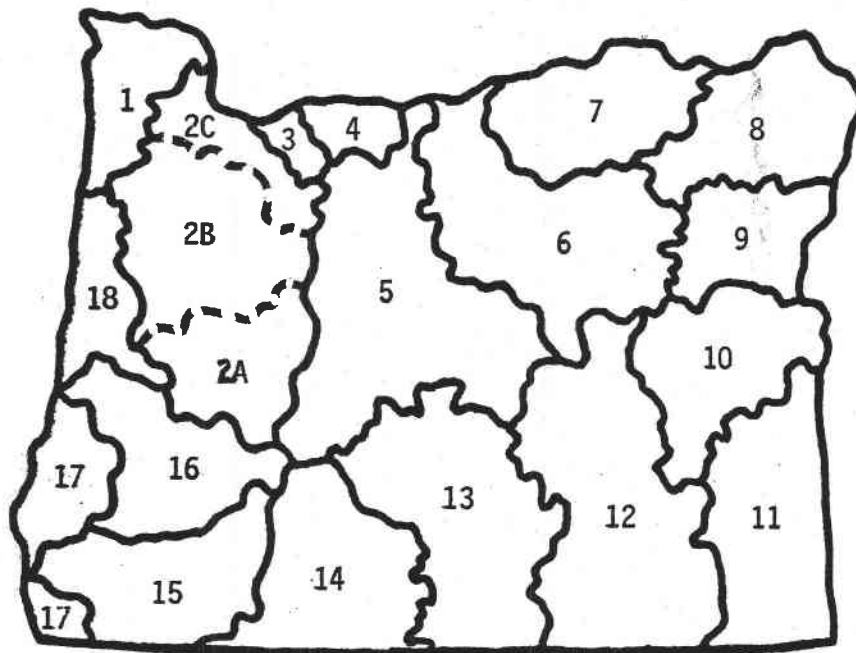


A RESOURCE SURVEY OF RIVER ENERGY
AND LOW-HEAD HYDROELECTRIC POWER POTENTIAL
IN OREGON

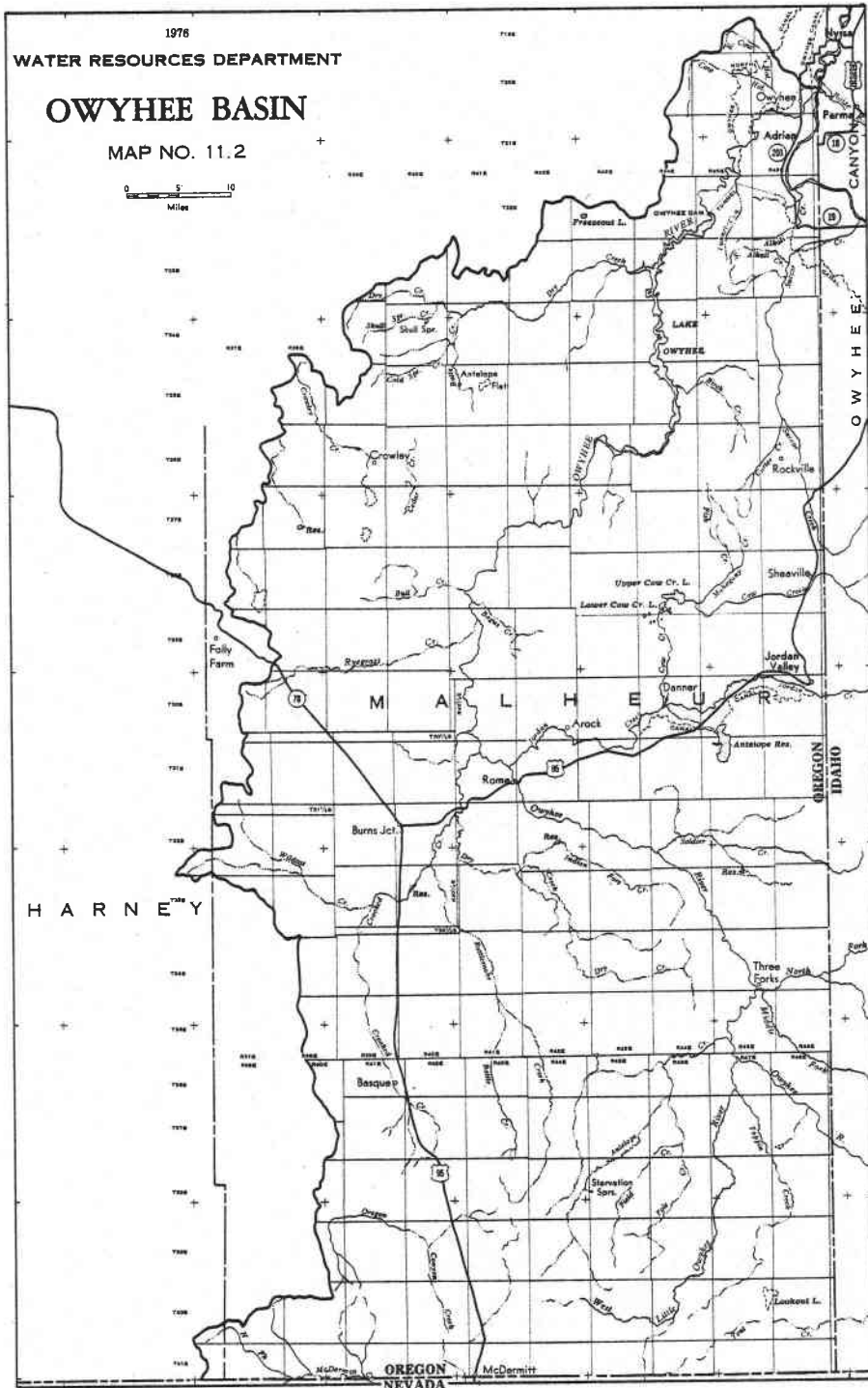
APPENDIX 11: OWYHEE BASIN



WATER RESOURCES RESEARCH INSTITUTE
Oregon State University
Corvallis, Oregon 97331

INDEX TO APPENDIX 11, OWYHEE BASIN

Drainage Basin Map	11-ii
Reach Hydro Potential Characteristics Sheets	
Owyhee River Below Owyhee Dam	11-1 to 11-3
Owyhee River Main Stem Above	
Owyhee Reservoir	11- 4-8, 12, 18-23
Crooked Creek	11-9 to 11-11
Jordan Creek	11-13 to 11-17
Reach Feasibility Analysis Sheets	11-24 to 11-25



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0001

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 3, T21S, R46E
D. Latitude, Longitude	43°43'N, 117°05'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	0.0 to 10.0

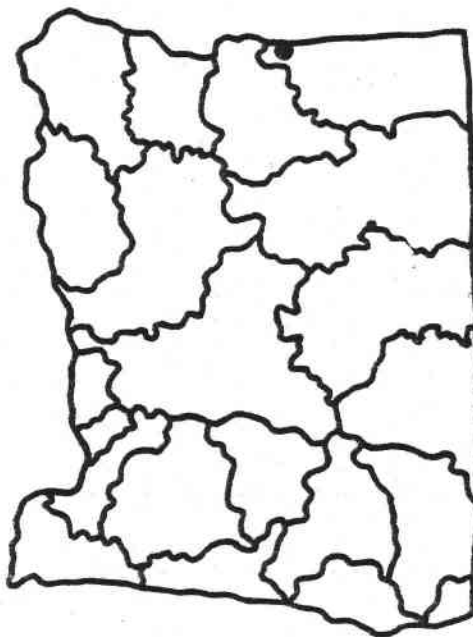
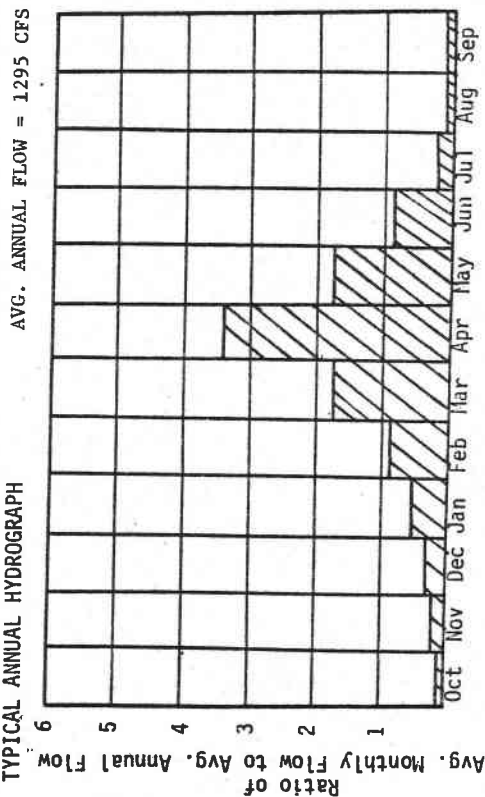
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2230	Ft. MSL
B. Downstream Elevation of Reach	2180	Ft. MSL
C. Total Available Head in Reach	50	Ft.
D. Average Slope in Reach	5	Ft./Mi.
E. Drainage Area above Reach Mouth	10470	Sq. Mi.
F. Inflow Classification	Regulated	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I DISCHARGE I THEORETICAL I ANNUAL ENERGY I PLANT I	I PERCENTAGE I CFS I PLANT SIZE I AVAILABLE I FACTOR I	I I I MW I GWH I I
I 95 I	I 139.2 I	I .59 I 5.17 I 1.000 I
I 80 I	I 201.0 I	I .85 I 7.17 I .962 I
I 50 I	I 357.7 I	I 1.52 I 10.95 I .825 I
I 30 I	I 867.4 I	I 3.68 I 18.52 I .575 I
I 10 I	I 3713.8 I	I 15.74 I 39.65 I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0010

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 22, T21S, R45E
D. Latitude, Longitude	43°45'N, 117°12'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	10.0 to 20.0

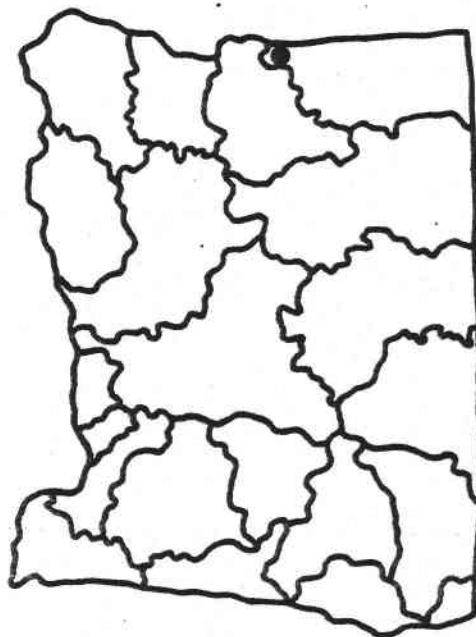
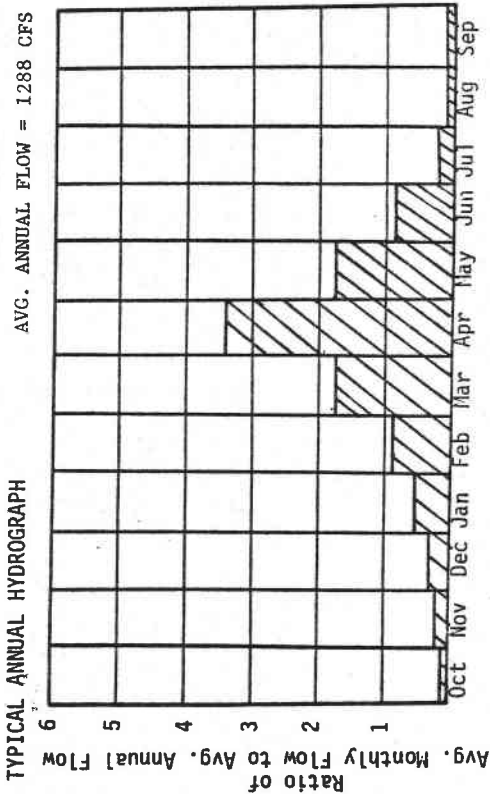
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2335	Ft. MSL
B. Downstream Elevation of Reach	2230	Ft. MSL
C. Total Available Head in Reach	105	Ft.
D. Average Slope in Reach	10.5	Ft./Mi.
E. Drainage Area above Reach Mouth	10387	Sq. Mi.
F. Inflow Classification	Regulated	

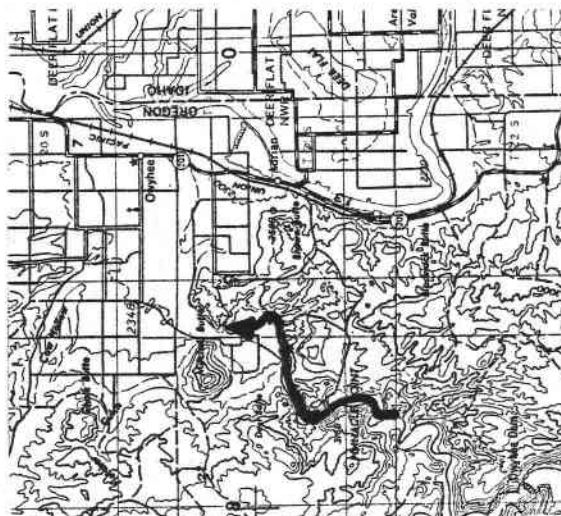
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I I
I 95 I	I 138.4 I	I 1.23 I	I 10.79 I	I 1.000 I
I 80 I	I 199.9 I	I 1.78 I	I 14.98 I	I .962 I
I 50 I	I 355.6 I	I 3.16 I	I 22.87 I	I .825 I
I 30 I	I 862.5 I	I 7.68 I	I 38.68 I	I .575 I
I 10 I	I 3692.6 I	I 32.86 I	I 82.80 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0020

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 9, T22S, R45W
D. Latitude, Longitude	43°40'N, 117°14'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	20.0 to 28.5

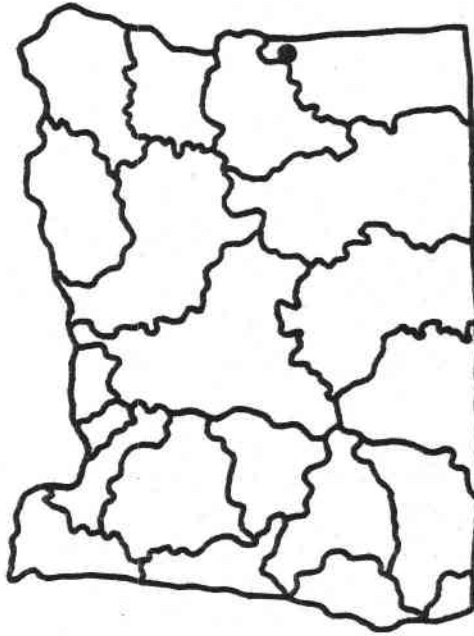
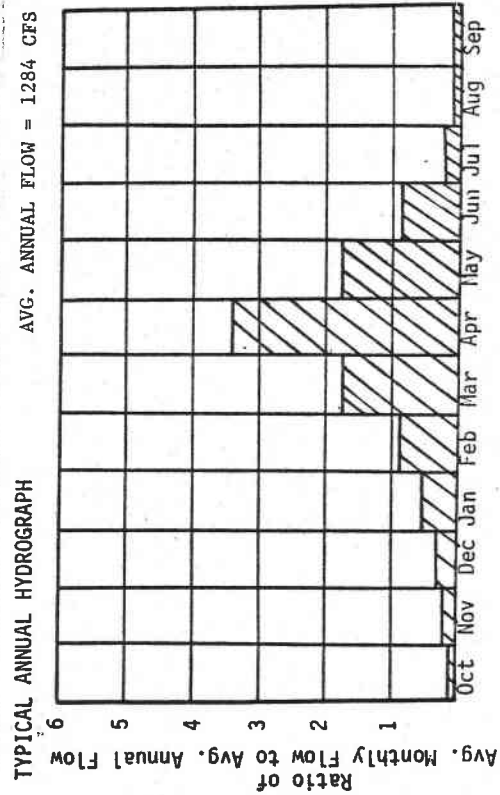
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2380	Ft. MSL
B. Downstream Elevation of Reach	2335	Ft. MSL
C. Total Available Head in Reach	45	Ft.
D. Average Slope in Reach	5.3	Ft./Mi.
E. Drainage Area above Reach Mouth	10332	Sq. Mi.
F. Inflow Classification	Regulated	

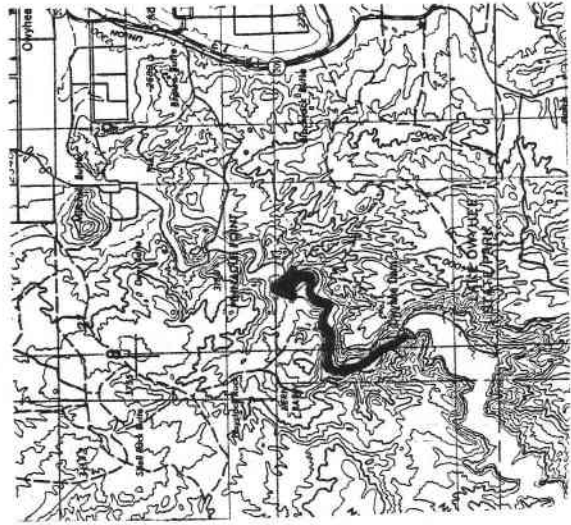
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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 137.9 I	I .53 I	I 4.61 I	I 1.000 I
I 80 I	I 199.2 I	I .76 I	I 6.40 I	I .962 I
I 50 I	I 354.3 I	I 1.35 I	I 9.77 I	I .825 I
I 30 I	I 859.4 I	I 3.28 I	I 16.52 I	I .575 I
I 10 I	I 3679.2 I	I 14.03 I	I 35.36 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0070

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 7, T27S, R43E
D. Latitude, Longitude	43°14'N, 117°30'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	70.0 to 80.0

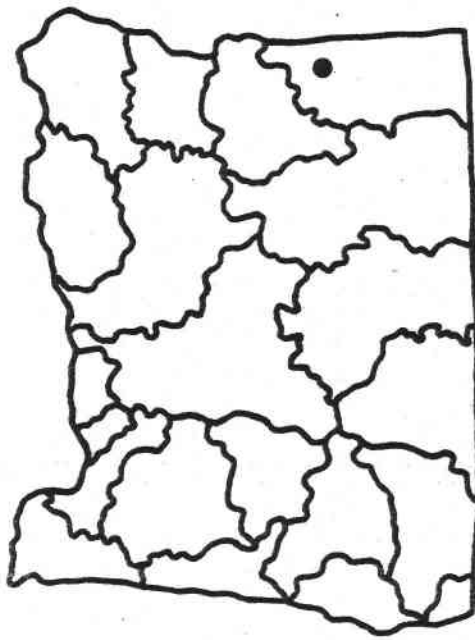
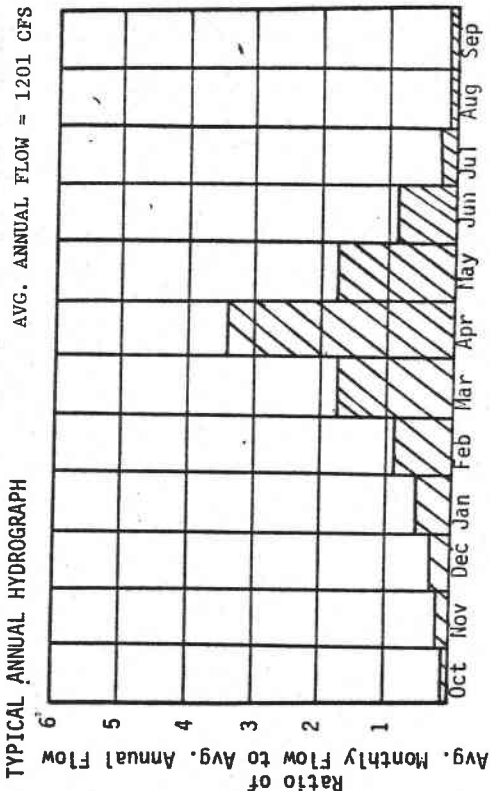
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2756	Ft. MSL
B. Downstream Elevation of Reach	2655	Ft. MSL
C. Total Available Head in Reach	101	Ft.
D. Average Slope in Reach	10.1	Ft./Mi.
E. Drainage Area above Reach Mouth	9490	Sq. Mi.
F. Inflow Classification	Natural	

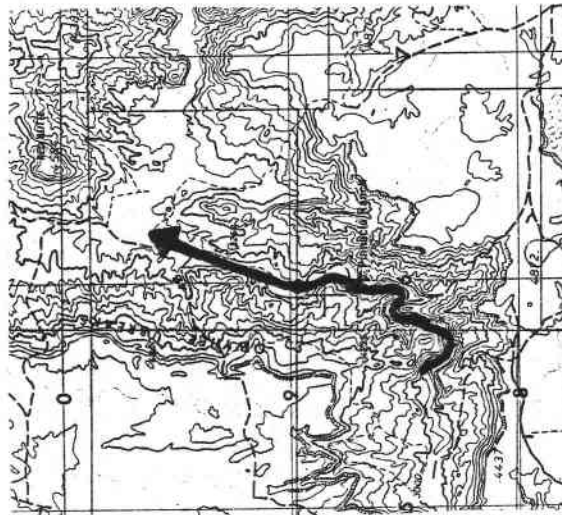
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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 128.1 I	I 1.10 I	I 9.61 I	I 1.000 I
I 80 I	I 185.0 I	I 1.58 I	I 13.34 I	I .962 I
I 50 I	I 329.1 I	I 2.82 I	I 20.36 I	I .825 I
I 30 I	I 799.0 I	I 6.84 I	I 34.46 I	I .575 I
I 10 I	I 3418.6 I	I 29.26 I	I 73.74 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-700-240-200-000-R0080

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 29, T27S, R42E
D. Latitude, Longitude	43°12'N, 117°36'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	80.0 to 90.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

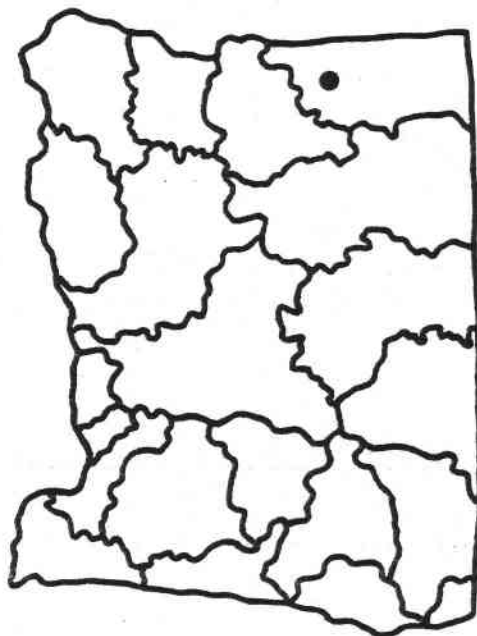
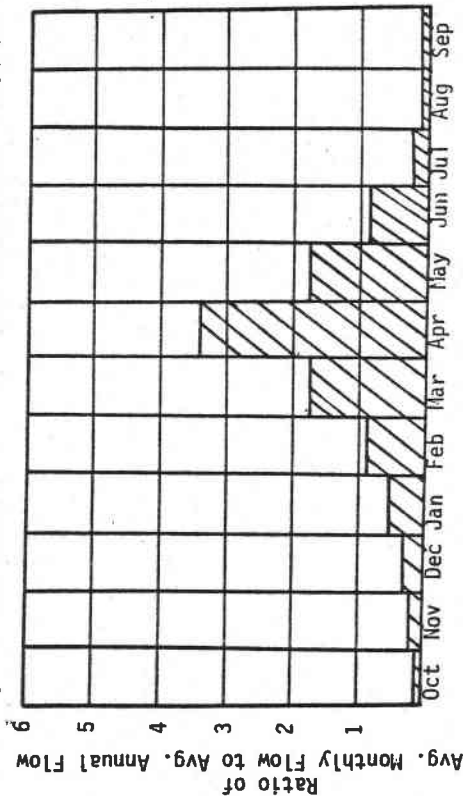
A. Upstream Elevation of Reach	2932	Ft. MSL
B. Downstream Elevation of Reach	2756	Ft. MSL
C. Total Available Head in Reach	176	Ft.
D. Average Slope in Reach	17.6	Ft./Mi.
E. Drainage Area above Reach Mouth	9454	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

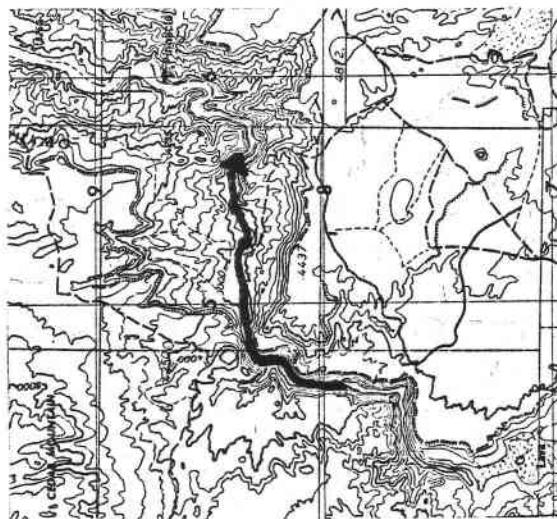
I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 127.3 I	I 1.90 I	I 16.64 I	I 1.000 I
I 80 I	I 183.9 I	I 2.74 I	I 23.11 I	I .962 I
I 50 I	I 327.1 I	I 4.88 I	I 35.27 I	I .825 I
I 30 I	I 794.3 I	I 11.85 I	I 59.68 I	I .575 I
I 10 I	I 3398.1 I	I 50.68 I	I 127.73 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 1194 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0090

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 28, T28S, R41E
D. Latitude, Longitude	43°07'N, 117°42'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	90.0 to 100.0

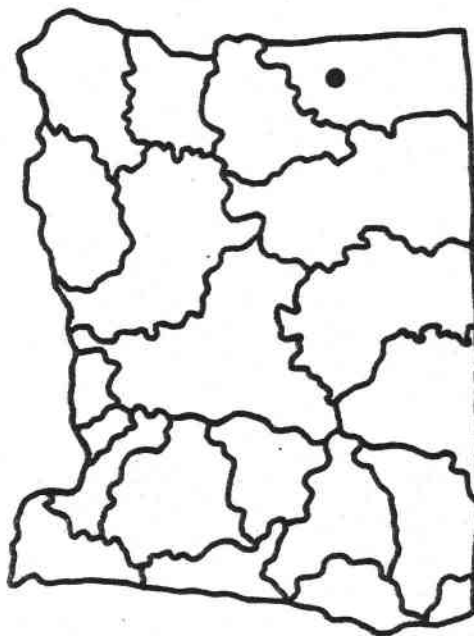
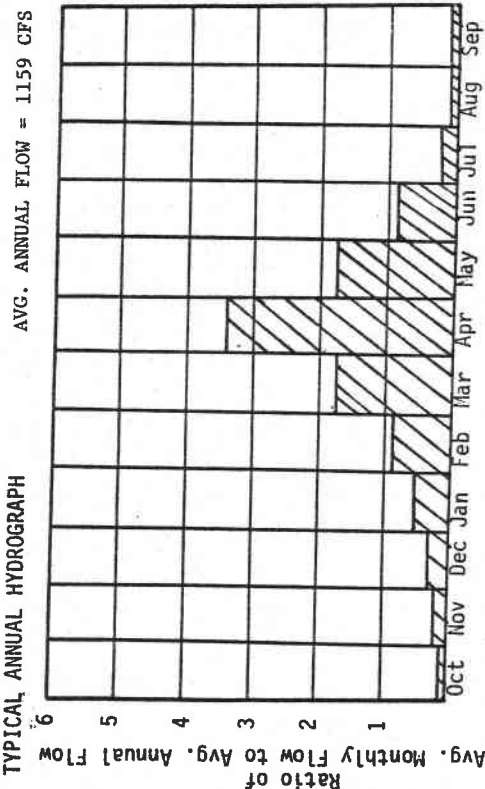
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3100	Ft. MSL
B. Downstream Elevation of Reach	2932	Ft. MSL
C. Total Available Head in Reach	168	Ft.
D. Average Slope in Reach	16.8	Ft./Mi.
E. Drainage Area above Reach Mouth	9358	Sq. Mi.
F. Inflow Classification	Natural	

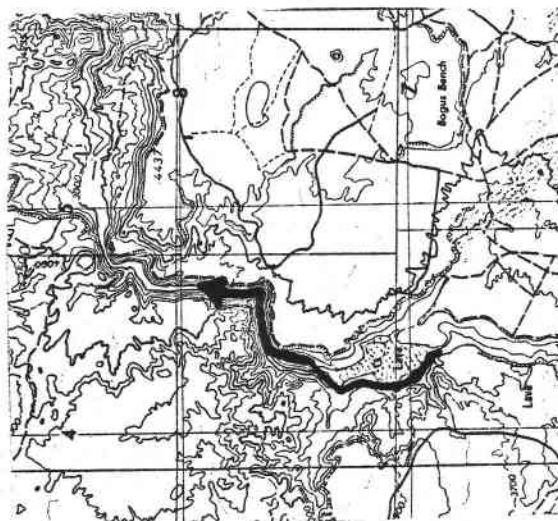
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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 123.2 I	I 1.75 I	I 15.36 I	I 1.000 I
I 80 I	I 177.9 I	I 2.53 I	I 21.34 I	I .962 I
I 50 I	I 316.4 I	I 4.50 I	I 32.56 I	I .825 I
I 30 I	I 768.6 I	I 10.94 I	I 55.12 I	I .575 I
I 10 I	I 3287.5 I	I 46.81 I	I 117.95 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0100

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 29, T29S, R41E
D. Latitude, Longitude	43° 01' N, 117° 43' W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	100.0 to 110.0

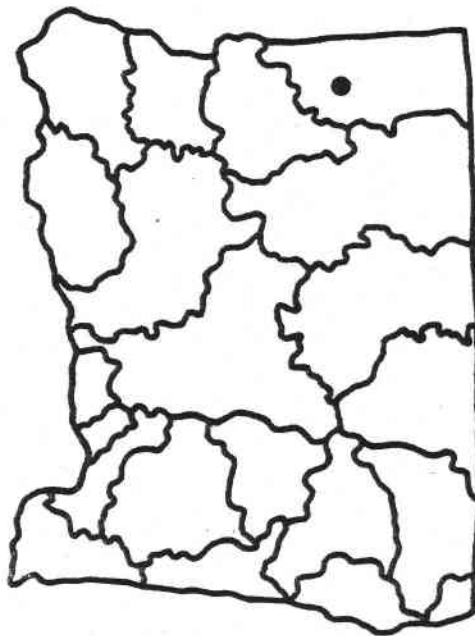
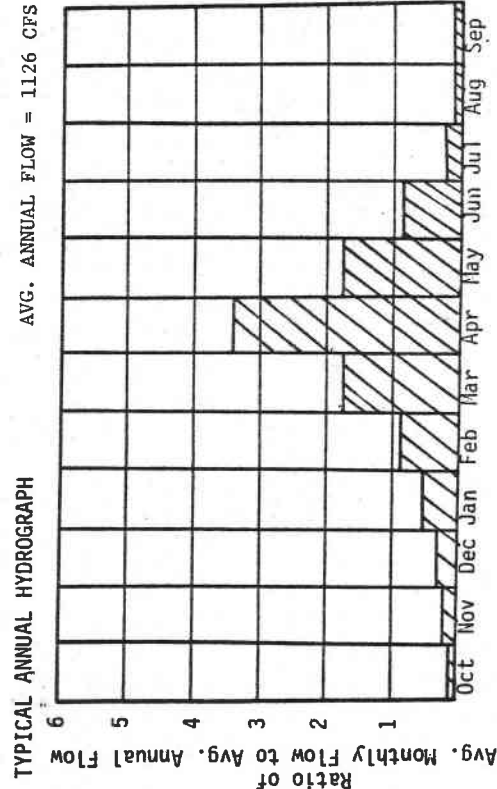
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3232	Ft. MSL
B. Downstream Elevation of Reach	3100	Ft. MSL
C. Total Available Head in Reach	132	Ft.
D. Average Slope in Reach	13.2	Ft./Mi.
E. Drainage Area above Reach Mouth	8736	Sq. Mi.
F. Inflow Classification	Natural	

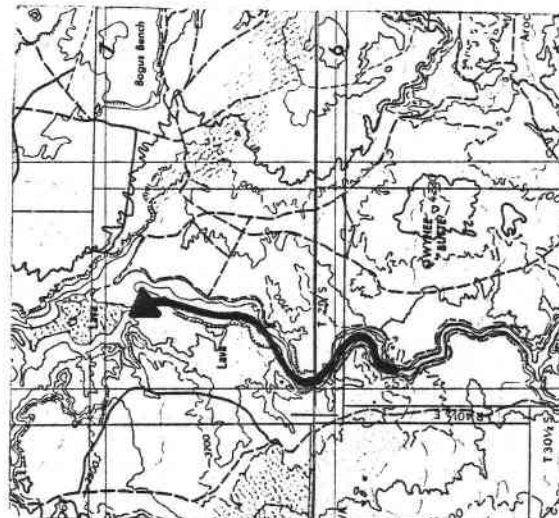
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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 119.3	I 1.33	I 11.69	I 1.000
I 80	I 172.3	I 1.93	I 16.24	I .962
I 50	I 306.4	I 3.43	I 24.77	I .825
I 30	I 744.6	I 8.33	I 41.95	I .575
I 10	I 3183.9	I 35.62	I 89.76	I .288

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BOISE--JORDON VALLEY



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0110

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 28, T30S, R41E
D. Latitude, Longitude	42°56'N, 117°42'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	110.0 to 118.0

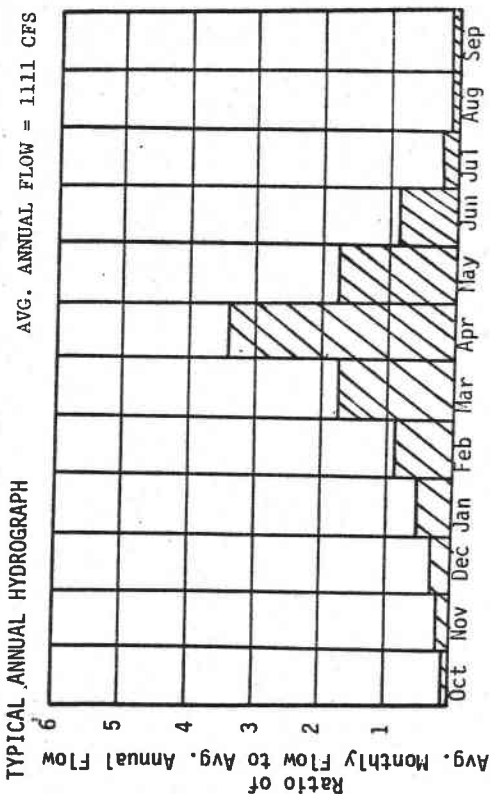
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3340	Ft. MSL
B. Downstream Elevation of Reach	3232	Ft. MSL
C. Total Available Head in Reach	108	Ft.
D. Average Slope in Reach	13.5	Ft./Mi.
E. Drainage Area above Reach Mouth	8683	Sq. Mi.
F. Inflow Classification	Natural	

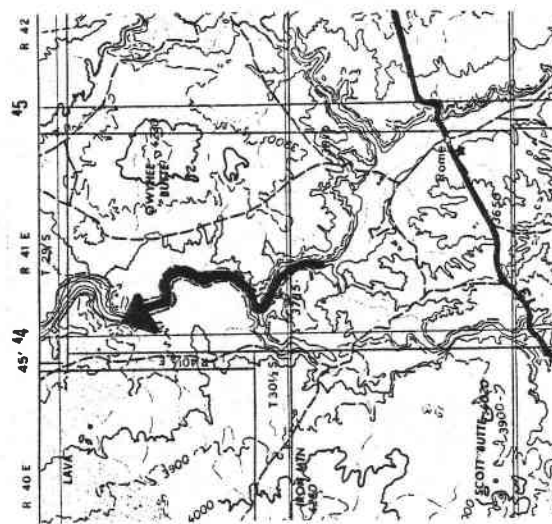
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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
I 95 I	I 117.6 I	I 1.08 I	I 9.43 I	I 1.000 I
I 80 I	I 169.9 I	I 1.55 I	I 13.10 I	I .962 I
I 50 I	I 301.9 I	I 2.76 I	I 19.98 I	I .825 I
I 30 I	I 734.0 I	I 6.72 I	I 33.83 I	I .575 I
I 10 I	I 3138.1 I	I 28.72 I	I 72.39 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-003-R0001

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 6, T32S, R43E
D. Latitude, Longitude	42°48'N, 117°44'W
E. Stream Name	Crooked Creek
F. Major Basin Name	Owyhee
G. River Mile	0.0 to 17.4

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

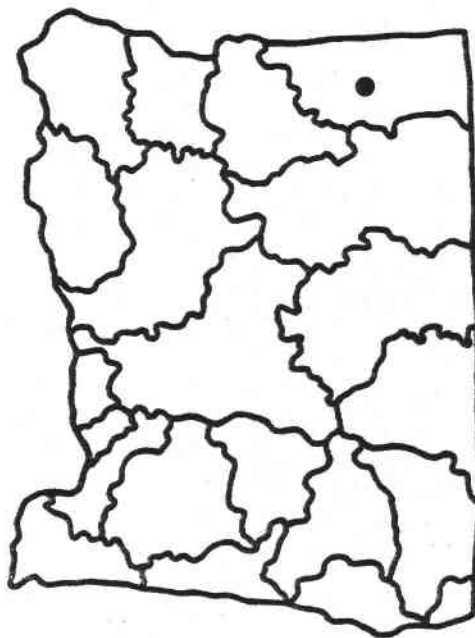
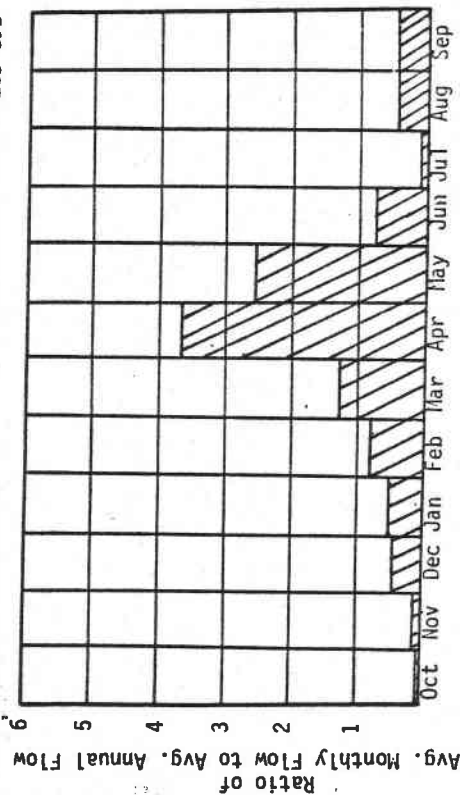
A. Upstream Elevation of Reach	3740	Ft. MSL
B. Downstream Elevation of Reach	3340	Ft. MSL
C. Total Available Head in Reach	400	Ft.
D. Average Slope in Reach	23	Ft./Mi.
E. Drainage Area above Reach Mouth	1084	Sq.Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

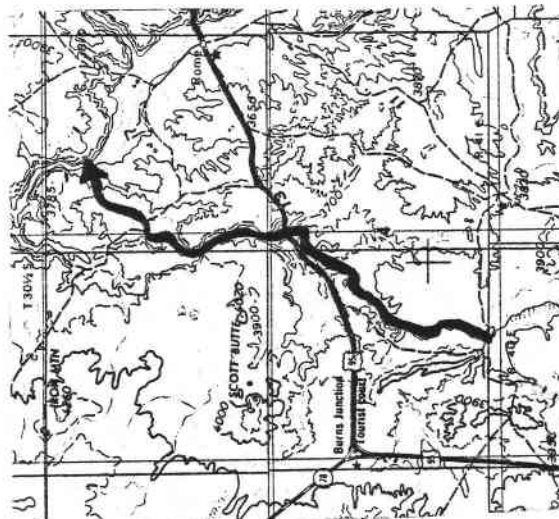
I	PERCENTAGE	I	DISCHARGE	I	THEORETICAL	I	ANNUAL ENERGY	I	PLANT
I	I	I	CFS	I	PLANT SIZE	I	AVAILABLE	I	FACTOR
I	I	I	I	I	MW	I	GMH	I	I
I	95	I	7.2	I	.25	I	2.15	I	1.000
I	80	I	9.9	I	.33	I	2.84	I	.967
I	50	I	29.6	I	1.00	I	6.65	I	.756
I	30	I	115.3	I	3.91	I	16.82	I	.491
I	10	I	482.5	I	16.36	I	38.63	I	.270

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 165 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-003-R0003

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 17, T33S, R42E
D. Latitude, Longitude	42°41'N, 117°50'W
E. Stream Name	Crooked Creek
F. Major Basin Name	Owyhee
G. River Mile	17.4 to 24.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

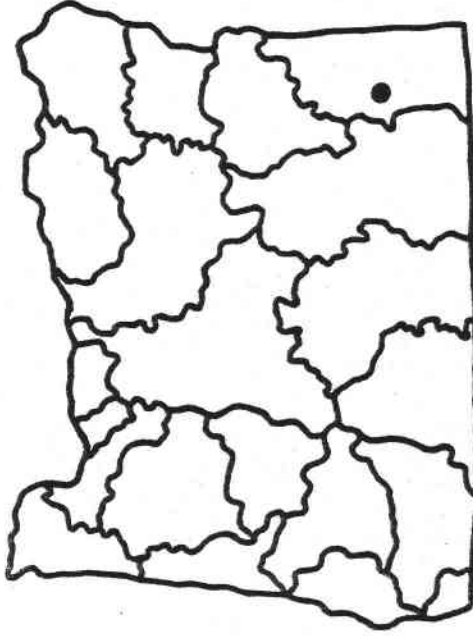
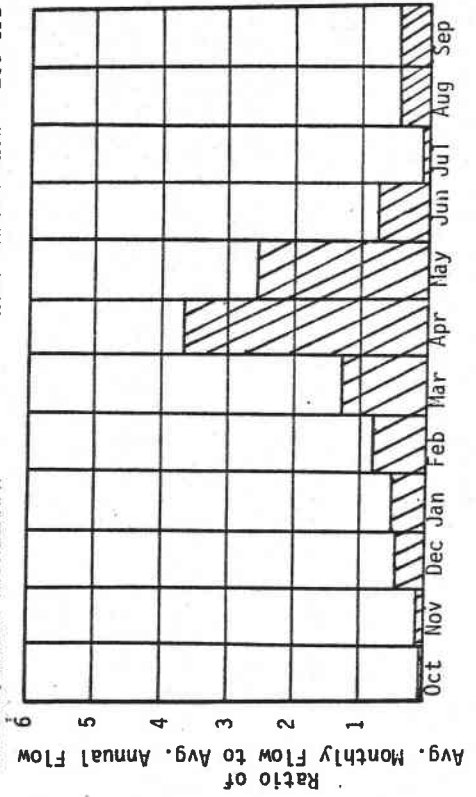
A. Upstream Elevation of Reach	3840	Ft. MSL
B. Downstream Elevation of Reach	3740	Ft. MSL
C. Total Available Head in Reach	100	Ft.
D. Average Slope in Reach	15.1	Ft./Mi.
E. Drainage Area above Reach Mouth	721	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

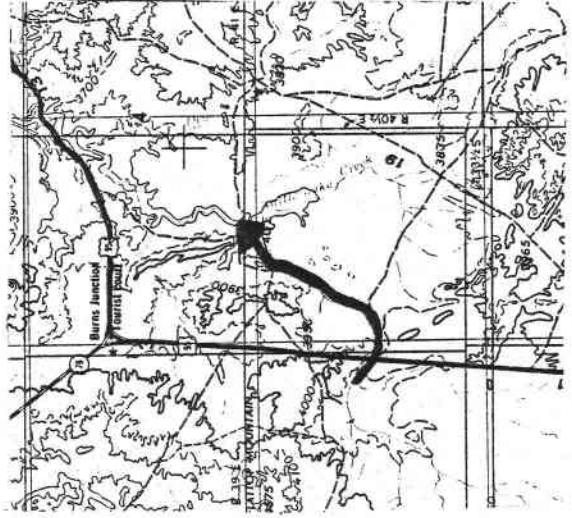
I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 4.6 I	I .04 I	I .34 I	I 1.000 I
I 80 I	I 6.3 I	I .05 I	I .45 I	I .967 I
I 50 I	I 18.9 I	I .16 I	I 1.06 I	I .756 I
I 30 I	I 73.7 I	I .62 I	I 2.69 I	I .491 I
I 10 I	I 308.4 I	I 2.61 I	I 6.17 I	I .270 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 106 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-003-R0004

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 24, T33S, R42E
D. Latitude, Longitude	42°41'N, 117°51'W
E. Stream Name	Crooked Creek
F. Major Basin Name	Owyhee
G. River Mile	24.0 to H.W.

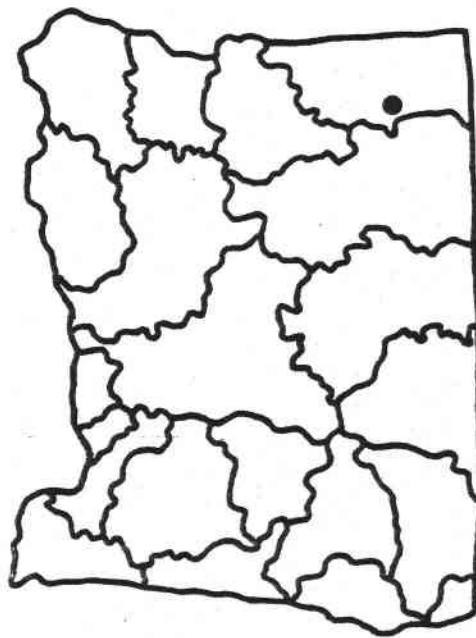
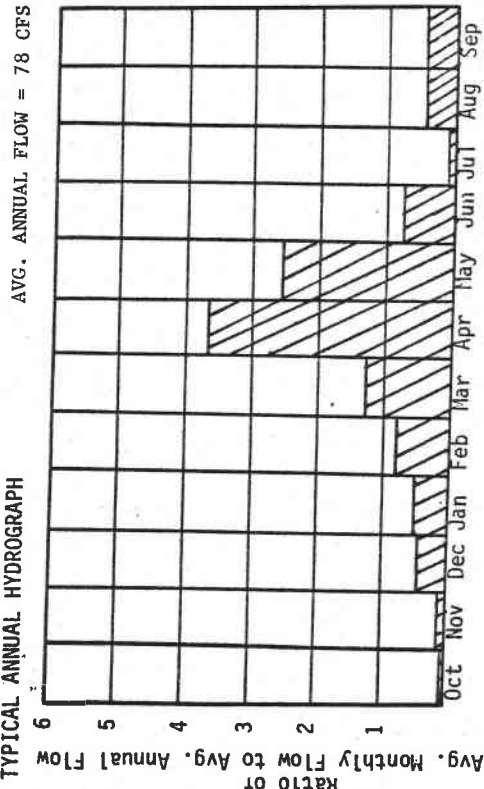
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	--	Ft. MSL
B. Downstream Elevation of Reach	--	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	--	Ft./Mi.
E. Drainage Area above Reach Mouth	441	Sq.Mi.
F. Inflow Classification	Natural	

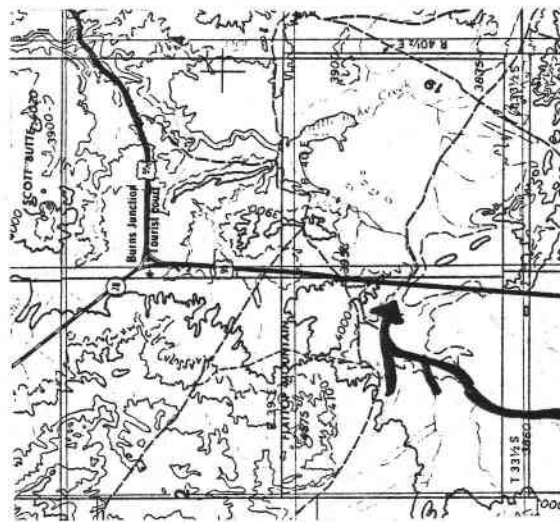
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I I
I 95 I	I 3.4 I	I .02 I	I .17 I	I 1.000 I
I 80 I	I 4.7 I	I .03 I	I .22 I	I .967 I
I 50 I	I 14.0 I	I .08 I	I .52 I	I .756 I
I 30 I	I 54.6 I	I .31 I	I 1.31 I	I .491 I
I 10 I	I 228.5 I	I 1.28 I	I 3.02 I	I .270 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0118

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 15, T31S, R41E
D. Latitude, Longitude	42°52'N, 117°42'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	118.0 to 122.9

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

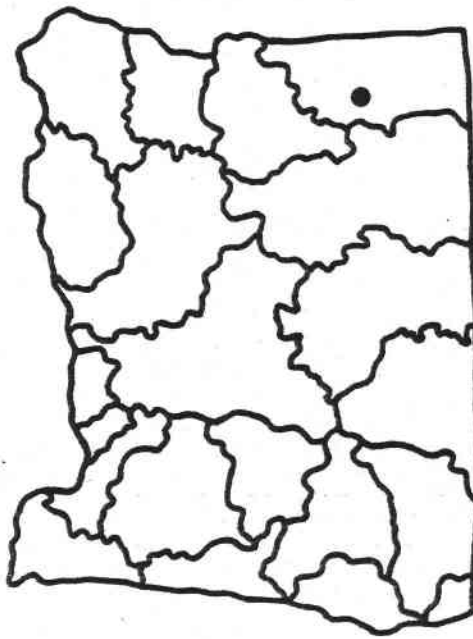
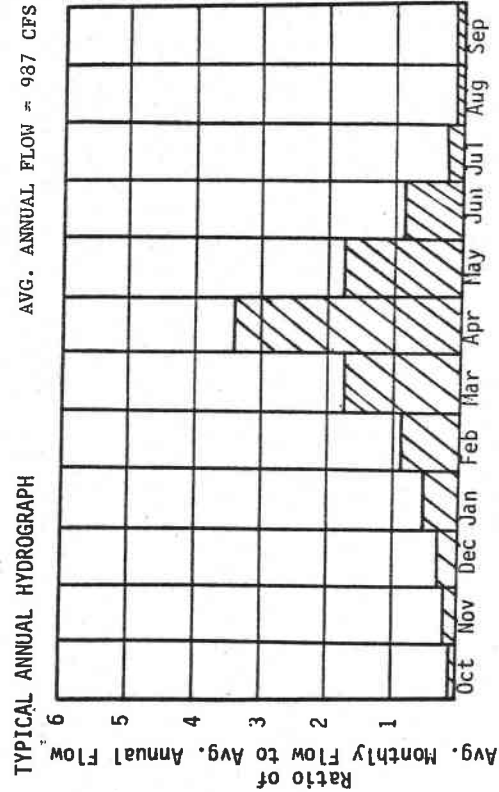
A. Upstream Elevation of Reach	3355	Ft. MSL
B. Downstream Elevation of Reach	3340	Ft. MSL
C. Total Available Head in Reach	15	Ft.
D. Average Slope in Reach	3.1	Ft./Mi.
E. Drainage Area above Reach Mouth	7354	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL

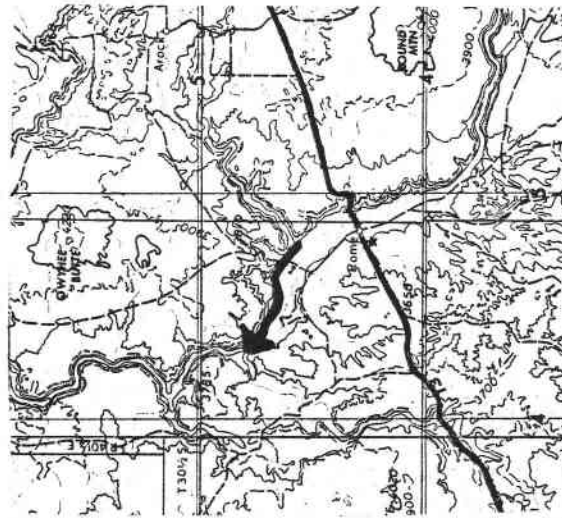
ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95	I 103.3 I	I .13 I	I 1.15 I	I 1.000 I
I 80	I 149.3 I	I .19 I	I 1.60 I	I .962 I
I 50	I 265.1 I	I .34 I	I 2.44 I	I .825 I
I 30	I 645.7 I	I .82 I	I 4.13 I	I .575 I
I 10	I 2757.7 I	I 3.51 I	I 8.84 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-005-R0001-

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 4, T31S, R44E
D. Latitude, Longitude	42° 55' N, 117° 37' W
E. Stream Name	Jordan Creek
F. Major Basin Name	Owyhee
G. River Mile	0.0 to 10.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

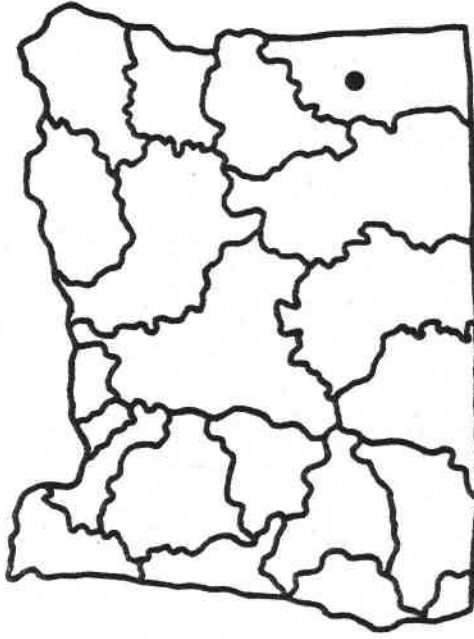
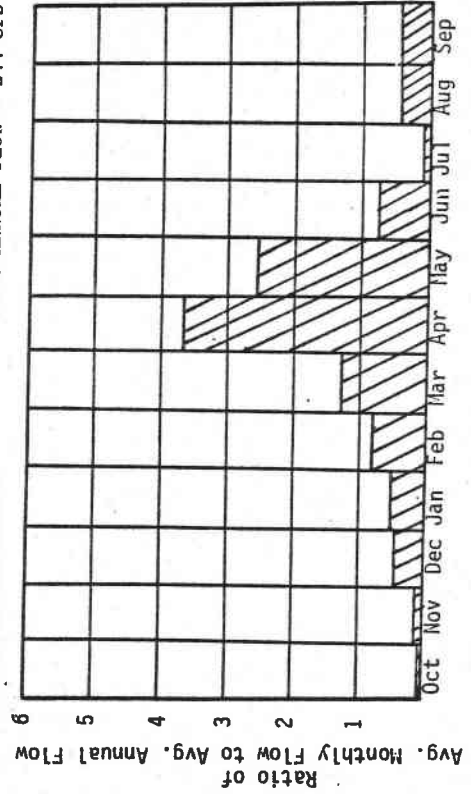
A. Upstream Elevation of Reach	3700	Ft. MSL
B. Downstream Elevation of Reach	3355	Ft. MSL
C. Total Available Head in Reach	345	Ft.
D. Average Slope in Reach	34.5	Ft./Mi.
E. Drainage Area above Reach Mouth	1253	Sq. Mi.
F. Inflow Classification	Regulated	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

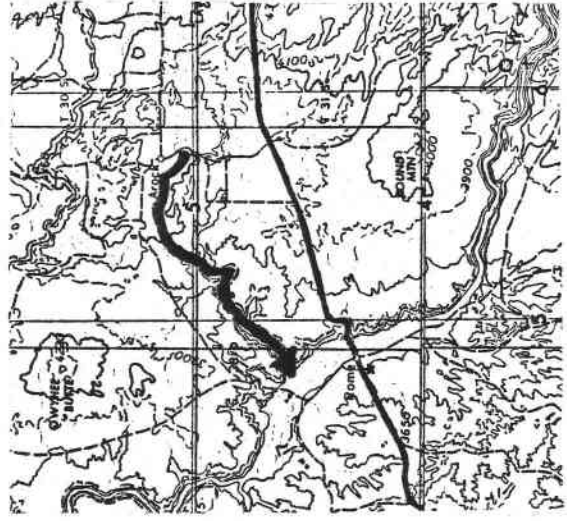
I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 8.8 I	I .26 I	I 2.25 I	I 1.000 I
I 80 I	I 13.9 I	I .41 I	I 3.40 I	I .954 I
I 50 I	I 64.5 I	I 1.89 I	I 11.82 I	I .716 I
I 30 I	I 261.7 I	I 7.65 I	I 32.02 I	I .478 I
I 10 I	I 1047.1 I	I 30.62 I	I 72.25 I	I .269 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 244 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-005-R0002

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 4, T31S, R45E
D. Latitude, Longitude	42°52'N, 117°28'W
E. Stream Name	Jordan Creek
F. Major Basin Name	Owyhee
G. River Mile	10.0 to 20.0

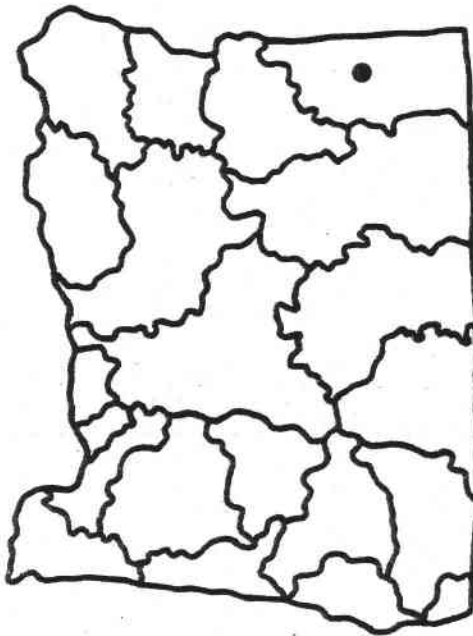
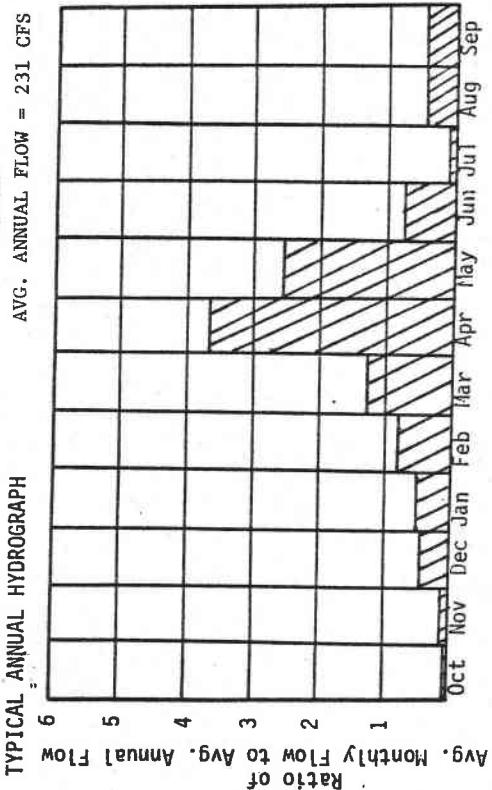
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4100	Ft. MSL
B. Downstream Elevation of Reach	3700	Ft. MSL
C. Total Available Head in Reach	400	Ft.
D. Average Slope in Reach	40	Ft./Mi.
E. Drainage Area above Reach Mouth	1156	Sq. Mi.
F. Inflow Classification	Regulated	

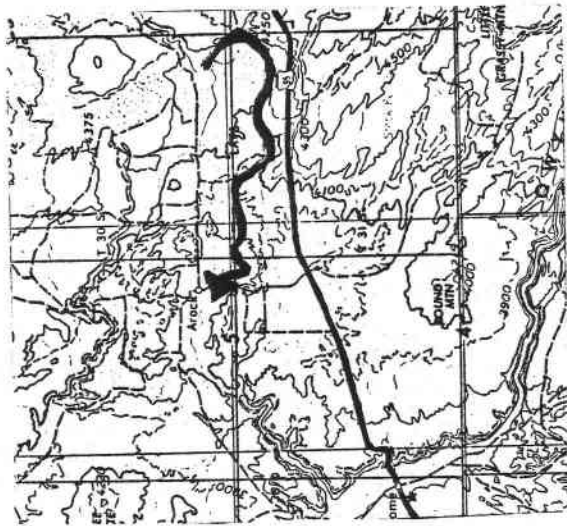
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 8.3 I	I .28 I	I 2.47 I	I 1.000 I
I 80 I	I 13.2 I	I .45 I	I 3.73 I	I .954 I
I 50 I	I 60.9 I	I 2.06 I	I 12.95 I	I .716 I
I 30 I	I 247.1 I	I 8.38 I	I 35.06 I	I .478 I
I 10 I	I 989.0 I	I 33.52 I	I 79.12 I	I .269 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-005-R0003

I. LOCATION

A. State	Oregon
B. County	Malheur-Idaho
C. Township, Range	Sec. 19, T30S, R46E
D. Latitude, Longitude	42°57'N, 117°22'W
E. Stream Name	Jordan Creek
F. Major Basin Name	Owyhee
G. River Mile	20.0 to 25.8

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

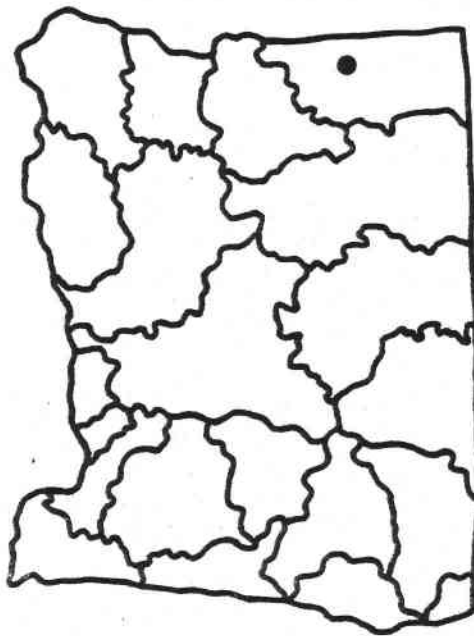
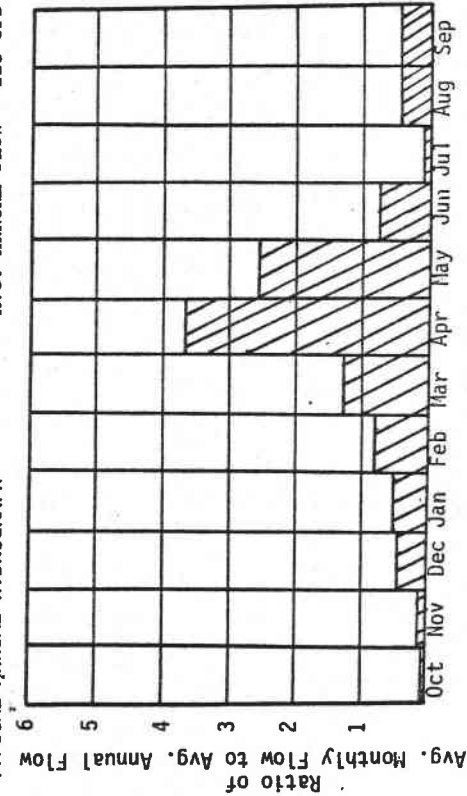
A. Upstream Elevation of Reach	4205	Ft. MSL
B. Downstream Elevation of Reach	4100	Ft. MSL
C. Total Available Head in Reach	105	Ft.
D. Average Slope in Reach	18.1	Ft./Mi.
E. Drainage Area above Reach Mouth	1100	Sq.Mi.
F. Inflow Classification	Regulated	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

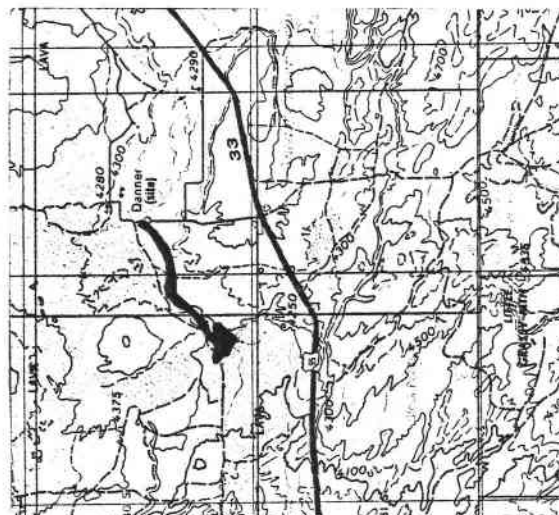
I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 8.0 I	I .07 I	I .63 I	I 1.000 I
I 80 I	I 12.7 I	I .11 I	I .94 I	I .954 I
I 50 I	I 58.8 I	I .52 I	I 3.28 I	I .716 I
I 30 I	I 238.7 I	I 2.12 I	I 8.89 I	I .478 I
I 10 I	I 955.3 I	I 8.50 I	I 20.06 I	I .269 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 223 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-005-R0006

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 24, T30S, R46E
D. Latitude, Longitude	42°55'N, 117°18'W
E. Stream Name	Jordan Creek
F. Major Basin Name	Owyhee
G. River Mile	25.8 to 36.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

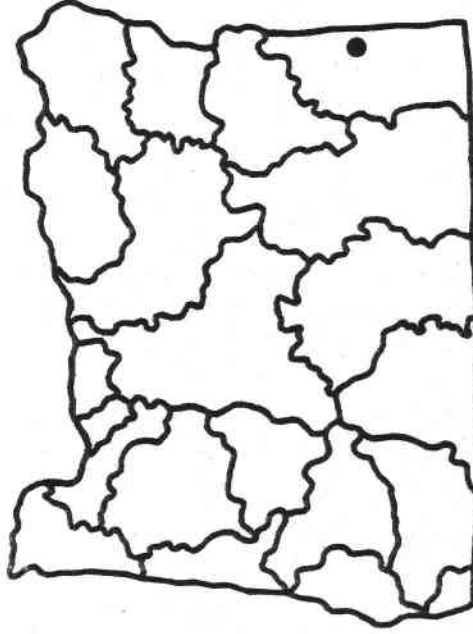
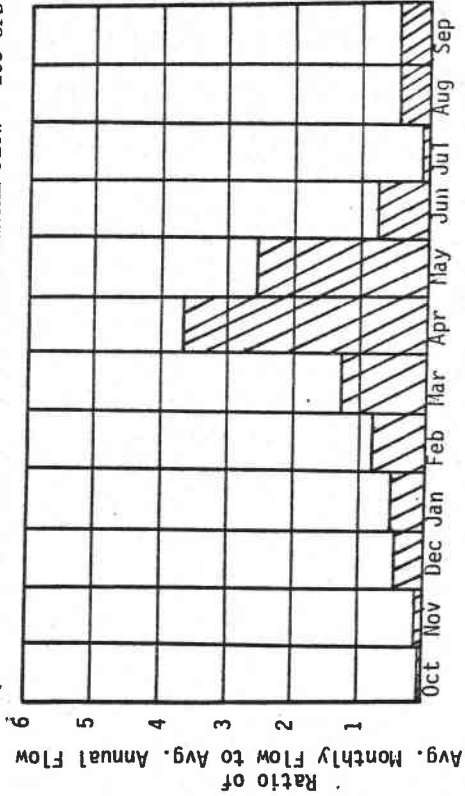
A. Upstream Elevation of Reach	4287	Ft. MSL
B. Downstream Elevation of Reach	4205	Ft. MSL
C. Total Available Head in Reach	82	Ft.
D. Average Slope in Reach	8.0	Ft./Mi.
E. Drainage Area above Reach Mouth	726	Sq. Mi.
F. Inflow Classification	Regulated	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

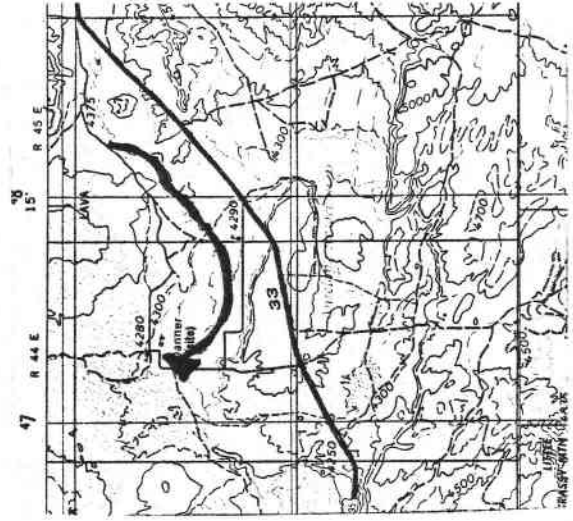
I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 6.1 I	I .04 I	I .37 I	I 1.000 I
I 80 I	I 9.6 I	I .07 I	I .56 I	I .954 I
I 50 I	I 44.5 I	I .31 I	I 1.94 I	I .716 I
I 30 I	I 180.6 I	I 1.26 I	I 5.25 I	I .478 I
I 10 I	I 722.9 I	I 5.02 I	I 11.86 I	I .269 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 168 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-005-R0007

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 5, T30S, R48E
D. Latitude, Longitude	42°58'N, 117°08'W
E. Stream Name	Jordan Creek
F. Major Basin Name	Owyhee
G. River Mile	36.0 to 49.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4400	Ft. MSL
B. Downstream Elevation of Reach	4287	Ft. MSL
C. Total Available Head in Reach	113	Ft.
D. Average Slope in Reach	8.7	Ft./Mi.
E. Drainage Area above Reach Mouth	630	Sq. Mi.
F. Inflow Classification	Regulated	

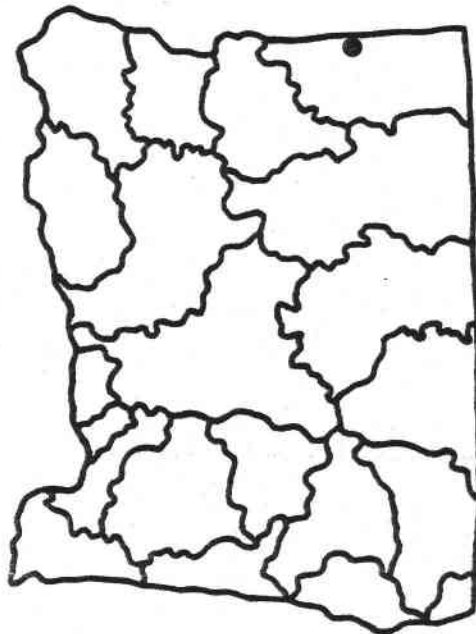
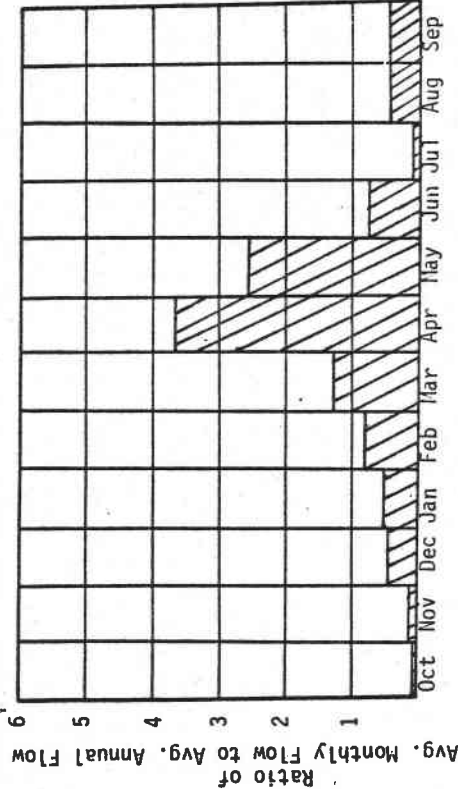
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL

ENERGY CHARACTERISTICS

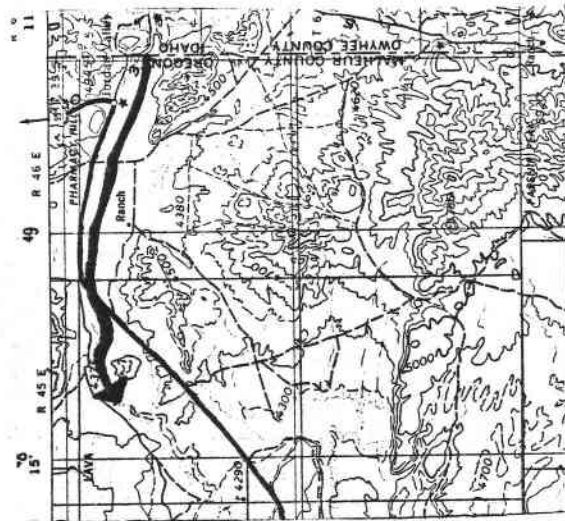
I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW	I GWH	I
I 95	I 5.4	I .05	I .45	I 1.000
I 80	I 8.6	I .08	I .69	I .954
I 50	I 39.6	I .38	I 2.38	I .716
I 30	I 160.8	I 1.54	I 6.45	I .478
I 10	I 643.7	I 6.16	I 14.55	I .269

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 150 CFS



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0122

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 5, T32S, R44E
D. Latitude, Longitude	42°48'N, 117°34'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	122.9 to 135.0

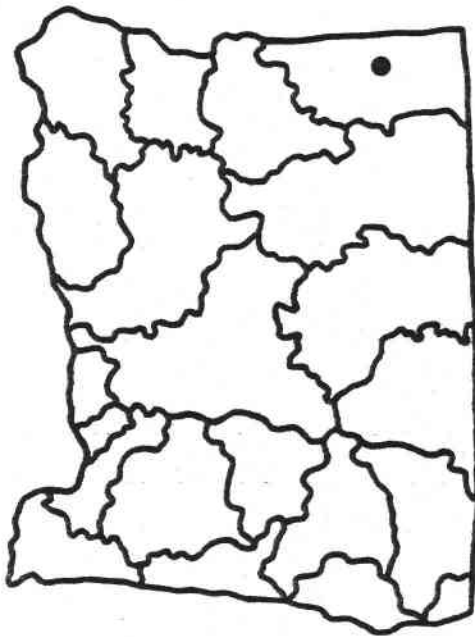
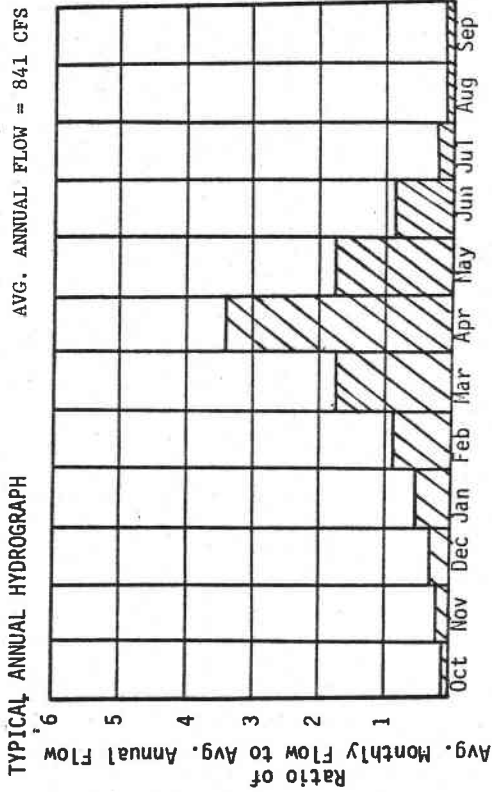
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3464	Ft. MSL
B. Downstream Elevation of Reach	3355	Ft. MSL
C. Total Available Head in Reach	109	Ft.
D. Average Slope in Reach	9	Ft./Mi.
E. Drainage Area above Reach Mouth	6082	Sq. Mi.
F. Inflow Classification	Natural	

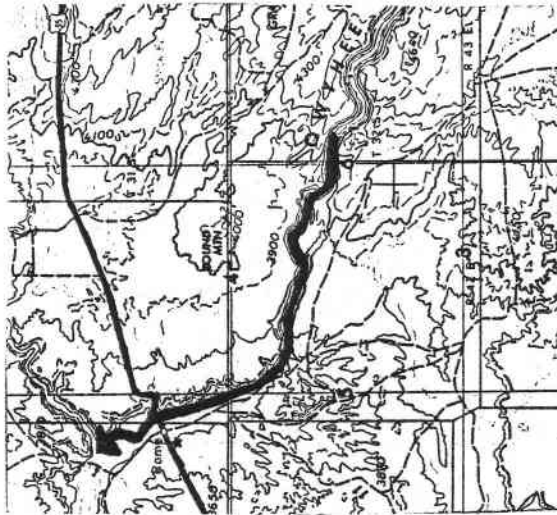
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I	EXCEEDANCE I	DISCHARGE I	THEORETICAL I	ANNUAL ENERGY I	PLANT I
I	PERCENTAGE I	CFS I	PLANT SIZE I	AVAILABLE I	FACTOR I
I	I	I	MW I	GWH I	I
I	95	I	86.6 I	.80 I	1.000 I
I	80	I	125.2 I	1.16 I	.962 I
I	50	I	222.0 I	2.05 I	.826 I
I	30	I	542.1 I	5.01 I	.574 I
I	10	I	2312.1 I	21.36 I	.288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0135

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 23, T32S, R45E
D. Latitude, Longitude	42°46'N, 117°22'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	135.0 to 145.0

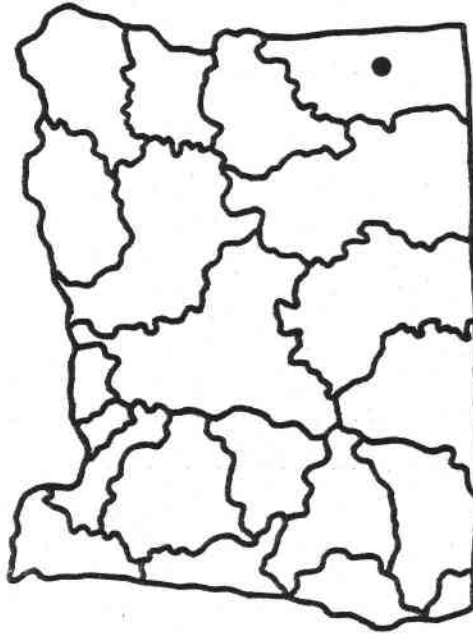
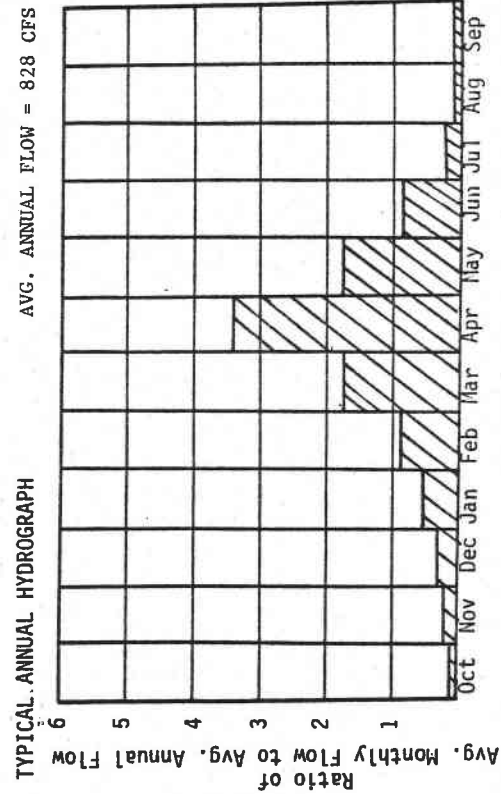
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3654	Ft. MSL
B. Downstream Elevation of Reach	3464	Ft. MSL
C. Total Available Head in Reach	190	Ft.
D. Average Slope in Reach	19	Ft./Mi.
E. Drainage Area above Reach Mouth	6021	Sq. Mi.
F. Inflow Classification	Natural	

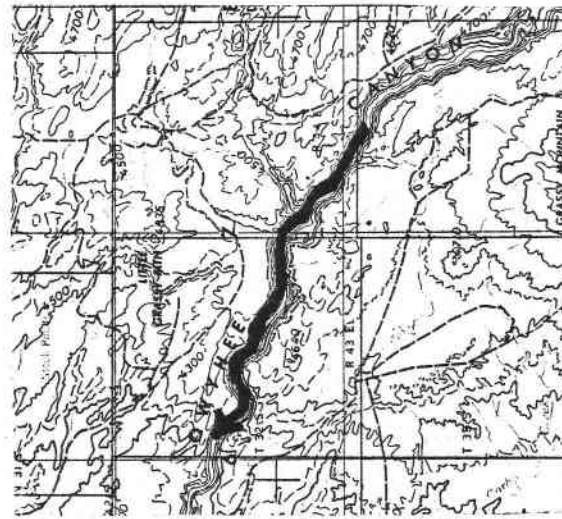
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 85.2 I	I 1.37 I	I 12.01 I	I 1.000 I
I 80 I	I 123.0 I	I 1.98 I	I 16.68 I	I .962 I
I 50 I	I 218.2 I	I 3.51 I	I 25.41 I	I .826 I
I 30 I	I 532.9 I	I 8.58 I	I 43.16 I	I .574 I
I 10 I	I 2272.3 I	I 36.59 I	I 92.23 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0145

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 25, T33S, R46E
D. Latitude, Longitude	42°40'N, 117°15'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	145.0 to 156.0

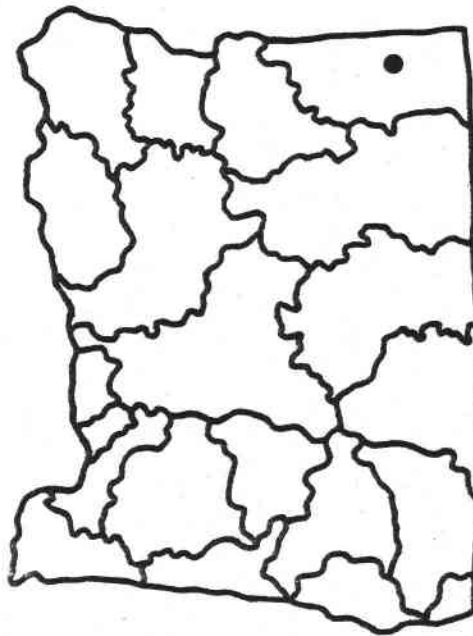
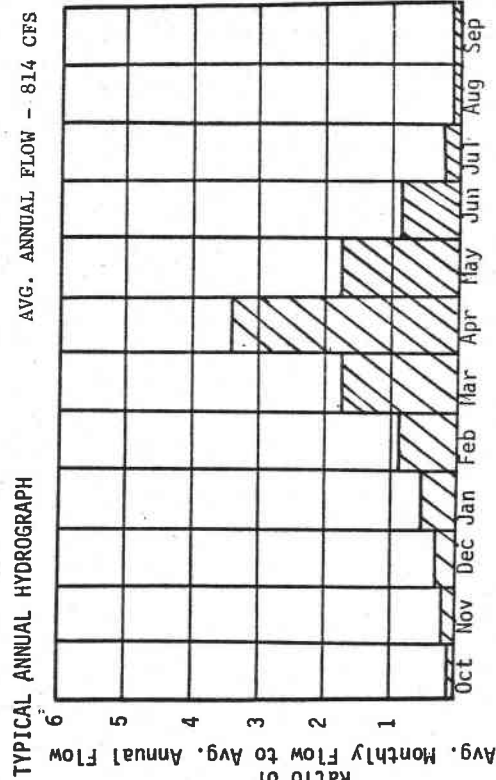
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3950	Ft. MSL
B. Downstream Elevation of Reach	3654	Ft. MSL
C. Total Available Head in Reach	296	Ft.
D. Average Slope in Reach	26.9	Ft./Mi.
E. Drainage Area above Reach Mouth	5819	Sq. Mi.
F. Inflow Classification	Natural	

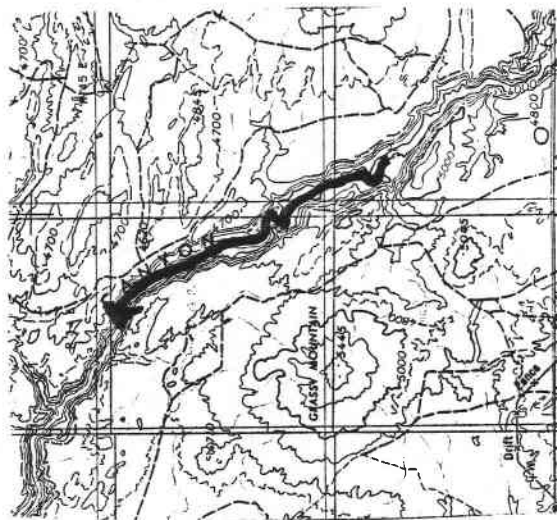
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

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 83.7 I	I 2.10 I	I 18.40 I	I 1.000 I
I 80 I	I 121.0 I	I 3.03 I	I 25.56 I	I .962 I
I 50 I	I 214.5 I	I 5.38 I	I 38.92 I	I .826 I
I 30 I	I 524.1 I	I 13.15 I	I 66.13 I	I .574 I
I 10 I	I 2234.6 I	I 56.05 I	I 141.31 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-ROI56

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 21, T34S, R47E
D. Latitude, Longitude	42°35'N, 117°12'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	156.0 to 161.5

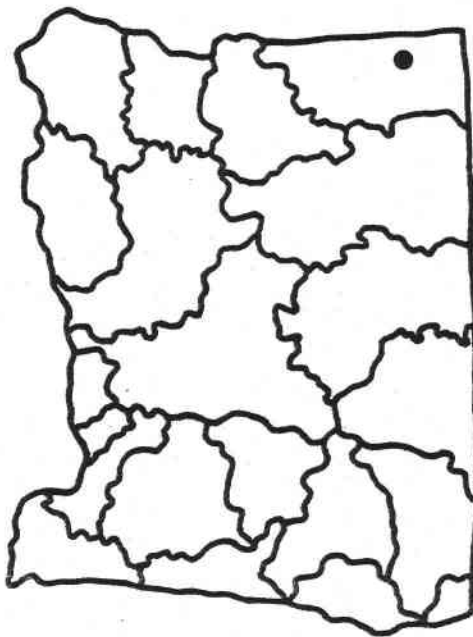
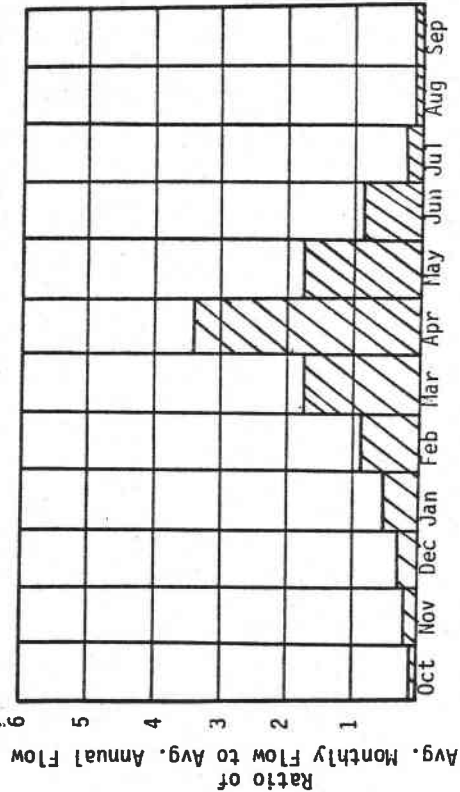
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3970	Ft. MSL
B. Downstream Elevation of Reach	3950	Ft. MSL
C. Total Available Head in Reach	20	Ft.
D. Average Slope in Reach	3.6	Ft./Mi.
E. Drainage Area above Reach Mouth	5771	Sq. Mi.
F. Inflow Classification	Natural	

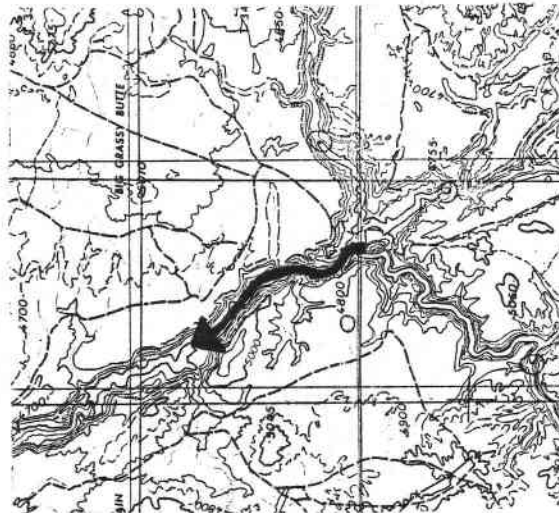
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	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 83.3	I .14	I 1.24	I 1.000
I 80	I 120.4	I .20	I 1.72	I .962
I 50	I 213.5	I .36	I 2.62	I .826
I 30	I 521.6	I .88	I 4.45	I .574
I 10	I 2223.6	I 3.77	I 9.50	I .288

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0161

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 16, T35S, R47E
D. Latitude, Longitude	42°31'N, 117°12'W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	161.5 to 171.7

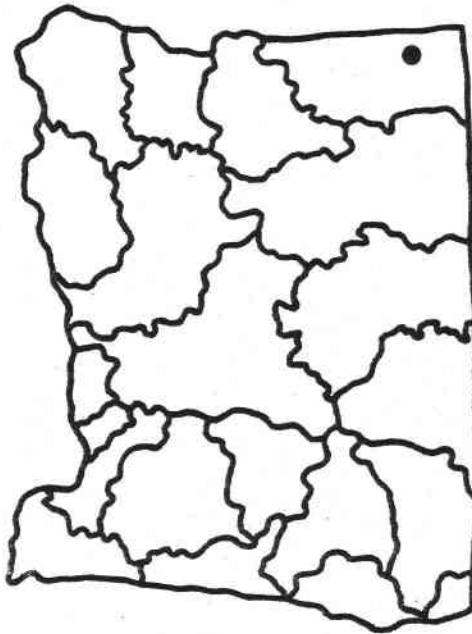
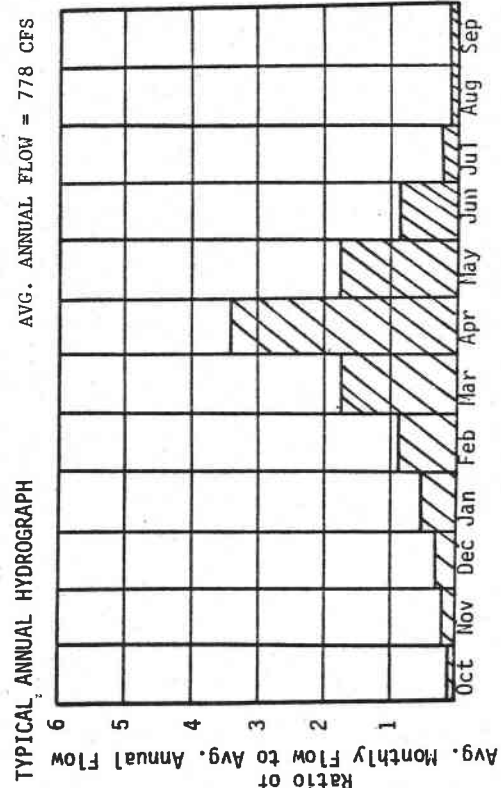
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	3980	Ft. MSL
B. Downstream Elevation of Reach	3970	Ft. MSL
C. Total Available Head in Reach	10	Ft.
D. Average Slope in Reach	1	Ft./Mi.
E. Drainage Area above Reach Mouth	5655	Sq. Mi.
F. Inflow Classification	Natural	

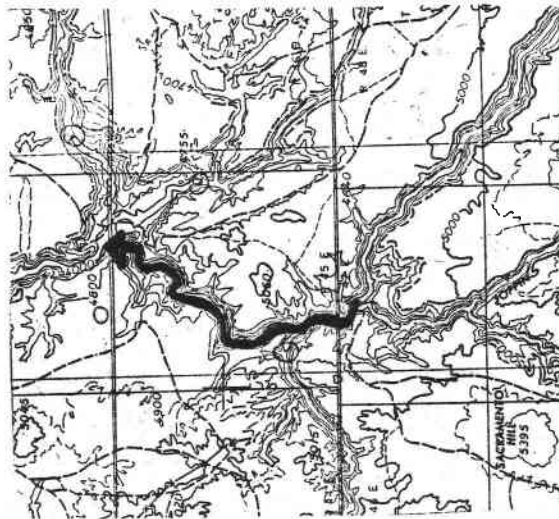
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 79.5 I	I .07 I	I .59 I	I 1.000 I
I 80 I	I 114.9 I	I .10 I	I .82 I	I .962 I
I 50 I	I 203.7 I	I .17 I	I 1.25 I	I .826 I
I 30 I	I 498.0 I	I .42 I	I 2.12 I	I .574 I
I 10 I	I 2122.4 I	I 1.80 I	I 4.53 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-240-200-000-R0171

I. LOCATION

A. State	Oregon
B. County	Malheur
C. Township, Range	Sec. 4, T37S, R48E
D. Latitude, Longitude	42° 23' N, 117° 05' W
E. Stream Name	Owyhee River
F. Major Basin Name	Owyhee
G. River Mile	171.7 to 186.5

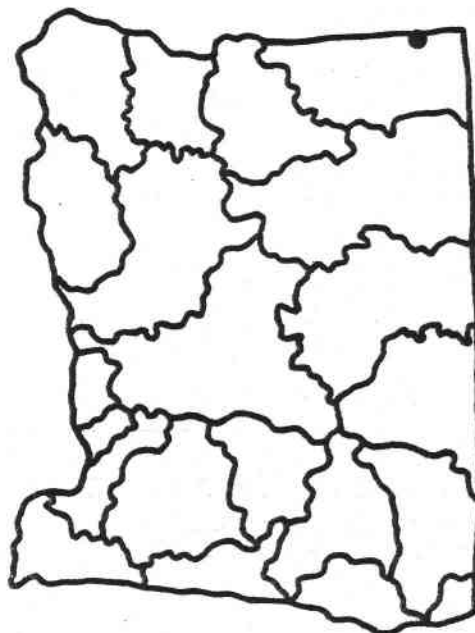
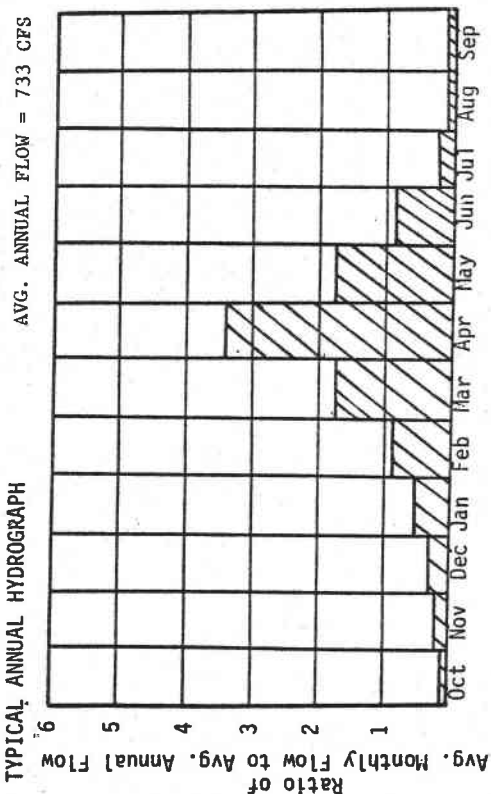
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4250	Ft. MSL
B. Downstream Elevation of Reach	3980	Ft. MSL
C. Total Available Head in Reach	270	Ft.
D. Average Slope in Reach	18.2	Ft./Mi.
E. Drainage Area above Reach Mouth	5306	Sq. Mi.
F. Inflow Classification	Natural	

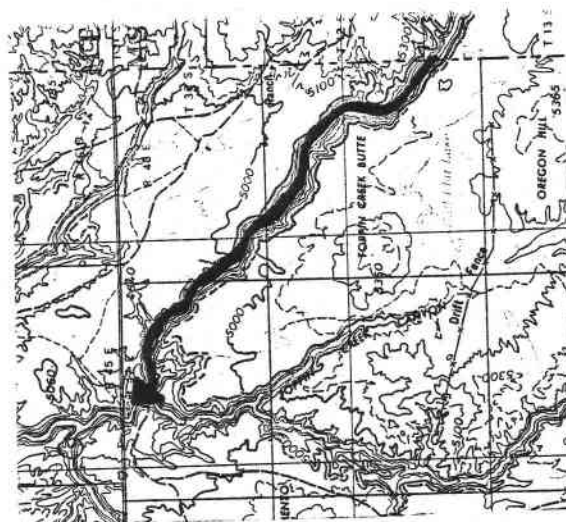
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I	I DISCHARGE I	I THEORETICAL I	I ANNUAL ENERGY I	I PLANT I
I PERCENTAGE I	I CFS I	I PLANT SIZE I	I AVAILABLE I	I FACTOR I
I	I	I MW I	I GWH I	I
I 95 I	I 74.6 I	I 1.71 I	I 14.95 I	I 1.000 I
I 80 I	I 107.7 I	I 2.47 I	I 20.76 I	I .962 I
I 50 I	I 190.9 I	I 4.37 I	I 31.60 I	I .826 I
I 30 I	I 467.3 I	I 10.69 I	I 53.76 I	I .574 I
I 10 I	I 1990.3 I	I 45.54 I	I 114.81 I	I .288 I

IV. TYPICAL ANNUAL HYDROGRAPH



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



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
02-500-240-200-								
000-R0001	-	-	-	-	0.5	69-USBR	1,3	5.0
000-R0010	-	-	-	-	2.2	69-USBR	-	9.0
000-R0020	-	-	-	-	1.2	69-USBR	-	14.0
000-R0070	X	-	-	-	23.0	69-IP	-	50.0
000-R0080	X	-	-	-	30.0	69-IP	-	54.0
000-R0090	X	-	-	-	34.0	69-IP	-	62.0
000-R0100	X	-	-	-	33.0	69-IP	-	69.0
000-R0110	X	-	-	-	33.0	69-IP	-	73.0
003-R0001	-	-	-	-	34.0	115-H-C	-	80.0
003-R0003	-	-	-	-	26.0	115-H-C	-	88.0
003-R0004	-	-	-	-	25.0	115-H-C	-	87.0
000-R0118	-	-	-	-	31.0	69-IP	-	76.0
005-R0001	-	-	-	-	27.0	69-IP	-	73.0

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
02-500-240-200-								
005-R0002	-	-	-	-	19.0	69-IP	-	72.0
005-R0003	-	-	-	-	17.0	69-IP	-	70.0
005-R0006	-	-	-	-	11.0	69-IP	-	72.0
005-R0007	-	-	-	-	2.5	69-IP	-	74.0
000-R0122	-	-	-	-	28.0	69-IP	-	84.0
000-R0135	-	-	-	-	23.0	69-IP	-	92.0
000-R0145	-	-	-	-	24.0	69-IP	-	100.0
000-R0156	-	-	-	-	28.5	69-IP	-	104.0
000-R0161	-	-	-	-	34.0	69-IP	-	109.0
000-R0171	-	-	-	-	40.0	69-IP	-	113.0