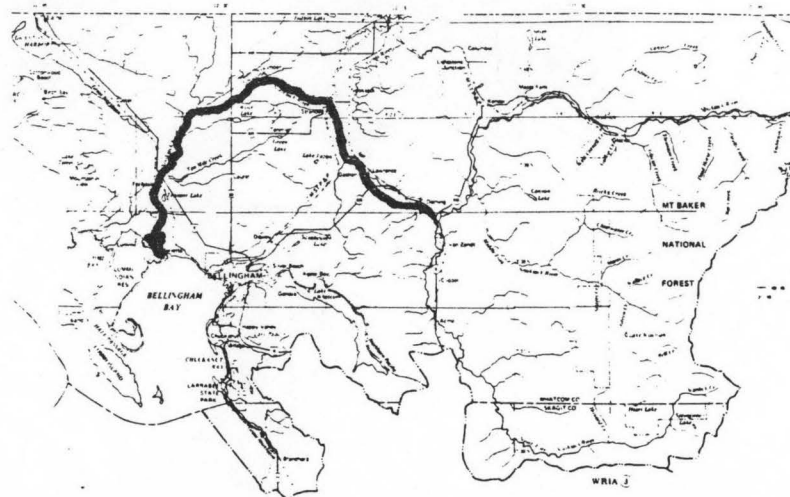
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 1130 | 20.6 | 181 | 1.00 |
| 80 | 1790 | 32.6 | 274 | 0.96 |
| 50 | 3030 | 55.2 | 401 | 0.83 |
| 30 | 4170 | 75.8 | 471 | 0.71 |
| 10 | 6580 | 120 | 545 | 0.52 |

IV. TYPICAL ANNUAL HYDROGRAPH

QMR = 3657 cfs



LOCATIONS FOR USGS 1:250,000 MAP SERIES



| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

For each activity, indicate the number of hours spent on each activity.

| | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

Activity

1. Reading (30 min)

2. Writing (45 min)

3. Listening (15 min)

4. Speaking (15 min)

5. Thinking (15 min)

6. Planning (15 min)

7. Organizing (15 min)

8. Evaluating (15 min)

9. Creating (15 min)

10. Other (15 min)

Total (180 min)

Activity

1. Reading (30 min)

2. Writing (45 min)

3. Listening (15 min)

4. Speaking (15 min)

5. Thinking (15 min)

6. Planning (15 min)

7. Organizing (15 min)

8. Evaluating (15 min)

9. Creating (15 min)

10. Other (15 min)

Total (180 min)

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 01-060-000-000-000-R0001

I. LOCATION

| | |
|------------------------|-----------------------|
| A. State | <u>Washington</u> |
| B. County | <u>Skagit</u> |
| C. Township, Range | <u>T35N R3E</u> |
| D. Latitude, Longitude | <u>48°31' 122°23'</u> |
| E. Stream Name | <u>Samish River</u> |
| F. Major Basin Name | <u>Samish</u> |
| G. River Mile | <u>0.077.8</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

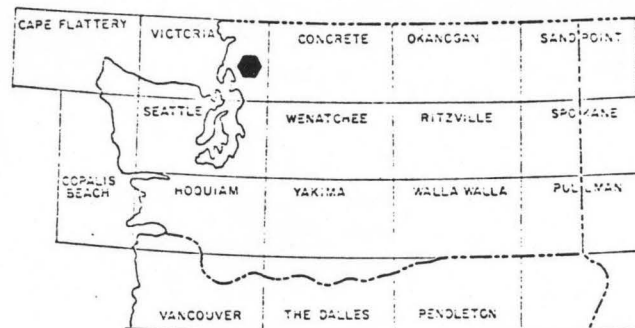
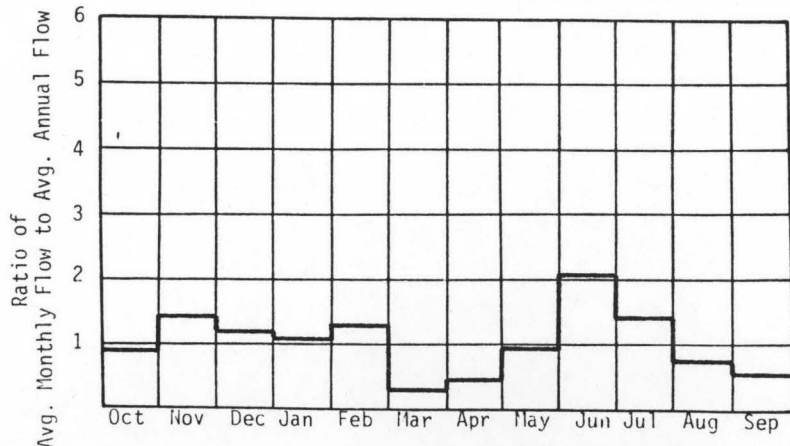
| | | |
|------------------------------------|----------------|---------|
| A. Upstream Elevation of Reach | <u>20</u> | Ft. MSL |
| B. Downstream Elevation of Reach | <u>0.0</u> | Ft. MSL |
| C. Total Available Head in Reach | <u>20</u> | Ft. |
| D. Average Slope in Reach | <u>2.6</u> | Ft./Mi. |
| E. Drainage Area above Reach Mouth | <u>106</u> | Sq.Mi. |
| F. Inflow Classification | <u>Natural</u> | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

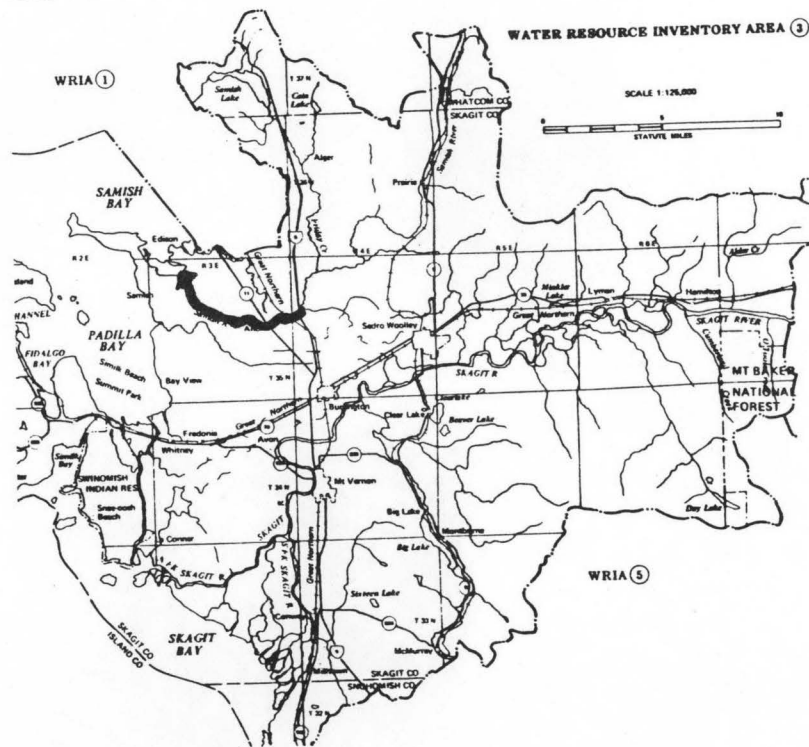
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 29.0 | 0.05 | 0.43 | 1.00 |
| 80 | 50.2 | 0.08 | 0.70 | 0.94 |
| 50 | 185 | 0.31 | 1.97 | 0.72 |
| 30 | 309 | 0.52 | 2.70 | 0.59 |
| 10 | 576 | 0.97 | 3.41 | 0.40 |

IV. TYPICAL ANNUAL HYDROGRAPH

QMR = 264 cfs



LOCATIONS FOR USGS 1:250,000 MAP SERIES



| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

THE UNIVERSITY OF CHICAGO

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 01-022-000-000-000-R0001

I. LOCATION

| | |
|------------------------|----------------------------|
| A. State | <u>Washington</u> |
| B. County | <u>Snohomish</u> |
| C. Township, Range | <u>T32N R4E</u> |
| D. Latitude, Longitude | <u>48°12' 122°17'</u> |
| E. Stream Name | <u>Stillaguamish River</u> |
| F. Major Basin Name | <u>Stillaguamish</u> |
| G. River Mile | <u>0.0/9.3</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

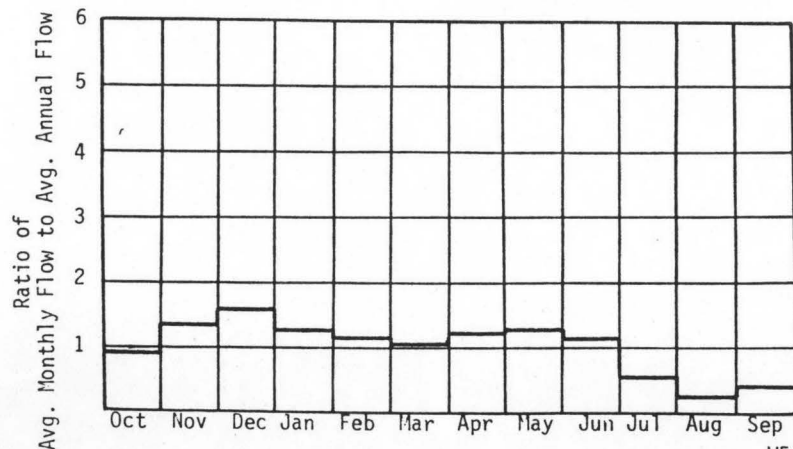
| | | |
|------------------------------------|----------------|---------|
| A. Upstream Elevation of Reach | <u>20</u> | Ft. MSL |
| B. Downstream Elevation of Reach | <u>0</u> | Ft. MSL |
| C. Total Available Head in Reach | <u>20</u> | Ft. |
| D. Average Slope in Reach | <u>2.15</u> | Ft./Mi. |
| E. Drainage Area above Reach Mouth | <u>669.2</u> | Sq.Mi. |
| F. Inflow Classification | <u>Natural</u> | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

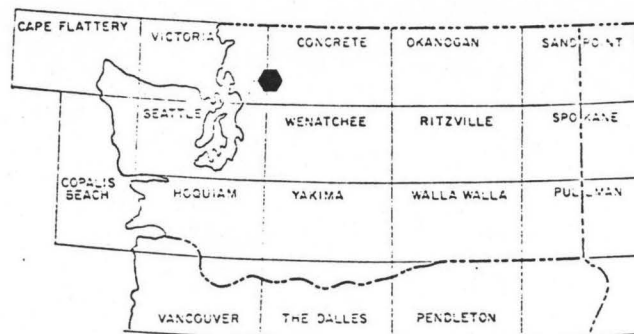
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 635 | 1.11 | 9.68 | 1.00 |
| 80 | 1130 | 1.92 | 15.9 | 0.95 |
| 50 | 3570 | 6.04 | 40.2 | 0.76 |
| 30 | 4830 | 8.18 | 47.3 | 0.66 |
| 10 | 8180 | 13.9 | 57.0 | 0.47 |

IV. TYPICAL ANNUAL HYDROGRAPH

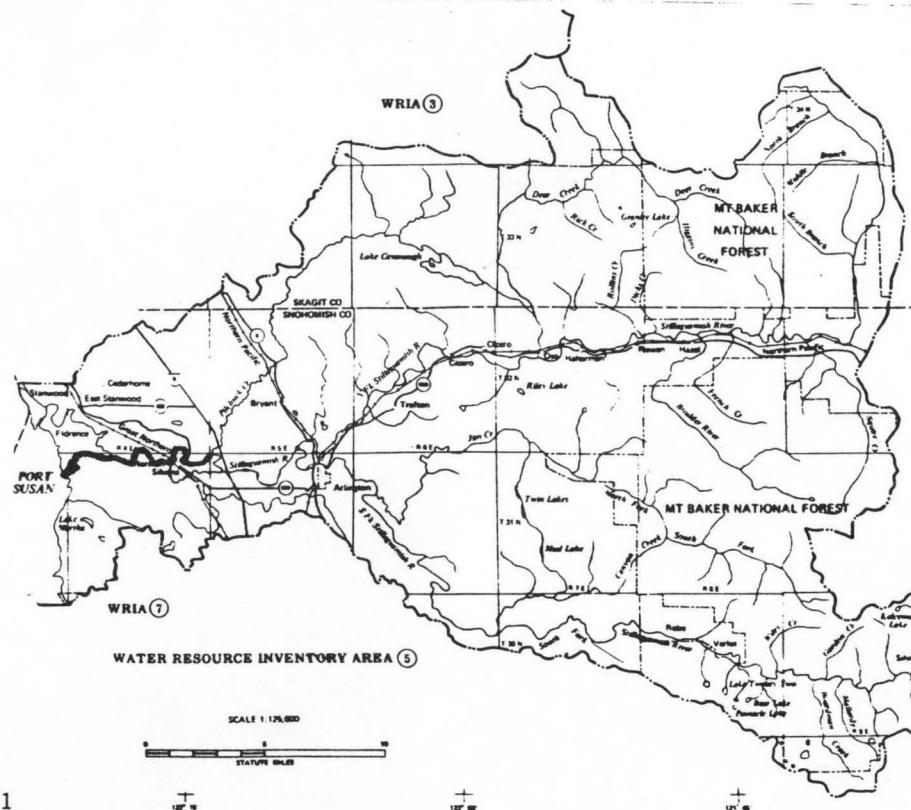
QMR = 4352 cfs



W5-241



LOCATIONS FOR USGS 1:250,000 MAP SERIES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 01-007-000-000-000-R0002

I. LOCATION

A. State Washington
 B. County Snohomish
 C. Township, Range T28N R6E
 D. Latitude, Longitude 47°52' 122°05'
 E. Stream Name Snohomish
 F. Major Basin Name Snohomish
 G. River Mile 12.2/18.7

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

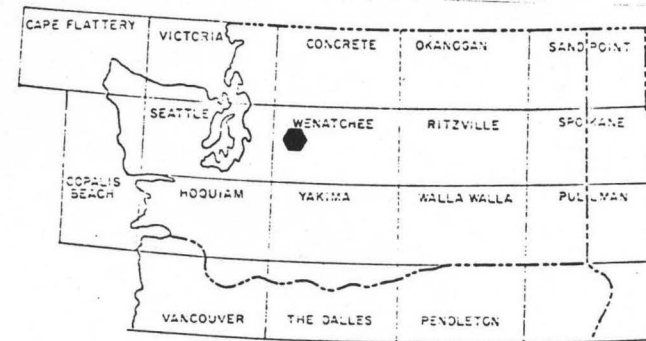
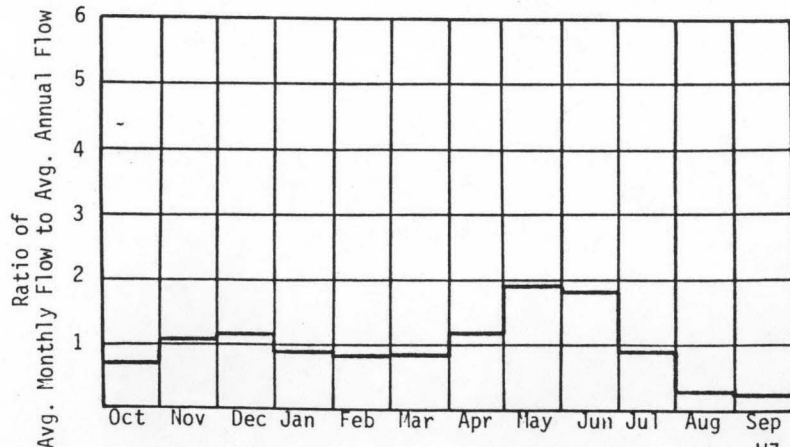
A. Upstream Elevation of Reach 14 Ft. MSL
 B. Downstream Elevation of Reach 4 Ft. MSL
 C. Total Available Head in Reach 10 Ft.
 D. Average Slope in Reach 1.54 Ft./Mi.
 E. Drainage Area above Reach Mouth 1587.2 Sq.Mi.
 F. Inflow Classification Regulated

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 1800 | 1.52 | 13.3 | 1.00 |
| 80 | 3880 | 3.29 | 26.8 | 0.93 |
| 50 | 7480 | 6.33 | 44.4 | 0.80 |
| 30 | 11100 | 9.38 | 55.0 | 0.67 |
| 10 | 18190 | 15.4 | 64.7 | 0.48 |

IV. TYPICAL ANNUAL HYDROGRAPH

QMR = 9474 cfs



LOCATIONS FOR USGS 1:250,000 MAP SERIES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 01-020-000-000-000-R0001

I. LOCATION

| | |
|------------------------|-----------------------|
| A. State | <u>Washington</u> |
| B. County | <u>King</u> |
| C. Township, Range | <u>T26N R4E</u> |
| D. Latitude, Longitude | <u>47°45' 122°15'</u> |
| E. Stream Name | <u>Sammamish</u> |
| F. Major Basin Name | <u>Sammamish</u> |
| G. River Mile | <u>0.0/4.7</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

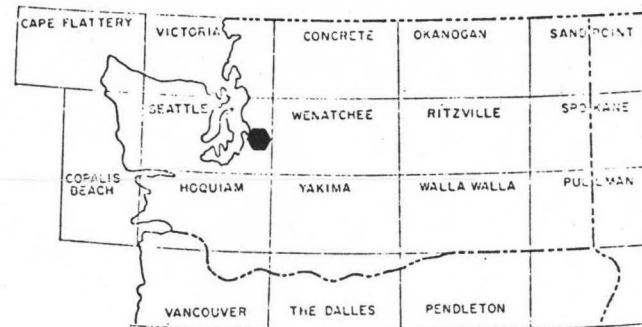
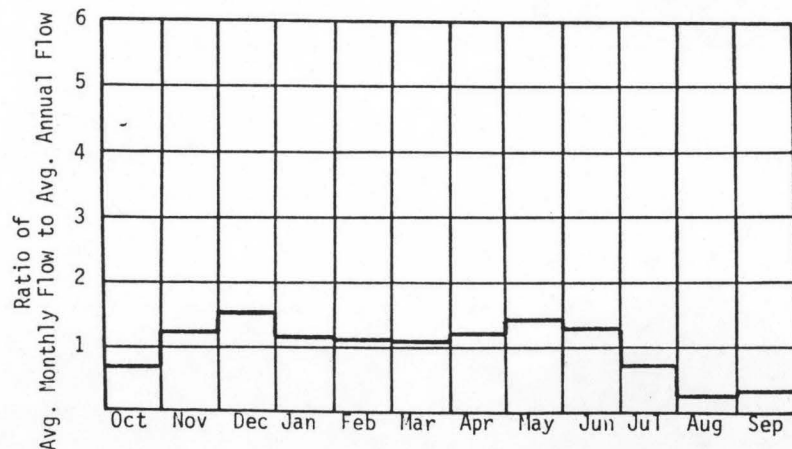
| | | |
|------------------------------------|------------------|---------|
| A. Upstream Elevation of Reach | <u>18</u> | Ft. MSL |
| B. Downstream Elevation of Reach | <u>0</u> | Ft. MSL |
| C. Total Available Head in Reach | <u>18</u> | Ft. |
| D. Average Slope in Reach | <u>5</u> | Ft./Mi. |
| E. Drainage Area above Reach Mouth | <u>241.5</u> | Sq.Mi. |
| F. Inflow Classification | <u>Regulated</u> | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

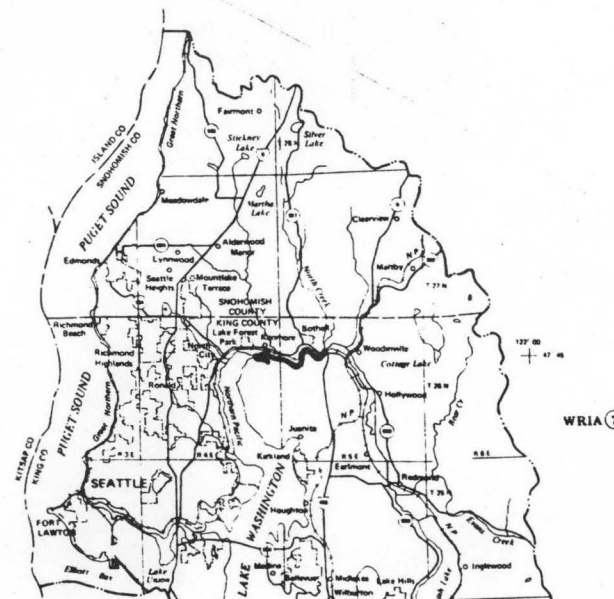
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 83.0 | 0.13 | 1.11 | 1.00 |
| 80 | 118 | 0.18 | 1.51 | 0.96 |
| 50 | 256 | 0.39 | 2.70 | 0.79 |
| 30 | 443 | 0.67 | 3.66 | 0.62 |
| 10 | 720 | 1.10 | 4.42 | 0.46 |

IV. TYPICAL ANNUAL HYDROGRAPH

QMR = 346 cfs



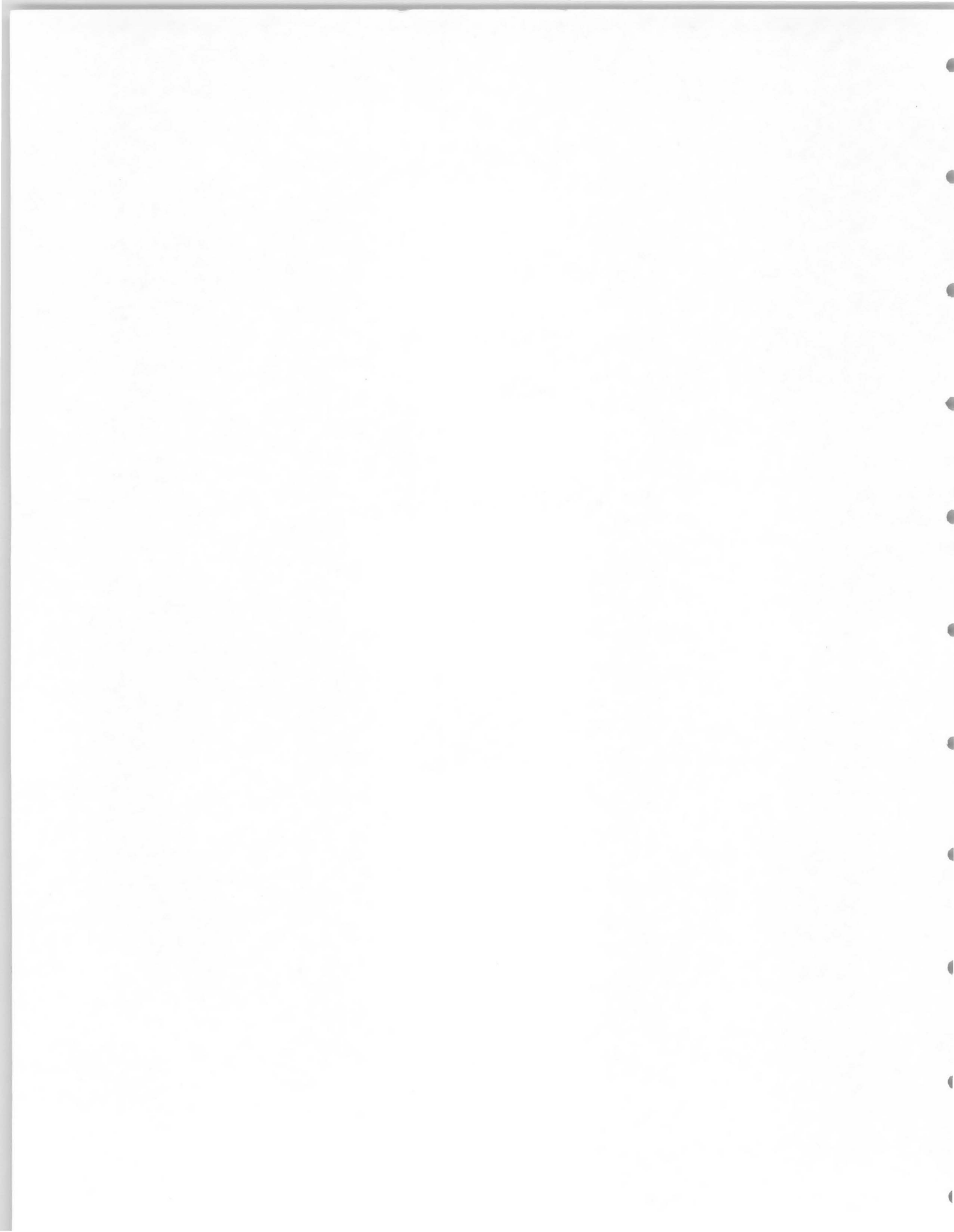
LOCATIONS FOR USGS 1:250,000 MAP SERIES



APPENDIX II

OREGON

SAMPLE
REACH DATA TABLES



REPORT VOLUME CONTENTS

- Volume A Main Report and Sample Appendices
- Volume B Appendix I, Washington Reach Data Tables
- Volume C Appendix I, Washington Reach Data Tables continued
- Volume D Appendix I, Washington Reach Data Tables continued
- Volume E Appendix II Oregon Reach Data Tables
- Volume F Appendix II Oregon Reach Data Tables continued
- Volume G Appendix II Oregon Reach Data Tables continued
- Volume H Appendix III Idaho, Nevada and Wyoming Reach Data Tables
- Volume I Appendix III Idaho, Nevada and Wyoming Reach Data Tables
continued
- Volume J Appendix IV Montana Reach Data Tables

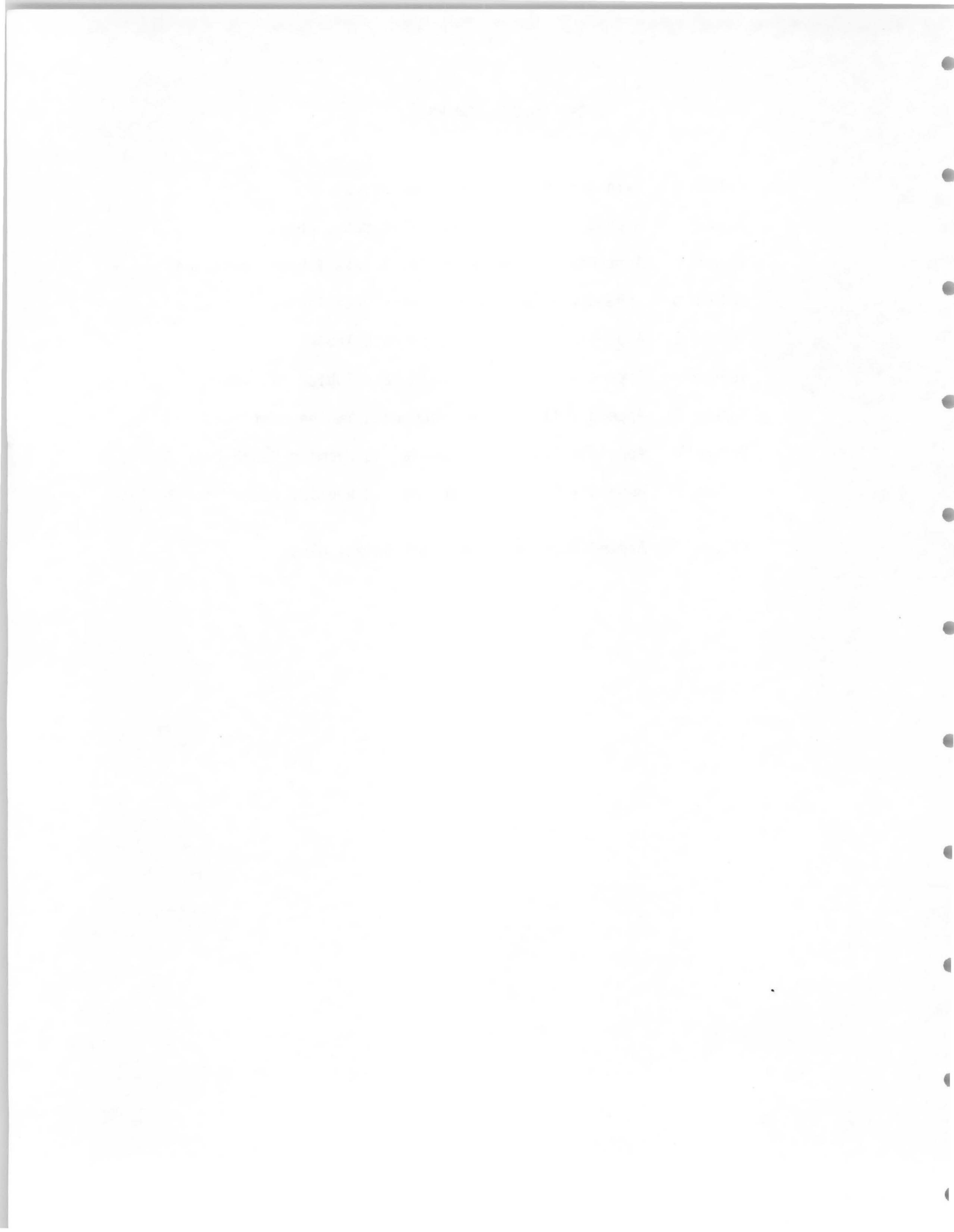


TABLE OF CONTENTS FOR
APPENDIX II

| | |
|--|----------------------|
| State Drainage Basin Map | 0 v |
| Index for Reach Hydro Potential Characteristics Sheets | 0 vi to 0 xiv |
| <u>1. North Coast Basin</u> | 0 1-i |
| Drainage Basin Map | 0 1-ii |
| Reach Hydro Potential Characteristics Sheets | 0 1-1 to 0 1-138 |
| Reach Feasibility Analysis Sheets | 0 1-139 to 0 1-150 |
| <u>2. Willamette Basin</u> | 0 2-i |
| Drainage Basin Map | 0 2-ii |
| <u>2A. Upper Willamette Basin</u> | |
| Reach Hydro Potential Characteristics Sheets. | 0 2A-1 to 0 2A-124 |
| Reach Feasibility Analysis Sheets | 0 2A-125 to 0 2A-134 |
| <u>2B. Mid-Willamette Basin</u> | |
| Reach Hydro Potential Characteristics Sheets. | 0 2B-1 to 0 2B-216 |
| Reach Feasibility Analysis Sheets | 0 2B-217 to 0 2B-233 |
| <u>2C. Lower Willamette Basin</u> | |
| Reach Hydro Potential Characteristics Sheets. | 0 2C-1 to 0 2C-66 |
| Reach Feasibility Analysis Sheets | 0 2C-67 to 0 2C-72 |
| <u>3. Sandy Basin</u> | 0 3-i |
| Drainage Basin Map | 0 3-ii |
| Reach Hydro Potential Characteristics Sheets | 0 3-1 to 0 3-50 |
| Reach Feasibility Analysis Sheets | 0 3-51 to 0 3-54 |
| <u>4. Hood Basin</u> | 0 4-i |
| Drainage Basin Map | 0 4-ii |
| Reach Hydro Potential Characteristics Sheets | 0 4-1 to 0 4-17 |
| Reach Feasibility Analysis Sheets | 0 4-18 to 0 4-19 |
| <u>5. Deschutes Basin</u> | 0 5-i |
| Drainage Basin Map | 0 5-ii |
| Reach Hydro Potential Characteristics Sheets | 0 5-1 to 0 5-120 |
| Reach Feasibility Analysis Sheets | 0 5-121 to 0 5-130 |
| <u>6. John Day Basin</u> | 0 6-i |
| Drainage Basin Map | 0 6-ii |
| Reach Hydro Potential Characteristics Sheets | 0 6-1 to 0 6-44 |
| Reach Feasibility Analysis Sheets | 0 6-45 to 0 6-48 |
| <u>7. Umatilla Basin</u> | 0 7-i |
| Drainage Basin Map | 0 7-ii |
| Reach Hydro Potential Characteristic Sheets | 0 7-1 to 0 7-14 |
| Reach Feasibility Analysis Sheets | 0 7-15 |
| <u>8. Grand Ronde Basin</u> | 0 8-i |
| Drainage Basin Map | 0 8-ii |
| Reach Hydro Potential Characteristics Sheets | 0 8-1 to 0 8-63 |
| Reach Feasibility Analysis Sheets | 0 8-64 to 0 8-68 |

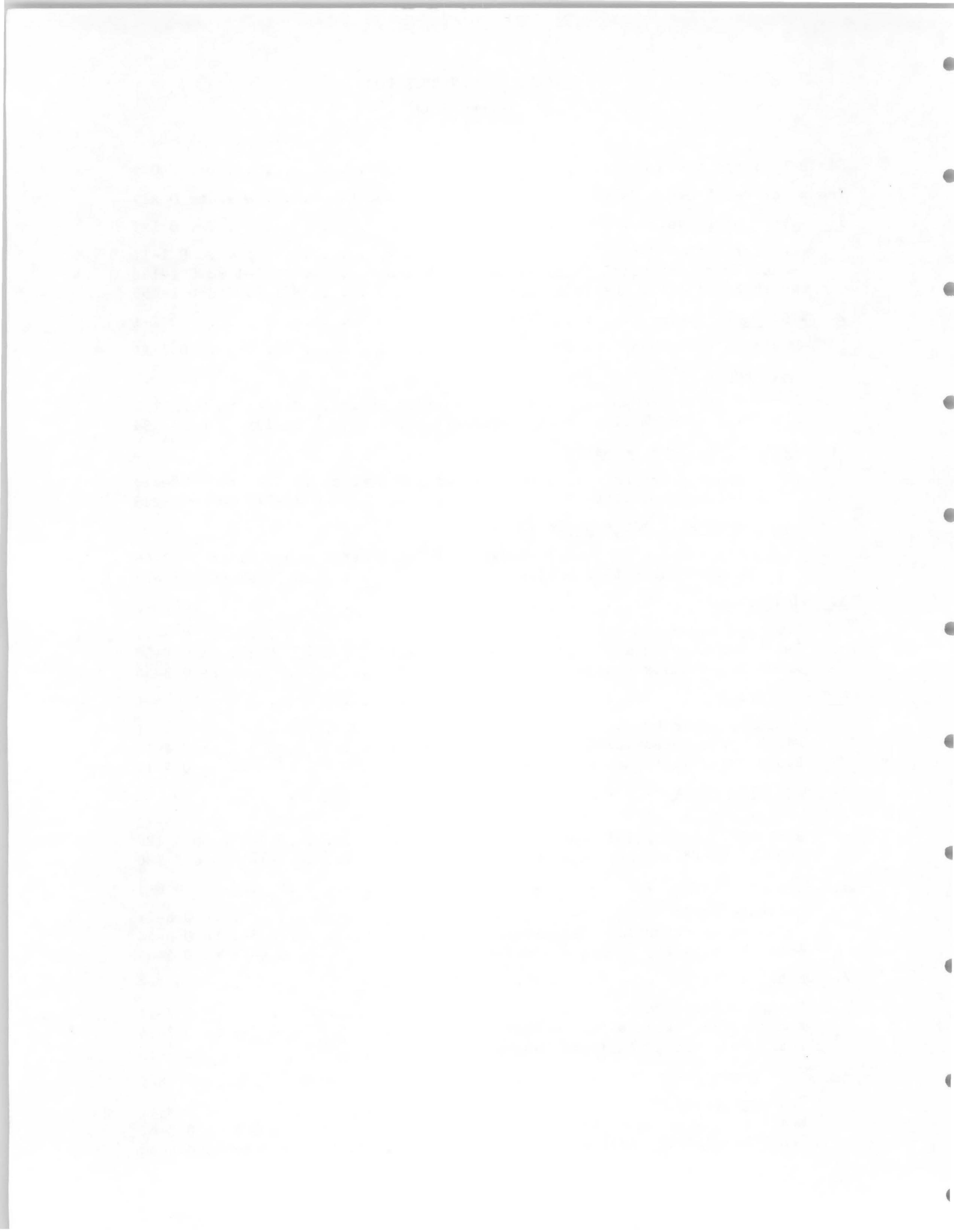
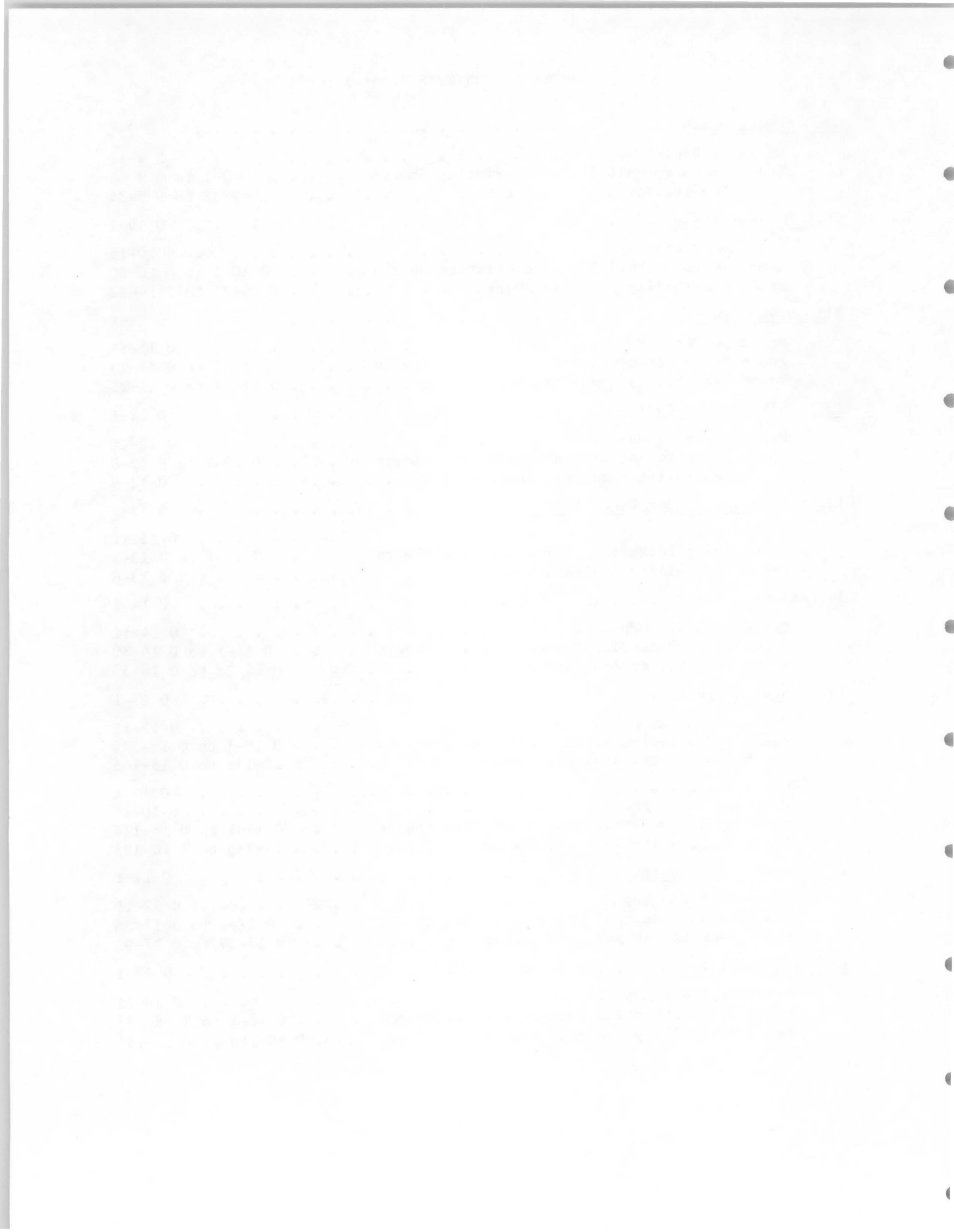
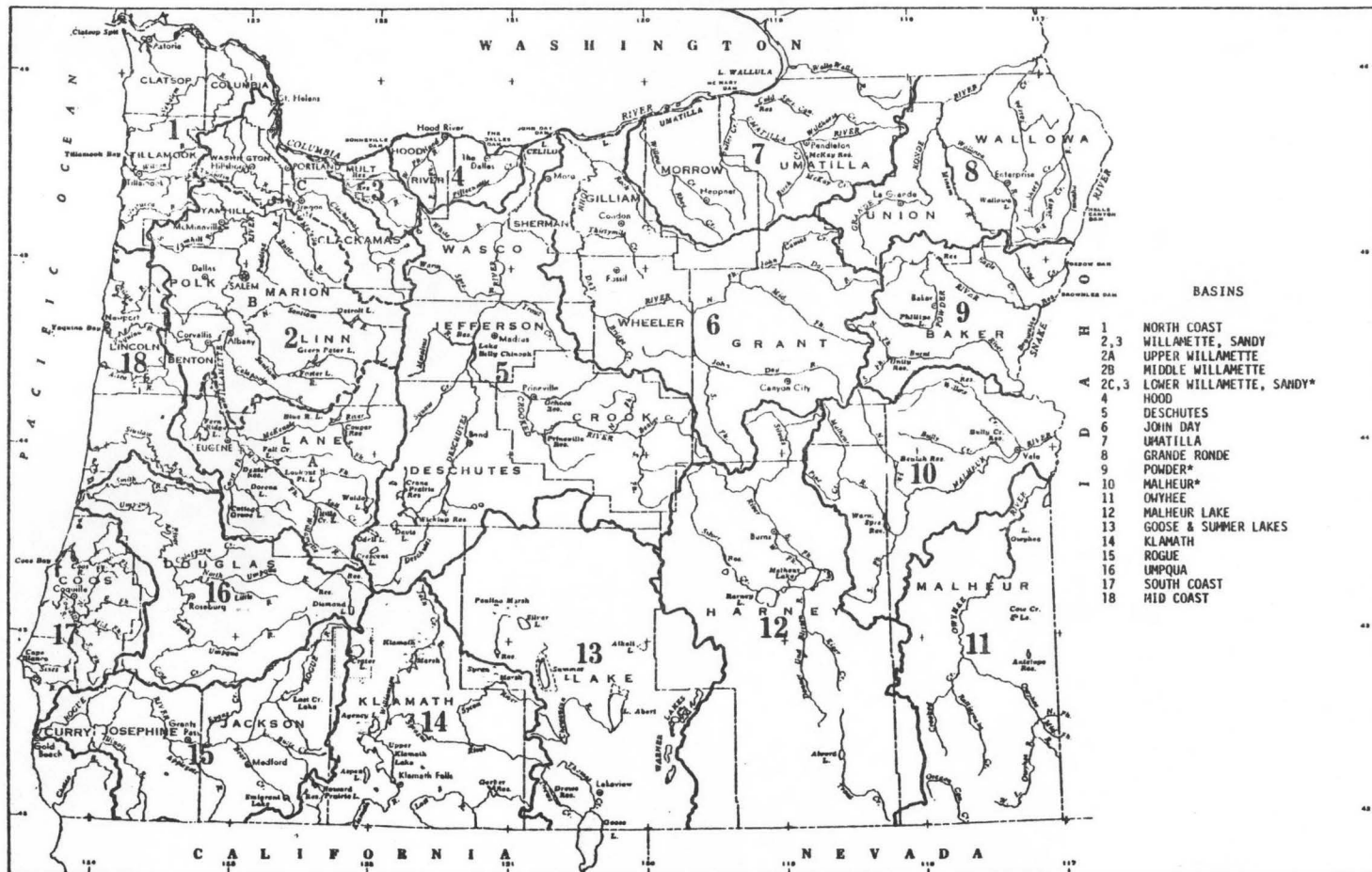
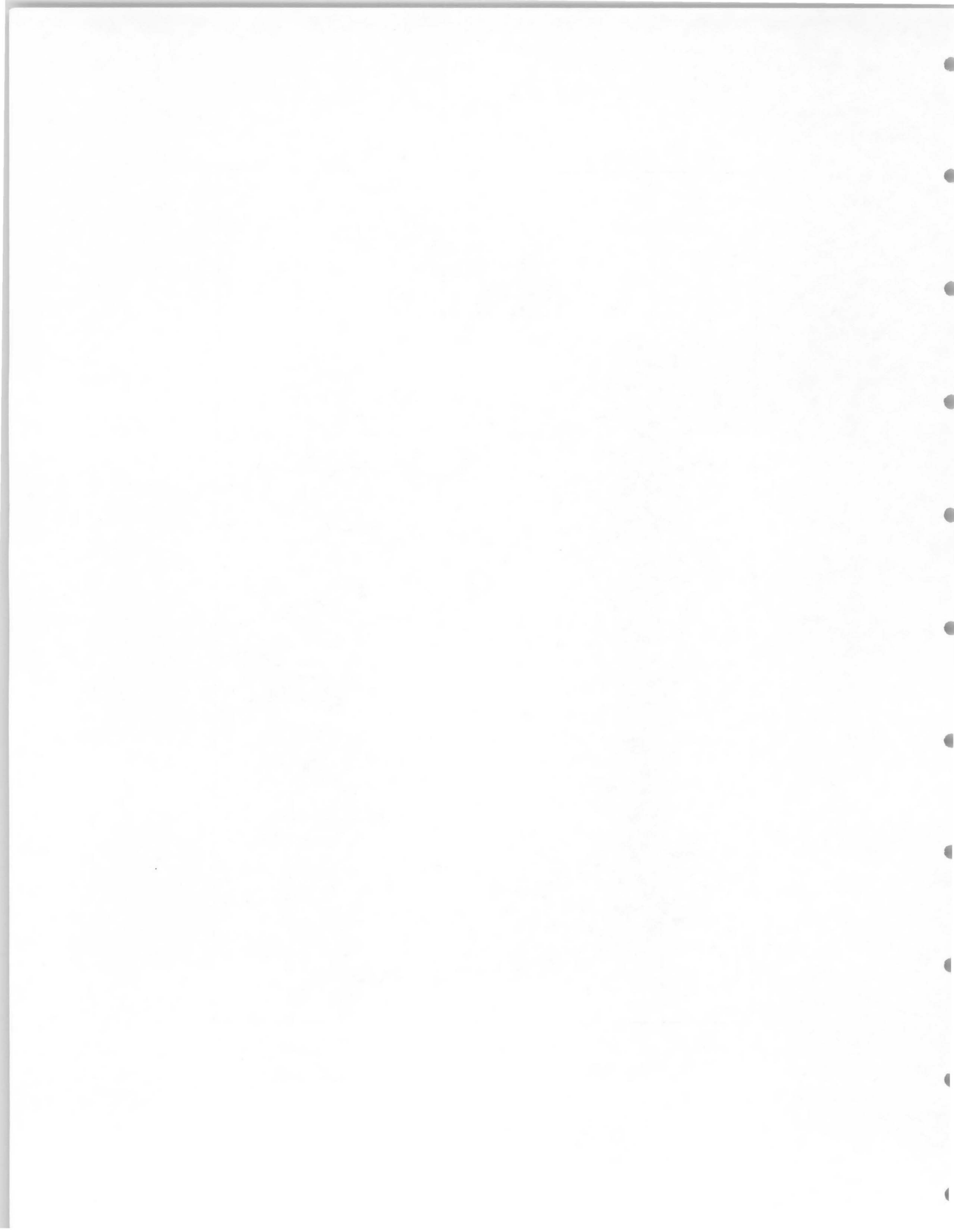


TABLE OF CONTENTS (cont.)

| | |
|--|----------------------|
| 9. <u>Powder Basin</u> | 0 9-i |
| Drainage Basin Map | 0 9-ii |
| Reach Hydro Potential Characteristics Sheets | 0 9-1 to 0 9-31 |
| Reach Feasibility Analysis Sheets | 0 9-32 to 9 9-34 |
| 10. <u>Malheur Basin</u> | 0 10-i |
| Drainage Basin Map | 0 10-ii |
| Reach Hydro Potential Characteristics Sheets | 0 10-1 to 0 10-20 |
| Reach Feasibility Analysis Sheets | 0 10-21 to 0 10-22 |
| 11. <u>Owyhee Basin</u> | 0 11-i |
| Drainage Basin Map | 0 11-ii |
| Reach Hydro Potential Characteristics Sheets | 0 11-1 to 0 11-23 |
| Reach Feasibility Analysis Sheets | 0 11-24 to 0 11-25 |
| 12. <u>Malheur Lake Basin</u> | 0 12-i |
| Drainage Basin Map | 0 12-ii |
| Reach Hydro Potential Characteristics Sheets | 0 12-1 to 0 12-8 |
| Reach Feasibility Analysis Sheets | 0 12-9 |
| 13. <u>Goose and Summer Lakes Basin</u> | 0 13-i |
| Drainage Basin Map | 0 13-ii |
| Reach Hydro Potential Characteristics Sheets | 0 13-1 to 0 13-5 |
| Reach Feasibility Analysis Sheets | 0 13-6 |
| 14. <u>Klamath Basin</u> | 0 14-i |
| Drainage Basin Map | 0 14-ii |
| Reach Hydro Potential Characteristics Sheets | 0 14-1 to 0 14-30 |
| Reach Feasibility Analysis Sheets | 0 14-31 to 0 14-33 |
| 15. <u>Rogue Basin</u> | 0 15-i |
| Drainage Basin Map | 0 15-ii |
| Reach Hydro Potential Characteristics Sheets | 0 15-1 to 0 15-135 |
| Reach Feasibility Analysis Sheets | 0 15-136 to 0 15-145 |
| 16. <u>Umpqua Basin</u> | 0 16-i |
| Drainage Basin Map | 0 16-ii |
| Reach Hydro Potential Characteristics Sheets | 0 16-1 to 0 16-114 |
| Reach Feasibility Analysis Sheets | 0 16-115 to 0 16-123 |
| 17. <u>South Coast Basin</u> | 0 17-i |
| Drainage Basin Map | 0 17-ii |
| Reach Hydro Potential Characteristics Sheets | 0 17-1 to 0 17-86 |
| Reach Feasibility Analysis Sheets | 0 17-87 to 0 17-93 |
| 18. <u>Mid-Coast Basin</u> | 0 18-i |
| Drainage Basin Map | 0 18-ii |
| Reach Hydro Potential Characteristics Sheets | 0 18-1 to 0 18-139 |
| Reach Feasibility Analysis Sheets | 0 18-140 to 0 18-151 |







OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|-----------------------------------|---|------------------|
| <u>1. North Coast Basin</u> | | |
| Lewis and Clark River | 02-500-003-000-000-R0001 thru R0003 | 1-1 to 1-3 |
| Youngs River & Tribs. | 02-500-005-000-000-R0001 thru R0004 | 1-4 to 1-12 |
| Big Creek | 02-500-011-000-000-R0001 thru R0002 | 1-13 to 1-14 |
| Gnat Creek | 02-500-013-000-000-R0001 thru R0002 | 1-15 to 1-16 |
| Clatskanie River | 02-500-015-000-000-R0001 thru R0003 | 1-17 to 1-19 |
| Beaver Creek | 02-500-017-000-000-R0001 thru R0002 | 1-20 to 1-21 |
| Necanicum River | 02-505-000-000-000-R0001 thru R0004 | 1-22 to 1-25 |
| Elk Creek | 02-510-000-000-000-R0001 thru R0002 | 1-26 to 1-27 |
| Nehalem River & Tribs. | 02-515-000-000-000-R0001 thru R0019 | 1-28 to 1-70 |
| Miami River | 02-520-000-000-000-R0001 thru R0003 | 1-71 to 1-73 |
| Kilchis River & Tribs. | 02-525-000-000-000-R0001 thru -008-000-000-R0002 | 1-74 to 1-80 |
| Wilson River & Tribs. | 02-530-000-000-000-R0001 thru -023-000-000-R0002 | 1-81 to 1-99 |
| Trask River & Tribs. | 02-535-000-000-000-R0001 thru -004-008-000-R0002 | 1-100 to 1-114 |
| Tillamook River | 02-540-000-000-000-R0001 thru R0004 | 1-115 to 1-118 |
| Nestucca River & Tribs. | 02-545-000-000-000-R0001 thru R0007 | 1-119 to 1-133 |
| Little Nestucca River | 02-550-000-000-000-R0001 thru R0003 | 1-134 to 1-136 |
| Neskowin River | 02-555-000-000-000-R0001 thru R0002 | 1-137 to 1-138 |
| <u>2A. Upper Willamette Basin</u> | | |
| Willamette River Main Stem | 02-500-060-000-000-R0021, R0022 thru R0024, R0025 | 2A- 1, 10-12, 72 |
| Long Tom River | 02-500-060-151-000-R0001 thru -010-R0013 | 2A-2 to 2A-9 |
| McKenzie River & Tribs. | 02-500-060-172-000-R0001 thru -095-R0002 | 2A-13 to 2A-71 |

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---------------------------------------|--|---|
| Coast Fork Willamette River & Tribs. | 02-500-060-187-000-R0001 thru -015 R0001 | 2A-73 to 2A-89 |
| Middle Fork Willamette River & Tribs. | 02-500-060-192-000-R0001 thru -000-R0020 | 2A-90 to 2A-124 |
| <u>2B. Mid-Willamette Basin</u> | | |
| Willamette River Main Stem | 02-500-060-000-000-R0005, R0006, R0007 thru R0008
R0009 thru R0011, R0012
R0013 thru R0014, R0015, R0016
R0017 thru R0018, R0019
R0020 | 2B- 1, 48, 50-51
76-78, 87
92-93, 107, 184
194-195, 208
216 |
| Molalla River & Tribs. | 02-500-060-036-000-R0001 thru R0008 | 2B-2 to 2B-47 |
| Champoeg River | 02-500-060-046-000-R0001 | 2B-49 |
| Yamhill River & Tribs. | 02-500-060-055-000-R0001 thru -010-R0017 | 2B-52 to 2B-75 |
| Mill Creek & Tribs. | 02-500-060-084-000-R0001 thru R0004 | 2B-79 to 2B-86 |
| Rickreall Creek | 02-500-060-089-000-R0001 thru R0004 | 2B-88 to 2B-91 |
| Luckiamute River & Tribs. | 02-500-060-107-000-R0001 thru R0009 | 2B-94 to 2B-106 |
| Santiam River & Tribs. | 02-500-060-110-000-R0001 thru -020-R0045 | 2B-108 to 2B-183 |
| Calapooia River | 02-500-060-120-000-R0001 thru R0009 | 2B-185 to 2B-193 |
| Marys River & Tribs. | 02-500-060-131-000-R0001 thru R0006 | 2B-196 to 2B-207 |
| Muddy Creek | 02-500-060-134-000-R0001 thru R0005 | 2B-209 to 2B-215 |
| <u>2C. Lower Willamette Basin</u> | | |
| Scapoose Creek | 02-500-039-001-000-R0001 thru R0002 | 2C-1 to 2C-2 |
| Willamette River Main Stem | 02-500-060-000-000-R0001, R0002, R0003, R0004 | 2C- 3, 5, 41, 66 |

| | | |
|---|---|---|
| <p>1940</p> <p>1941</p> <p>1942</p> <p>1943</p> <p>1944</p> <p>1945</p> <p>1946</p> <p>1947</p> <p>1948</p> <p>1949</p> <p>1950</p> | <p>1940</p> <p>1941</p> <p>1942</p> <p>1943</p> <p>1944</p> <p>1945</p> <p>1946</p> <p>1947</p> <p>1948</p> <p>1949</p> <p>1950</p> | <p>1940</p> <p>1941</p> <p>1942</p> <p>1943</p> <p>1944</p> <p>1945</p> <p>1946</p> <p>1947</p> <p>1948</p> <p>1949</p> <p>1950</p> |
| <p>1951</p> <p>1952</p> <p>1953</p> <p>1954</p> <p>1955</p> <p>1956</p> <p>1957</p> <p>1958</p> <p>1959</p> <p>1960</p> | <p>1951</p> <p>1952</p> <p>1953</p> <p>1954</p> <p>1955</p> <p>1956</p> <p>1957</p> <p>1958</p> <p>1959</p> <p>1960</p> | <p>1951</p> <p>1952</p> <p>1953</p> <p>1954</p> <p>1955</p> <p>1956</p> <p>1957</p> <p>1958</p> <p>1959</p> <p>1960</p> |
| <p>1961</p> <p>1962</p> <p>1963</p> <p>1964</p> <p>1965</p> <p>1966</p> <p>1967</p> <p>1968</p> <p>1969</p> <p>1970</p> | <p>1961</p> <p>1962</p> <p>1963</p> <p>1964</p> <p>1965</p> <p>1966</p> <p>1967</p> <p>1968</p> <p>1969</p> <p>1970</p> | <p>1961</p> <p>1962</p> <p>1963</p> <p>1964</p> <p>1965</p> <p>1966</p> <p>1967</p> <p>1968</p> <p>1969</p> <p>1970</p> |
| <p>1971</p> <p>1972</p> <p>1973</p> <p>1974</p> <p>1975</p> <p>1976</p> <p>1977</p> <p>1978</p> <p>1979</p> <p>1980</p> | <p>1971</p> <p>1972</p> <p>1973</p> <p>1974</p> <p>1975</p> <p>1976</p> <p>1977</p> <p>1978</p> <p>1979</p> <p>1980</p> | <p>1971</p> <p>1972</p> <p>1973</p> <p>1974</p> <p>1975</p> <p>1976</p> <p>1977</p> <p>1978</p> <p>1979</p> <p>1980</p> |
| <p>1981</p> <p>1982</p> <p>1983</p> <p>1984</p> <p>1985</p> <p>1986</p> <p>1987</p> <p>1988</p> <p>1989</p> <p>1990</p> | <p>1981</p> <p>1982</p> <p>1983</p> <p>1984</p> <p>1985</p> <p>1986</p> <p>1987</p> <p>1988</p> <p>1989</p> <p>1990</p> | <p>1981</p> <p>1982</p> <p>1983</p> <p>1984</p> <p>1985</p> <p>1986</p> <p>1987</p> <p>1988</p> <p>1989</p> <p>1990</p> |

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---------------------------|---|---|
| Johnson Creek | 02-500-060-018-000-R0001 | 2C-4 |
| Clackamas River & Tribs. | 02-500-060-024-000-R0001 thru R0013 | 2C-6 to 2C-40 |
| Tualatin River & Tribs. | 02-500-060-029-000-R0001 thru R0009 | 2C-42 to 2C-65 |
| <u>3. Sandy Basin</u> | | |
| Sandy River Main Stem | 02-500-080-000-R0001 thru R0002, R0003, R0004
R0005 thru R0007, R0008, R0009
R0010, R0011 thru R0013 | 3- 1-2, 5, 22
25-26, 37, 43
45, 48-50 |
| Gordon Creek | 02-500-080-010-000-R0001 thru R0002 | 3-3 to 3-4 |
| Bull Run River & Tribs. | 02-500-080-015-000-R0001 thru R0009 | 3-6 to 3-21 |
| Cedar Creek | 02-500-080-020-000-R0001 thru R0002 | 3-23 to 3-24 |
| Salmon River & Tribs. | 02-500-080-025-000-R0001 thru R0008 | 3-27 to 3-36 |
| Zig Zag River & Tribs. | 02-500-080-030-000-R0001 thru R0003 | 3-38 to 3-42 |
| Clear Creek | 02-500-080-035-000-R0001 | 3-44 |
| Lost Creek | 02-500-080-040-000-R0001 thru R0002 | 3-46 to 3-47 |
| <u>4. Hood Basin</u> | | |
| Eagle Creek | 02-500-125-000-000-R0001 thru R0002 | 4-1 to 4-2 |
| Hood River & Tribs. | 02-500-140-000-000-R0001 thru -030-000-R0003 | 4-3 to 4-15 |
| Fifteenmile Creek | 02-500-165-000-000-R0001 thru R0002 | 4-16 to 4-17 |
| <u>5. Deschutes Basin</u> | | |
| Deschutes River Main Stem | 02-500-180-000-000-R0001 thru R0005, R0007, R0009 thru R0011
R0013, R0015, R0017, R0018
R0019 thru R0021, R0022 thru R0024
R0025, R0026, R0027 | 5- 1-3, 17, 20-21
36, 45, 50, 82
92-94, 98-100
114, 117, 120 |

| Date | Description | Debit | Credit | Balance |
|------------|-------------|-------|--------|----------|
| 1950-01-01 | Balance | | | 100.00 |
| 1950-01-15 | John Doe | 50.00 | | 50.00 |
| 1950-01-20 | John Doe | 25.00 | | 25.00 |
| 1950-01-25 | John Doe | 25.00 | | 0.00 |
| 1950-02-01 | John Doe | | 50.00 | 50.00 |
| 1950-02-15 | John Doe | 25.00 | | 25.00 |
| 1950-02-20 | John Doe | 25.00 | | 0.00 |
| 1950-02-25 | John Doe | | 50.00 | 50.00 |
| 1950-03-01 | John Doe | 50.00 | | 0.00 |
| 1950-03-15 | John Doe | 25.00 | | -25.00 |
| 1950-03-20 | John Doe | 25.00 | | -50.00 |
| 1950-03-25 | John Doe | | 50.00 | -25.00 |
| 1950-04-01 | John Doe | 50.00 | | -75.00 |
| 1950-04-15 | John Doe | 25.00 | | -100.00 |
| 1950-04-20 | John Doe | 25.00 | | -125.00 |
| 1950-04-25 | John Doe | | 50.00 | -75.00 |
| 1950-05-01 | John Doe | 50.00 | | -125.00 |
| 1950-05-15 | John Doe | 25.00 | | -150.00 |
| 1950-05-20 | John Doe | 25.00 | | -175.00 |
| 1950-05-25 | John Doe | | 50.00 | -125.00 |
| 1950-06-01 | John Doe | 50.00 | | -175.00 |
| 1950-06-15 | John Doe | 25.00 | | -200.00 |
| 1950-06-20 | John Doe | 25.00 | | -225.00 |
| 1950-06-25 | John Doe | | 50.00 | -175.00 |
| 1950-07-01 | John Doe | 50.00 | | -225.00 |
| 1950-07-15 | John Doe | 25.00 | | -250.00 |
| 1950-07-20 | John Doe | 25.00 | | -275.00 |
| 1950-07-25 | John Doe | | 50.00 | -225.00 |
| 1950-08-01 | John Doe | 50.00 | | -275.00 |
| 1950-08-15 | John Doe | 25.00 | | -300.00 |
| 1950-08-20 | John Doe | 25.00 | | -325.00 |
| 1950-08-25 | John Doe | | 50.00 | -275.00 |
| 1950-09-01 | John Doe | 50.00 | | -325.00 |
| 1950-09-15 | John Doe | 25.00 | | -350.00 |
| 1950-09-20 | John Doe | 25.00 | | -375.00 |
| 1950-09-25 | John Doe | | 50.00 | -325.00 |
| 1950-10-01 | John Doe | 50.00 | | -375.00 |
| 1950-10-15 | John Doe | 25.00 | | -400.00 |
| 1950-10-20 | John Doe | 25.00 | | -425.00 |
| 1950-10-25 | John Doe | | 50.00 | -375.00 |
| 1950-11-01 | John Doe | 50.00 | | -425.00 |
| 1950-11-15 | John Doe | 25.00 | | -450.00 |
| 1950-11-20 | John Doe | 25.00 | | -475.00 |
| 1950-11-25 | John Doe | | 50.00 | -425.00 |
| 1950-12-01 | John Doe | 50.00 | | -475.00 |
| 1950-12-15 | John Doe | 25.00 | | -500.00 |
| 1950-12-20 | John Doe | 25.00 | | -525.00 |
| 1950-12-25 | John Doe | | 50.00 | -475.00 |
| 1951-01-01 | John Doe | 50.00 | | -525.00 |
| 1951-01-15 | John Doe | 25.00 | | -550.00 |
| 1951-01-20 | John Doe | 25.00 | | -575.00 |
| 1951-01-25 | John Doe | | 50.00 | -525.00 |
| 1951-02-01 | John Doe | 50.00 | | -575.00 |
| 1951-02-15 | John Doe | 25.00 | | -600.00 |
| 1951-02-20 | John Doe | 25.00 | | -625.00 |
| 1951-02-25 | John Doe | | 50.00 | -575.00 |
| 1951-03-01 | John Doe | 50.00 | | -625.00 |
| 1951-03-15 | John Doe | 25.00 | | -650.00 |
| 1951-03-20 | John Doe | 25.00 | | -675.00 |
| 1951-03-25 | John Doe | | 50.00 | -625.00 |
| 1951-04-01 | John Doe | 50.00 | | -675.00 |
| 1951-04-15 | John Doe | 25.00 | | -700.00 |
| 1951-04-20 | John Doe | 25.00 | | -725.00 |
| 1951-04-25 | John Doe | | 50.00 | -675.00 |
| 1951-05-01 | John Doe | 50.00 | | -725.00 |
| 1951-05-15 | John Doe | 25.00 | | -750.00 |
| 1951-05-20 | John Doe | 25.00 | | -775.00 |
| 1951-05-25 | John Doe | | 50.00 | -725.00 |
| 1951-06-01 | John Doe | 50.00 | | -775.00 |
| 1951-06-15 | John Doe | 25.00 | | -800.00 |
| 1951-06-20 | John Doe | 25.00 | | -825.00 |
| 1951-06-25 | John Doe | | 50.00 | -775.00 |
| 1951-07-01 | John Doe | 50.00 | | -825.00 |
| 1951-07-15 | John Doe | 25.00 | | -850.00 |
| 1951-07-20 | John Doe | 25.00 | | -875.00 |
| 1951-07-25 | John Doe | | 50.00 | -825.00 |
| 1951-08-01 | John Doe | 50.00 | | -875.00 |
| 1951-08-15 | John Doe | 25.00 | | -900.00 |
| 1951-08-20 | John Doe | 25.00 | | -925.00 |
| 1951-08-25 | John Doe | | 50.00 | -875.00 |
| 1951-09-01 | John Doe | 50.00 | | -925.00 |
| 1951-09-15 | John Doe | 25.00 | | -950.00 |
| 1951-09-20 | John Doe | 25.00 | | -975.00 |
| 1951-09-25 | John Doe | | 50.00 | -925.00 |
| 1951-10-01 | John Doe | 50.00 | | -975.00 |
| 1951-10-15 | John Doe | 25.00 | | -1000.00 |
| 1951-10-20 | John Doe | 25.00 | | -1025.00 |
| 1951-10-25 | John Doe | | 50.00 | -975.00 |
| 1951-11-01 | John Doe | 50.00 | | -1025.00 |
| 1951-11-15 | John Doe | 25.00 | | -1050.00 |
| 1951-11-20 | John Doe | 25.00 | | -1075.00 |
| 1951-11-25 | John Doe | | 50.00 | -1025.00 |
| 1951-12-01 | John Doe | 50.00 | | -1075.00 |
| 1951-12-15 | John Doe | 25.00 | | -1100.00 |
| 1951-12-20 | John Doe | 25.00 | | -1125.00 |
| 1951-12-25 | John Doe | | 50.00 | -1075.00 |
| 1952-01-01 | John Doe | 50.00 | | -1125.00 |

John Doe

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|------------------------------------|---|------------------------------|
| White River & Tribs. | 02-500-180-013-000-R0001 thru R0007 | 5-4 to 5-16 |
| Wapanitia Creek | 02-500-180-017-000-R0001 thru R0002 | 5-18 to 5-19 |
| Warm Springs River & Tribs. | 02-500-180-019-000-R0001 thru R0008 | 5-22 to 5-35 |
| Trout Creek & Tribs. | 02-500-180-021-000-R0001 thru R0006 | 5-37 to 5-44 |
| Shitike Creek | 02-500-180-023-000-R0001 thru R0004 | 5-46 to 5-49 |
| Metolius River & Tribs. | 02-500-180-025-000-R0001 thru -010-R0005 | 5-51 to 5-69 |
| Crooked River & Tribs. | 02-500-180-030-000-R0001 thru -003-R0001 | 5-70 to 5-81 |
| Squaw Creek | 02-500-180-040-000-R0001 thru R0007 | 5-83 to 5-91 |
| Tumalo Creek | 02-500-180-050-000-R0001 thru R0003 | 5-95 to 5-97 |
| Little Deschutes River & Tribs. | 02-500-180-060-000-R0001 thru R0007 | 5-101 to 5-113 |
| Fall River | 02-500-180-080-000-R0001 thru R0002 | 5-115 to 5-116 |
| Cultus River | 02-500-180-090-000-R0001 thru R0002 | 5-118 to 5-119 |
| <u>6. John Day Basin</u> | | |
| John Day River Main Stem | 02-500-200-000-000-R0001 thru R0002, R0003 thru R0015
R0016 thru R0018, R0019 thru R0023 | 6- 1-2, 6-18
35-37, 40-44 |
| Rock Creek | 02-500-200-020-000-R0001 thru R0003 | 6-3 to 6-5 |
| North Fork John Day River & Tribs. | 02-500-200-040-000-R0001 thru R0008 | 6-19 to 6-34 |
| South Fork John Day River | 02-500-200-060-000-R0001 thru R0002 | 6-38 to 6-39 |
| <u>7. Umatilla Basin</u> | | |
| Umatilla River Main Stem | 02-500-220-000-000-R0001 thru R0006, R0007 thru R0009
R0010 thru R0011 | 7- 1-6, 8-10
13-14 |

| | |
|--|--|
| <p>1. The first part of the document discusses the importance of maintaining accurate records of all transactions.</p> <p>2. It is essential to ensure that all entries are supported by valid receipts and invoices.</p> <p>3. The second part of the document outlines the various methods used to collect and analyze data.</p> <p>4. These methods include direct observation, interviews, and the use of specialized equipment.</p> <p>5. The final part of the document provides a summary of the findings and conclusions drawn from the study.</p> | <p>1. The first part of the document discusses the importance of maintaining accurate records of all transactions.</p> <p>2. It is essential to ensure that all entries are supported by valid receipts and invoices.</p> <p>3. The second part of the document outlines the various methods used to collect and analyze data.</p> <p>4. These methods include direct observation, interviews, and the use of specialized equipment.</p> <p>5. The final part of the document provides a summary of the findings and conclusions drawn from the study.</p> |
|--|--|

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---|---|--|
| Wildhorse Creek | 02-500-220-010-000-R0001 | 7-7 |
| Meacham Creek | 02-500-220-015-000-R0001 thru R0002 | 7-11 to 7-12 |
| <u>8. Grande Ronde Basin</u> | | |
| Grande Ronde River Main Stem | 02-500-240-060-000-R0005, R0006 thru R0009, R0011
R0012 thru R0015, R0018 thru R0022
R0023 thru R0025 | 8- 8, 14-17, 30
33-36, 40-44
47-49 |
| Joseph Creek & Tribs. | 02-500-240-060-004-R0004 thru R0011 | 8-1 to 8-7 |
| Wenaha River & Tribs. | 02-500-240-060-047-R0001 thru R0011 | 8-9 to 8-13 |
| Wallowa River & Tribs | 02-500-240-060-082-R0001 thru R0020 | 8-18 to 8-29 |
| Looking Glass Creek | 02-500-240-060-085-R0001 thru R0002 | 8-31 to 8-32 |
| Catherine Creek | 02-500-240-060-140-R0001 thru R0004 | 8-37 to 8-39 |
| Meadow Creek | 02-500-240-060-181-R0001 thru R0002 | 8-45 to 8-46 |
| Imnaha River Main Stem | 02-500-240-100-000-R0001 thru R0004, R0005 thru R0009 | 8- 50-53, 59-63 |
| Big Sheep & Little Sheep Creeks | 02-500-240-100-023-R0001 thru R0006 | 8-54 to 8-58 |
| <u>9. Powder Basin</u> | | |
| Pine Creek | 02-500-240-117-000-R0001 thru R0003 | 9-1 to 9-3 |
| Powder River Main Stem | 02-500-240-120-000-R0002 thru R0015 | 9-4 to 9-17 |
| Eagle Creek | 02-500-240-120-010-R0001 thru R0004 | 9-18 to 9-21 |
| Burnt River | 02-500-240-123-000-R0001 thru R0010 | 9-22 to 9-31 |
| <u>10. Malheur Basin</u> | | |
| Malheur River Main Stem Below
Warm Springs Dam | 02-500-240-180-000-R0001 thru R0009, R0010 thru R0012 | 10- 1-9, 12-14 |

| Project Name | Project Description | Project Dates | Project Status |
|--------------|--------------------------|----------------------------------|----------------|
| Project A | Description of Project A | Start: 1-15-2024, End: 3-31-2024 | Completed |
| Project B | Description of Project B | Start: 4-1-2024, End: 6-30-2024 | In Progress |
| Project C | Description of Project C | Start: 7-1-2024, End: 9-30-2024 | Planned |

Project Name: PROJECT ALPHA

Project ID: 12345

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---|--|----------------------|
| North Fork Malheur River | 02-500-240-180-015-R0001 thru R0002 | 10-10 to 10-11 |
| Malheur River Above Warm Springs Reservoir | 02-500-240-180-000-R0013 thru R0018 | 10-15 to 10-20 |
| <u>11. Owyhee Basin</u> | | |
| Owyhee River Below Owyhee Dam | 02-500-240-200-000-R0001 thru R0020 | 11-1 to 11-3 |
| Owyhee River Main Stem Above Owyhee Reservoir | 02-500-240-200-000-R0070 thru R0110, R0118
R0122 thru R0171 | 11- 4-8, 12
18-23 |
| Crooked Creek | 02-500-240-200-003-R0001 thru R0004 | 11-9 to 11-11 |
| Jordan Creek | 02-500-240-200-005-R0001 thru R0007 | 11-13 to 11-17 |
| <u>12. Malheur Lake Basin</u> | | |
| Silvies River | 02-000-012-001-000-R0001 thru R0004 | 12-1 to 12-4 |
| Donner und Blitzen River | 02-000-012-002-000-R0001 thru R0004 | 12-5 to 12-8 |
| <u>13. Goose and Summer Lakes Basin</u> | | |
| Chewaucan River | 02-000-013-000-000-R0001 thru R0005 | 13-1 to 13-5 |
| <u>14. Klamath Basin</u> | | |
| Jenny Creek | 02-000-014-001-000-R0001 thru R0004 | 14-1 to 14-4 |
| Klamath River | 02-000-014-002-000-R0001 thru R0003 | 14-5 to 14-7 |
| Williamson River Main Stem | 02-000-014-003-000-R0001, R0002 thru R0006 | 14- 8, 26-30 |
| Sprague River & Tribs. | 02-000-014-003-001-R0001 thru R0017 | 14-9 to 14-25 |

| | |
|---|---|
| <p>1911</p> <p>1912</p> <p>1913</p> <p>1914</p> <p>1915</p> <p>1916</p> <p>1917</p> <p>1918</p> <p>1919</p> <p>1920</p> <p>1921</p> <p>1922</p> <p>1923</p> <p>1924</p> <p>1925</p> <p>1926</p> <p>1927</p> <p>1928</p> <p>1929</p> <p>1930</p> <p>1931</p> <p>1932</p> <p>1933</p> <p>1934</p> <p>1935</p> <p>1936</p> <p>1937</p> <p>1938</p> <p>1939</p> <p>1940</p> <p>1941</p> <p>1942</p> <p>1943</p> <p>1944</p> <p>1945</p> <p>1946</p> <p>1947</p> <p>1948</p> <p>1949</p> <p>1950</p> <p>1951</p> <p>1952</p> <p>1953</p> <p>1954</p> <p>1955</p> <p>1956</p> <p>1957</p> <p>1958</p> <p>1959</p> <p>1960</p> <p>1961</p> <p>1962</p> <p>1963</p> <p>1964</p> <p>1965</p> <p>1966</p> <p>1967</p> <p>1968</p> <p>1969</p> <p>1970</p> <p>1971</p> <p>1972</p> <p>1973</p> <p>1974</p> <p>1975</p> <p>1976</p> <p>1977</p> <p>1978</p> <p>1979</p> <p>1980</p> <p>1981</p> <p>1982</p> <p>1983</p> <p>1984</p> <p>1985</p> <p>1986</p> <p>1987</p> <p>1988</p> <p>1989</p> <p>1990</p> <p>1991</p> <p>1992</p> <p>1993</p> <p>1994</p> <p>1995</p> <p>1996</p> <p>1997</p> <p>1998</p> <p>1999</p> <p>2000</p> <p>2001</p> <p>2002</p> <p>2003</p> <p>2004</p> <p>2005</p> <p>2006</p> <p>2007</p> <p>2008</p> <p>2009</p> <p>2010</p> <p>2011</p> <p>2012</p> <p>2013</p> <p>2014</p> <p>2015</p> <p>2016</p> <p>2017</p> <p>2018</p> <p>2019</p> <p>2020</p> <p>2021</p> <p>2022</p> <p>2023</p> <p>2024</p> <p>2025</p> <p>2026</p> <p>2027</p> <p>2028</p> <p>2029</p> <p>2030</p> <p>2031</p> <p>2032</p> <p>2033</p> <p>2034</p> <p>2035</p> <p>2036</p> <p>2037</p> <p>2038</p> <p>2039</p> <p>2040</p> <p>2041</p> <p>2042</p> <p>2043</p> <p>2044</p> <p>2045</p> <p>2046</p> <p>2047</p> <p>2048</p> <p>2049</p> <p>2050</p> | <p>1911</p> <p>1912</p> <p>1913</p> <p>1914</p> <p>1915</p> <p>1916</p> <p>1917</p> <p>1918</p> <p>1919</p> <p>1920</p> <p>1921</p> <p>1922</p> <p>1923</p> <p>1924</p> <p>1925</p> <p>1926</p> <p>1927</p> <p>1928</p> <p>1929</p> <p>1930</p> <p>1931</p> <p>1932</p> <p>1933</p> <p>1934</p> <p>1935</p> <p>1936</p> <p>1937</p> <p>1938</p> <p>1939</p> <p>1940</p> <p>1941</p> <p>1942</p> <p>1943</p> <p>1944</p> <p>1945</p> <p>1946</p> <p>1947</p> <p>1948</p> <p>1949</p> <p>1950</p> <p>1951</p> <p>1952</p> <p>1953</p> <p>1954</p> <p>1955</p> <p>1956</p> <p>1957</p> <p>1958</p> <p>1959</p> <p>1960</p> <p>1961</p> <p>1962</p> <p>1963</p> <p>1964</p> <p>1965</p> <p>1966</p> <p>1967</p> <p>1968</p> <p>1969</p> <p>1970</p> <p>1971</p> <p>1972</p> <p>1973</p> <p>1974</p> <p>1975</p> <p>1976</p> <p>1977</p> <p>1978</p> <p>1979</p> <p>1980</p> <p>1981</p> <p>1982</p> <p>1983</p> <p>1984</p> <p>1985</p> <p>1986</p> <p>1987</p> <p>1988</p> <p>1989</p> <p>1990</p> <p>1991</p> <p>1992</p> <p>1993</p> <p>1994</p> <p>1995</p> <p>1996</p> <p>1997</p> <p>1998</p> <p>1999</p> <p>2000</p> <p>2001</p> <p>2002</p> <p>2003</p> <p>2004</p> <p>2005</p> <p>2006</p> <p>2007</p> <p>2008</p> <p>2009</p> <p>2010</p> <p>2011</p> <p>2012</p> <p>2013</p> <p>2014</p> <p>2015</p> <p>2016</p> <p>2017</p> <p>2018</p> <p>2019</p> <p>2020</p> <p>2021</p> <p>2022</p> <p>2023</p> <p>2024</p> <p>2025</p> <p>2026</p> <p>2027</p> <p>2028</p> <p>2029</p> <p>2030</p> <p>2031</p> <p>2032</p> <p>2033</p> <p>2034</p> <p>2035</p> <p>2036</p> <p>2037</p> <p>2038</p> <p>2039</p> <p>2040</p> <p>2041</p> <p>2042</p> <p>2043</p> <p>2044</p> <p>2045</p> <p>2046</p> <p>2047</p> <p>2048</p> <p>2049</p> <p>2050</p> |
|---|---|

1911

1912

1913

1914

1915

1916

1917

1918

1919

1920

1921

1922

1923

1924

1925

1926

1927

1928

1929

1930

1931

1932

1933

1934

1935

1936

1937

1938

1939

1940

1941

1942

1943

1944

1945

1946

1947

1948

1949

1950

1951

1952

1953

1954

1955

1956

1957

1958

1959

1960

1961

1962

1963

1964

1965

1966

1967

1968

1969

1970

1971

1972

1973

1974

1975

1976

1977

1978

1979

1980

1981

1982

1983

1984

1985

1986

1987

1988

1989

1990

1991

1992

1993

1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

2021

2022

2023

2024

2025

2026

2027

2028

2029

2030

2031

2032

2033

2034

2035

2036

2037

2038

2039

2040

2041

2042

2043

2044

2045

2046

2047

2048

2049

2050

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|-----------------------------|--|--|
| <u>15. Rogue Basin</u> | | |
| Rogue River Main Stem | 02-900-000-000-000-R0001, R0002, R0003 thru R0004, R0005
R0006 thru R0007, R0008 thru R0009
R0010, R0011, R0012, R0013
R0014, R0015, R0016, R0017
R0018, R0019, R0020
R0021, R0022 thru R0023
R0024 thru R0027 | 15- 1, 6, 8-9, 49
52-53, 55-56
61, 63, 65, 68
83, 89, 94, 101
103, 106, 111
125, 128-129
132-135 |
| Lobster Creek & Tribs. | 02-900-002-000-000-R0001 thru -010-000-R0002 | 15-2 to 15-5 |
| Quosatana Creek | 02-900-005-000-000-R0001 | 15-7 |
| Illinois River & Tribs. | 02-900-015-000-000-R0001 thru -095-000-R0002 | 15-10 to 15-48 |
| Shasta Costa Creek | 02-900-018-000-000-R0001 thru R0002 | 15-50 to 15-51 |
| Mule Creek | 02-900-020-000-000-R0001 | 15-54 |
| Grave Creek & Tribs. | 02-900-030-000-000-R0001 thru R0003 | 15-57 to 15-60 |
| Galice Creek | 02-900-035-000-000-R0001 | 15-62 |
| Taylor Creek | 02-900-045-000-000-R0001 | 15-64 |
| Jumpoff Joe Creek | 02-900-050-000-000-R0001 thru R0002 | 15-66 to 15-67 |
| Applegate River & Tribs. | 02-900-055-000-000-R0001 thru R0008 | 15-69 to 15-82 |
| Evans Creek & Tribs. | 02-900-060-000-000-R0001 thru R0003 | 15-84 to 15-88 |
| Bear Creek | 02-900-065-000-000-R0001 thru R0004 | 15-90 to 15-93 |
| Little Butte Creek & Tribs. | 02-900-075-000-000-R0001 thru -015-000-R0002 | 15-95 to 15-100 |
| Trail Creek | 02-900-080-000-000-R0001 | 15-102 |
| Elk Creek | 02-900-090-000-000-R0001 thru R0002 | 15-104 to 15-105 |
| Big Butte Creek & Tribs. | 02-900-095-000-000-R0001 thru -015-000-R0002 | 15-107 to 15-110 |

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---------------------------------|---|----------------------------------|
| South Fork Rogue River & Tribs. | 02-900-105-000-000-R0001 thru R0005 | 15-112 to 15-124 |
| Mill Creek | 02-900-115-000-000-R0001 thru R0002 | 15-126 to 15-127 |
| Union Creek | 02-900-120-000-000-R0001 thru R0002 | 15-130 to 15-131 |
| <u>16. Umpqua Basin</u> | | |
| Umpqua River Main Stem | 02-700-000-000-000-R0001, R0002 thru R0003, R0004 thru R0006
R0007 thru R0012, R0013 | 16- 1, 12-13, 19-21
28-33, 39 |
| Smith River & Tribs. | 02-700-002-000-000-R0001 thru R0008 | 16-2 to 16-11 |
| Mill Creek & Tribs. | 02-700-011-000-000-R0001 thru -005-000-R0002 | 16-14 to 16-18 |
| Elk Creek | 02-700-020-000-000-R0001 thru R0006 | 16-22 to 16-27 |
| Calapooya Creek | 02-700-030-000-000-R0001 thru R0005 | 16-34 to 16-38 |
| North Umpqua River & Tribs. | 02-700-100-000-000-R0001 thru R0015 | 16-40 to 16-74 |
| South Umpqua River & Tribs. | 02-700-200-000-000-R0001 thru R0017 | 16-75 to 16-114 |
| <u>17. South Coast Basin</u> | | |
| Coos River & Tribs. | 02-810-000-000-000-R0001 thru -009-011-000-R0002 | 17-1 to 17-18 |
| Coquille River & Tribs. | 02-825-000-000-000-R0001 thru -008-000-000-R0007 | 17-19 to 17-49 |
| Floras Creek & Tribs. | 02-835-000-000-000-R0001 thru -002-000-000-R0002 | 17-50 to 17-53 |
| Sixes River | 02-840-000-000-000-R0001 thru R0004 | 17-54 to 17-57 |
| Elk River | 02-845-000-000-000-R0001 thru R0004 | 17-58 to 17-61 |
| Euchre Creek | 02-850-000-000-000-R0001 thru R0002 | 17-62 to 17-63 |
| Hunter Creek | 02-950-000-000-000-R0001 | 17-64 |
| Pistol River & Tribs. | 02-955-000-000-000-R0001 thru R0003 | 17-65 to 17-68 |
| Chetco River & Tribs | 02-960-000-000-000-R0001 thru R0008 | 17-69 to 17-80 |

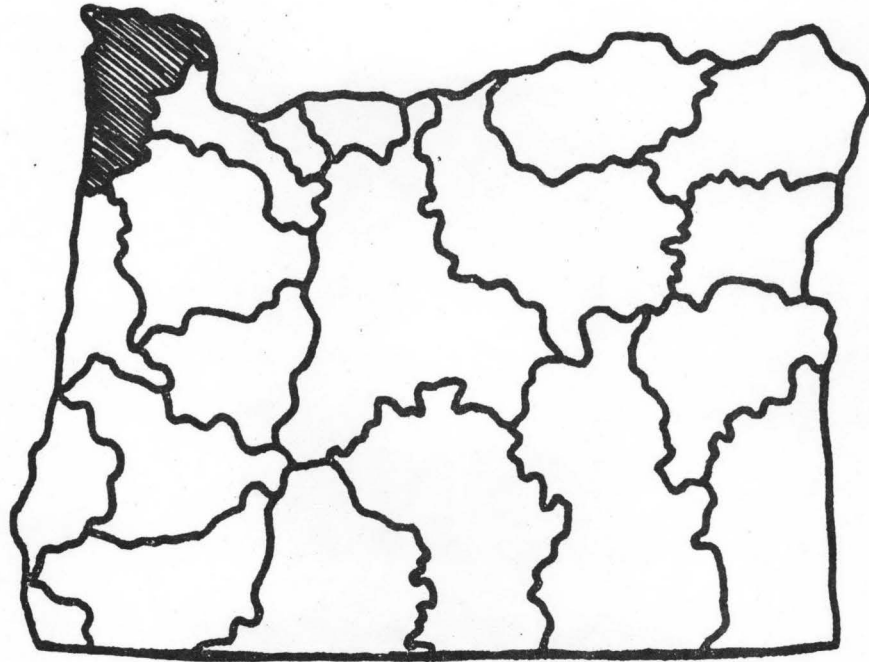
| Case No. | Case Name | Case Description | Case Status | Case Date |
|----------|---------------|-----------------------|-------------|-----------|
| 1001 | John Doe | Case description text | Open | 12-15-20 |
| 1002 | Jane Smith | Case description text | Closed | 12-16-20 |
| 1003 | Bob Johnson | Case description text | Open | 12-17-20 |
| 1004 | Alice Brown | Case description text | Closed | 12-18-20 |
| 1005 | Charlie White | Case description text | Open | 12-19-20 |
| 1006 | Diana Green | Case description text | Closed | 12-20-20 |
| 1007 | Frank Black | Case description text | Open | 12-21-20 |
| 1008 | Grace King | Case description text | Closed | 12-22-20 |
| 1009 | Henry Lee | Case description text | Open | 12-23-20 |
| 1010 | Ivy Hill | Case description text | Closed | 12-24-20 |
| 1011 | Jack King | Case description text | Open | 12-25-20 |
| 1012 | Karen White | Case description text | Closed | 12-26-20 |
| 1013 | Liam Green | Case description text | Open | 12-27-20 |
| 1014 | Mia Black | Case description text | Closed | 12-28-20 |
| 1015 | Noah King | Case description text | Open | 12-29-20 |
| 1016 | Olivia Lee | Case description text | Closed | 12-30-20 |
| 1017 | Peter Hill | Case description text | Open | 12-31-20 |
| 1018 | Quinn King | Case description text | Closed | 1-1-21 |
| 1019 | Rachel White | Case description text | Open | 1-2-21 |
| 1020 | Sam Green | Case description text | Closed | 1-3-21 |
| 1021 | Tina Black | Case description text | Open | 1-4-21 |
| 1022 | Uma King | Case description text | Closed | 1-5-21 |
| 1023 | Victor Lee | Case description text | Open | 1-6-21 |
| 1024 | Wendy Hill | Case description text | Closed | 1-7-21 |
| 1025 | Xavier King | Case description text | Open | 1-8-21 |
| 1026 | Yara White | Case description text | Closed | 1-9-21 |
| 1027 | Zoe Green | Case description text | Open | 1-10-21 |
| 1028 | Adam Black | Case description text | Closed | 1-11-21 |
| 1029 | Bella King | Case description text | Open | 1-12-21 |
| 1030 | Carl Lee | Case description text | Closed | 1-13-21 |
| 1031 | Dora Hill | Case description text | Open | 1-14-21 |
| 1032 | Ethan King | Case description text | Closed | 1-15-21 |
| 1033 | Fiona White | Case description text | Open | 1-16-21 |
| 1034 | Gavin Green | Case description text | Closed | 1-17-21 |
| 1035 | Hannah Black | Case description text | Open | 1-18-21 |
| 1036 | Ian King | Case description text | Closed | 1-19-21 |
| 1037 | Jessica Lee | Case description text | Open | 1-20-21 |
| 1038 | Kyle Hill | Case description text | Closed | 1-21-21 |
| 1039 | Laura King | Case description text | Open | 1-22-21 |
| 1040 | Mason White | Case description text | Closed | 1-23-21 |
| 1041 | Natalie Green | Case description text | Open | 1-24-21 |
| 1042 | Oscar Black | Case description text | Closed | 1-25-21 |
| 1043 | Pamela King | Case description text | Open | 1-26-21 |
| 1044 | Quinn Lee | Case description text | Closed | 1-27-21 |
| 1045 | Rachel Hill | Case description text | Open | 1-28-21 |
| 1046 | Samuel King | Case description text | Closed | 1-29-21 |
| 1047 | Tina White | Case description text | Open | 1-30-21 |
| 1048 | Uma Green | Case description text | Closed | 1-31-21 |
| 1049 | Victor Black | Case description text | Open | 2-1-21 |
| 1050 | Wendy King | Case description text | Closed | 2-2-21 |
| 1051 | Xavier Lee | Case description text | Open | 2-3-21 |
| 1052 | Yara Hill | Case description text | Closed | 2-4-21 |
| 1053 | Zoe King | Case description text | Open | 2-5-21 |
| 1054 | Adam White | Case description text | Closed | 2-6-21 |
| 1055 | Bella Green | Case description text | Open | 2-7-21 |
| 1056 | Carl Black | Case description text | Closed | 2-8-21 |
| 1057 | Dora King | Case description text | Open | 2-9-21 |
| 1058 | Ethan Lee | Case description text | Closed | 2-10-21 |
| 1059 | Fiona Hill | Case description text | Open | 2-11-21 |
| 1060 | Gavin King | Case description text | Closed | 2-12-21 |
| 1061 | Hannah White | Case description text | Open | 2-13-21 |
| 1062 | Ian Green | Case description text | Closed | 2-14-21 |
| 1063 | Jessica Black | Case description text | Open | 2-15-21 |
| 1064 | Kyle King | Case description text | Closed | 2-16-21 |
| 1065 | Laura Lee | Case description text | Open | 2-17-21 |
| 1066 | Mason Hill | Case description text | Closed | 2-18-21 |
| 1067 | Natalie King | Case description text | Open | 2-19-21 |
| 1068 | Oscar White | Case description text | Closed | 2-20-21 |
| 1069 | Pamela Green | Case description text | Open | 2-21-21 |
| 1070 | Quinn Black | Case description text | Closed | 2-22-21 |
| 1071 | Rachel King | Case description text | Open | 2-23-21 |
| 1072 | Samuel Lee | Case description text | Closed | 2-24-21 |
| 1073 | Tina Hill | Case description text | Open | 2-25-21 |
| 1074 | Uma King | Case description text | Closed | 2-26-21 |
| 1075 | Victor White | Case description text | Open | 2-27-21 |
| 1076 | Wendy Green | Case description text | Closed | 2-28-21 |
| 1077 | Xavier Black | Case description text | Open | 2-29-21 |
| 1078 | Yara King | Case description text | Closed | 2-30-21 |
| 1079 | Zoe Lee | Case description text | Open | 3-1-21 |
| 1080 | Adam Hill | Case description text | Closed | 3-2-21 |
| 1081 | Bella King | Case description text | Open | 3-3-21 |
| 1082 | Carl White | Case description text | Closed | 3-4-21 |
| 1083 | Dora Green | Case description text | Open | 3-5-21 |
| 1084 | Ethan Black | Case description text | Closed | 3-6-21 |
| 1085 | Fiona King | Case description text | Open | 3-7-21 |
| 1086 | Gavin Lee | Case description text | Closed | 3-8-21 |
| 1087 | Hannah Hill | Case description text | Open | 3-9-21 |
| 1088 | Ian King | Case description text | Closed | 3-10-21 |
| 1089 | Jessica White | Case description text | Open | 3-11-21 |
| 1090 | Kyle Green | Case description text | Closed | 3-12-21 |
| 1091 | Laura Black | Case description text | Open | 3-13-21 |
| 1092 | Mason King | Case description text | Closed | 3-14-21 |
| 1093 | Natalie Lee | Case description text | Open | 3-15-21 |
| 1094 | Oscar Hill | Case description text | Closed | 3-16-21 |
| 1095 | Pamela King | Case description text | Open | 3-17-21 |
| 1096 | Quinn White | Case description text | Closed | 3-18-21 |
| 1097 | Rachel Green | Case description text | Open | 3-19-21 |
| 1098 | Samuel Black | Case description text | Closed | 3-20-21 |
| 1099 | Tina King | Case description text | Open | 3-21-21 |
| 1100 | Uma Lee | Case description text | Closed | 3-22-21 |
| 1101 | Victor Hill | Case description text | Open | 3-23-21 |
| 1102 | Wendy King | Case description text | Closed | 3-24-21 |
| 1103 | Xavier White | Case description text | Open | 3-25-21 |
| 1104 | Yara Green | Case description text | Closed | 3-26-21 |
| 1105 | Zoe Black | Case description text | Open | 3-27-21 |
| 1106 | Adam King | Case description text | Closed | 3-28-21 |
| 1107 | Bella Lee | Case description text | Open | 3-29-21 |
| 1108 | Carl Hill | Case description text | Closed | 3-30-21 |
| 1109 | Dora King | Case description text | Open | 3-31-21 |
| 1110 | Ethan White | Case description text | Closed | 4-1-21 |
| 1111 | Fiona Green | Case description text | Open | 4-2-21 |
| 1112 | Gavin Black | Case description text | Closed | 4-3-21 |
| 1113 | Hannah King | Case description text | Open | 4-4-21 |
| 1114 | Ian Lee | Case description text | Closed | 4-5-21 |
| 1115 | Jessica Hill | Case description text | Open | 4-6-21 |
| 1116 | Kyle King | Case description text | Closed | 4-7-21 |
| 1117 | Laura White | Case description text | Open | 4-8-21 |
| 1118 | Mason Green | Case description text | Closed | 4-9-21 |
| 1119 | Natalie Black | Case description text | Open | 4-10-21 |
| 1120 | Oscar King | Case description text | Closed | 4-11-21 |
| 1121 | Pamela Lee | Case description text | Open | 4-12-21 |
| 1122 | Quinn Hill | Case description text | Closed | 4-13-21 |
| 1123 | Rachel King | Case description text | Open | 4-14-21 |
| 1124 | Samuel White | Case description text | Closed | 4-15-21 |
| 1125 | Tina Green | Case description text | Open | 4-16-21 |
| 1126 | Uma Black | Case description text | Closed | 4-17-21 |
| 1127 | Victor King | Case description text | Open | 4-18-21 |
| 1128 | Wendy Lee | Case description text | Closed | 4-19-21 |
| 1129 | Xavier Hill | Case description text | Open | 4-20-21 |
| 1130 | Yara King | Case description text | Closed | 4-21-21 |
| 1131 | Zoe White | Case description text | Open | 4-22-21 |
| 1132 | Adam Green | Case description text | Closed | 4-23-21 |
| 1133 | Bella Black | Case description text | Open | 4-24-21 |
| 1134 | Carl King | Case description text | Closed | 4-25-21 |
| 1135 | Dora Lee | Case description text | Open | 4-26-21 |
| 1136 | Ethan Hill | Case description text | Closed | 4-27-21 |
| 1137 | Fiona King | Case description text | Open | 4-28-21 |
| 1138 | Gavin White | Case description text | Closed | 4-29-21 |
| 1139 | Hannah Green | Case description text | Open | 4-30-21 |
| 1140 | Ian Black | Case description text | Closed | 5-1-21 |
| 1141 | Jessica King | Case description text | Open | 5-2-21 |
| 1142 | Kyle Lee | Case description text | Closed | 5-3-21 |
| 1143 | Laura Hill | Case description text | Open | 5-4-21 |
| 1144 | Mason King | Case description text | Closed | 5-5-21 |
| 1145 | Natalie White | Case description text | Open | 5-6-21 |
| 1146 | Oscar Green | Case description text | Closed | 5-7-21 |
| 1147 | Pamela Black | Case description text | Open | 5-8-21 |
| 1148 | Quinn King | Case description text | Closed | 5-9-21 |
| 1149 | Rachel Lee | Case description text | Open | 5-10-21 |
| 1150 | Samuel Hill | Case description text | Closed | 5-11-21 |
| 1151 | Tina King | Case description text | Open | 5-12-21 |
| 1152 | Uma White | Case description text | Closed | 5-13-21 |
| 1153 | Victor Green | Case description text | Open | 5-14-21 |
| 1154 | Wendy Black | Case description text | Closed | 5-15-21 |
| 1155 | Xavier King | Case description text | Open | 5-16-21 |
| 1156 | Yara Lee | Case description text | Closed | 5-17-21 |
| 1157 | Zoe Hill | Case description text | Open | 5-18-21 |
| 1158 | Adam King | Case description text | Closed | 5-19-21 |
| 1159 | Bella White | Case description text | Open | 5-20-21 |
| 1160 | Carl Green | Case description text | Closed | 5-21-21 |
| 1161 | Dora Black | Case description text | Open | 5-22-21 |
| 1162 | Ethan King | Case description text | Closed | 5-23-21 |
| 1163 | Fiona Lee | Case description text | Open | 5-24-21 |
| 1164 | Gavin Hill | Case description text | Closed | 5-25-21 |
| 1165 | Hannah King | Case description text | Open | 5-26-21 |
| 1166 | Ian White | Case description text | Closed | 5-27-21 |
| 1167 | Jessica Green | Case description text | Open | 5-28-21 |
| 1168 | Kyle Black | Case description text | Closed | 5-29-21 |
| 1169 | Laura King | Case description text | Open | 5-30-21 |
| 1170 | Mason Lee | Case description text | Closed | 5-31-21 |
| 1171 | Natalie Hill | Case description text | Open | 6-1-21 |
| 1172 | Oscar King | Case description text | Closed | 6-2-21 |
| 1173 | Pamela White | Case description text | Open | 6-3-21 |
| 1174 | Quinn Green | Case description text | Closed | 6-4-21 |
| 1175 | Rachel Black | Case description text | Open | 6-5-21 |
| 1176 | Samuel King | Case description text | Closed | 6-6-21 |
| 1177 | Tina Lee | Case description text | Open | 6-7-21 |
| 1178 | Uma Hill | Case description text | Closed | 6-8-21 |
| 1179 | Victor King | Case description text | Open | 6-9-21 |
| 1180 | Wendy White | Case description text | Closed | 6-10-21 |
| 1181 | Xavier Green | Case description text | Open | 6-11-21 |
| 1182 | Yara Black | Case description text | Closed | 6-12-21 |
| 1183 | Zoe King | Case description text | Open | 6-13-21 |
| 1184 | Adam Lee | Case description text | Closed | 6-14-21 |
| 1185 | Bella Hill | Case description text | Open | 6-15-21 |
| 1186 | Carl King | Case description text | Closed | 6-16-21 |
| 1187 | Dora White | Case description text | Open | 6-17-21 |
| 1188 | Ethan Green | Case description text | Closed | 6-18-21 |
| 1189 | Fiona Black | Case description text | Open | 6-19-21 |
| 1190 | Gavin King | Case description text | Closed | 6-20-21 |
| 1191 | Hannah Lee | Case description text | Open | 6-21-21 |
| 1192 | Ian Hill | Case description text | Closed | 6-22-21 |
| 1193 | Jessica King | Case description text | Open | 6-23-21 |
| 1194 | Kyle White | Case description text | Closed | 6-24-21 |
| 1195 | Laura Green | Case description text | Open | 6-25-21 |
| 1196 | Mason Black | Case description text | Closed | 6-26-21 |
| 1197 | Natalie King | Case description text | Open | 6-27-21 |
| 1198 | Oscar Lee | Case description text | Closed | 6-28-21 |
| 1199 | Pamela Hill | Case description text | Open | 6-29-21 |
| 1200 | Quinn King | Case description text | Closed | 6-30-21 |

Page 1 of 1

OREGON REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGES |
|---------------------------------|--|------------------|
| Winchuck River & Tribs. | 02-965-000-000-000-R0001 thru R0002 | 17-81 to 17-82 |
| North Fork Smith River & Tribs. | 02-968-000-000-000-R0001 thru R0003 | 17-83 to 17-86 |
| <u>18. Mid-Coast Basin</u> | | |
| Salmon River & Tribs. | 02-605-000-000-000-R0001 thru R0003 | 18-1 to 18-5 |
| Schooner Creek | 02-610-000-000-000-R0001 thru R0002 | 18-6 to 18-7 |
| Drift Creek | 02-615-000-000-000-R0001 thru R0003 | 18-8 to 18-10 |
| Siletz River & Tribs. | 02-620-000-000-000-R0001 thru -060-000-000-R0002 | 18-11 to 18-36 |
| Yaquina River & Tribs. | 02-625-000-000-000-R0001 thru R0007 | 18-37 to 18-51 |
| Beaver Creek | 02-630-000-000-000-R0001 thru R0002 | 18-52 to 18-53 |
| Alsea River & Tribs. | 02-635-000-000-000-R0001 thru -050-000-000-R0003 | 18-54 to 18-81 |
| Yachats River | 02-640-000-000-000-R0001 thru R0002 | 18-82 to 18-83 |
| Tenmile Creek | 02-645-000-000-000-R0001 thru R0002 | 18-84 to 18-85 |
| Big Creek | 02-650-000-000-000-R0001 thru R0002 | 18-86 to 18-87 |
| Siuslaw River & Tribs. | 02-655-000-000-000-R0001 thru -062-000-000-R0001 | 18-88 to 18-133 |
| Siltcoos River & Tribs. | 02-660-000-000-000-R0001 thru -025-000-000-R0002 | 18-134 to 18-138 |
| Tahkenitch Creek | 02-665-000-000-000-R0001 | 18-139 |

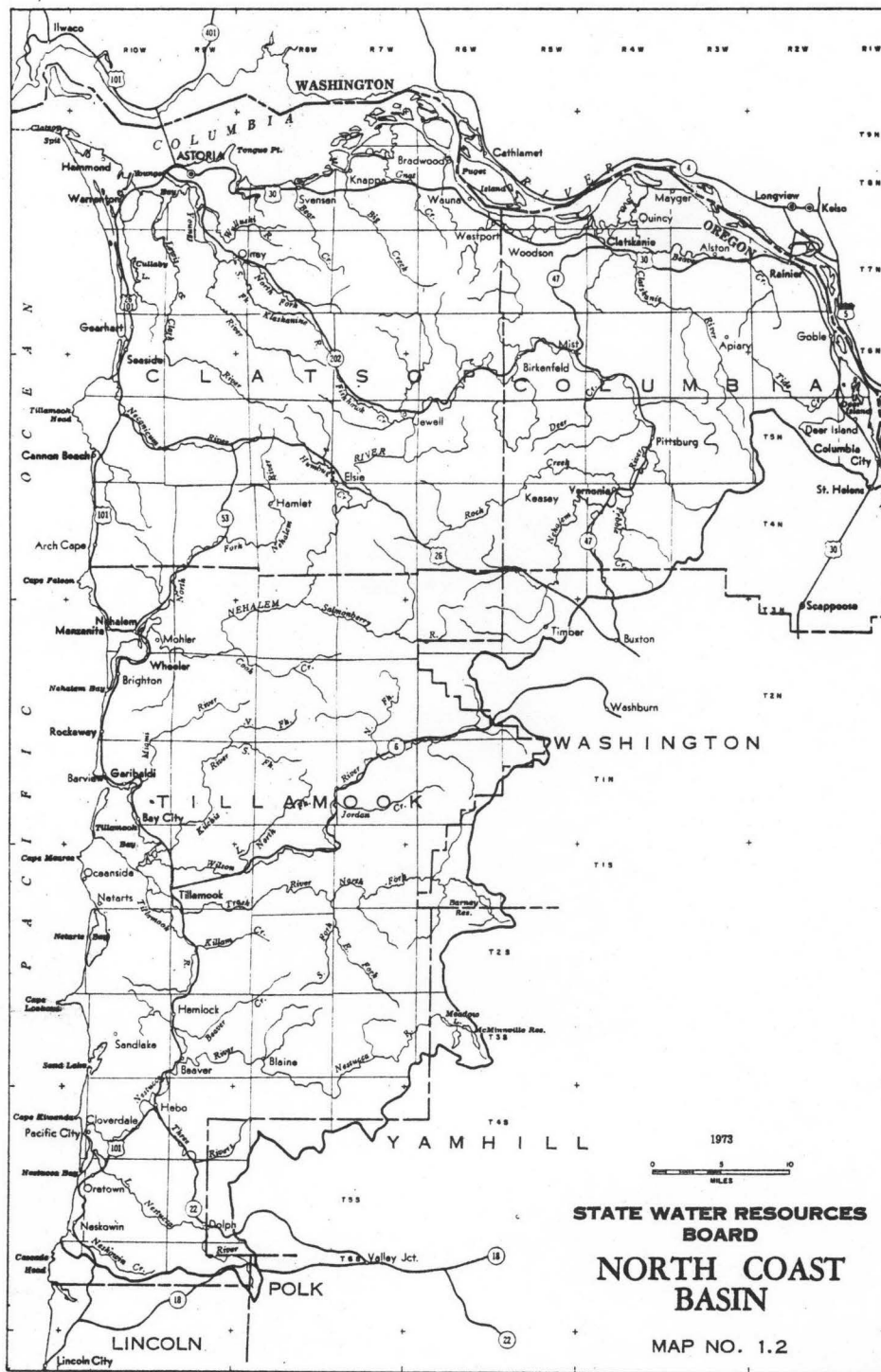
| Date | Description | Amount |
|------|-------------|--------|
| 1912 | ... | ... |
| 1913 | ... | ... |
| 1914 | ... | ... |
| 1915 | ... | ... |
| 1916 | ... | ... |
| 1917 | ... | ... |
| 1918 | ... | ... |
| 1919 | ... | ... |
| 1920 | ... | ... |
| 1921 | ... | ... |
| 1922 | ... | ... |
| 1923 | ... | ... |
| 1924 | ... | ... |
| 1925 | ... | ... |
| 1926 | ... | ... |
| 1927 | ... | ... |
| 1928 | ... | ... |
| 1929 | ... | ... |
| 1930 | ... | ... |
| 1931 | ... | ... |
| 1932 | ... | ... |
| 1933 | ... | ... |
| 1934 | ... | ... |
| 1935 | ... | ... |
| 1936 | ... | ... |
| 1937 | ... | ... |
| 1938 | ... | ... |
| 1939 | ... | ... |
| 1940 | ... | ... |
| 1941 | ... | ... |
| 1942 | ... | ... |
| 1943 | ... | ... |
| 1944 | ... | ... |
| 1945 | ... | ... |
| 1946 | ... | ... |
| 1947 | ... | ... |
| 1948 | ... | ... |
| 1949 | ... | ... |
| 1950 | ... | ... |
| 1951 | ... | ... |
| 1952 | ... | ... |
| 1953 | ... | ... |
| 1954 | ... | ... |
| 1955 | ... | ... |
| 1956 | ... | ... |
| 1957 | ... | ... |
| 1958 | ... | ... |
| 1959 | ... | ... |
| 1960 | ... | ... |
| 1961 | ... | ... |
| 1962 | ... | ... |
| 1963 | ... | ... |
| 1964 | ... | ... |
| 1965 | ... | ... |
| 1966 | ... | ... |
| 1967 | ... | ... |
| 1968 | ... | ... |
| 1969 | ... | ... |
| 1970 | ... | ... |
| 1971 | ... | ... |
| 1972 | ... | ... |
| 1973 | ... | ... |
| 1974 | ... | ... |
| 1975 | ... | ... |
| 1976 | ... | ... |
| 1977 | ... | ... |
| 1978 | ... | ... |
| 1979 | ... | ... |
| 1980 | ... | ... |
| 1981 | ... | ... |
| 1982 | ... | ... |
| 1983 | ... | ... |
| 1984 | ... | ... |
| 1985 | ... | ... |
| 1986 | ... | ... |
| 1987 | ... | ... |
| 1988 | ... | ... |
| 1989 | ... | ... |
| 1990 | ... | ... |
| 1991 | ... | ... |
| 1992 | ... | ... |
| 1993 | ... | ... |
| 1994 | ... | ... |
| 1995 | ... | ... |
| 1996 | ... | ... |
| 1997 | ... | ... |
| 1998 | ... | ... |
| 1999 | ... | ... |
| 2000 | ... | ... |
| 2001 | ... | ... |
| 2002 | ... | ... |
| 2003 | ... | ... |
| 2004 | ... | ... |
| 2005 | ... | ... |
| 2006 | ... | ... |
| 2007 | ... | ... |
| 2008 | ... | ... |
| 2009 | ... | ... |
| 2010 | ... | ... |
| 2011 | ... | ... |
| 2012 | ... | ... |
| 2013 | ... | ... |
| 2014 | ... | ... |
| 2015 | ... | ... |
| 2016 | ... | ... |
| 2017 | ... | ... |
| 2018 | ... | ... |
| 2019 | ... | ... |
| 2020 | ... | ... |
| 2021 | ... | ... |
| 2022 | ... | ... |
| 2023 | ... | ... |
| 2024 | ... | ... |
| 2025 | ... | ... |
| 2026 | ... | ... |
| 2027 | ... | ... |
| 2028 | ... | ... |
| 2029 | ... | ... |
| 2030 | ... | ... |

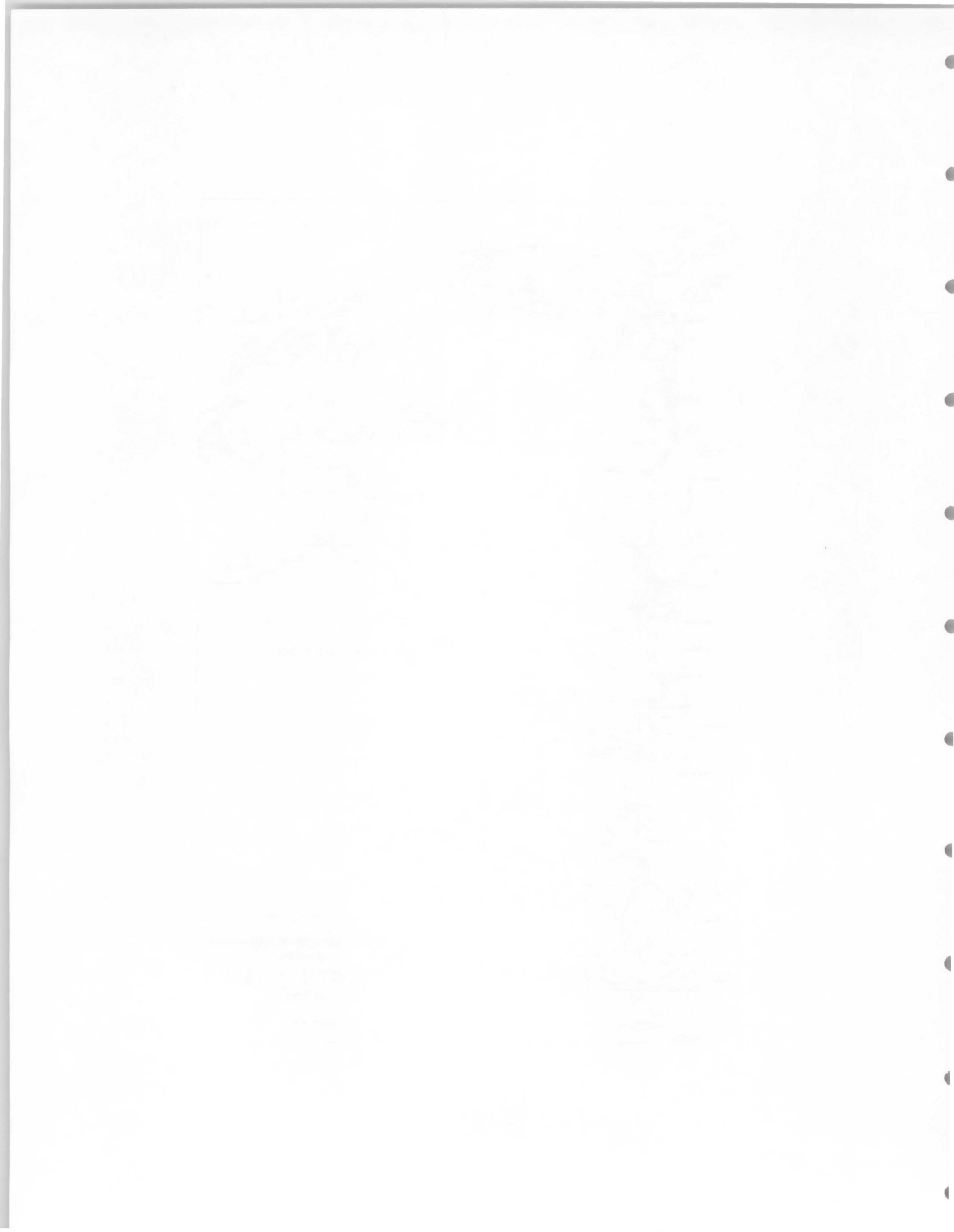


APPENDIX 1

NORTH COAST BASIN







REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-003-000-000-R0001

I. LOCATION

| | |
|------------------------|-----------------------|
| A. State | Oregon |
| B. County | Clatsop |
| C. Township, Range | T7N, R9W, Sec.7 |
| D. Latitude, Longitude | 46° 05' N, 123° 52' W |
| E. Stream Name | Lewis & Clark River |
| F. Major Basin Name | North Coast |
| G. River Mile | 0.0 to 10.0 |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

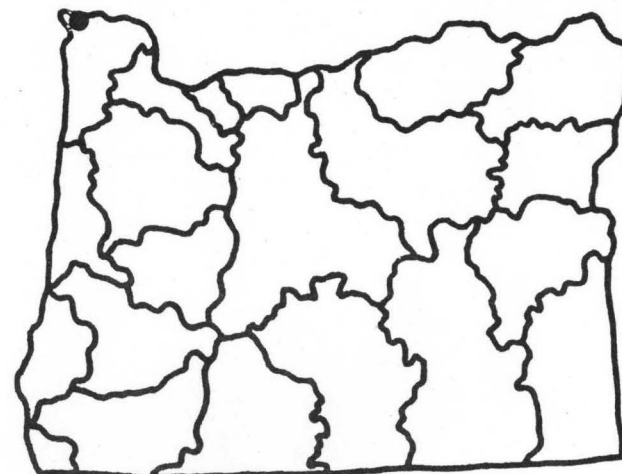
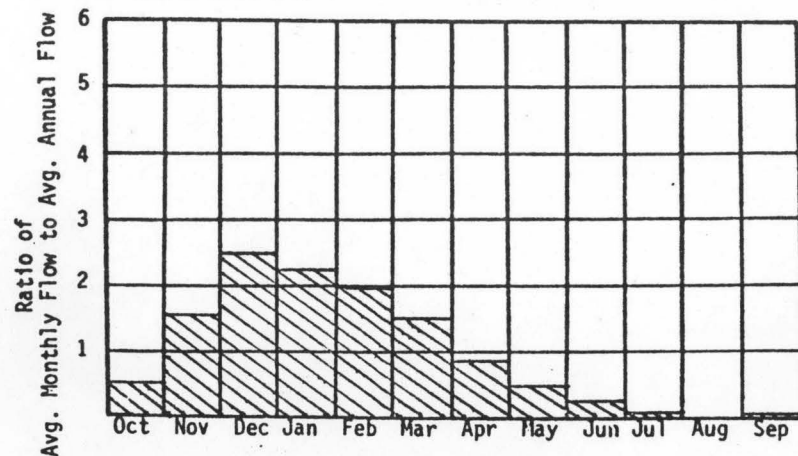
| | | | |
|------------------------------------|---------|--|---------|
| A. Upstream Elevation of Reach | 38 | | Ft. MSL |
| B. Downstream Elevation of Reach | 0 | | Ft. MSL |
| C. Total Available Head in Reach | 38 | | Ft. |
| D. Average Slope in Reach | 3.8 | | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 60.7 | | Sq.Mi. |
| F. Inflow Classification | Natural | | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

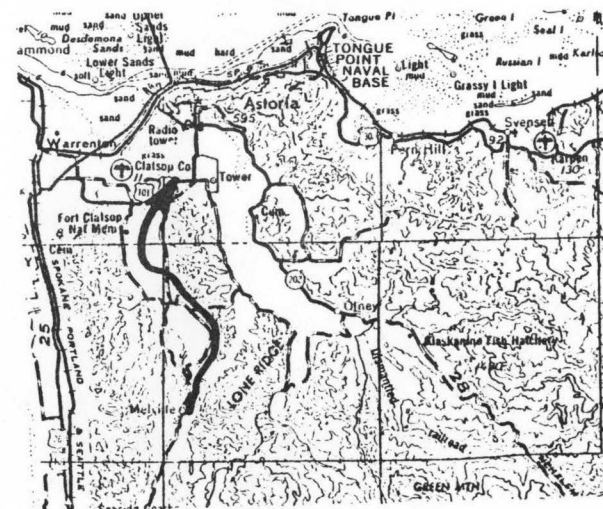
| I EXCEEDANCE I | DISCHARGE I | THEORETICAL I | ANNUAL ENERGY I | PLANT I |
|----------------|-------------|---------------|-----------------|----------|
| PERCENTAGE I | CFS I | PLANT SIZE I | AVAILABLE I | FACTOR I |
| I | I | MW I | GWH I | I |
| I 95 | I 13.3 | I .04 | I .38 | I 1.000 |
| I 80 | I 25.5 | I .08 | I .68 | I .940 |
| I 50 | I 114.3 | I .37 | I 2.30 | I .715 |
| I 30 | I 254.5 | I .82 | I 3.89 | I .541 |
| I 10 | I 653.3 | I 2.10 | I 6.14 | I .333 |

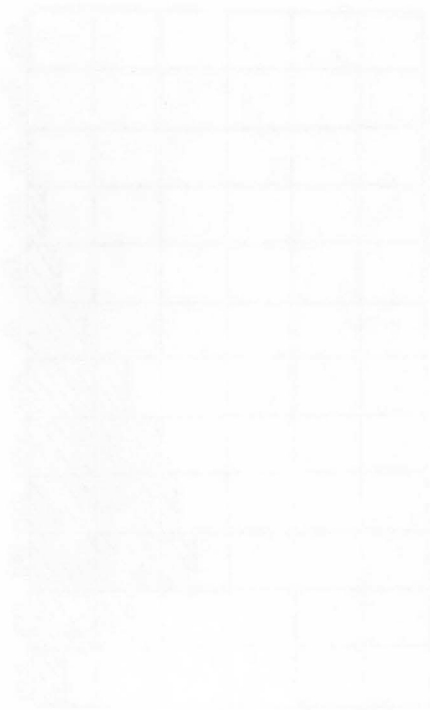
IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 252 CFS



U.S.G.S. TOPO SERIES
1:240,000 SCALE
MAP NAME: HOQUIAM





1. Name of the person who has been appointed as the
 2. Name of the person who has been appointed as the
 3. Name of the person who has been appointed as the
 4. Name of the person who has been appointed as the
 5. Name of the person who has been appointed as the
 6. Name of the person who has been appointed as the
 7. Name of the person who has been appointed as the
 8. Name of the person who has been appointed as the
 9. Name of the person who has been appointed as the
 10. Name of the person who has been appointed as the

11. Name of the person who has been appointed as the
 12. Name of the person who has been appointed as the
 13. Name of the person who has been appointed as the
 14. Name of the person who has been appointed as the
 15. Name of the person who has been appointed as the
 16. Name of the person who has been appointed as the
 17. Name of the person who has been appointed as the
 18. Name of the person who has been appointed as the
 19. Name of the person who has been appointed as the
 20. Name of the person who has been appointed as the

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-003-000-000-R0002

I. LOCATION

| | |
|------------------------|--------------------------------|
| A. State | <u>Oregon</u> |
| B. County | <u>Clatsop</u> |
| C. Township, Range | <u>T6N, R9W, Sec. 18</u> |
| D. Latitude, Longitude | <u>45° 58' N, 123° 52' W</u> |
| E. Stream Name | <u>Lewis & Clark River</u> |
| F. Major Basin Name | <u>North Coast</u> |
| G. River Mile | <u>10.0 to 19.0</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

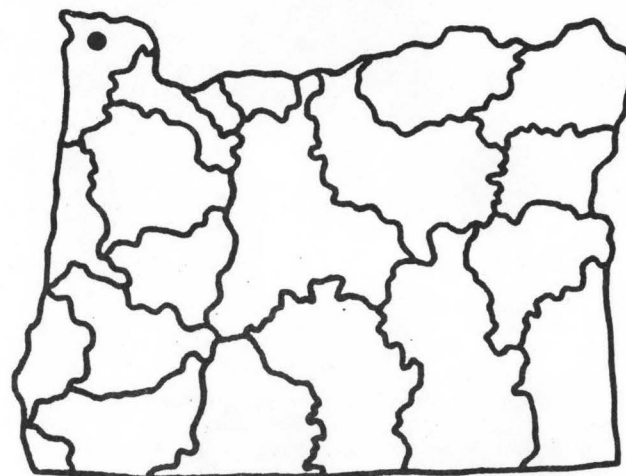
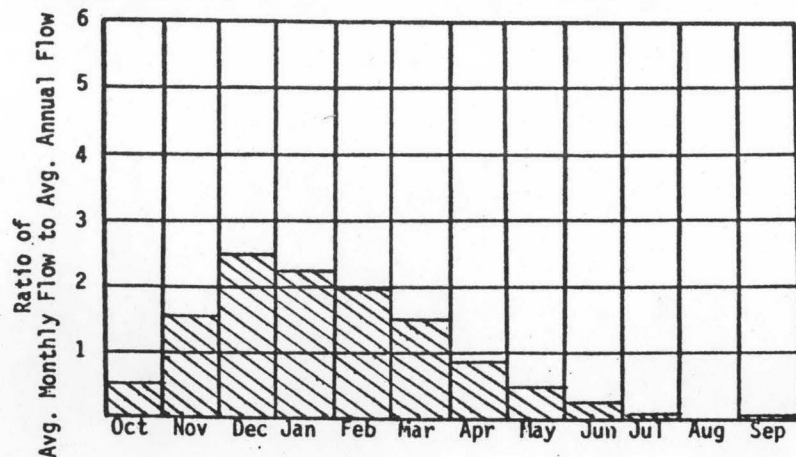
| | | |
|------------------------------------|----------------|----------------|
| A. Upstream Elevation of Reach | <u>538</u> | <u>Ft. MSL</u> |
| B. Downstream Elevation of Reach | <u>38</u> | <u>Ft. MSL</u> |
| C. Total Available Head in Reach | <u>500</u> | <u>Ft.</u> |
| D. Average Slope in Reach | <u>55.6</u> | <u>Ft./Mi.</u> |
| E. Drainage Area above Reach Mouth | <u>40.3</u> | <u>Sq. Mi.</u> |
| F. Inflow Classification | <u>Natural</u> | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

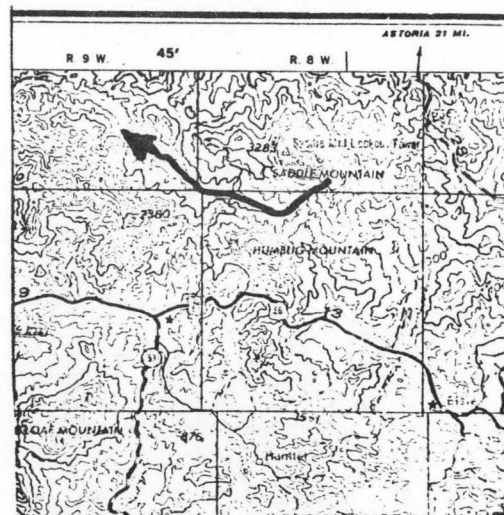
| I EXCEEDANCE I PERCENTAGE I | I DISCHARGE I CFS I | I THEORETICAL I PLANT SIZE I MW I | I ANNUAL ENERGY I AVAILABLE I GWH I | I PLANT I FACTOR I |
|-----------------------------|---------------------|-----------------------------------|-------------------------------------|--------------------|
| I 95 I | I 8.5 I | I .36 I | I 3.16 I | I 1.000 I |
| I 80 I | I 16.4 I | I .70 I | I 5.74 I | I .940 I |
| I 50 I | I 72.6 I | I 3.08 I | I 19.28 I | I .716 I |
| I 30 I | I 163.7 I | I 6.94 I | I 32.81 I | I .540 I |
| I 10 I | I 420.1 I | I 17.80 I | I 51.84 I | I .332 I |

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 162 CFS



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: HOQUIAM - VANCOUVER



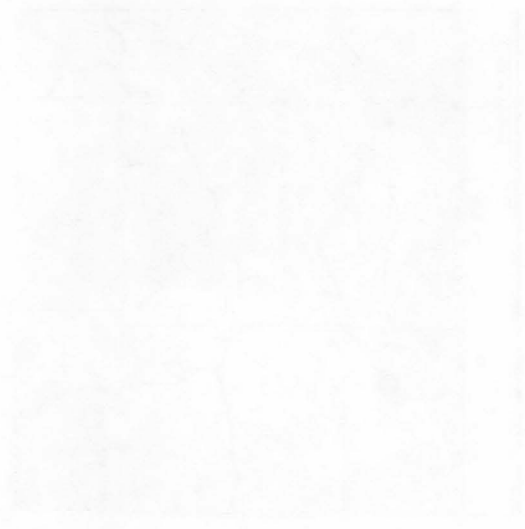


TABLE 1

| Year | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|
| Population | | | | | | | | | | | |
| Area | | | | | | | | | | | |
| Production | | | | | | | | | | | |
| Consumption | | | | | | | | | | | |
| Exports | | | | | | | | | | | |
| Imports | | | | | | | | | | | |
| Balance of Trade | | | | | | | | | | | |

TABLE 1

TABLE 2

| Year | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|
| Population | | | | | | | | | | | |
| Area | | | | | | | | | | | |
| Production | | | | | | | | | | | |
| Consumption | | | | | | | | | | | |
| Exports | | | | | | | | | | | |
| Imports | | | | | | | | | | | |
| Balance of Trade | | | | | | | | | | | |

TABLE 3

TABLE 4

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-003-000-000-R0003

I. LOCATION

| | |
|------------------------|--------------------------------|
| A. State | <u>Oregon</u> |
| B. County | <u>Clatsop</u> |
| C. Township, Range | <u>T6N, R9W, Sec. 22</u> |
| D. Latitude, Longitude | <u>45° 59' N, 123° 47' W</u> |
| E. Stream Name | <u>Lewis & Clark River</u> |
| F. Major Basin Name | <u>North Coast</u> |
| G. River Mile | <u>19.0 to H.W.</u> |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|----------------|----------------|
| A. Upstream Elevation of Reach | <u>---</u> | <u>Ft. MSL</u> |
| B. Downstream Elevation of Reach | <u>---</u> | <u>Ft. MSL</u> |
| C. Total Available Head in Reach | <u>66</u> | <u>Ft.</u> |
| D. Average Slope in Reach | <u>---</u> | <u>Ft./Mi.</u> |
| E. Drainage Area above Reach Mouth | <u>17.5</u> | <u>Sq. Mi.</u> |
| F. Inflow Classification | <u>Natural</u> | |

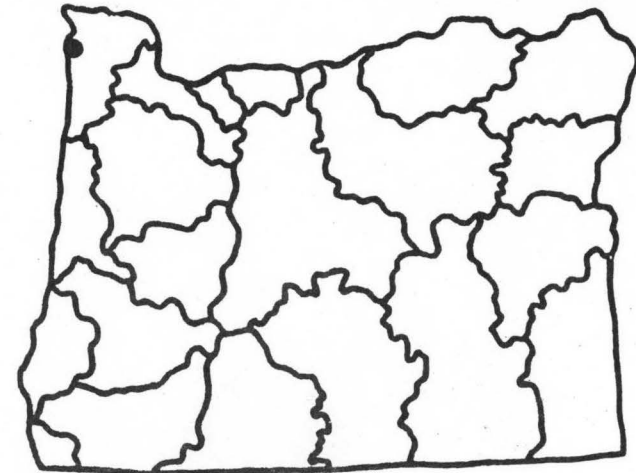
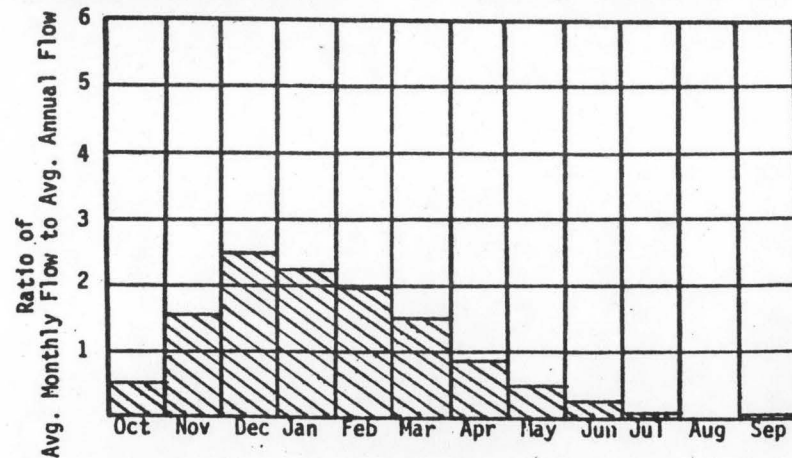
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL

ENERGY CHARACTERISTICS

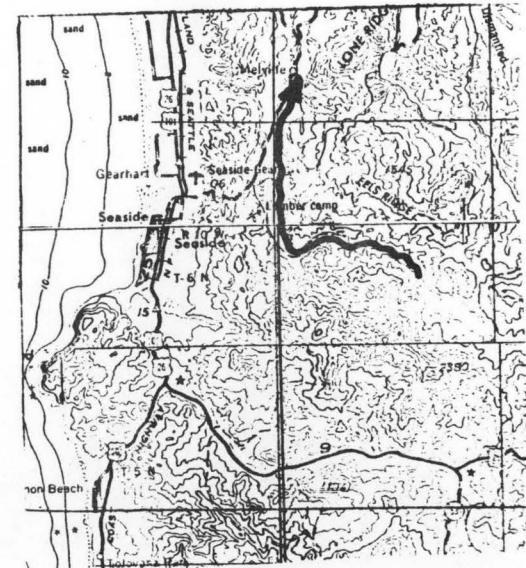
| I EXCEEDANCE I PERCENTAGE I | I DISCHARGE I CFS I | I THEORETICAL I PLANT SIZE I MW I | I ANNUAL ENERGY I AVAILABLE I GWH I | I PLANT I FACTOR I |
|-----------------------------|---------------------|-----------------------------------|-------------------------------------|--------------------|
| I 95 I | I 5.5 I | I .03 I | I .27 I | I 1.000 I |
| I 80 I | I 10.7 I | I .06 I | I .49 I | I .939 I |
| I 50 I | I 46.4 I | I .26 I | I 1.63 I | I .716 I |
| I 30 I | I 105.9 I | I .59 I | I 2.79 I | I .539 I |
| I 10 I | I 271.7 I | I 1.52 I | I 4.42 I | I .332 I |

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 105 CFS



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: VANCOUVER





1. Name of the student: _____
 2. Date: _____
 3. Roll No.: _____
 4. Class: _____
 5. Subject: _____
 6. Teacher's Name: _____
 7. School Name: _____
 8. Address: _____
 9. City: _____
 10. State: _____
 11. Zip Code: _____
 12. Phone No.: _____
 13. E-mail: _____
 14. Signature: _____
 15. Date: _____

1. Name of the student: _____
 2. Date: _____
 3. Roll No.: _____
 4. Class: _____
 5. Subject: _____
 6. Teacher's Name: _____
 7. School Name: _____
 8. Address: _____
 9. City: _____
 10. State: _____
 11. Zip Code: _____
 12. Phone No.: _____
 13. E-mail: _____
 14. Signature: _____
 15. Date: _____

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-005-000-000-R0001

I. LOCATION

| | |
|------------------------|--------------------|
| A. State | Oregon |
| B. County | Clatsop |
| C. Township, Range | T8N, R9W, Sec.8 |
| D. Latitude, Longitude | 46° 9'N, 123° 50'W |
| E. Stream Name | Youngs River |
| F. Major Basin Name | North Coast |
| G. River Mile | 0.0 to 1.8 |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

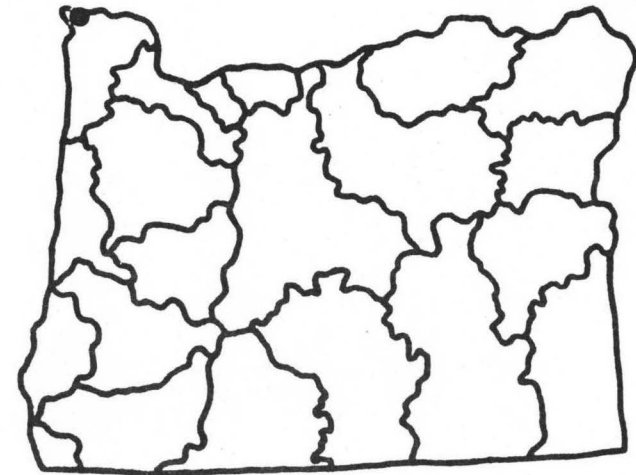
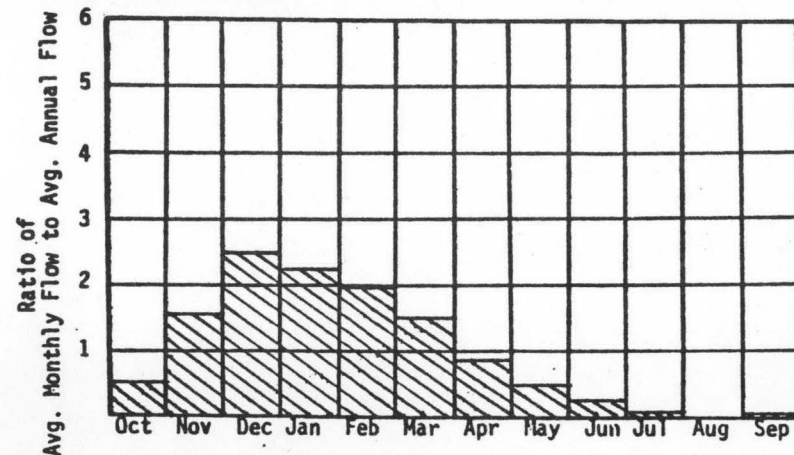
| | | |
|------------------------------------|---------|---------|
| A. Upstream Elevation of Reach | 1.0 | Ft. MSL |
| B. Downstream Elevation of Reach | 0 | Ft. MSL |
| C. Total Available Head in Reach | 1.0 | Ft. |
| D. Average Slope in Reach | 0.6 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 119.3 | Sq.Mi. |
| F. Inflow Classification | Natural | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

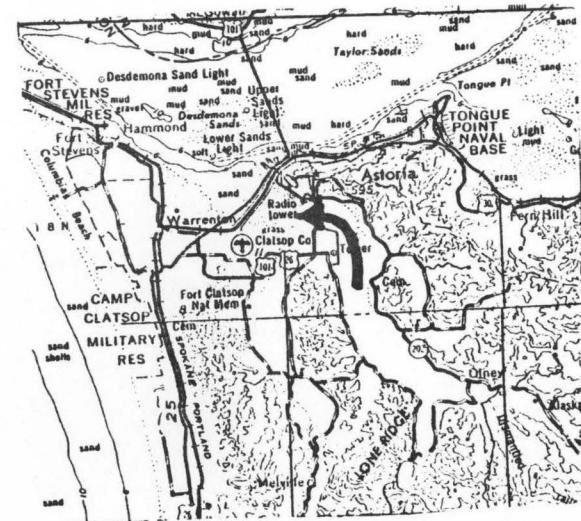
| I EXCEEDANCE I PERCENTAGE | I DISCHARGE I CFS | I THEORETICAL I PLANT SIZE I MW | I ANNUAL ENERGY I AVAILABLE I GWH | I PLANT I FACTOR I |
|---------------------------|-------------------|---------------------------------|-----------------------------------|--------------------|
| I 95 | I 30.6 | I .00 | I .02 | I 1.000 |
| I 80 | I 57.7 | I .00 | I .04 | I .941 |
| I 50 | I 265.2 | I .02 | I .14 | I .713 |
| I 30 | I 576.3 | I .05 | I .23 | I .544 |
| I 10 | I 1480.5 | I .13 | I .37 | I .334 |

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 572 CFS



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: HOQUIAM



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-005-000-000-R0002

I. LOCATION

| | |
|------------------------|-----------------------|
| A. State | Oregon |
| B. County | Clatsop |
| C. Township, Range | T7N, R9W, Sec.4 |
| D. Latitude, Longitude | 46° 06' N, 123° 49' W |
| E. Stream Name | Youngs River |
| F. Major Basin Name | North Coast |
| G. River Mile | 1.8 to 6.4 |

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

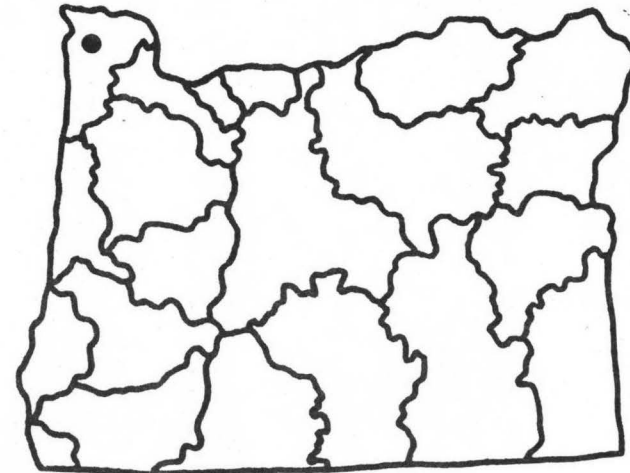
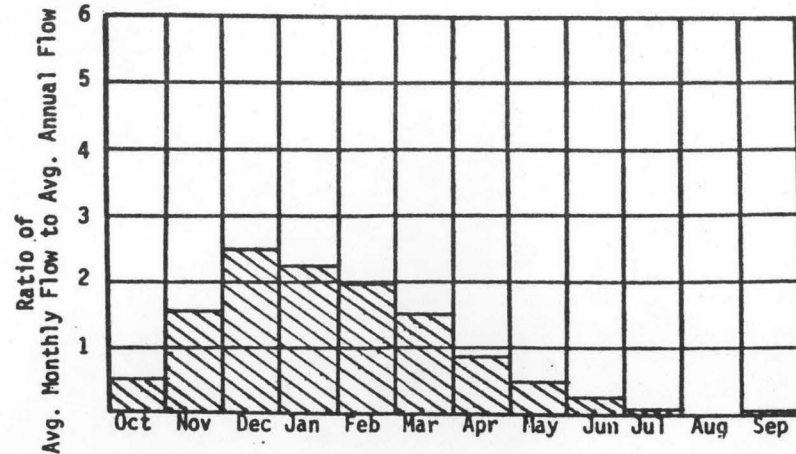
| | | |
|------------------------------------|---------|---------|
| A. Upstream Elevation of Reach | 20 | Ft. MSL |
| B. Downstream Elevation of Reach | 1.0 | Ft. MSL |
| C. Total Available Head in Reach | 19.0 | Ft. |
| D. Average Slope in Reach | 4.1 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 97.1 | Sq.Mi. |
| F. Inflow Classification | Natural | |

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

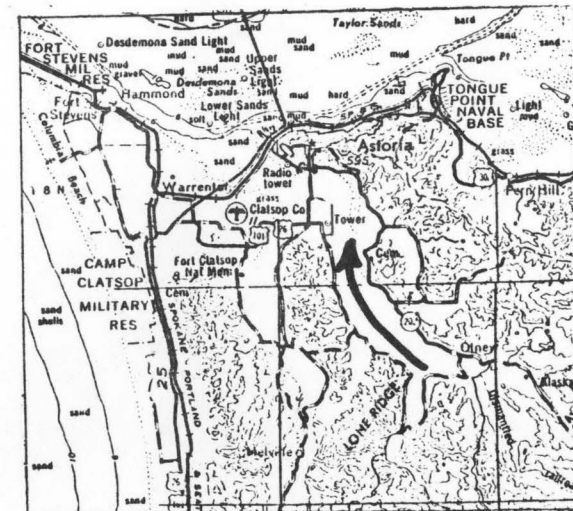
| I
I
I | EXCEEDANCE
PERCENTAGE | I
I
I | DISCHARGE
CFS | I
I
I | THEORETICAL
PLANT SIZE
MW | I
I
I | ANNUAL ENERGY
AVAILABLE
GWH | I
I
I | PLANT
FACTOR | I
I
I |
|-------------|--------------------------|-------------|------------------|-------------|---------------------------------|-------------|-----------------------------------|-------------|-----------------|-------------|
| I | 95 | I | 24.9 | I | .04 | I | .35 | I | 1.000 | I |
| I | 80 | I | 47.2 | I | .08 | I | .63 | I | .941 | I |
| I | 50 | I | 215.7 | I | .35 | I | 2.17 | I | .714 | I |
| I | 30 | I | 471.5 | I | .76 | I | 3.61 | I | .543 | I |
| I | 10 | I | 1211.2 | I | 1.95 | I | 5.70 | I | .334 | I |

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 468 CFS



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: HOQUIAM



FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|-----------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE TO CITY >1000 Miles |
| 02-500- | | | | | | | | |
| 003-000-000-R0001 | X | X | X | X | 1.2 | 115-PPL | 1,2 | 6.0 |
| 003-000-000-R0002 | - | X | - | X | 1.9 | 115-PPL | 1,2 | 2.5 |
| 003-000-000-R0003 | - | - | - | X | 5.4 | 115-PPL | 1,2 | 6.0 |
| 005-000-000-R0001 | X | X | X | X | 0.2 | 115-PPL | 1,2 | 1.0 |
| 005-000-000-R0002 | - | X | X | X | 1.0 | 230-B | 1,2 | 4.8 |
| 005-006-000-R0001 | - | X | X | X | 4.8 | 115-PPL | - | 9.0 |
| 005-006-002-R0001 | - | X | X | X | 5.2 | 230-B | - | 8.8 |
| 005-006-002-R0002 | - | X | X | X | 5.2 | 230-B | - | 9.0 |
| 005-006-003-R0001 | - | X | - | X | 6.2 | 115-PPL | - | 9.0 |
| 005-006-003-R0002 | - | X | - | - | 7.6 | 115-PPL | - | 10.0 |
| 005-000-000-R0003 | X | - | - | X | 3.8 | 115-PPL | - | 6.8 |
| 005-000-000-R0004 | - | - | - | - | 7.0 | 115-PPL | - | 8.8 |
| 011-000-000-R0001 | - | X | X | X | 1.8 | 230-B | 1,2 | 13.8 |

FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|-----------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE TO CITY >1000 Miles |
| 02-500- | | | | | | | | |
| 011-000-000-R0002 | - | - | - | X | 5.4 | 230-B | - | 17.0 |
| 013-000-000-R0001 | - | - | - | X | 4.0 | 115-B | - | 15.0 |
| 013-000-000-R0002 | - | - | - | X | 1.3 | 115-B | - | 15.8 |
| 015-000-000-R0001 | - | X | X | X | 1.5 | 115-B | 1 | 1.2 |
| 015-000-000-R0002 | - | - | X | X | 1.8 | 2-230-B | - | 5.8 |
| 015-000-000-R0003 | - | - | X | X | 2.8 | 2-230-B | - | 7.0 |
| 017-000-000-R0001 | - | X | X | X | 1.8 | 115-B | 1 | 5.0 |
| 017-000-000-R0002 | - | X | X | - | 1.7 | 115-B | - | 2.8 |
| 02-505- | | | | | | | | |
| 000-000-000-R0001 | - | X | X | X | 0.3 | 115-PPL | 1,2 | 1.8 |
| 000-000-000-R0002 | - | X | X | X | 0.8 | 115-PPL | 1,2 | 5.0 |
| 000-000-000-R0003 | - | X | X | X | 2.2 | 115-PPL | - | 8.2 |
| 000-000-000-R0004 | - | X | X | X | 4.0 | 115-PPL | - | 9.0 |

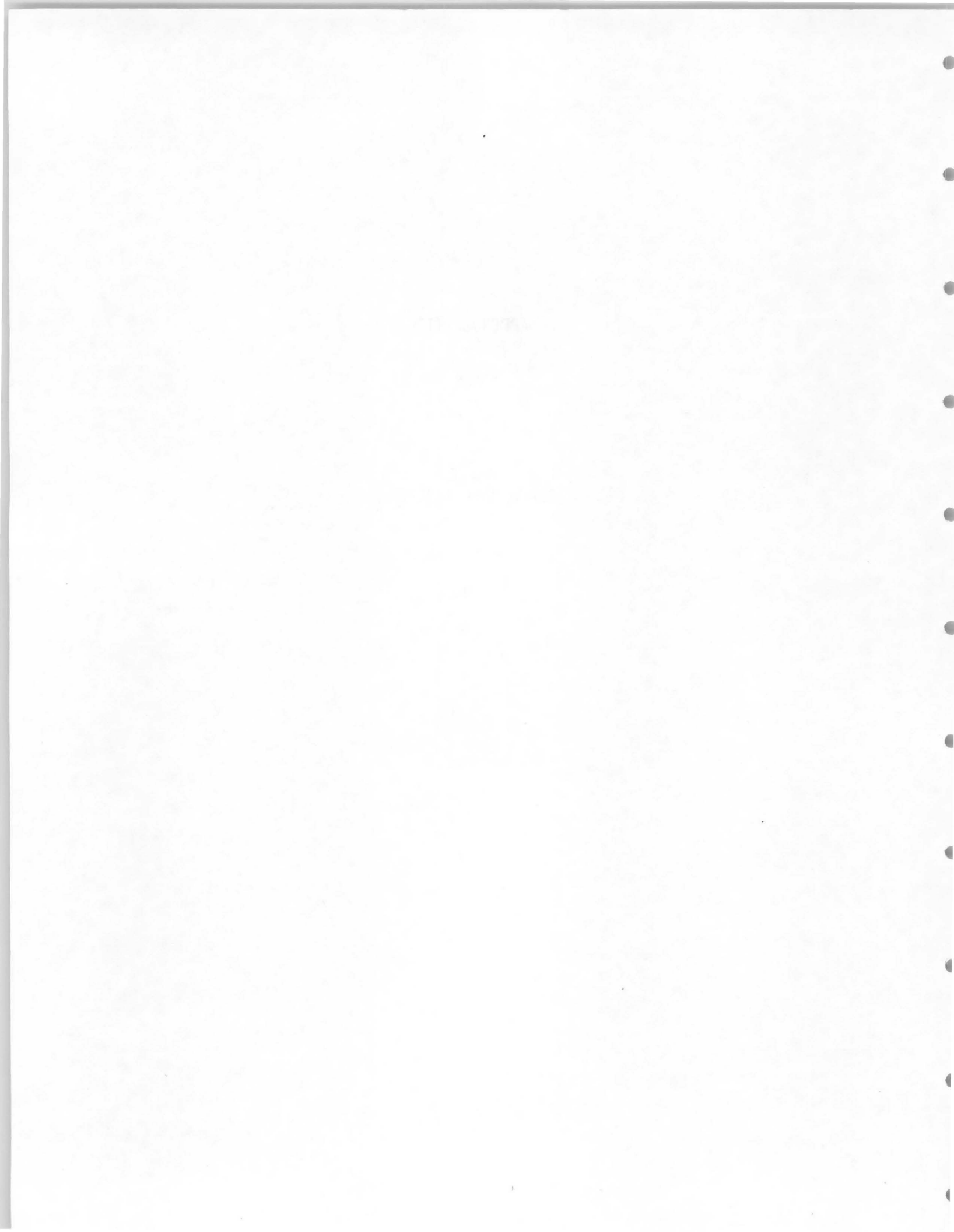
| Year | Month | Day | Time | Location | Activity | Remarks |
|------|-------|-----|---------|----------|----------|---------|
| 1954 | Jan | 1 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 2 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 3 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 4 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 5 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 6 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 7 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 8 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 9 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 10 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 11 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 12 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 13 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 14 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 15 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 16 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 17 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 18 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 19 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 20 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 21 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 22 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 23 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 24 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 25 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 26 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 27 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 28 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 29 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 30 | 8:00 AM | ... | ... | ... |
| 1954 | Jan | 31 | 8:00 AM | ... | ... | ... |

Continued on next page

APPENDIX III

IDAHO

SAMPLE
REACH DATA TABLES



REPORT VOLUME CONTENTS

- Volume A Main Report and Sample Appendices
- Volume B Appendix I, Washington Reach Data Tables
- Volume C Appendix I, Washington Reach Data Tables continued
- Volume D Appendix I, Washington Reach Data Tables continued
- Volume E Appendix II Oregon Reach Data Tables
- Volume F Appendix II Oregon Reach Data Tables continued
- Volume G Appendix II Oregon Reach Data Tables continued
- Volume H Appendix III Idaho, Nevada and Wyoming Reach Data Tables
- Volume I Appendix III Idaho, Nevada and Wyoming Reach Data Tables
continued
- Volume J Appendix IV Montana Reach Data Tables

Faint, illegible text, possibly bleed-through from the reverse side of the page.

TABLE OF CONTENTS
APPENDIX III
IDAHO

Main Report
Table of Contents. ii

Table I
Reach Index. 1

Table II
Feasibility, Transmission and
Load Considerations. 6-59

Reach Hydro-Potential
Characteristic Sheets. II to I563

THE UNIVERSITY OF CHICAGO
LIBRARY

1968

1969

1970

1971

1972

TABLE I
IDAHO REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--|--|---|
| I. Bear River
A. Main Stem
B. Malad River | 03-250-
-000-000-000-R0002 thru R0022
-010-000-000-R0001 | I 1-I 9
I 10 |
| II. Kootenai River
A. Main Stem
B. Minor Trib. to Kootenai
C. Moyie River
D. Boulder Creek | 03-500-500-
-000-000-R0002
-010-000-R0001 thru 090-000-R0006
-100-000-R0001 thru R0009
-110-000-R0001 thru R0003 | I 11
I 12-I 16
I 17-I 20
I 21-I 22 |
| III. Pend Oreille River
A. Priest River & Trib.
B. Pack River & Trib.
C. Lightning Creek | 03-500-480-
-251-000-R0002 thru R0012
-275-000-R0002 thru R0010
-350-010-R0001 thru R0003 | I 23-I 32
I 33-I 37
I 38-I 39 |
| IV. Spokane River
A. Main Stem
B. Coeur d'Alene River
1. So. Fk. Coeur d'Alene & Trib.
2. No. Fk. Coeur d'Alene & Trib.
3. Minor Trib. to Coeur d'Alene
C. St. Joe River
1. Main Stem
2. St. Maries River & Trib.
3. Minor Trib. to St. Joe | 03-500-420-
-000-000-R0001
-504-000-R0002 thru R0005
-504-010-R0002 thru R0010
-504-020-R0002 thru R0004
-504-000-R0019 thru R0034
03-500-420-502
-502-000-R0002 thru R0044
-502-010-R0002 thru R0010
-502-000-R0011 thru R0041 | I 40
I 41-I 51
I 52-I 56
I 57-I 58
I 59-I 64
I 65-I 78
I 79-I 84
I 85-I 91 |
| V. Snake River (Idaho)
A. Main Stem
B. Palouse River
C. Clearwater River
1. Main Stem
2. Potlatch River | 03-500-240-
-000-000-R0002 thru R0058
-020-000-R0002 thru R0008
03-500-240-040-
-000-R0002 thru R0028
-005-R0002 thru R0006 | I 92-I 126
I 140-I 143
I 144-I 150
I 151-I 153 |

| Date | Description | Amount |
|------------|-----------------|--------|
| 1950-01-01 | Initial deposit | 100.00 |
| 1950-01-15 | Withdrawal | 25.00 |
| 1950-02-01 | Interest | 1.50 |
| 1950-02-15 | Deposit | 50.00 |
| 1950-03-01 | Balance | 126.50 |

TABLE I
IDAHO REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--------------------------------|----------------------------|-------------|
| V. Snake River (con't) | | |
| C. Clearwater River (Con't.) | 03-500-240-040- | |
| 3. No. Fk. Clearwater & Trib. | -010-R0004 thru R0062 | I 154-I 177 |
| 4. Minor Trib. to Clearwater | -012-R0002 thru 014-R0004 | I 178-I 180 |
| 5. Middle Fork Clearwater | -020-R0240 | I 181 |
| a. Lochsa River & Trib. | -020-R0005 thru R0070 | I 182-I 196 |
| b. Selway River & Trib. | -020-R0100 thru R0235 | I 197-I 220 |
| 6. So. Fk. Clearwater & Trib. | -025-R0002 thru R0032 | I 221-I 230 |
| D. Salmon River | 03-500-240-080- | |
| 1. Main Stem | -000-R0002 thru R0084 | I 231-I 258 |
| 2. Slate Creek | -002-R0006 | I 259 |
| 3. Little Salmon River & Trib. | -010-R0002 thru R0008 | I 260-I 263 |
| 4. Minor Trib. to Salmon | -012-R0012 thru 018-R0022 | I 264-I 266 |
| 5. So. Fk. Salmon & Trib. | -020-R0002 thru R0022 | I 267-I 277 |
| 6. Minor Trib. to Salmon | -022-R0028 thru -025-R0040 | I 278-I 281 |
| 7. Middle Fork Salmon & Trib | -030-R0002 thru R0052 | I 282-I 307 |
| 8. Panther Creek | -040-R0002 thru R0004 | I 308-I 309 |
| 9. North Fork Salmon | -045-R0002 | I 310 |
| 10. Lemhi River & Trib. | -050-R0002 thru R0014 | I 311-I 317 |
| 11. Pahsimeroi River & Trib. | -060-R0002 thru R0008 | I 318-I 321 |
| 12. Warm Springs Creek | -070-R0058 | I 322 |
| 13. East Fork Salmon & Trib. | -080-R0002 thru R0008 | I 323-I 326 |
| 14. Minor Trib. to Salmon | -082-R0064 thru 088-R0080 | I 327-I 331 |
| E. Wildhorse River | 03-500-240-105-000-R0002 | I 332 |
| F. Weiser River | 03-500-240-140- | |
| 1. Main Stem | -000-R0001 thru R0019 | I 333-I 342 |
| 2. Minor Trib. to Weiser | -060-R0001 thru 120-R0001 | I 343-I 345 |
| G. Payette River | 03-500-240-160- | |
| 1. Main Stem | -000-R0001 thru R0017 | I 346-I 352 |
| 2. Squaw Creek | -060-R0001 thru R0005 | I 353-I 355 |
| 3. No. Fk. Payette & Trib. | -100-R0001 thru R0033 | I 356-I 365 |

| Date | Description | Debit | Credit |
|------|-------------|-------|--------|
| 1900 | Balance | | 100.00 |
| 1901 | ... | ... | ... |
| 1902 | ... | ... | ... |
| 1903 | ... | ... | ... |
| 1904 | ... | ... | ... |
| 1905 | ... | ... | ... |
| 1906 | ... | ... | ... |
| 1907 | ... | ... | ... |
| 1908 | ... | ... | ... |
| 1909 | ... | ... | ... |
| 1910 | ... | ... | ... |
| 1911 | ... | ... | ... |
| 1912 | ... | ... | ... |
| 1913 | ... | ... | ... |
| 1914 | ... | ... | ... |
| 1915 | ... | ... | ... |
| 1916 | ... | ... | ... |
| 1917 | ... | ... | ... |
| 1918 | ... | ... | ... |
| 1919 | ... | ... | ... |
| 1920 | ... | ... | ... |
| 1921 | ... | ... | ... |
| 1922 | ... | ... | ... |
| 1923 | ... | ... | ... |
| 1924 | ... | ... | ... |
| 1925 | ... | ... | ... |
| 1926 | ... | ... | ... |
| 1927 | ... | ... | ... |
| 1928 | ... | ... | ... |
| 1929 | ... | ... | ... |
| 1930 | ... | ... | ... |
| 1931 | ... | ... | ... |
| 1932 | ... | ... | ... |
| 1933 | ... | ... | ... |
| 1934 | ... | ... | ... |
| 1935 | ... | ... | ... |
| 1936 | ... | ... | ... |
| 1937 | ... | ... | ... |
| 1938 | ... | ... | ... |
| 1939 | ... | ... | ... |
| 1940 | ... | ... | ... |
| 1941 | ... | ... | ... |
| 1942 | ... | ... | ... |
| 1943 | ... | ... | ... |
| 1944 | ... | ... | ... |
| 1945 | ... | ... | ... |
| 1946 | ... | ... | ... |
| 1947 | ... | ... | ... |
| 1948 | ... | ... | ... |
| 1949 | ... | ... | ... |
| 1950 | ... | ... | ... |
| 1951 | ... | ... | ... |
| 1952 | ... | ... | ... |
| 1953 | ... | ... | ... |
| 1954 | ... | ... | ... |
| 1955 | ... | ... | ... |
| 1956 | ... | ... | ... |
| 1957 | ... | ... | ... |
| 1958 | ... | ... | ... |
| 1959 | ... | ... | ... |
| 1960 | ... | ... | ... |
| 1961 | ... | ... | ... |
| 1962 | ... | ... | ... |
| 1963 | ... | ... | ... |
| 1964 | ... | ... | ... |
| 1965 | ... | ... | ... |
| 1966 | ... | ... | ... |
| 1967 | ... | ... | ... |
| 1968 | ... | ... | ... |
| 1969 | ... | ... | ... |
| 1970 | ... | ... | ... |
| 1971 | ... | ... | ... |
| 1972 | ... | ... | ... |
| 1973 | ... | ... | ... |
| 1974 | ... | ... | ... |
| 1975 | ... | ... | ... |
| 1976 | ... | ... | ... |
| 1977 | ... | ... | ... |
| 1978 | ... | ... | ... |
| 1979 | ... | ... | ... |
| 1980 | ... | ... | ... |
| 1981 | ... | ... | ... |
| 1982 | ... | ... | ... |
| 1983 | ... | ... | ... |
| 1984 | ... | ... | ... |
| 1985 | ... | ... | ... |
| 1986 | ... | ... | ... |
| 1987 | ... | ... | ... |
| 1988 | ... | ... | ... |
| 1989 | ... | ... | ... |
| 1990 | ... | ... | ... |
| 1991 | ... | ... | ... |
| 1992 | ... | ... | ... |
| 1993 | ... | ... | ... |
| 1994 | ... | ... | ... |
| 1995 | ... | ... | ... |
| 1996 | ... | ... | ... |
| 1997 | ... | ... | ... |
| 1998 | ... | ... | ... |
| 1999 | ... | ... | ... |
| 2000 | ... | ... | ... |
| 2001 | ... | ... | ... |
| 2002 | ... | ... | ... |
| 2003 | ... | ... | ... |
| 2004 | ... | ... | ... |
| 2005 | ... | ... | ... |
| 2006 | ... | ... | ... |
| 2007 | ... | ... | ... |
| 2008 | ... | ... | ... |
| 2009 | ... | ... | ... |
| 2010 | ... | ... | ... |
| 2011 | ... | ... | ... |
| 2012 | ... | ... | ... |
| 2013 | ... | ... | ... |
| 2014 | ... | ... | ... |
| 2015 | ... | ... | ... |
| 2016 | ... | ... | ... |
| 2017 | ... | ... | ... |
| 2018 | ... | ... | ... |
| 2019 | ... | ... | ... |
| 2020 | ... | ... | ... |
| 2021 | ... | ... | ... |
| 2022 | ... | ... | ... |
| 2023 | ... | ... | ... |
| 2024 | ... | ... | ... |
| 2025 | ... | ... | ... |
| 2026 | ... | ... | ... |
| 2027 | ... | ... | ... |
| 2028 | ... | ... | ... |
| 2029 | ... | ... | ... |
| 2030 | ... | ... | ... |
| 2031 | ... | ... | ... |
| 2032 | ... | ... | ... |
| 2033 | ... | ... | ... |
| 2034 | ... | ... | ... |
| 2035 | ... | ... | ... |
| 2036 | ... | ... | ... |
| 2037 | ... | ... | ... |
| 2038 | ... | ... | ... |
| 2039 | ... | ... | ... |
| 2040 | ... | ... | ... |
| 2041 | ... | ... | ... |
| 2042 | ... | ... | ... |
| 2043 | ... | ... | ... |
| 2044 | ... | ... | ... |
| 2045 | ... | ... | ... |
| 2046 | ... | ... | ... |
| 2047 | ... | ... | ... |
| 2048 | ... | ... | ... |
| 2049 | ... | ... | ... |
| 2050 | ... | ... | ... |

TABLE I
IDAHO REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--------------------------------|-----------------------|-------------|
| V. Snake River (con't) | | |
| G. Payette River (con't) | 03-500-240-160- | |
| 4. South Fork Payette & Trib. | -180-R0003 thru R0051 | I 366-I 377 |
| 5. Middle Fork Payette & Trib. | -200-R0021 thru R0025 | I 378-I 380 |
| H. Boise River | 03-500-240-220- | |
| 1. Main Stem | -000-R0001 thru R0013 | I 381-I 388 |
| 2. Mores Creek & Trib. | -030-R0001 thru R0007 | I 389-I 391 |
| 3. South Fork Boise & Trib. | -150-R0001 thru R0023 | I 392-I 399 |
| 4. North Fork Boise & Trib. | -170-R0001 thru R0005 | I 400-I 402 |
| 5. Middle Fork Boise & Trib. | -190-R0001 thru R0007 | I 403-I 406 |
| I. Owyhee River (Idaho) | 03-500-240-200- | |
| 1. Main Stem | -000-R0002 thru R0012 | I 407-I 412 |
| 2. Jordan Creek | -010-R0002 thru R0004 | I 415-I 416 |
| 3. South Fork Owyhee | -020-R0002 thru R0004 | I 417-I 418 |
| J. Owyhee River (Nevada) | 05-500-240-200- | |
| 1. Main Stem | -000-R0013 thru R0014 | I 413-I 414 |
| 2. South Fork Owyhee | -020-R0006 thru R0010 | I 419-I 421 |
| K. Bruneau River (Idaho) | 03-500-240-240- | |
| 1. Main Stem | -000-R0002 thru R0004 | I 422-I 423 |
| 2. West Fork Bruneau | -030-R0002 thru R0008 | I 424-I 427 |
| 3. Jarbridge River | -030-R0016 thru R0018 | I 429-I 430 |
| L. Bruneau River (Nevada) | 05-500-240-240- | |
| 1. West Fork Bruneau | -030-R0009 | I 428 |
| M. Wood River Basin | 03-500-240-242 | |
| 1. Malad River | -000-R0004 thru R0008 | I 431-I 433 |
| 2. Big Wood River & Trib. | -010-R0002 thru R0026 | I 434-I 446 |
| 3. Little Wood River & Trib. | -020-R0004 thru R0016 | I 447-I 453 |
| N. Salmon Falls Creek (Idaho) | 03-500-240-244- | |
| 1. Main Stem | -000-R0002 thru R0010 | I 454-I 456 |
| O. Salmon Falls Creek (Nevada) | 05-500-240-244- | |
| 1. Main Stem | -000-R0012 thru R0014 | I 457-I 458 |

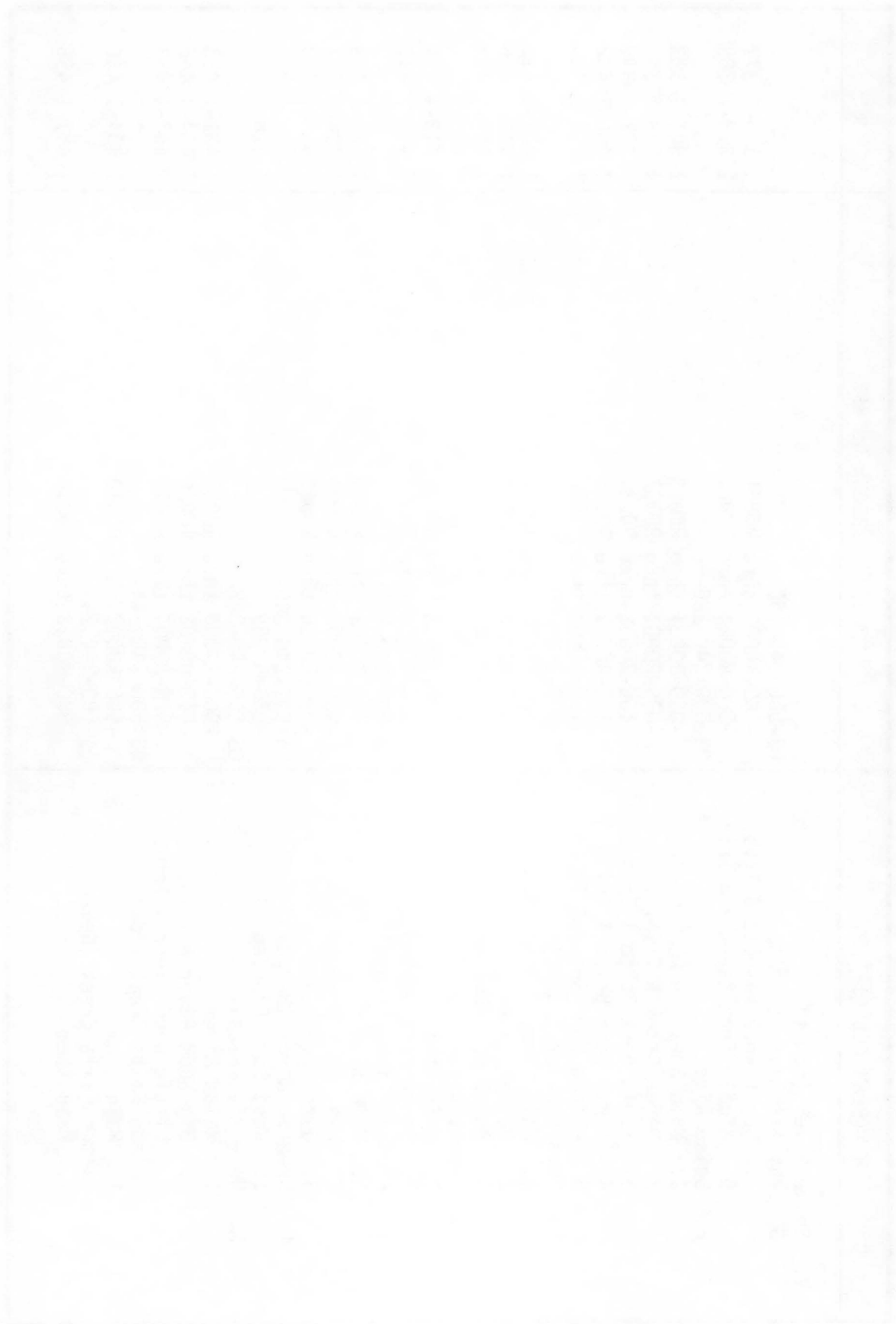


TABLE I
IDAHO REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|-------------------------------------|-----------------------|-------------|
| V. Snake River (con't) | | |
| P. Lost River Basin | 03-500-240-250- | |
| 1. Big Lost River & Trib. | -000-R0002 thru R0012 | I 459-I 463 |
| 2. Little Lost River & Trib. | -020-R0004 thru R0006 | I 464-I 465 |
| 3. Birch Creek | -040-R0002 thru R0004 | I 466-I 467 |
| Q. Minor Tributaries to Snake River | 03-500-240- | |
| 1. Box Canyon Springs | -246-000-R0001 | I 468 |
| 2. Deep Creek | -248-000-R0001 | I 469 |
| 3. Mud Creek | -252-000-R0001 | I 470 |
| 4. Niagara Springs | -254-000-R0001 | I 471 |
| 5. Cedar Draw | -256-000-R0001 | I 472 |
| 6. Rock Creek | -258-000-R0001 | I 473 |
| R. Portneuf River | 03-500-240-260- | |
| 1. Main Stem | -000-R0002 thru R0012 | I 474-I-478 |
| 2. Marsh Creek | -010-R0002 thru R0006 | I 479-I 480 |
| S. Mudlake Basin | 03-500-240-262- | |
| 1. Medicine Lodge Creek | -000-R0002 thru R0004 | I 481-I 482 |
| T. Blackfoot River | 03-500-240-280- | |
| 1. Main Stem | -000-R0002 thru R0016 | I 483-I 491 |
| U. Willow Creek | 03-500-240-288- | |
| 1. Main Stem | -000-R0002 thru R0004 | I 492-I 493 |
| V. Henry's Fork (Idaho) | 03-500-240-300- | |
| 1. Main Stem | -000-R0002 thru R0018 | I 494-I 501 |
| 2. Teton River | -010-R0002 thru R0018 | I 502-I 508 |
| 3. Falls River | -020-R0002 thru R0006 | I 510-I 512 |
| a. Minor Trib. to Falls River | -020-R0012 thru R0016 | I 515-I 517 |
| 4. Warm River | -030-R0002 thru R0004 | I 522-I 523 |
| W. Henry's Fork (Wyoming) | 06-500-240-300- | |
| 1. Teton River & Trib. | -010-R0014 | I 509 |
| 2. Falls River | -020-R0008 thru R0020 | I 513-I 514 |
| a. Minor Tributaries | -020-R0010 thru R0024 | I 518-I 521 |

| Date | Description | Amount |
|-----------|-----------------|--------|
| 1952-1-15 | Cash on hand | 100.00 |
| 1952-1-20 | Bank of America | 50.00 |
| 1952-1-25 | Federal Reserve | 25.00 |
| 1952-2-1 | U.S. Treasury | 75.00 |

TABLE I
IDAHO REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|---------------------------|---------------------------|--------------|
| VI. Snake River (Wyoming) | 06-500-240-000- | |
| A. Main Stem | -000-R0002 thru R0028 | I 127-I 139 |
| B. Salt River (Wyoming) | 06-500-240-307- | |
| 1. Main Stem | -000-R0002 thru R0006 | I 524-I 526 |
| 2. Strawberry Creek | -020-R0002 | I 527 |
| 3. Swift Creek | -040-R0002 | I 529 |
| 4. Crow Creek | -010-R0002 thru R0004 | I 530-I 531 |
| C. Salt River (Idaho) | 03-500-240-307- | |
| 1. Stump Creek | -030-R0002 | I 528 |
| D. Greys River | 06-500-240-309- | |
| 1. Main Stem | -000-R0002 thru R0010 | I 532-I 536 |
| 2. Little Greys River | -010-R0002 | I 537 |
| E. Hoback River | 06-500-240-311- | |
| 1. Main Stem | -000-R0002 thru R0010 | I 538-I 542 |
| 2. Minor Tributaries | -010-R0002 thru 020-R0002 | I 543- I 544 |
| F. Gros Ventre River | 06-500-240-315- | |
| 1. Main Stem | -000-R0002 thru R0012 | I 545-I 550 |
| 2. Minor Tributaries | -010-R0002 thru 020-R0006 | I 552-I 553 |
| G. Spread Creek | 06-500-240-317-000-R0004 | I 554 |
| H. Buffalo Fork | 06-500-240-319- | |
| 1. Main Stem | -000-R0002 thru R0006 | I 555-I 557 |
| 2. Minor Tributaries | -020-R0002 thru 030-R0002 | I 558-I 559 |
| I. Minor Tributaries | 06-500-240- | |
| 1. Pacific Creek | -321-000-R0002 | I 560 |
| 2. Lewis River | -323-000-R0002 | I 561 |
| 3. Coulter Creek | -325-000-R0002 | I 562 |
| 4. Heart River | -327-000-R0002 | I 563 |

TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
IDAHO

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|--|-----------------------|----------------------|-----------------------|-----------------------|---|-------------------|--------------|--------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE * TO CITY >1000 Miles |
| 03-250-000-000
Bear R Main Stem
000R0002
000R0004
000R0009
000R0010
000R0011
000R0013
000R0014
000R0020
000R0022 | BEAR | RIVER | BASIN | | <1 | 46 (IP) | 1,2,3 | 2 |
| | | | | | <1 | 230 (U) | 1,2 | 9 |
| | | | | | 3 | 138 (U) | 1,3 | 17 |
| | | | | | 1 | 46 (U) | 1,3 | 7 |
| | | | | | <1 | 138 (U) | 1,3 | 6 |
| | | | | | 2 | 46 (U) | 1,3 | 3 |
| | | | | | <1 | 46 (U) | 1,3 | 12 |
| | | | | | <1 | 69 (U) | 1,2,3 | 8 |
| | | | | | 3 | 345 (PPL) | 1,2,3 | 15 |
| | | | | | 03-250-010-000
Malad River
000R0001 | BEAR | RIVER | TRIBUTARIES |
| X | | | | | | | | |

IP = Idaho Power Company

U = Utah Power Company

PPL = Pacific Power & Light Co.

* Distance in air miles to nearest city with population greater than 1000

The image shows a page from a binder with punch holes on the right edge. A large, faint grid is visible, consisting of approximately 10 columns and 15 rows. The grid lines are very light and difficult to see clearly. The page is otherwise blank, with no text or other markings.

TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
IDAHO

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|--|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|-------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE TO CITY > 1000 Miles |
| 03-500-500-000
Kootenai River
000R0002 | KOOTENAI | RIVER
X | BASIN | | <1 | 115 (B) | 1,2,3 | 10 |
| 03-500-500-010
Boundary Creek
000R0001 | KOOTENAI
X | RIVER | TRIBUTARIES | | 22 | 25 (BF) | 1,3 | 24 |
| 03-500-500-020
Smith Creek
000R0001 | | | | | 21 | 25 (BF) | 1,3 | 20 |
| 03-500-500-090
Deep Creek
000R0002 | X | X | | | 4 | 115 (B) | 1,3 | 4 |
| 000R0004 | | X | | | 2 | 115 (B) | 1,3 | 4 |
| 000R0006 | | X | | | 1 | 115 (B) | 1 | 5 |
| 03-500-500-100
Moyie River
000R0001 | X | | | | 1 | 25 (BF) | 1,2 | 7 |
| 000R0005 | X | | | | 5 | 25 (BF) | 1,2 | 10 |
| 000R0007 | X | X | | | 10 | 25 (BF) | None | 14 |
| 000R0009 | X | X | | | 16 | 25 (BF) | 1,2 | 19 |

B = Bonneville Power Administration

BF = City of Bonners Ferry

REACH HYDRO-POTENTIAL CHARACTERISTICS

REACH NUMBER 032500000000000002

I LOCATION

| | |
|------------------------|----------------|
| A. STATE | IDAHO |
| B. COUNTY | FRANKLIN |
| C. TOWNSHIP, RANGE | T15S R38E |
| D. LATITUDE, LONGITUDE | 42 6 111 57 |
| E. STREAM NAME | BEAR RIVER |
| F. MAJOR BASIN NAME | BEAR RIVER |
| G. RIVER MILE | 100.5 TO 119.3 |

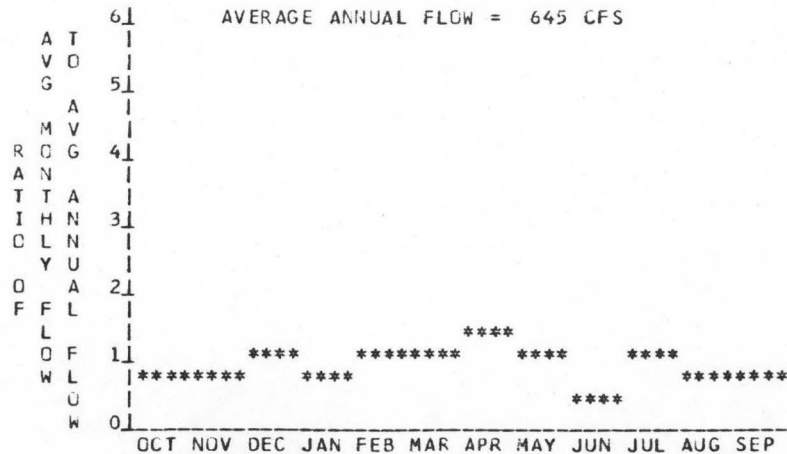
II HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | |
|------------------------------------|--------------|
| A. UPSTREAM ELEVATION OF REACH | 4523 FT. MSL |
| B. DOWNSTREAM ELEVATION OF REACH | 4432 FT. MSL |
| C. TOTAL AVAILABLE HEAD IN REACH | 91 FT. |
| D. AVERAGE SLOPE IN REACH | 4.8 FT./MI. |
| E. DRAINAGE AREA ABOVE REACH MOUTH | 4881 SQ.MI. |
| F. INFLOW CLASSIFICATION | REGULATED |

III REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

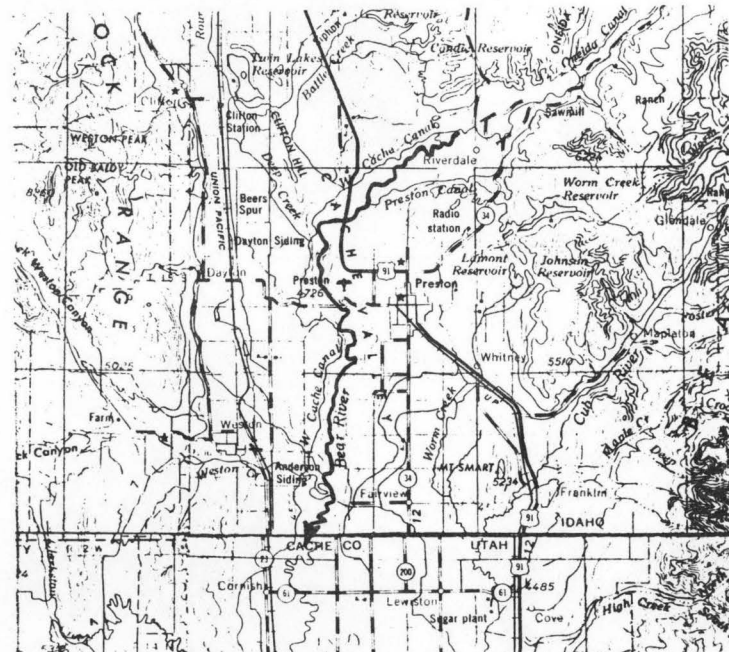
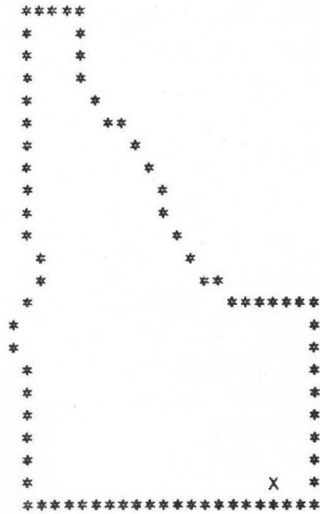
| EXCEEDANCE PERCENTAGE | DISCHARGE CFS | THEORETICAL PLANT SIZE MW | ANNUAL ENERGY AVAILABLE GWH | PLANT FACTOR |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 153 | 1.18 | 10.13 | 0.98 |
| 80 | 332 | 2.56 | 20.71 | 0.92 |
| 50 | 572 | 4.41 | 31.25 | 0.81 |
| 30 | 816 | 6.29 | 37.84 | 0.69 |
| 10 | 1295 | 9.99 | 44.31 | 0.51 |

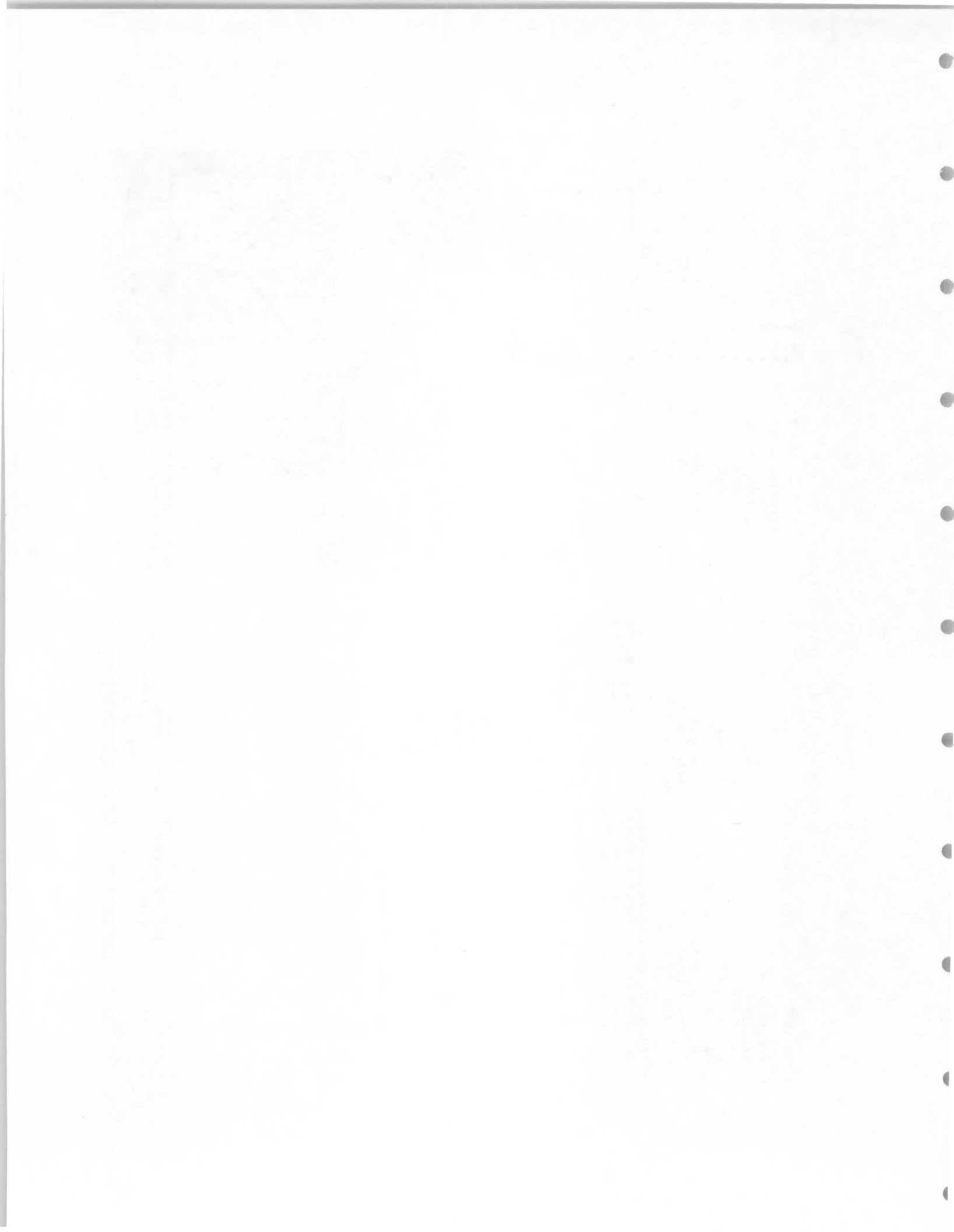
IV TYPICAL ANNUAL HYDROGRAPH



LOCATION MAPS

U.S. TOPO SERIES
1:250000
SCALE
MAP NAME
PRESTON





REACH HYDRO-POTENTIAL CHARACTERISTICS

REACH NUMBER 03250000CC000R0304

I LOCATION

A. STATE IDAHO
 B. COUNTY FRANKLIN
 C. TOWNSHIP, RANGE T14S R40E
 D. LATITUDE, LONGITUDE 42 12 111 45
 E. STREAM NAME BEAR RIVER
 F. MAJOR BASIN NAME BEAR RIVER
 G. RIVER MILE 119.3 TO 131.0

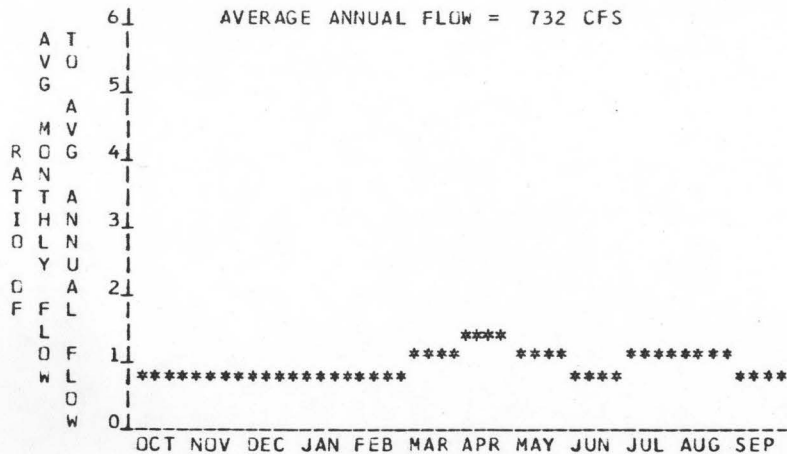
II HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. UPSTREAM ELEVATION OF REACH 4728 FT. MSL
 B. DOWNSTREAM ELEVATION OF REACH 4523 FT. MSL
 C. TOTAL AVAILABLE HEAD IN REACH 205 FT.
 D. AVERAGE SLOPE IN REACH 17.5 FT./MI.
 E. DRAINAGE AREA ABOVE REACH MOUTH 4590 SQ.MI.
 F. INFLOW CLASSIFICATION REGULATED

III REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| EXCEEDANCE PERCENTAGE | DISCHARGE CFS | THEORETICAL PLANT SIZE MW | ANNUAL ENERGY AVAILABLE GWH | PLANT FACTOR |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 230 | 4.00 | 34.51 | C.99 |
| 80 | 360 | 6.25 | 51.82 | C.95 |
| 50 | 680 | 11.81 | 83.47 | C.81 |
| 30 | 899 | 15.62 | 96.81 | C.71 |
| 10 | 1248 | 21.68 | 107.43 | C.57 |

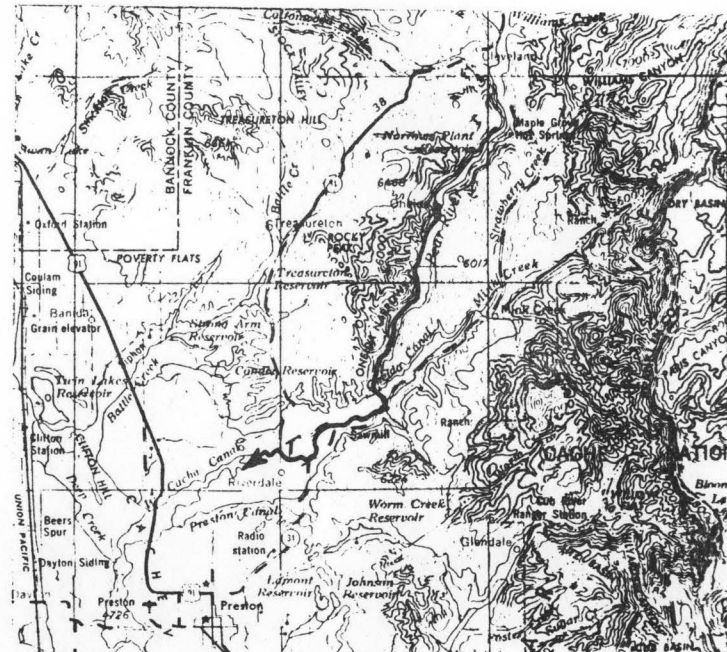
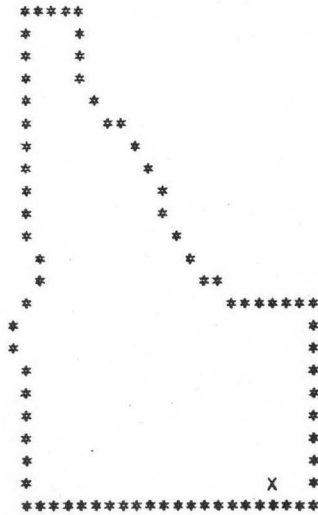
IV TYPICAL ANNUAL HYDROGRAPH

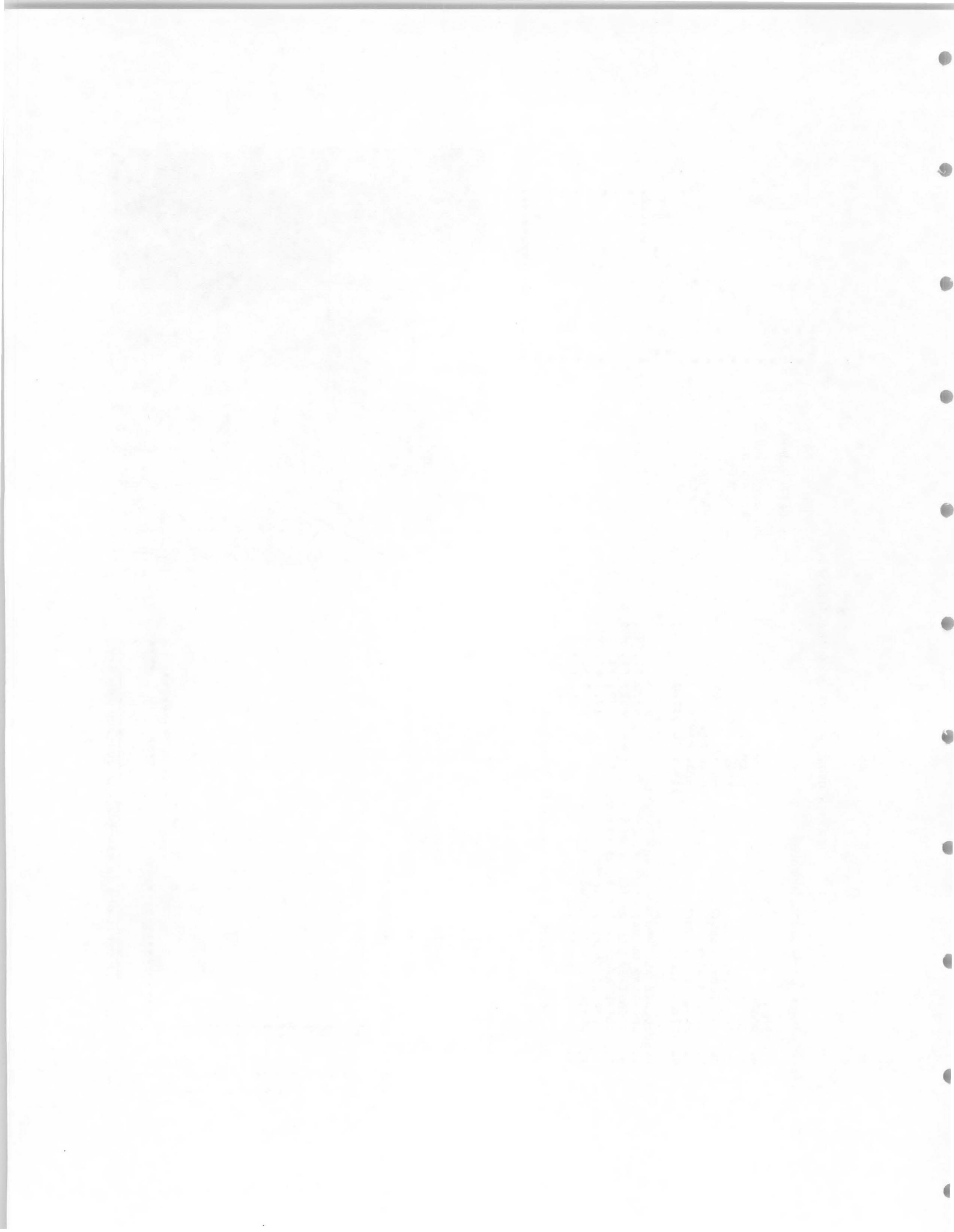


LOCATION MAPS

U.S. TOPO SERIES
 1:250000
 SCALE

MAP NAME
 PRESTON





REACH HYDRO-POTENTIAL CHARACTERISTICS

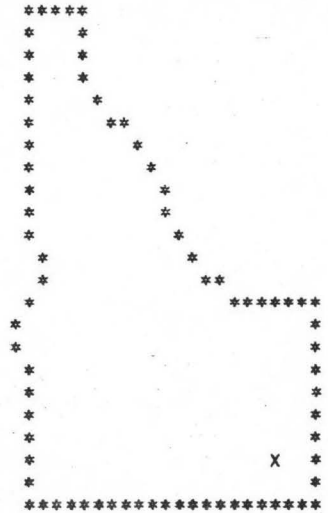
REACH NUMBER 0325000000000000009

I LOCATION

A. STATE IDAHO
 B. COUNTY FRANKLIN, CARIBOU
 C. TOWNSHIP, RANGE T11S R40E
 D. LATITUDE, LONGITUDE 42 26 111 45
 E. STREAM NAME BEAR RIVER
 F. MAJOR BASIN NAME BEAR RIVER
 G. RIVER MILE 135.4 TO 154.5

LOCATION MAPS

U.S. TOPG SERIES
 1:250000
 SCALE
 MAP NAME
 PRESTON



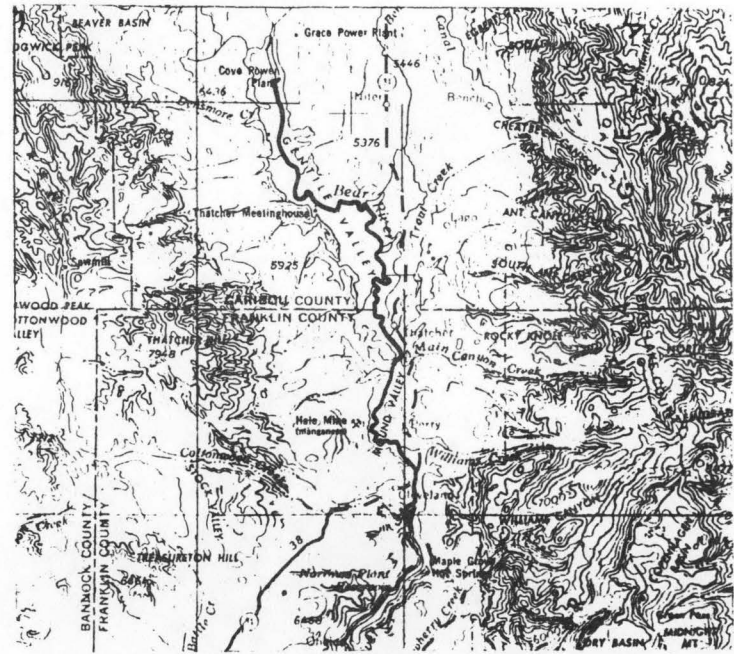
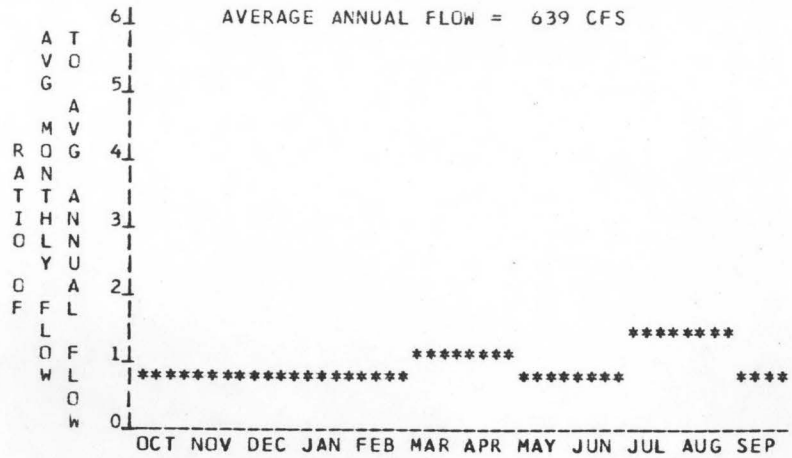
II HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

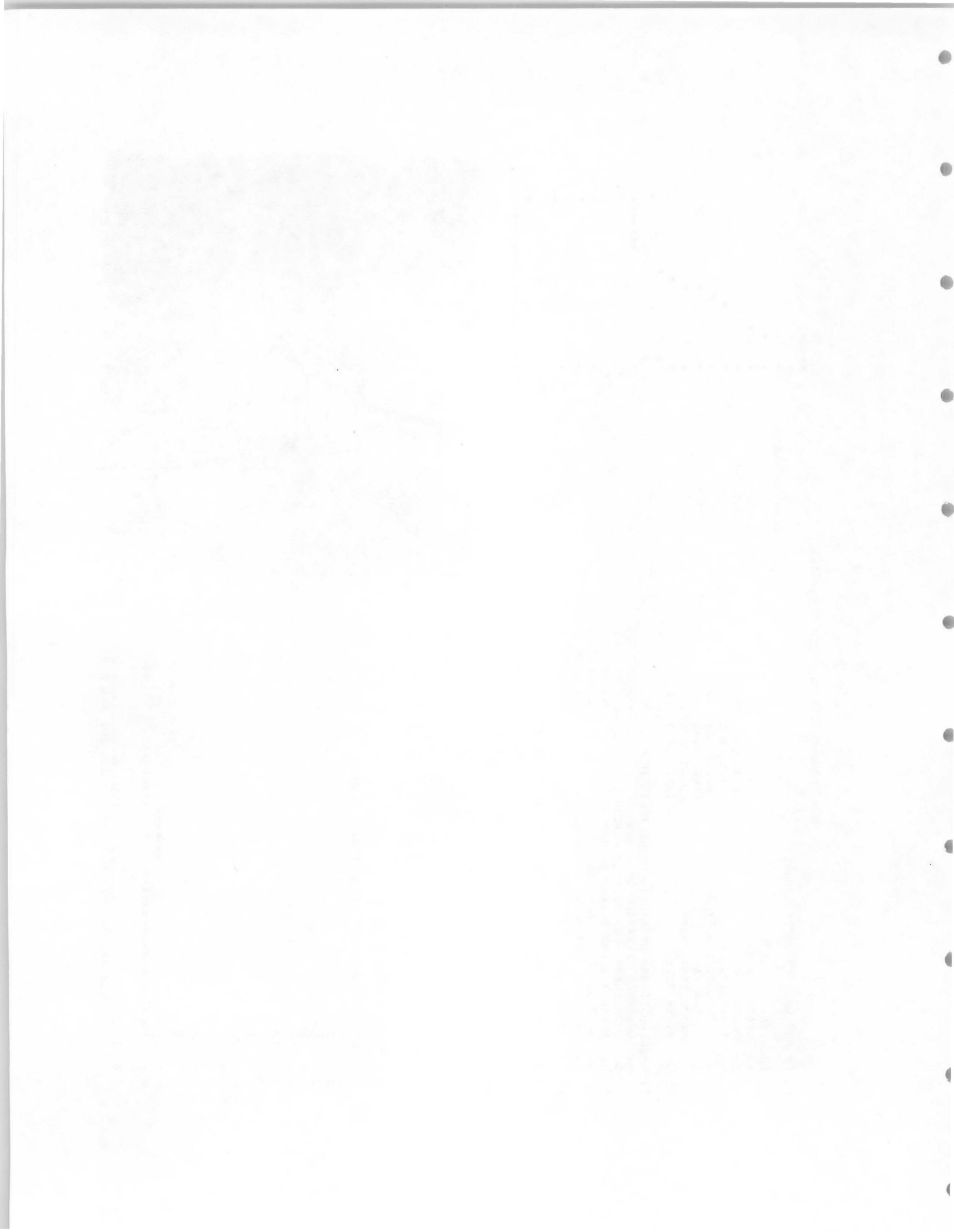
A. UPSTREAM ELEVATION OF REACH 4940 FT. MSL
 B. DOWNSTREAM ELEVATION OF REACH 4887 FT. MSL
 C. TOTAL AVAILABLE HEAD IN REACH 53 FT.
 D. AVERAGE SLOPE IN REACH 2.8 FT./MI.
 E. DRAINAGE AREA ABOVE REACH MOUTH 4481 SQ.MI.
 F. INFLOW CLASSIFICATION REGULATED

III REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| EXCEEDANCE PERCENTAGE | DISCHARGE CFS | THEORETICAL PLANT SIZE MW | ANNUAL ENERGY AVAILABLE GWH | PLANT FACTOR |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 85 | 0.38 | 3.26 | 0.98 |
| 80 | 218 | 0.98 | 7.84 | 0.91 |
| 50 | 548 | 2.46 | 16.28 | 0.76 |
| 30 | 860 | 3.86 | 21.19 | 0.63 |
| 10 | 1236 | 5.55 | 24.15 | 0.50 |

IV TYPICAL ANNUAL HYDROGRAPH





REACH HYDRO-POTENTIAL CHARACTERISTICS

REACH NUMBER 055002402C000CRO013

I LOCATION

A. STATE NEVADA
 B. COUNTY ELKO
 C. TOWNSHIP, RANGE T47N R52E
 D. LATITUDE, LONGITUDE 41 57 116 7
 E. STREAM NAME OWYHEE RIVER
 F. MAJOR BASIN NAME OWYHEE RIVER
 G. RIVER MILE 256.0 TO 263.4

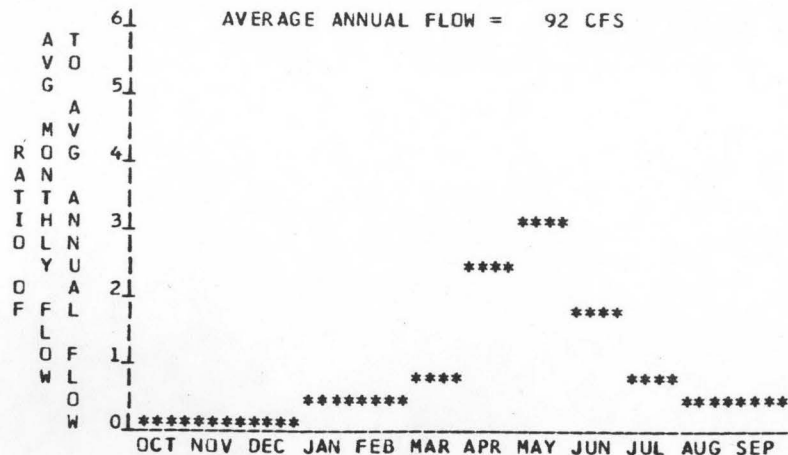
II HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. UPSTREAM ELEVATION OF REACH 5428 FT. MSL
 B. DOWNSTREAM ELEVATION OF REACH 5326 FT. MSL
 C. TOTAL AVAILABLE HEAD IN REACH 102 FT.
 D. AVERAGE SLOPE IN REACH 13.8 FT./MI.
 E. DRAINAGE AREA ABOVE REACH MOUTH 483 SQ.MI.
 F. INFLOW CLASSIFICATION REGULATED

III REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

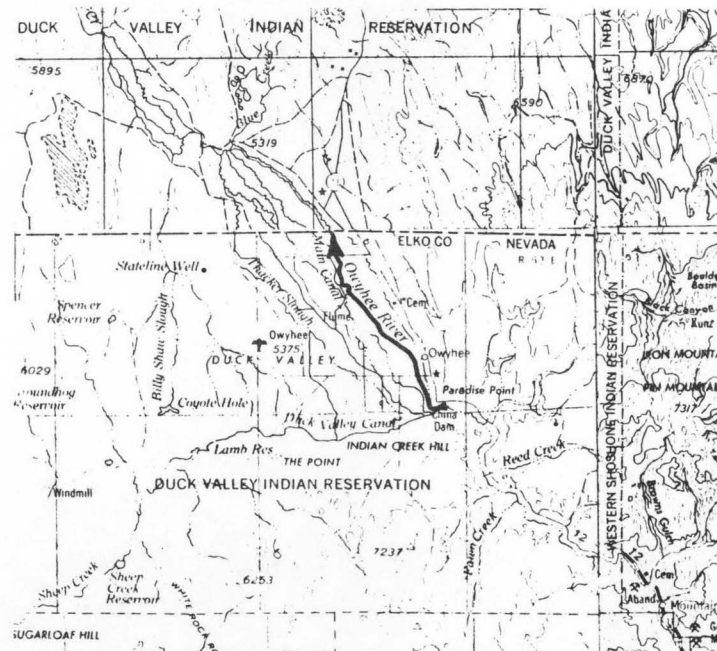
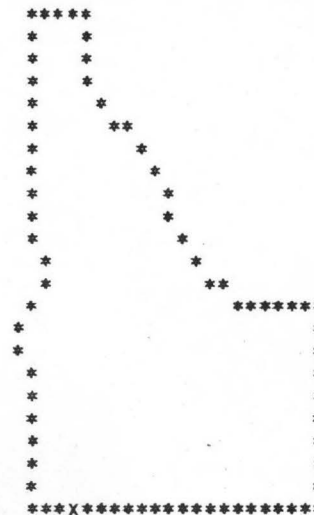
| EXCEEDANCE PERCENTAGE | DISCHARGE CFS | THEORETICAL PLANT SIZE MW | ANNUAL ENERGY AVAILABLE GWH | PLANT FACTOR |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 11 | 0.10 | 0.83 | 1.00 |
| 80 | 22 | 0.19 | 1.56 | 0.94 |
| 50 | 78 | 0.67 | 4.31 | 0.73 |
| 30 | 120 | 1.04 | 5.59 | 0.61 |
| 10 | 420 | 3.63 | 10.13 | 0.32 |

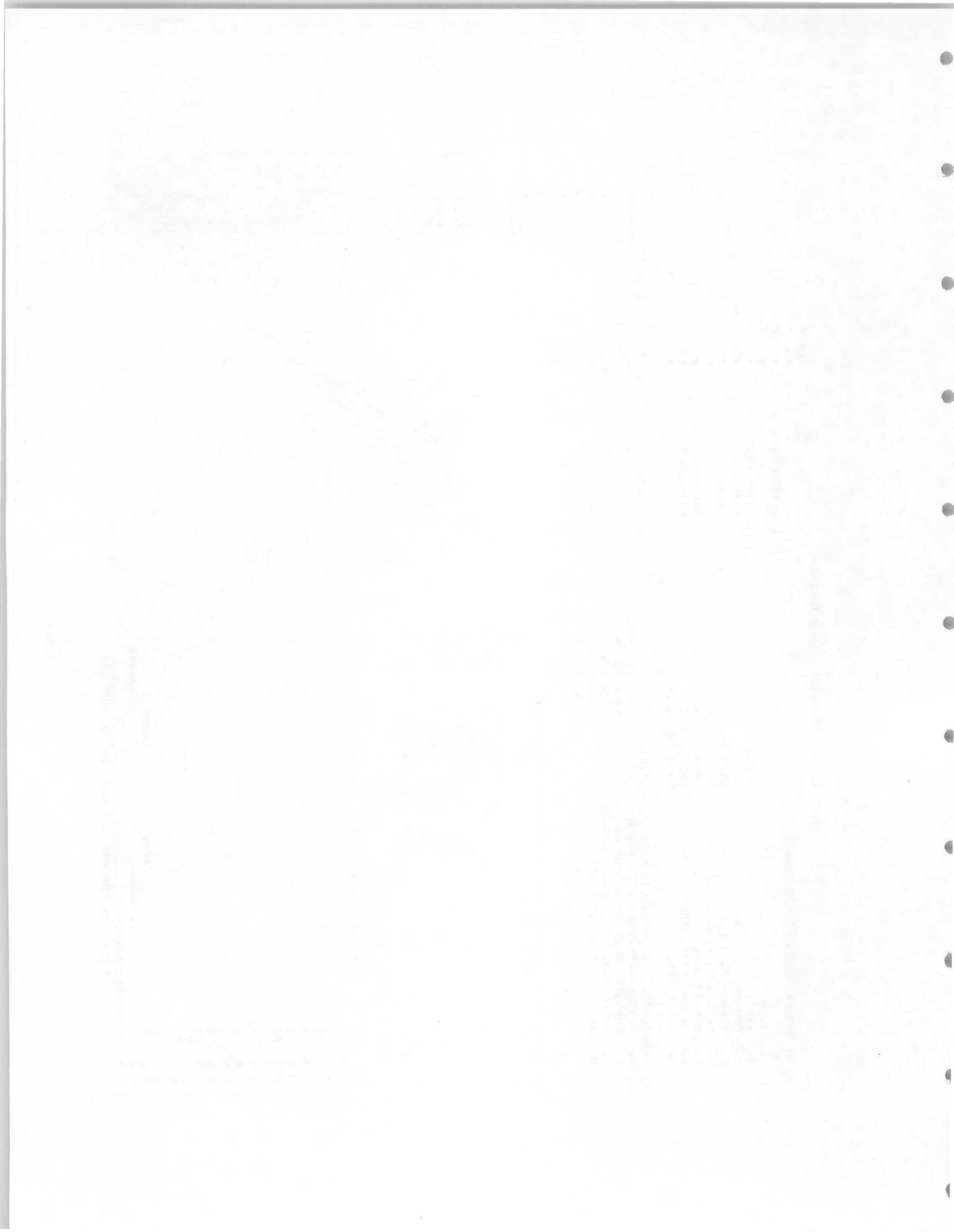
IV TYPICAL ANNUAL HYDROGRAPH



LOCATION MAPS

U.S. TOPO SERIES
 1:250000
 SCALE
 MAP NAME
 MC DERMITT





REACH HYDRO-POTENTIAL CHARACTERISTICS

REACH NUMBER 0650024CC00000R0018

I LOCATION

A. STATE WYOMING
 B. COUNTY TETON
 C. TOWNSHIP, RANGE T45N R114W
 D. LATITUDE, LONGITUDE 43 51 110 33
 E. STREAM NAME SNAKE RIVER
 F. MAJOR BASIN NAME SNAKE RIVER
 G. RIVER MILE 996.2 TO 1001.3

LOCATION MAPS

U.S. TOPO SERIES 1:250000
 SCALE
 MAP NAME DRIGGS

```

*****
*
*
*
* X
*
*
*
*
*
*
*
*
*
*****
    
```

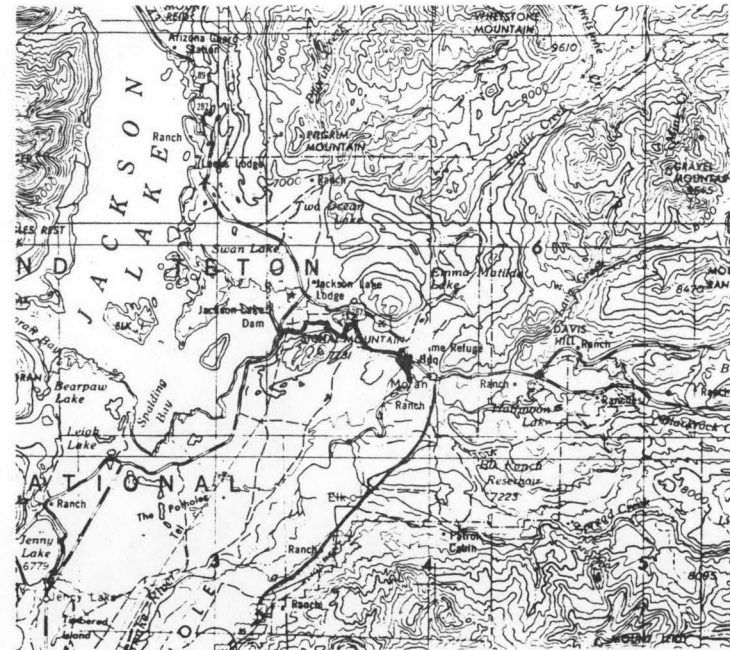
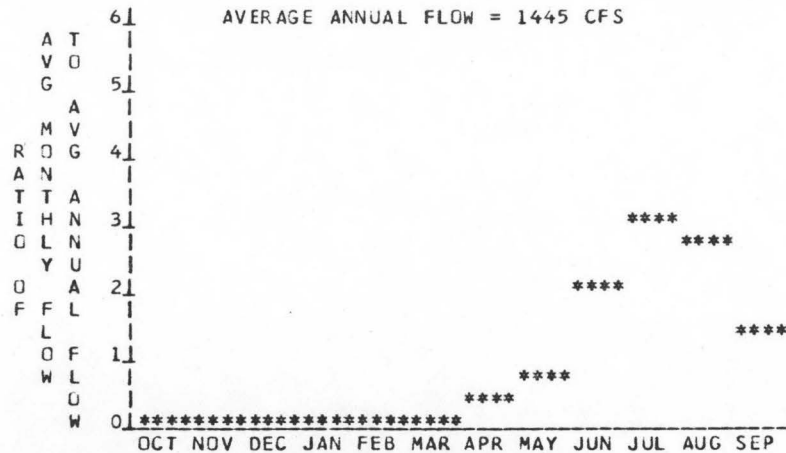
II HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

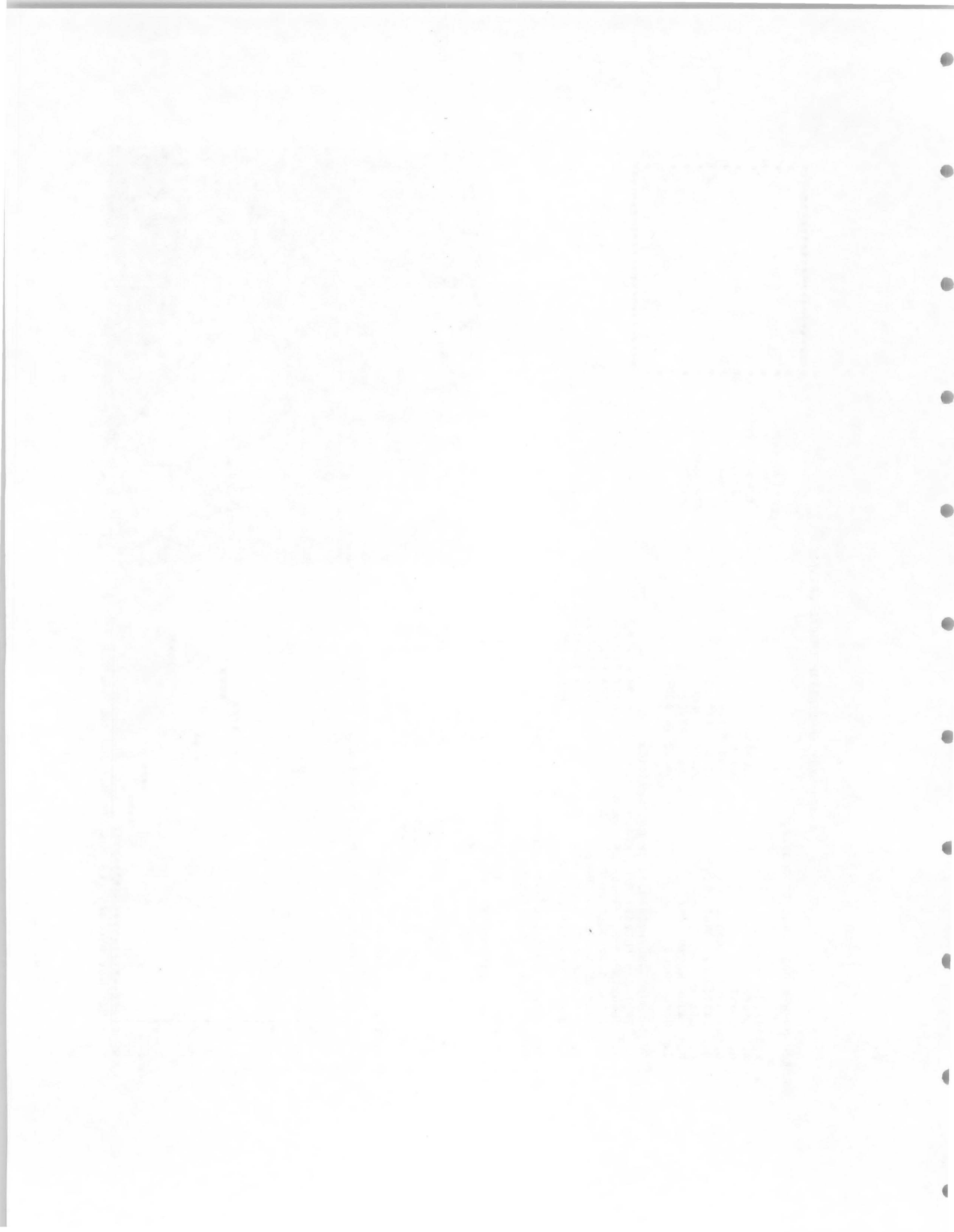
A. UPSTREAM ELEVATION OF REACH 6738 FT. MSL
 B. DOWNSTREAM ELEVATION OF REACH 6717 FT. MSL
 C. TOTAL AVAILABLE HEAD IN REACH 21 FT.
 D. AVERAGE SLOPE IN REACH 4.1 FT./MI.
 E. DRAINAGE AREA ABOVE REACH MOUTH 814 SQ.MI.
 F. INFLOW CLASSIFICATION REGULATED

III REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| EXCEEDANCE PERCENTAGE | DISCHARGE CFS | THEORETICAL PLANT SIZE MW | ANNUAL ENERGY AVAILABLE GWH | PLANT FACTOR |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 12 | 0.02 | 0.18 | 0.98 |
| 80 | 182 | 0.32 | 2.50 | 0.88 |
| 50 | 503 | 0.90 | 5.76 | 0.73 |
| 30 | 2405 | 4.28 | 17.62 | 0.47 |
| 10 | 3710 | 6.60 | 21.69 | 0.37 |

IV TYPICAL ANNUAL HYDROGRAPH





APPENDIX IV

MONTANA

SAMPLE
REACH DATA TABLES



REPORT VOLUME CONTENTS

- Volume A Main Report and Sample Appendices
- Volume B Appendix I, Washington Reach Data Tables
- Volume C Appendix I, Washington Reach Data Tables continued
- Volume D Appendix I, Washington Reach Data Tables continued
- Volume E Appendix II Oregon Reach Data Tables
- Volume F Appendix II Oregon Reach Data Tables continued
- Volume G Appendix II Oregon Reach Data Tables continued
- Volume H Appendix III Idaho, Nevada and Wyoming Reach Data Tables
- Volume I Appendix III Idaho, Nevada and Wyoming Reach Data Tables
continued
- Volume J Appendix IV Montana Reach Data Tables

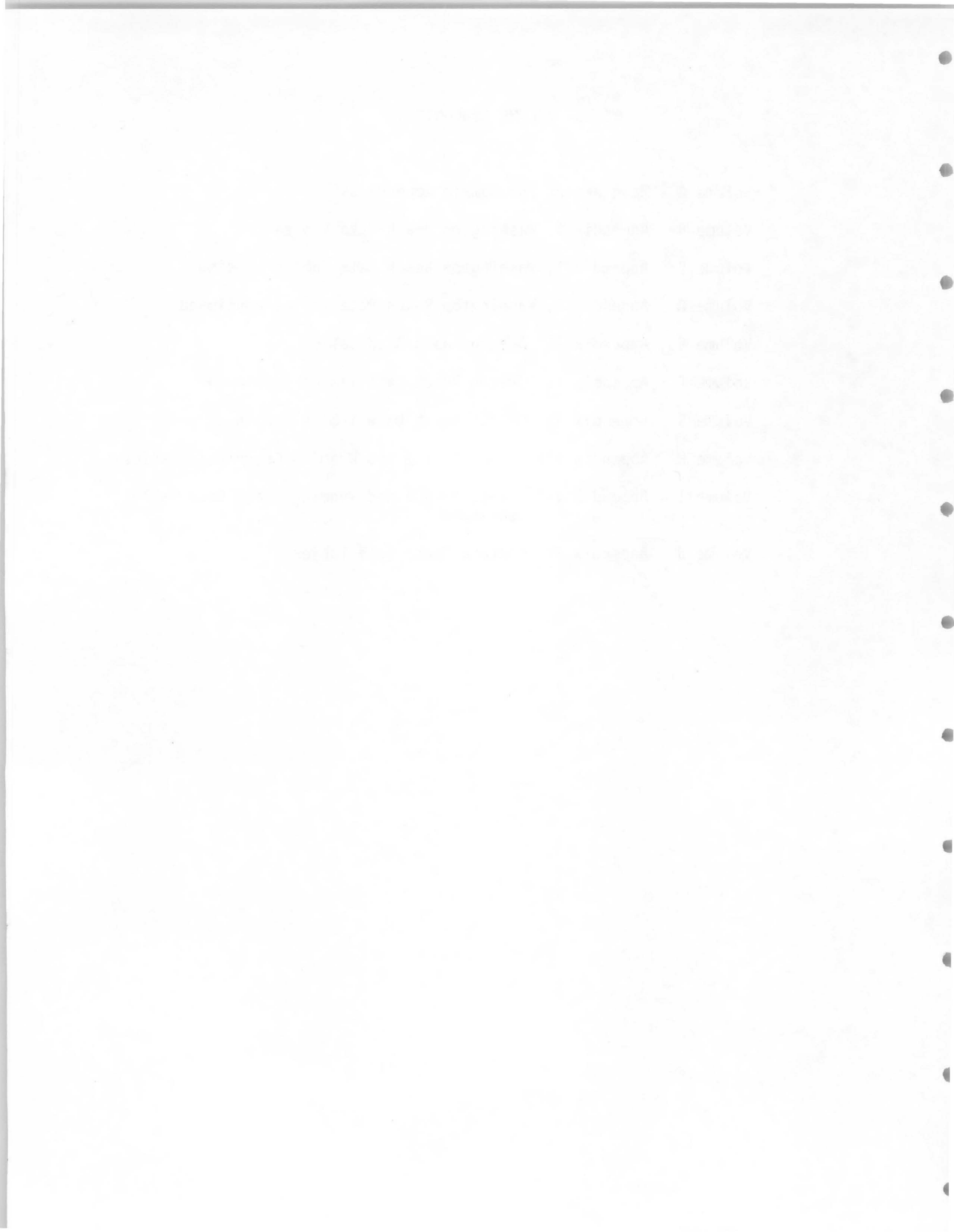


TABLE OF CONTENTS
APPENDIX I
MONTANA

Main Report
Table of Contents ii

Table I
Reach Index 1

Table II
Feasibility-Transmission and
Load Considerations 4-17

Reach Hydro-Potential
Characteristic Sheets M1 to M182

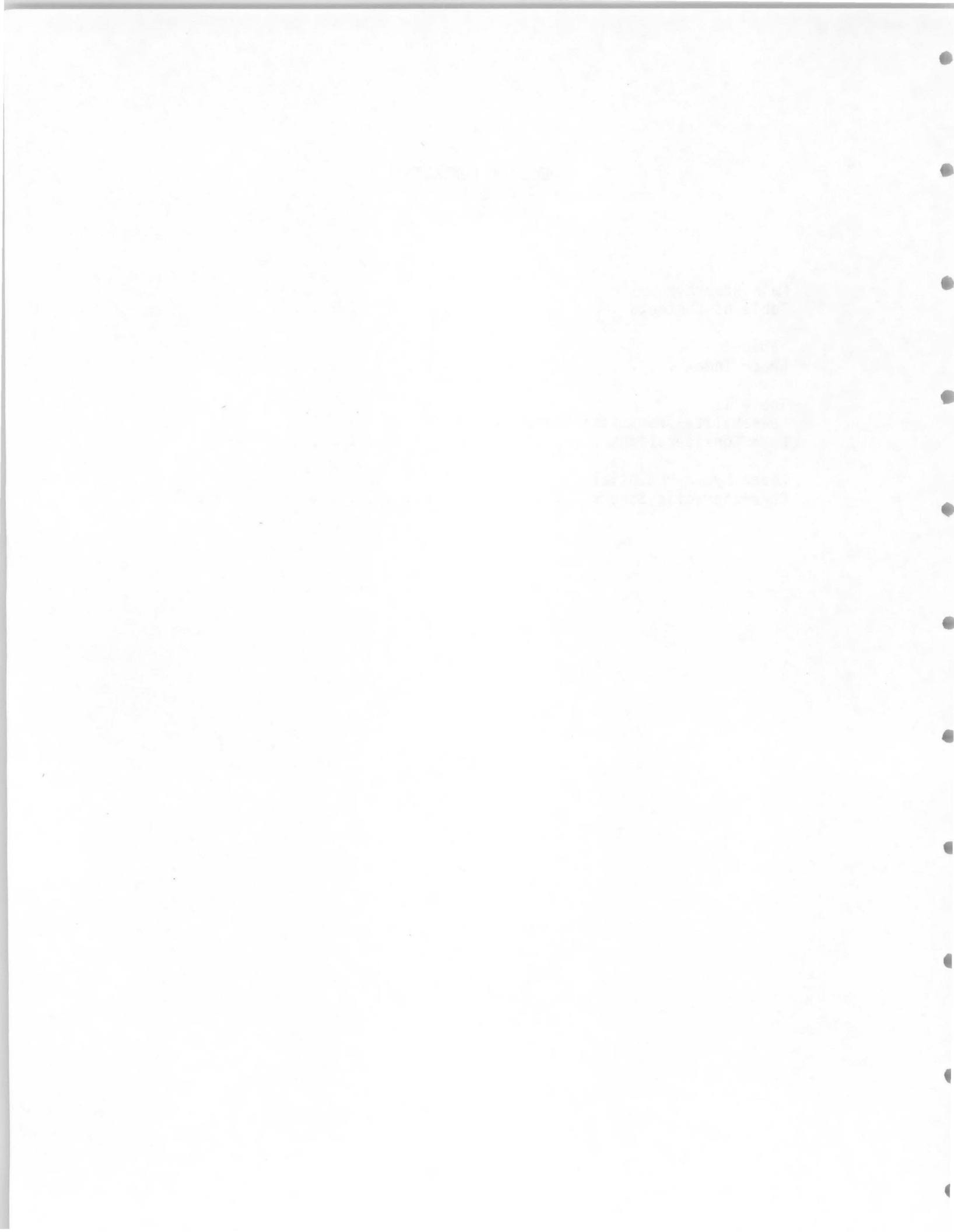


TABLE I
MONTANA REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--------------------------------|---|-----------|
| I Clark Fork River (Main Stem) | 04 - 500 - 480 - 350 - 000 - R0001 thru R0030 | M1 - M30 |
| A. Silver Bow Creek | 04 - 500 - 480 - 350 - 110 - R0001 thru R0002 | M31 - M32 |
| B. Little Blackfoot River | 04 - 500 - 480 - 350 - 140 - R0001 thru R0002 | M33 - M34 |
| C. Flint Creek | 04 - 500 - 480 - 350 - 180 - R0001 thru R0003 | M35 - M37 |
| D. Rock Creek | 04 - 500 - 480 - 350 - 200 - R0001 thru R0006 | M38 - M43 |
| E. Ninemile Creek | 04 - 500 - 480 - 350 - 280 - R0001 | M44 |
| F. Fish Creek | 04 - 500 - 480 - 350 - 320 - R0001 thru R0003 | M45 - M47 |
| G. Trout Creek | 04 - 500 - 480 - 350 - 360 - R0001 | M48 |
| H. Cedar Creek | 04 - 500 - 480 - 350 - 380 - R0001 | M49 |
| I. St. Regis River | 04 - 500 - 480 - 350 - 420 - R0001 thru R0002 | M50 - M51 |
| J. Thompson River | 04 - 500 - 480 - 350 - 520 - R0001 thru R0004 | M52 - M55 |
| K. Prospect Creek | 04 - 500 - 480 - 350 - 560 - R0001 | M56 |
| L. Beaver Creek | 04 - 500 - 480 - 350 - 600 - R0001 | M57 |

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is too light to transcribe accurately.

TABLE I
MONTANA REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--|---|-------------|
| M. Vermilion River | 04 - 500 - 480 - 350 - 620 - R0001 | M58 |
| N. Bull River | 04 - 500 - 480 - 350 - 740 - R0001 | M59 |
| O. Blackfoot River
and tributaries | 04 - 500 - 480 - 350 - 220 - R0001 thru R0014 | M60 - M73 |
| P. Bitterroot River
and tributaries | 04 - 500 - 480 - 350 - 260 - R0001 thru R0025 | M74 - M98 |
| Q. Flathead River
and tributaries | 04 - 500 - 480 - 350 - 440 - R0001 thru R0060 | M99 - M158 |
| II Kootenai River (Main Stem) | 04 - 500 - 500 - 000 - 000 - R0001 thru R0008 | M159 - M166 |
| A. Tobacco River | 04 - 500 - 500 - 280 - 000 - R0001 thru R0002 | M167 - M168 |
| B. Big Creek | 04 - 500 - 500 - 320 - 000 - R0001 | M169 |
| C. Fisher River | 04 - 500 - 500 - 340 - 000 - R0001 thru R0005 | M170 - M174 |
| D. Libby Creek | 04 - 500 - 500 - 360 - 000 - R0001 | M175 |
| E. Pipe Creek | 04 - 500 - 500 - 400 - 000 - R0001 | M176 |

TABLE I
MONTANA REACH INDEX

| STREAM DESCRIPTION | REACH NUMBER | PAGE |
|--------------------|---|-------------|
| F. Lake Creek | 04 - 500 - 500 - 460 - 000 - R0001 thru R0002 | M177 - M178 |
| G. Yaak River | 04 - 500 - 500 - 500 - 000 - R0001 thru R0004 | M179 - M182 |

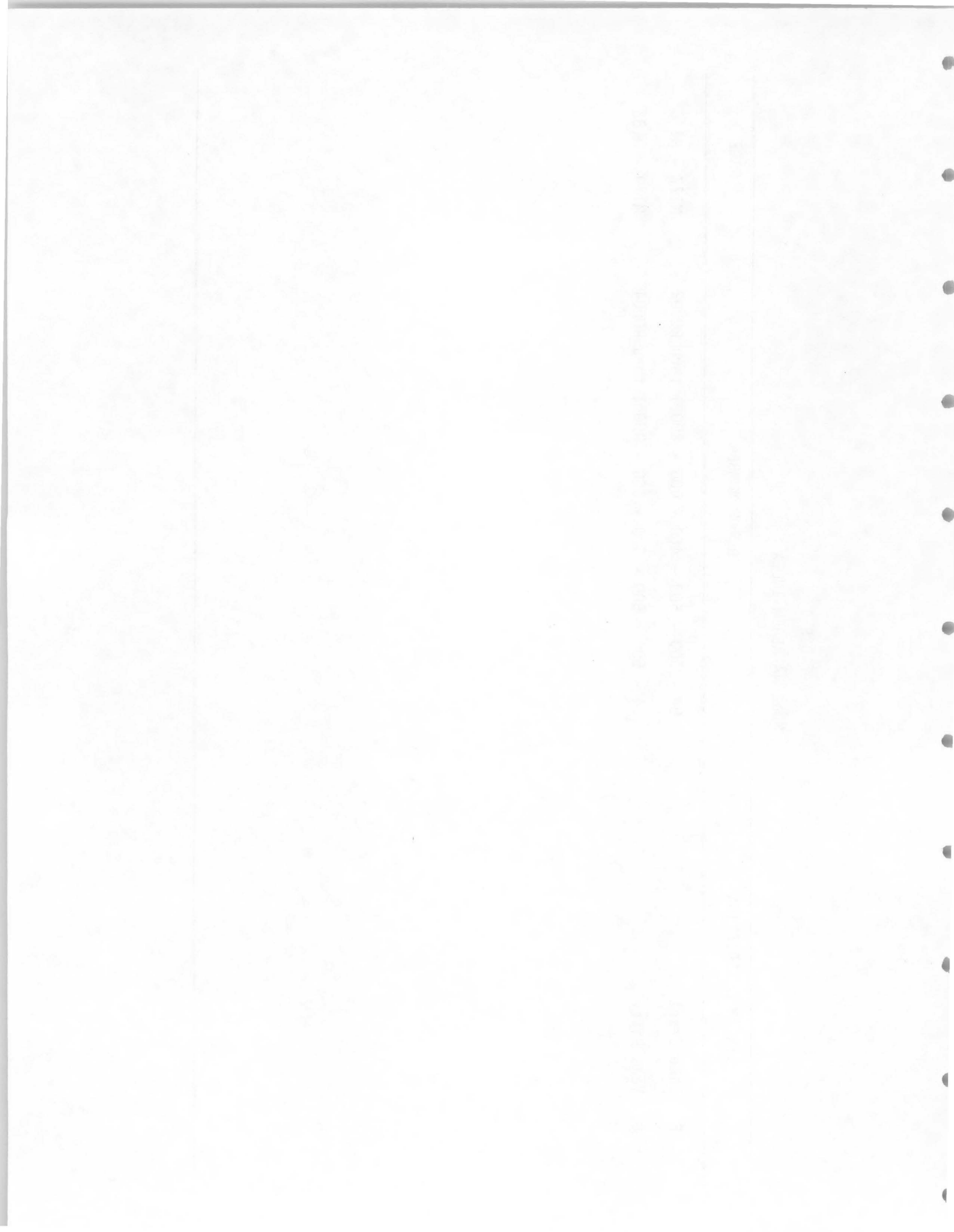


TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
MONTANA

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|-----------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|--------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE* TO CITY > 1000 Miles |
| 04500480350- | | | CLARK | FORK | RIVER - | MAIN | STEM | |
| 000R0001 | | X | | | 1 | 100(MPC) | 1,2,3 | 10 |
| 000R0002 | | X | | | 2 | 100(MPC) | 1,2 | 7 |
| 000R0003 | | X | X | | <1 | 100(MPC) | 1 | 3 |
| 000R0004 | | X | X | | 2 | 100(MPC) | 1,2 | 11 |
| 000R0005 | | X | | | <1 | 100(MPC) | 1 | 17 |
| 000R0006 | | X | X | | <1 | 161(MPC) | 1 | 27 |
| 000R0007 | | X | | | <1 | 161(MPC) | 1,3 | 22 |
| 000R0008 | | X | | | <1 | 230(BPA) | 1 | 9 |
| 000R0009 | | X | X | | <1 | 230(BPA) | 1 | 5 |
| 000R0010 | | X | X | | <1 | 100(MPC) | 1,2,3 | 1 |
| 000R0011 | | X | X | | <1 | 100(MPC) | 1 | 10 |
| 000R0012 | | X | | | <1 | 100(MPC) | 1 | 18 |
| 000R0013 | | X | | | <1 | 100(MPC) | 1 | 25 |
| 000R0014 | | X | | | <1 | 100(MPC) | 1,2 | 16 |
| 000R0015 | | X | | | <1 | 100(MPC) | 1 | 13 |
| 000R0016 | | X | | | <1 | 100(MPC) | 1 | 9 |
| 000R0017 | | X | X | | <1 | 100(MPC) | 1,2 | 4 |
| 000R0018 | | X | | | <1 | 100(MPC) | 1 | 2 |
| 000R0019 | | X | | | <1 | 100(MPC) | 1,2 | 7 |
| 000R0020 | | X | | | 7 | 100(MPC) | 1 | 10 |
| 000R0021 | | X | | | 8 | 100(MPC) | 1 | 9 |
| 000R0022 | | X | | | 5 | 500(BPA) | 1,2 | 5 |

MPC = Montana Power Company

BPA = Bonneville Power Administration

* Distance in air miles to nearest city with population greater than 1000

TABLE II
FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS
MONTANA

| REACH IDENTIFICATION NUMBER | FEASIBILITY RESTRAINT | | | | TRANSMISSION AND LOAD CONSIDERATIONS | | | |
|-----------------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------------------------|-------------------|--------------|------------------------------|
| | LAND USE RESTRICTIONS | UTILITY DISPLACEMENT | BUILDING DISPLACEMENT | SPECIAL FISH PROBLEMS | DISTANCE TO NEAREST LINE Miles | LINE CAPACITY KVA | LOCAL MARKET | DISTANCE TO CITY >1000 Miles |
| 04500480350- | | | CLARK | FORK | RIVER - | MAIN | STEM | (cont) |
| 000R0023 | | x | | | 3 | 500(BPA) | 1 | 2 |
| 000R0024 | | x | | | <1 | 500(BPA) | 1 | 7 |
| 000R0025 | | x | | | <1 | 230(BPA) | 1 | 12 |
| 000R0026 | | x | | | <1 | 230(BPA) | 1,2,3 | 4 |
| 000R0027 | | x | | | <1 | 230(BPA) | 1 | 5 |
| 000R0028 | | x | | | 2 | 230(BPA) | 1 | 13 |
| 000R0029 | | | | | <1 | 230(WWP) | 1 | 24 |
| 000R0030 | | | | | 2 | 230(BPA) | 1 | 28 |
| 04500480350- | | | SILVER | BOW | CREEK | | | |
| 110R0001 | | x | x | | <1 | 161(MPC) | 1,2,3 | 9 |
| 110R0002 | | x | | | <1 | 100(MPC) | 1 | 8 |
| 04500480350- | | | LITTLE | BLACKFOOT | RIVER | | | |
| 140R0001 | | x | x | | <1 | 100(MPC) | 1 | 18 |
| 140R0002 | | x | x | | 6 | 100(MPC) | 1 | 13 |
| 04500480350- | | | | FLINT | CREEK | | | |
| 180R0001 | | x | x | | <1 | 100(MPC) | 1 | 4 |

BPA = Bonneville Power Administration
MPC = Montana Power Company

WWP = Washington Water Power Co.

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 04-500-480-350-000-R0001

I. LOCATION

| | |
|------------------------|------------------|
| A. State | Montana |
| B. County | Deer Lodge |
| C. Township, Range | T5N, R9W |
| D. Latitude, Longitude | 46°11', 112°46' |
| E. Stream Name | Clark Fork River |
| F. Major Basin Name | Clark Fork |
| G. River Mile | 293.5 to 299.0 |

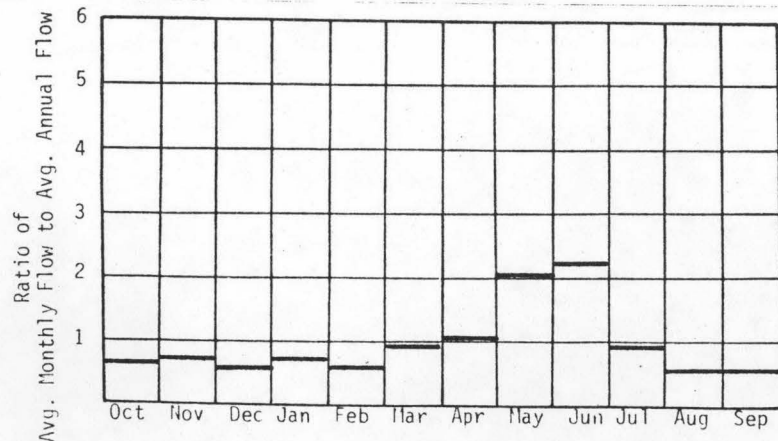
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|---------------------|---------|
| A. Upstream Elevation of Reach | 4850 | Ft. MSL |
| B. Downstream Elevation of Reach | 4730 | Ft. MSL |
| C. Total Available Head in Reach | 120 | Ft. |
| D. Average Slope in Reach | 21.8 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 734 | Sq.Mi. |
| F. Inflow Classification | Partially Regulated | |

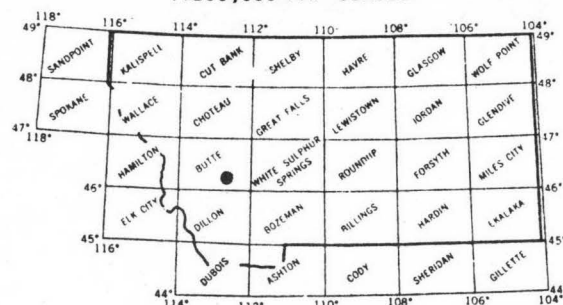
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

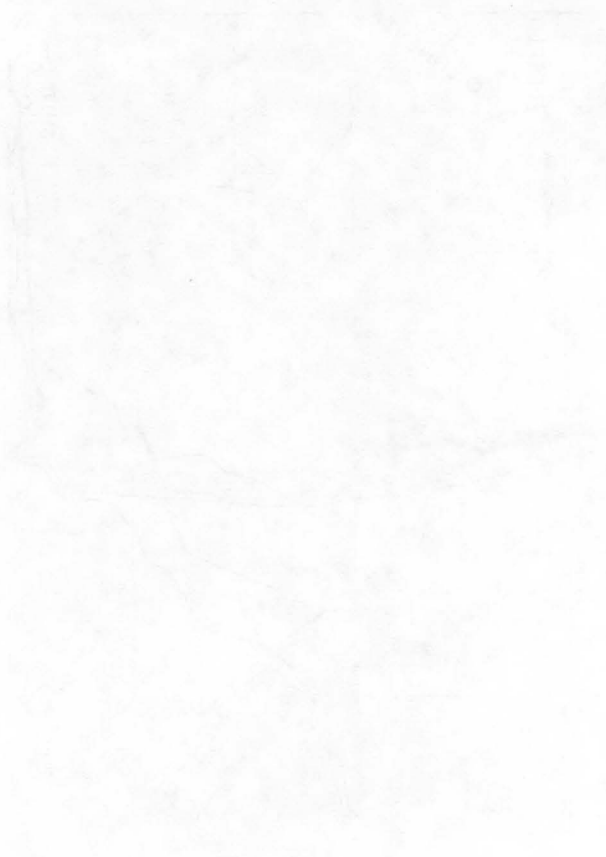
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 68 | .69 | 6.06 | 1.00 |
| 80 | 90 | .92 | 7.82 | .97 |
| 50 | 163 | 1.66 | 11.92 | .82 |
| 30 | 256 | 2.60 | 15.26 | .67 |
| 10 | 680 | 6.92 | 21.20 | .35 |

IV. TYPICAL ANNUAL HYDROGRAPH AVERAGE ANNUAL FLOW = 259 CFS



LOCATIONS FOR USGS 1:250,000 MAP SERIES





| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

1. The first part of the document is a list of items.

 2. The second part is a table with 10 columns and 10 rows.

 3. The third part is a table with 10 columns and 10 rows.

 4. The fourth part is a table with 10 columns and 10 rows.

 5. The fifth part is a table with 10 columns and 10 rows.

1. The first part of the document is a list of items.

 2. The second part is a table with 10 columns and 10 rows.

 3. The third part is a table with 10 columns and 10 rows.

 4. The fourth part is a table with 10 columns and 10 rows.

 5. The fifth part is a table with 10 columns and 10 rows.

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 04-500-480-350-000-R0002

I. LOCATION

| | |
|------------------------|------------------|
| A. State | Montana |
| B. County | Powell |
| C. Township, Range | T6N, R9W |
| D. Latitude, Longitude | 46°18', 112°44' |
| E. Stream Name | Clark Fork River |
| F. Major Basin Name | Clark Fork |
| G. River Mile | 279.8 to 293.5 |

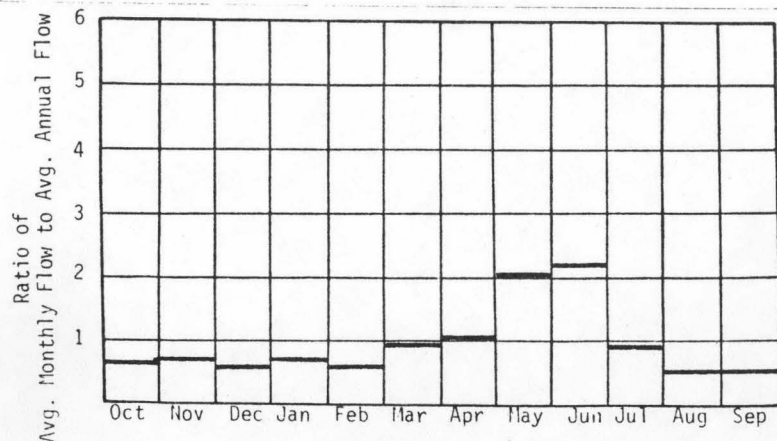
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|---------------------|---------|
| A. Upstream Elevation of Reach | 4730 | Ft. MSL |
| B. Downstream Elevation of Reach | 4520 | Ft. MSL |
| C. Total Available Head in Reach | 210 | Ft. |
| D. Average Slope in Reach | 15.3 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 945 | Sq. Mi. |
| F. Inflow Classification | Partially Regulated | |

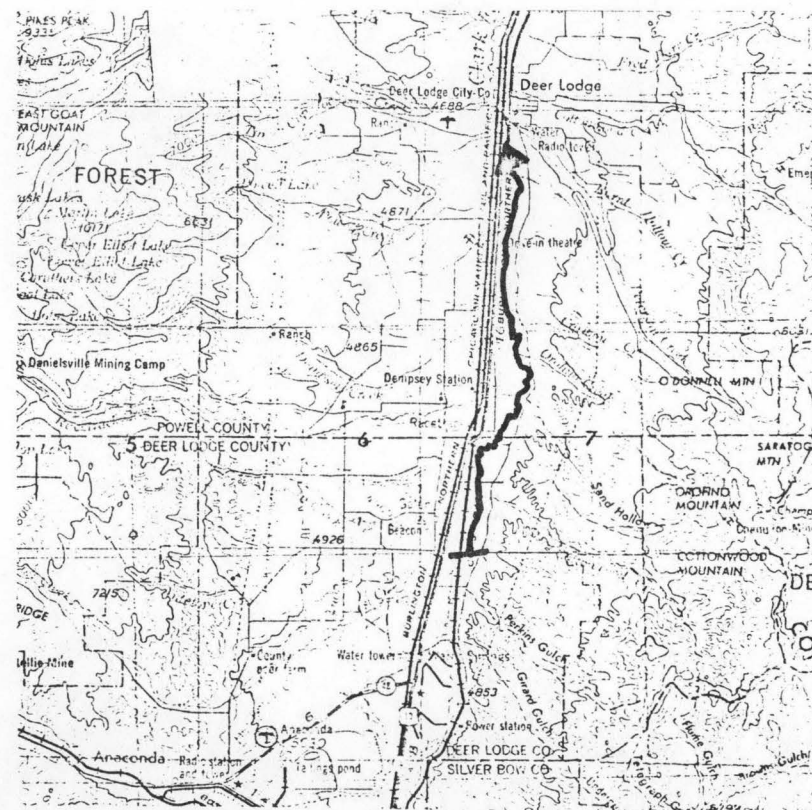
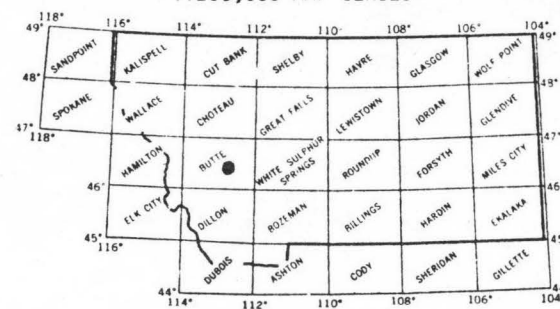
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

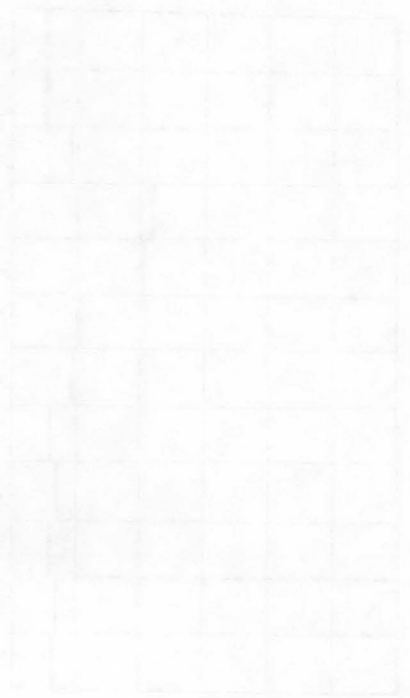
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 102 | 1.81 | 15.87 | 1.00 |
| 80 | 135 | 2.41 | 20.47 | .97 |
| 50 | 244 | 4.35 | 31.23 | .82 |
| 30 | 383 | 6.81 | 39.98 | .67 |
| 10 | 1018 | 18.12 | 55.55 | .35 |

IV. TYPICAL ANNUAL HYDROGRAPH AVERAGE ANNUAL FLOW = 384 CFS

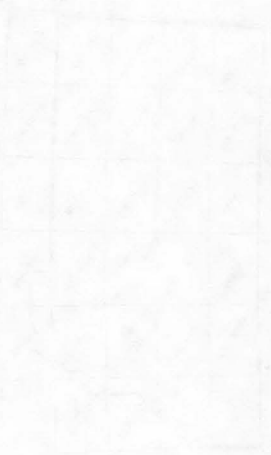


LOCATIONS FOR USGS
1:250,000 MAP SERIES





The following information is for your information only. It is not intended to be used as a substitute for professional advice. The information is provided for informational purposes only. It is not intended to be used as a substitute for professional advice. The information is provided for informational purposes only. It is not intended to be used as a substitute for professional advice.



© 2000 by [illegible]
 [illegible]

[illegible]

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 04-500-480-350-000-R0003

I. LOCATION

| | |
|------------------------|------------------|
| A. State | Montana |
| B. County | Powell |
| C. Township, Range | T8N, R9W |
| D. Latitude, Longitude | 46°27', 112°44' |
| E. Stream Name | Clark Fork River |
| F. Major Basin Name | Clark Fork |
| G. River Mile | 267.2 to 279.8 |

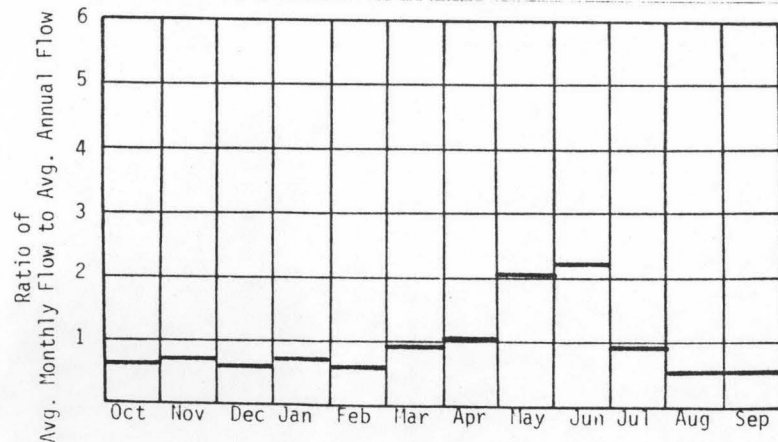
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|---------------------|---------|
| A. Upstream Elevation of Reach | 4520 | Ft. MSL |
| B. Downstream Elevation of Reach | 4335 | Ft. MSL |
| C. Total Available Head in Reach | 185 | Ft. |
| D. Average Slope in Reach | 14.7 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 1147 | Sq.Mi. |
| F. Inflow Classification | Partially Regulated | |

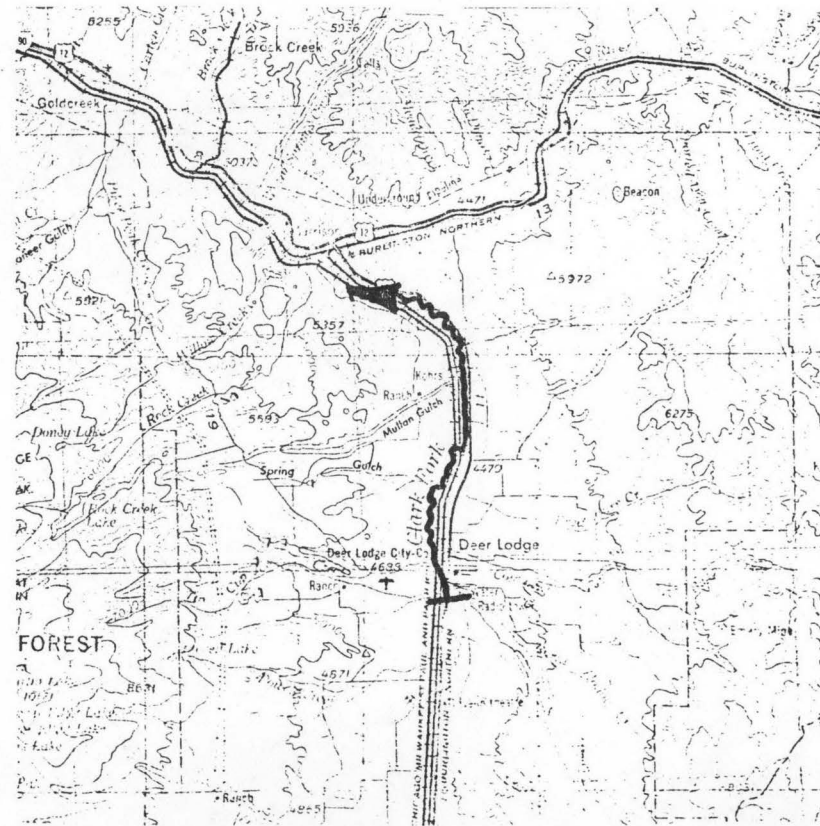
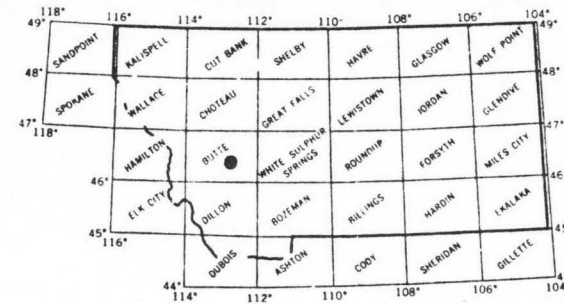
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 127 | 2.00 | 17.50 | 1.00 |
| 80 | 169 | 2.66 | 22.57 | .97 |
| 50 | 306 | 4.79 | 34.43 | .82 |
| 30 | 479 | 7.51 | 44.08 | .67 |
| 10 | 1274 | 19.97 | 61.24 | .35 |

IV. TYPICAL ANNUAL HYDROGRAPH AVERAGE ANNUAL FLOW = 478 CFS



LOCATIONS FOR USGS
1:250,000 MAP SERIES





| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Faint vertical text on the right side of the page, possibly a page number or a reference.

REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 04-500-480-350-000-R0004

I. LOCATION

| | |
|------------------------|------------------|
| A. State | Montana |
| B. County | Powell |
| C. Township, Range | T9N, R10W |
| D. Latitude, Longitude | 46°32', 112°50' |
| E. Stream Name | Clark Fork River |
| F. Major Basin Name | Clark Fork |
| G. River Mile | 261.0 to 267.2 |

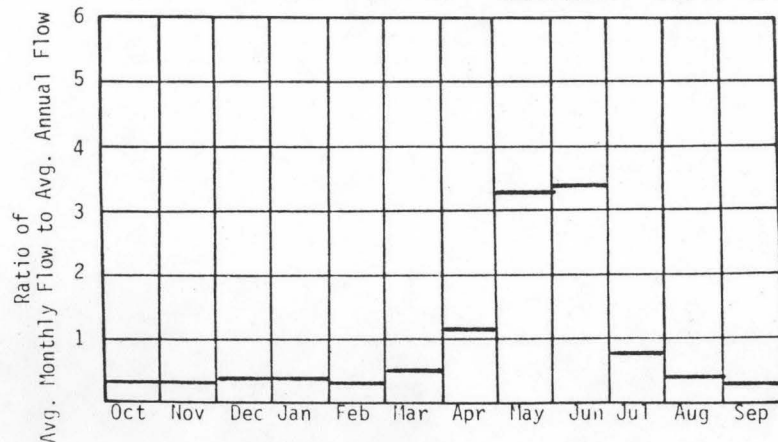
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|---------------------|---------|
| A. Upstream Elevation of Reach | 4335 | Ft. MSL |
| B. Downstream Elevation of Reach | 4280 | Ft. MSL |
| C. Total Available Head in Reach | 55 | Ft. |
| D. Average Slope in Reach | 8.9 | Ft./Mi. |
| E. Drainage Area above Reach Mouth | 1689 | Sq.Mi. |
| F. Inflow Classification | Partially Regulated | |

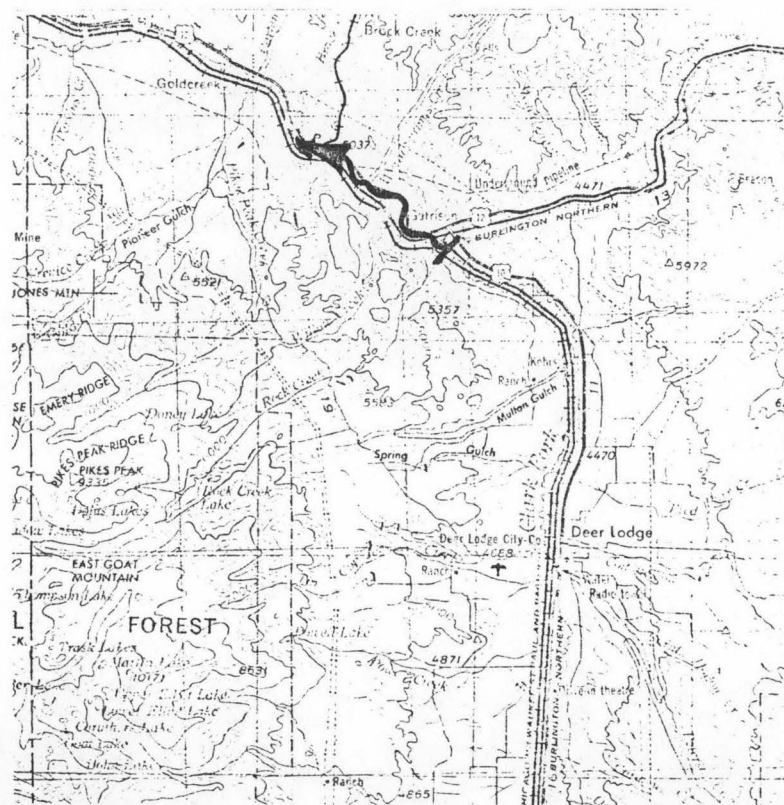
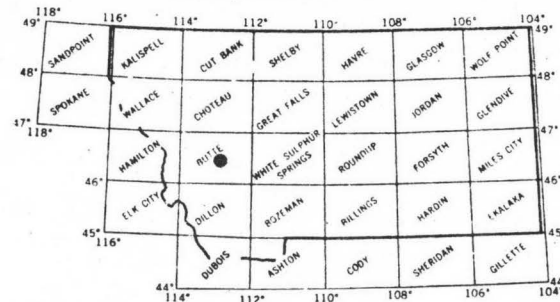
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 209 | .97 | 8.53 | 1.00 |
| 80 | 256 | 1.19 | 10.23 | .98 |
| 50 | 423 | 1.97 | 14.67 | .85 |
| 30 | 668 | 3.11 | 18.28 | .67 |
| 10 | 1740 | 8.11 | 25.58 | .36 |

IV. TYPICAL ANNUAL HYDROGRAPH AVERAGE ANNUAL FLOW = 650 CFS



LOCATIONS FOR USGS 1:250,000 MAP SERIES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 04-500-480-350-000-R0005

I. LOCATION

| | |
|------------------------|-------------------------|
| A. State | <u>Montana</u> |
| B. County | <u>Powell</u> |
| C. Township, Range | <u>T10N, R11W</u> |
| D. Latitude, Longitude | <u>46°36', 112°57'</u> |
| E. Stream Name | <u>Clark Fork River</u> |
| F. Major Basin Name | <u>Clark Fork</u> |
| G. River Mile | <u>252.0 to 261.0</u> |

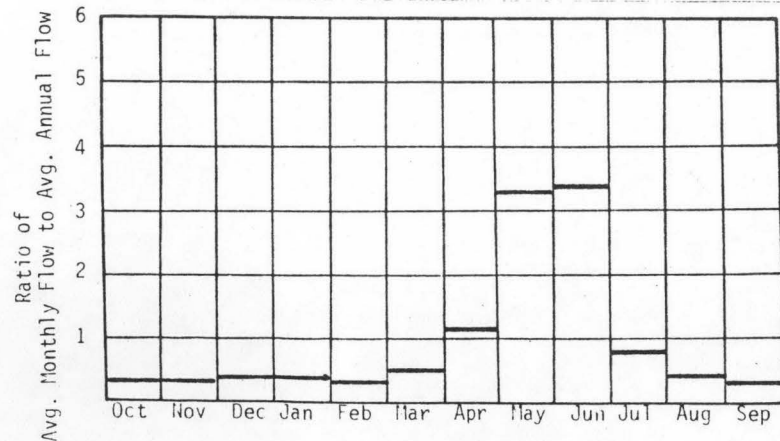
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

| | | |
|------------------------------------|----------------------------|---------|
| A. Upstream Elevation of Reach | <u>4280</u> | Ft. MSL |
| B. Downstream Elevation of Reach | <u>4065</u> | Ft. MSL |
| C. Total Available Head in Reach | <u>215</u> | Ft. |
| D. Average Slope in Reach | <u>23.9</u> | Ft./Mi. |
| E. Drainage Area above Reach Mouth | <u>1856</u> | Sq.Mi. |
| F. Inflow Classification | <u>Partially Regulated</u> | |

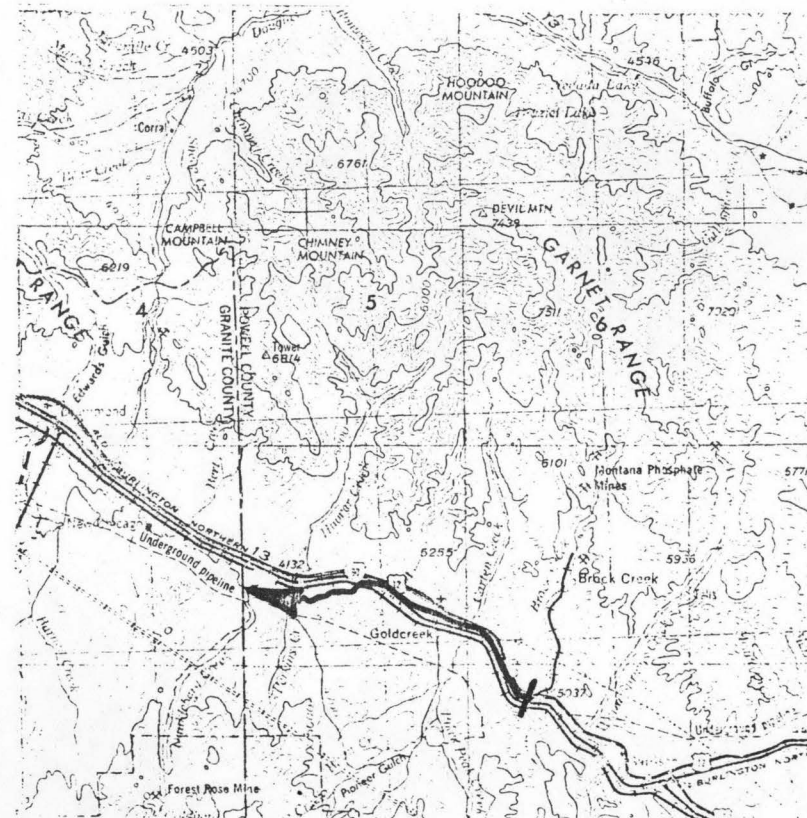
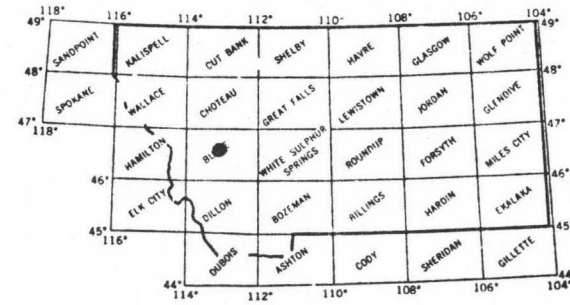
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

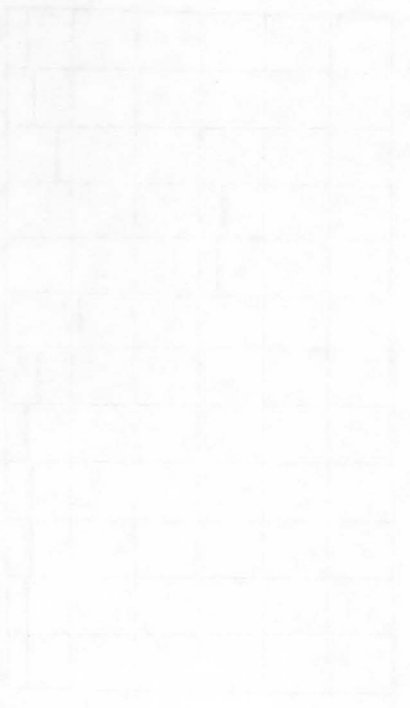
| Exceedance Percentage | Discharge CFS | Theoretical Plant Size MW | Annual Energy Available GWH | Plant Factor |
|-----------------------|---------------|---------------------------|-----------------------------|--------------|
| 95 | 263 | 4.78 | 41.91 | 1.00 |
| 80 | 322 | 5.86 | 50.31 | .98 |
| 50 | 532 | 9.69 | 72.13 | .85 |
| 30 | 840 | 15.31 | 89.85 | .67 |
| 10 | 2188 | 39.87 | 125.72 | .36 |

IV. TYPICAL ANNUAL HYDROGRAPH AVERAGE ANNUAL FLOW = 814 CFS



LOCATIONS FOR USGS 1:250,000 MAP SERIES





Faint vertical text or markings on the right side of the page, possibly bleed-through from the reverse side.