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IN REPLY REFER TO:

TO	Date
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
North Side Pumping Field Division

February 1, 1955

To: Regional Director
Attn: 210

From: Construction Engineer

Subject: Definite Plan Report - 1954, North Side Pumping Division, Minidoka Project, Idaho

Enclosed under separate cover is a marked print and a reproducible print of drawing 701-107-4220 and a reproducible print of the table titled "Summary of Wells, Acreages and Estimated Costs on Unit B". The original of drawing 701-107-4220 is in your office and should be changed in accordance with the enclosed drawings. These changes were discussed during my recent visit to your office. The following changes and substitutions should be made in the report and the following table and appendices:

Supplemental Plans & Estimates

A revised table titled "Summary of Wells, Acreages & Estimated Costs on Unit B" substituted for the one in the appendix.

Supplemental Water-Supply Appendix

In table titled "Summary of Well Data" following Page 14 in line titled "Total Irrigable Acreage" under Well Group 5, the figure 9764 should be substituted for 9800 and under column titled "All" the figure 62,403 should be substituted for 62,439.

On the photostatic copy titled "Group 5" on line titled "14A825" under column titled "Total Irrigable Acreage" the figure 625.3 substituted for 661.0, and on the line titled "Total or Aver. 30 Wells" the figure 9764.5 should be substituted for 9800.2. On line titled "Total or Aver." the figure 10455.8 should be substituted for 10491.5.

A revised print of drawing 701-107-4220 should be substituted for the one following Page 14.

Supplemental Drawing Appendix

A revised print of drawing 701-107-4220 should be substitued for the one following page 11.

Also a revised print of drawing 701-107-4220 should be substituted for the one in the Definite Plan Report 1954.

O. L. Kime

Enclosure No. 161929 ← Retained in 210

Copy to: Supt., Burley

DI-19
(Approved July 1942)

ENCLOSURE 161929

DEPARTMENT OF THE INTERIOR

GPO 830921

UNITED STATES DEPARTMENT OF THE INTERIOR
Douglas McKay, Secretary

BUREAU OF RECLAMATION
W. A . Dexheimer, Commissioner

REGION 1 - BOISE, IDAHO
M. T. Nelson, Regional Director

MINIDOKA PROJECT
NORTH SIDE PUMPING DIVISION
IDAHO

SUPPLEMENTAL WATER-SUPPLY APPENDIX
TO
DEFINITE PLAN REPORT

Rupert, Idaho
November 1954

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INTRODUCTION

This supplemental appendix presents information on ground-water supply to support the recommendations and conclusions presented in the revised Definite Plan Report for the Minidoka North Side Pumping Division.

As approved September 30, 1950, Public Law 864, 81st Congress, 2d Session, authorized the irrigation of 77,650 acres of land on the North Side Pumping Division of the Minidoka Project. In the initial development, 66,500 irrigable acres were selected from an area of about ~~114,400~~ 122,400 acres that had been classified. The irrigable area selected for development included 13,650 acres in Unit A to be served by water pumped from Snake River and 52,850 acres in Unit B to be served by water pumped from deep wells.

The revised Definite Plan Report presents information relative to the full development of the authorized 77,650 acres on the North Side Pumping Division. During the summer of 1954 an additional area of about ~~4,300~~ 8,400 acres in the northeastern part of the Division were classified in detail. This was done so that from the remaining withdrawn land which was favorably located an additional 8,150 acres could be selected. This detail land classification in 1954 covered an area in the shallower ground-water belt near the town of Minidoka. From this land classified in 1954 and from additional land that had been classified previously but not included under the initial plan for development some 8,150 irrigable acres will be selected and will be served by the Group 7 wells.

Under this present plan of development Unit A will still comprise 13,650 acres and Unit B - the area served entirely from ground water - is increased to 64,000 acres.

This appendix has been prepared by K. E. Anderson, Regional Drainage Engineer of Boise, utilizing data compiled and supplied by the Construction Engineer's office in Rupert, Idaho. Additional supporting data such as complete records of each well drilled to date, logs, results of pumping tests, construction specifications, costs, etc. are on file in the Rupert, Idaho office.

GEOLOGICAL SURVEY STUDIES

The Ground Water Branch of the Geological Survey headed by R. L. Nace, District Geologist, Boise, Idaho made a study of the occurrence of ground water and the availability of ground water supply for irrigation which was appended to the earlier project planning report (1949).

Since the time of this initial study by the Survey continuing co-operative studies between the Survey and the Bureau have been maintained. At the present time the Survey is nearing completion on a final report summarizing the development of ground water in the area and summarizing conclusions as to the adequacy of ground water for supply of irrigation requirements in Unit B. This final report by the Geological Survey will be made a separate water supply appendix as soon as it is available.

Some of the data contained in this final Survey report, which has been made available to the Bureau in preliminary form, have been used in the preparation of this appendix.

STATUS OF DRILLING

Three types of wells are being drilled by the Bureau on the North Side Pumping Division. These are water supply wells for irrigation purposes; domestic water supply wells for ditchrider residences; and inverted drainage wells for disposal of surface runoff.

Water Supply Wells

Full development of the 64,000 acres in Unit B will require the drilling and operation of 175 deep wells for water supply. These wells as set forth in previous reports on the project are generally 16 to 24 inches in diameter, and have an average ~~range in total~~ depth ~~from~~ of ~~to~~ 290 ~~288~~ feet.

Contracts for the drilling of these wells are let in units of from generally 20 to 30 wells known as groups. A summary of these group wells is shown on the accompanying tables. Location of well group areas is shown on accompanying sketch map.

At the present time the wells in Groups 1 and 2 have all been drilled, tested and will be in operation in irrigation season 1955. All of the wells in Group 3 have been drilled although two of them (14N24 and 12A24) have not yet been tested. All of the wells in Group 4 are under contract but none have been completed or tested at the present time. It is planned to issue specifications on additional groups of wells at about the end of fiscal year 1955.

The location of ~~all~~ water supply wells ~~[illegible]~~ and the status of their completion are indicated on the attached map showing status of drilling.

Domestic Water Supply Wells

Under ultimate development it is contemplated that eleven ditchrider house wells to supply domestic water requirements will be drilled by the Bureau. At the present time ~~one~~ two of these wells is under contract and the other remaining wells will be drilled in the near future.

These wells are generally 6 ~~x~~ or 8 inches in diameter and are drilled adjacent to the ditchrider residences. They will be equipped with cylinder or jet-type pumps and pressure tank systems.

Drainage Wells

Details on the design and construction of inverted drainage wells are presented in the drainage appendix. Under ultimate development some 79 of these drainage wells will probably be required. At the present time one well has been completed and has been operating for ~~three~~ four irrigation seasons. Five additional drainage wells are now under contract.

WATER LEVEL TRENDS

Observations have been made during the initial period of project development to determine what affect if any the operation of the project water supply wells has had on the Regional water table. These observations have also afforded an opportunity to observe the effect of pumping for irrigation on privately-owned lands adjacent to the project.

At the present time there are 15/15 project observation wells in operation, Each of which is equipped with a continuous automatic water stage recorder which gives a permanent record of water level fluctuations. These recorders are maintained by the Bureau of Reclamation and records from them are filed with the Geological Survey.

Records from several of these observation wells are included in this appendix. These hydrographs show that there has been a slight upward trend in the Regional water table in spite of the withdrawals made for irrigation. This slight upward trend is considered to be due to a period of above-normal precipitation and runoff in recent years.

The hydrographs also show that the rise each year in the Regional water table occurs at a time when maximum pumping for irrigation is taking place. This would indicate that the dominant factor in controlling the Regional water table is that of recharge and that the effect to date of pumping for irrigation is negligible.

STATUS OF DEVELOPMENT

The first irrigation of lands in Unit B of the Division was in 1949 when one well delivered 1,334 acre-feet to an area of 369.5 acres. In succeeding years additional wells and additional acreage were put into production until in 1954 the sixth season of operation there were 15 wells which delivered nearly 25,000 acre-feet to an area of approximately 7,300 acres.

Irrigation development of privately-owned lands adjacent to the Division began in about 1947 with the development of the Julian Clawson property north of Unit B. By 1953 preliminary estimates by the Geological Survey indicate that the total number of wells in operation was 136--which includes the wells operated by the Bureau in Unit B. For this same year 1953 the preliminary estimates of the Geological Survey placed the total pumpage at 79,000 acre-feet serving an irrigated area of approximately 26,000 acres. A recent Bureau study of nonproject irrigation adjacent to the division showed that about 34,000 acres were irrigated in 1954.

The Geological Survey also made tentative estimates for 1953 covering the ground-water pumpage for irrigation in areas east of the Minidoka Project. These tentative estimates are as follows:

Area	Estimated Pumpage Acre-feet
Western Jefferson County	5,000
Western Bingham & Northwestern Power Counties	150,000
Raft River Basin	30,000
Michaud Flats	10,000
Total	275,000

An accompanying map of the Unit B and adjacent areas indicates the status of development at the present time. As discussed in a previous paragraph this development on and adjacent to Unit B has shown no affect in lowering the Regional water table.

DUAL OR "PAIRED" WELLS

In the original operation of wells on Unit B the pumps were not equipped with valves so that the discharge could not be controlled. It was anticipated that the farmers would use the largest flow possible in periods of low demand so that a given irrigation could be completed and pumps shut down to save power costs. This, however, was not entirely successful because irrigation could not be coordinated to the extent that all irrigators finished at the same time and a considerable waste of water resulted.

This condition was alleviated somewhat in future wells placed in operation by interconnecting lateral systems of two or more pumps and by equipping each pump with a throttling valve so that the discharge could be reduced. The reduction of discharge, however, does not result in a proportionate reduction in power cost.

To further overcome this problem, and to effect better economy in both water and power, a scheme was introduced whereby two wells were drilled adjacent to each other and discharging into a common settling basin. One of the wells would be equipped with a pump of about one-third the total capacity required at this location and the other well with a pump about two-thirds the total capacity. During the irrigation season it would then be possible to serve the acreage under this dual or "paired" well by first starting the small pump until the demand built up to the point where it could be shut off and replaced with a larger pump. During the peak demand period both pumps would be operated. In this manner the pump operation could be coordinated to the irrigation demand ~~sub.~~ curve.

This construction of dual wells was started with the Group 2 wells in which five such locations were selected. Under ultimate project development there will be about 40 such locations at which pairs of wells will be drilled as follows:

Well Group No.	Dual Well Sites
2	5
3	11
4	6
5	9
6	3
7	6
Total	40

The only matter of concern with constructing those paired wells was whether or not there would be excessive interference when two wells were operated at such high rates when only spaced about 50 feet apart. Accordingly, the construction of these paired wells was set up so that each pair could be drilled and tested simultaneously before going to the construction of the next pair. Under this program of testing it has become apparent that at almost all sites there has been a negligible interference between wells with both pumps operating. For example in the case of the pair of wells, 32A724 and 32B724, it was found during actual pumping tests that the drawdown in well 32B at a rate of 5 c.f.s. was approximately 5.2 feet. With the adjacent well 32A operating simultaneously at a discharge of 7.5 c.f.s. the drawdown in well 32B was increased only two or three-tenths of a foot. Information on this particular pair of wells and on other similar pairs of wells is given in the pumping test curves included in this appendix.

WELL YIELDS

At the present time about 70 wells in Unit B have been completed and tested, and in the 1955 irrigation season 37 of these wells will be in full operation. Experience in drilling and testing of these wells has shown that the desired yields, which in some cases amounts to 10 or more cubic feet per second, have been attainable with very small drawdowns. In only one or two instances have the drawdowns been considered "excessive" and to alleviate this the wells have been drilled deeper. Deepening of the holes has in all cases except one resulted in reaching the desired yield with a reasonable drawdown. In the case of one well (29A824) the base of the basalt flows was encountered and the drill penetrated clay and silts of sedimentary origin. Further deepening at this location was not considered economical and consequently this well will be operated at a somewhat reduced rate of pumping and the area adjacent to the well will receive supplemental water by relift pumping from a surface drain.

The tested or anticipated yield and drawdown at each well site was presented in the well data summary table appearing in this appendix. Additional information on results of pumping tests at well sites is shown on the pump test curves included in this appendix.

RETURN FLOW & ITS REUSE

Although the drainage plan for the Minidoka North Side Pumping Division has been set up with the idea that all return flow and runoff would be disposed of into inverted drainage wells, there are several opportunities available for the reuse of return flow on the project or on adjacent irrigated lands with consequent better utilization of water

and saving in power cost.

On a map included in this appendix there have been indicated 11 areas or blocks lettered from A to K, inclusive which contribute return flow to the area south of the pumping division. In a table accompanying this map the designation of these areas, the approximate location of the outlet from each area, the tributary acreage, the total discharge, the amount proposed for reuse, and the net resulting discharge are shown. The map referred to above also shows the areas on the project for which reuse of return flow is contemplated.

The total reuse of return flow is estimated to be 24.9 c.f.s. on lands in Unit B of the Division. In addition to this approximately 4.5 c.f.s. are planned for reuse on lands in Unit A of the Division. Most of this reuse will be accomplished by the installation of relift pumps along natural drainageways with provision for intake basins as needed to smooth out fluctuations in surface flows. Two of the areas in Unit A will be served by gravity diversion of the return flow water.

Referring again to the accompanying map in this appendix the large part of the return flow from the areas designated D through K will probably be collected in a contour channel which will lead into the existing Minidoka Irrigation District distribution system. This portion of the Minidoka Irrigation District system is presently being served by pumping from the main drain of that district. Utilization of return flow from the North Side Pumping Division lands will enable that District to curtail or eliminate operation of that pump.

With the exception of the reuse contemplated as set forth in the preceding paragraphs all the remaining water will probably be disposed

of through inverted drainage wells.

Estimates of the amount of return flow to be expected from irrigated lands in the pumping division have been presented in earlier appendixes to the Definite Plan Report. These earlier estimates have been fairly well ~~[illegible]~~ substantiated by experience during the past six irrigation seasons. Data concerning measured flows in surface channels on Unit B for the past four irrigation seasons are presented in the supplement to the drainage appendix prepared for the current Definite Plan Report.

QUALITY OF SURFACE WATERS

Snake River water, similar to that to be used on Unit A, has been used for over 50 years on many kinds of land without ill effects where good drainage existed or was provided. Areas with poor drainage do tend to accumulate excessive amounts of soluble salts.

The Agricultural Experiment Station at the University of Idaho analyzed 26 composite water samples collected over a two-year period (1948-49) at the Minidoka Dam. These analysis are summarized in an accompanying table showing the samples with the highest and lowest electrical conductivity, and a group average as reported by the Experiment Station. Maximum salinity occurred each year at low water as the streamflow began to increase, and the minimum salinity occurred at high water as the streamflow began to decrease. At both extremes the quality of the water remained in the C2-S1 class. Under adverse drainage conditions this water might cause a slow increase in soluble salts in the soil, but that little or no tendency should exist to develop "black" alkali. The absence of residual sodium carbonate is especially desirable from the standpoint of alkali control.

There is no physiological evidence that this stream contains an excessive amount of boron. A water sample collected July 31, 1952 below the American Falls Reservoir contained only 0.12 ppm of boron which is far below the 0.33 ppm limit for boron sensitive crops.

The analysis of six drainage ditch samples from the presently operating project are included in this appendix, to illustrate further the absence of any alkali-forming tendency in the waters of the area

as indicated by the S1 rating. Although some of the soils through which these waters have passed are saline two-thirds of the water samples remained in the C2 class and one-third barely reached the C3 class as indicated by the specific conductance.

QUALITY OF GROUND WATER

From 1949 through 1953 the U. S. Geological Survey has analyzed a number of water samples from wells in and around Unit B. An accompanying table shows a group of these analyses for wells within the unit boundary. The wells are similar in quality to the Snake River with the exception of the well at 96-22E-33ad1 which is at the Prisoner-of-War Camp, and apparently is influenced by drainage from the operating project.

Minidoka Project, North Side Pumping Division

SUMMARY OF WELL DATA

(excluding relift pumping)

Well Group	1	2	3	4	5	6	7	All
No. of Wells	16	22	30	32	30	17	28	175
Total Irrigable Acreage	7,334	8,454	10,648	10,897	9,764 ~~9,800~~	6,359	8,947	62,403 ~~62,439~~
Avg. Acreage Per Well	458	385	355	340	327	374	320	356
Installed Capacity-cfs	115.4	134.8	164.1	165.1	151.2	97.9	138.2	966.7
Avg. Well Capacity-cfs	7.2	6.4	5.5	5.2	5.0	5.8	4.9	5.5
Avg. Depth to Water Per Well (in feet)	179	173	188	192	206	259	199	198
Total Drilling Footage	4,257	5,925	8,429	8,920	8,780	6,160	7,965	50,436
Average Well Depth-ft	266	269	281	279	293	362	285	290
Average Pumping Lift-ft	182	176	191	195	209	262	202	201
Total KW Load	2,512	2,840	3,863	3,985	3,849	3,335	3,379	23,742
Avg. KW Load Per Well	157	129	129	125	128	196	121	136

(Following Costs--in dollars--Are Field Costs Only, Excluding Engineering, Overhead, and other Indirect Costs)

Total Drilling Cost	71,369	95,480	122,808	109,306	128,795	90,175	117,250	735,183
Avg. Drilling Cost Per Well	4,460	4,330	4,090	3,420	4,290	5,300	4,180	4,190
Total Pump & Motor Cost	140,788	202,934	247,997	291,050	292,220	237,710	263,865	1,676,564
Avg. Pump & Motor Cost Per Well	8,790	9,220	8,260	9,100	9,740	13,980	9,420	9,670
Total Cost	212,157	298,414	370,805	400,356	421,015	327,885	381,115	2,411,747
Avg. Cost (Total) Per Well	13,250	13,550	12,360	12,510	14,030	19,280	13,600	13,780

--November 1954

Group 1

1	2	3	4	5	6	7	8	9	10	11	12	13
Gp. No.	Well No.	Single or Inter-connected	Total Irrigable Acreage	Well Dia.	C.F.S.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	6A824	I	644.7	20	10.1	4346.6	229.8	364	235.0	286.5	5,8[illegible]1.00	12,760.00
	18A824	I	5X82.1	24	9.1	4298.0	181.6	265	188.1	207.0	5,463.00	10,900.00
	7B824	I	505.3	20	7.8	4291.63	171.33	242	172.43	168.5	4,538.00	6,750.00
	8A823	S	609.3	24	9.04	4337.5	233.7	351	234.7	256.5	5,667.00	12,220.00
	27A823	I	294.9	20	4.5	4293.5	186.7	240	190.7	103.5	3,758.00	6,080.00
	27C823	I	284.3	20	4.46	4284.7	179.2	262	195.1	106.0	4,886.00	4,730.00
	6A923	S	431.3	24	7.74	4276.1	175.7	225	176.9	164.5	3,788.00	8,160.00
	11A824	I	498.4	20	7.8	4303.9	167.9	227	167.9	158.0	4,479.00	6,050.00
	21A824	S	726.2	24	10.5	4275.0	143.5	250	152.8	199.5	3,961.00	9,800.00
	10A824	I	902.1)	24	8.0	4305.38	167.79	258	168.59	149.2	4,941.00	10,694.00
	10B824	I	)	20	6.0	4291.95	154.53	238	155.33	111.9	3,957.00	8,414.00
	4B824	I	417.1	24	8.2*	4318.85	192.36	302	198.56	186.5	5,523.00	12,471.00
	8A824	I	548.1	20	8.5*	4303.52	178.1	258	183.1	188.0	4,050.00	9,500.00
	15A824	S	359.1	20	5.4	4285.4	148.5	231	148.9	93.3	3,909.00	7,725.00
	14A824	S	486.0	24	7.5	4271.36	132.3	234	133.3	111.9	4,378.00	8,534.00
	17C82X3	S	45.0	12	0.8	4325.0	226.0	310	229.0	22.1	2,260.00	6,000.00
											71,369.00	140,788.00

Total or Average for 16 wells 733[illegible]3.9

Notes: Column 8 - Measured depths to water for groups 1, 2, & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 9 - Measured depths for groups 1, 2, & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 10 - Measured draw down for groups 1, 2 & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 12 - Contract cost of drilling for groups 1, 2 & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 13 - Contract prices for Groups 1, 2 & 3.

1	2	3	4	5	6	7	8	9	10	11	12	13
Gp. No.	Well No.	Single or Inter-connected	Total Irrigable Acreage	Well Dia.	G.F.S.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	32A724	I	515.0	24	8.6	4335.4	205.3	395.0	210.9	226.5	6,081.00	15,264.60
	34B724	I	268.2	20	4.2	4335.4	211.9	251.0	215.1	110.7	4,205.88	6,067.04
	35A724	I	473.0	24	7.2	4327.0	191.4	229.0	192.2	175.8	4,477.76	11,082.25
	35B724	I	233.7	20	3.6	4327.0	191.1	230.0	191.7	87.9	3,909.08	7,167.20
	13A824	I	651.0	24	10.3	4294.8	155.6	226.7	156.2	204.2	4,084.00	12,721.40
	13B824	I	323.2	20	5.2	4294.8	156.7	209.4	156.9	103.1	3,375.75	7,183.35
	19A825	I	614.0	24	9.4	4262.4	121.0	217.5	123.4	144.3	3,940.87	10,451.50
	19B825	I	301.0	20	4.6	4262.4	121.2	219.9	123.3	70.6	3,549.50	5,943.60
	31B824	I	505.0	24	8.68	4320.8	184.4	341.0	187.5	204.8	5,360.80	13,618.75
	3A824	I	149.8	20	4.3*	4320.8	184.7	302.0	184.9	102.4	4,374.75	7,259.45
	20A824	S		20				367.0			4,878.25	
	33A724	S	394.2	20	6.0	4334.8	208.0	284.0	212.8	156.6	4,536.25	11,041.30
	4A824	S	568.9	24	9.3*	4317.8	186.9	321.0	195.0	224.8	5,747.10	15,209.50
	21B824	S	421.3	20	7.3*	4280.8	145.1	345.0	151.9	138.5	4,619.12	9,610.20
	22A824	S	312.5	20	4.8	4271.9	133.6	246.0	139.0	84.1	3,660.50	6,602.10
	6B824	S	339.7	20	5.6	4340.5	221.3	277.0	228.3	155.7	4,786.13	11,421.85
	34A724	S	451.5	20	7.1	4323.2	187.1	260.0	188.4	175.0	3,986.40	10,886.05
	31A724	S	273.4	20	4.2	4356.2	237.1	366.0	239.7	124.4	5,635.50	8,709.60
	23A824	S	580.9	24	9.2	4278.1	138.8	250.0	143.1	165.7	4,716.35	10,946.40
	26A824	S	324.6	24	7.8	4259.2	119.9	172.1	120.8	124.4	3,197.22	8,021.05
	11B824	I	235.3	20	3.4	4303.9	163.3	206.0	163.5	74.0	3,282.37	3,568.40
	11C824	S	267.7	20	4.1	4295.6	158.6	195.0	159.1	82.8	3,073.63	6,225.55
1 relief	20B824	S	390.0		3.1						~~25,496.00~~	2,551.12
Total or Average for 22 wells			8783.9								95,480.11	202,934.26

Notes: Column 8 - Measured depths to water for groups 1, 2, & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 9 - Measured depths for groups 1, 2, & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 10 - Measured draw down for groups 1, 2 & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 12 - Contract cost of drilling for groups 1, 2 & 3 except for asterisks in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 13 - Contract prices for Groups 1, 2 & 3.

1	2	3	4	5	6	7	8	9	10	11	12	13
Co. No.	Well No.	Stages or Tubes cemented	Total Dredgable Length	Well Dia.	C.F.S.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Breakdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	12A823	1	429.0	20	6.6	4326.5	212.0	316.5	213.2	170.1	3,976.80	10,105.00
	12B823	1	211.7	20	3.3	4326.5	212.0	314.2	213.0	85.0	4,082.20	6,417.00
	12C823	1	304.0	24	7.8	4313.7	198.8	267.3	201.8*	190.2	4,276.00	11,415.00
	12D823	1	247.3	20	3.8	4313.7	198.8	298.6	201.8*	92.7	4,039.00	7,412.00
	24A823	1	659.0	24	10.1	4280.0	151.0	315.1	162.0	197.7	4,275.20	12,111.00
	24B823	1	324.1	20	5.0	4280.0	147.8	257.2	148.9	90.0	3,464.20	6,982.00
	30A824	8	296.6	20	4.6	4266.8	146.2	202.3	149.2*	82.9	2,887.60	5,374.00
	30B824	5	224.1	20	3.5	4257.3	123.6	206.0	126.6*	53.3	2,972.00	3,358.00
	29A824	8	362.1	20	5.6	4254.2	119.2	234.2	119.9	81.1	3,324.40	5,238.00
	31A824	1	521.0	24	8.0	4293.4	160.2	212.8	171.2	165.5	4,873.00	9,449.00
	31B824	1	236.8	20	4.0	4293.4	160.2	210.2	165.3	79.9	4,091.20	6,178.00
	25A823	8	198.1	20	3.0	4267.1	150.7	191.1	151.7	55.0	2,864.60	3,452.00
	12A824	8	360.2	20	5.5	4285.4	146.0*	230.0*	149.0*	99.0	3,450.00*	6,476.00
	1A824	8	431.8	20	6.6	4304.5	168.0*	255.0*	171.0*	136.4	3,825.00*	9,199.00
	1A823	1	591.0	24	9.1	4352.0	236.8	369.4	239.8*	263.7	5,556.98	13,239.00
	1B823	1	290.1	20	4.5	4352.0	236.8	371.3	239.8*	130.4	4,965.20	8,464.00
	1C823	1	477.4	20	7.3	4317.8	204.9	298.9	209.4	184.7	3,925.40	11,235.00
	24B823	8	341.6	20	5.3	4328.0	214.0*	300.0*	217.0*	139.0	4,500.00*	9,539.00
	34A723	1	431.0	20	6.6	4338.2	229.0*	315.0*	232.0*	185.0	4,725.00*	11,718.00
	34B723	1	211.5	20	3.3	4338.2	229.0*	315.0*	232.0*	92.5	4,725.00*	7,364.00
	30A724	1	512.0	24	7.9	4368.1	246.1	393.3	249.0*	237.7	5,585.47	14,128.00
	30B724	1	254.3	20	3.9	4368.1	248.4	394.0	251.4*	118.5	5,318.35	8,490.00
	19C825	1	455.0	20	7.0	4268.7	127.1	224.7	130.1*	110.1	3,190.40	7,031.00
	19D825	1	224.5	20	3.6	4268.7	127.1	222.6*	130.1*	55.0	3,152.00	3,360.00
	10A823	5	211.6	20	3.3	4314.9	205.5	235.7	210.1	83.8	4,056.20	5,942.00
	10B823	5	114.1	20	1.8	4322.9	215.3	360.5	217.3	47.3	4,391.00	3,559.00
	15A823	1	598.0	24	9.2	4318.3	218.5	266.2	213.8	237.7	4,160.40	14,484.00
	15B823	1	293.2	20	4.5	4318.3	218.5	302.8	216.5	117.7	4,001.20	7,980.00
	14A823	1	203.3	20	3.1	4309.0	199.6	278.6	202.2	75.8	3,681.60	9,939.00
	14B823	1	413.0	20	6.4	4309.0	199.6	251.3	200.0	154.7	3,498.30	6,231.00
	Total or Aver. 30 wells		10647.60								~~117,230.00~~ 123,808.80	~~96,316.00~~ 207,997.00

Notes: Column 8 - Measured depths to water for groups 1, 2, & 3 except for artesian in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 9 - Measured depths for groups 1, 2, & 3 except for artesian in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 10 - Measured draw down for groups 1, 2 & 3 except for artesian in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 12 - Contract cost of drilling for groups 1, 2 & 3 except for artesian in Group 3. These are estimated along with groups 4, 5, 6 & 7.

Column 13 - [illegible]

Copied

1	2	3	4	5	6	7	8	9	10	11	12	13
Map No.	Well No.	Single or Inter-connected	Total Irrigable Acreage	Well Dia.	G.P.M.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water A Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	5B823	I	680.0	20	10.5	4346.8	242.8	330	246.0	288.4	4,115.00	19,560.00
	5C823	I	336.1	20	5.2	9396.8	242.8	330	246.0	154.6	4,115.00	11,385.00
	4A823	I	591.0	24	9.1	4340.6	235.6	325	239.0	262.8	4,625.00	19,140.00
	4B823	I	292.6	20	4.5	4340.6	235.6	325	239.0	130.0	3,925.00	8,910.00
	35A822	I	551.0	24	8.5	4297.0	217.0	305	220.0	226.0	4,470.00	16,940.00
	35B822	I	271.7	20	4.2	4297.0	217.0	305	220.0	111.7	3,590.00	8,855.00
	11A922	S	507.7	24	7.8	4263.4	198.4	285	201.4	189.5	4,115.00	12,760.00
	29A823	I	552.0	20	8.5	4293.4	192.4	280	195.0	200.3	3,270.00	[illegible]
	29B823	I	273.2	20	4.2	4293.4	192.4	280	195.0	99.0	3,270.00	8,580.00
	28C823	S	298.4	20	4.6	4282.4	179.4	265	182.0	101.2	3,135.00	8,800.00
	35A823	S	399.8	20	6.2	4276.9	158.9	245	162.0	121.4	3,410.00	10,000.00
	35C823	S	244.3	20	3.8	4274.2	152.2	240	155.0	71.2	2,795.00	6,270.00
	35B823	S	149.3	16	2.3	4274.9	149.9	235	153.0	42.3	2,255.00	2,860.00
	3A923	S	128.0	16	2.0	4273.2	146.2	235	149.0	36.0	2,310.00	2,200.00
	3B923	S	136.4	16	2.1	4264.3	144.3	230	147.0	37.3	2,230.00	2,300.00
	31A823	S	469.5	20	3.7*	4280.0	181.0	270	184.0	82.3	3,155.00	7,370.00
	6B923	S	266.8	20	4.1	4256.3	165.3	250	168.0	83.2	3,095.00	7,425.00
	23A823	I	396.0	20	6.1	4305.5	197.5	285	201.0	148.2	3,490.00	1,220.00
	23B823	I	193.2	16	3.0	4305.5	197.5	285	201.0	72.9	2,775.00	6,490.00
	26A823	S	245.2	20	3.8	4273.6	156.6	245	160.0	73.5	2,990.00	6,545.00
	27B823	S	214.8	20	3.3	4274.9	166.9	255	170.0	67.8	3,045.00	5,940.00
	34A823	S	269.2	20	4.2	4272.4	160.4	245	163.0	82.7	3,175.00	7,370.00
	28A823	I	685.0	24	10.6	4287.5	185.5	275	189.0	242.1	4,020.00	18,590.00
	28B823	I	337.0	20	5.2	4287.5	185.5	275	189.0	118.8	3,245.00	9,900.00
	3A925	S	290.2	20	4.5	4217.0	157.0	245	160.0	87.0	2,995.00	7,700.00
	17A823	I	383.0	20	5.9	4303.9	202.9	290	206.0	146.9	3,570.00	11,110.00
	17B823	I	190.2	16	3.0	4303.9	202.9	290	206.0	74.7	2,825.00	6,710.00
	22A823	S	375.8	20	4.9*	4299.7	192.7	280	196.0	116.1	3,385.00	9,735.00
	21A823	S	469.3	24	7.3	4293.9	190.0	275	193.0	170.3	4,060.00	11,880.00
	15D823	S	140.0	16	2.2	4301.10	194.1	280	197.0	52.4	2,886.00	3,960.00
	19A823	I	425.0	20	6.6	4316.0	245.0	330	248.0	197.8	4,755.00	13,365.00
	19B823	I	207.7	20	3.2	4316.0	245.0	330	248.0	95.9	4,190.00	8,580.00
Total or Aver. 32 wells			10897.4								~~[illegible]~~ 10 9,306.00	~~[illegible]~~ ~~[illegible]~~ 271,050.00

1	2	3	4	5	6	7	8	9	10	11	12	13
Gp. No.	Well No.	Single or Inter-connected	Total Irrigable Acreage	Well Dia.	C.F.S.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	15A825	I	448.0	20	6.9	4295.8	151.8	240.0	154.8	129.1	3,600.00	10,450.00
	15B825	I	219.2	20	3.4	4295.8	151.8	240.0	154.8	63.6	3,600.00	5,390.00
	21A825	I	360.0	20	5.6	4268.5	124.5	210.0	127.5	86.3	3,150.00	7,700.00
	21B825	I	177.0	16	2.7	4268.5	124.5	210.0	127.5	41.6	2,310.00	3,750.00
	14A825	I	645.3 661.0	24	10.2	4303.0	158.0	245.0	161.0	198.5	4,410.00	13,420.00
	14B825	I	325.9	20	5.0	4303.0	158.0	245.0	161.0	97.3	3,675.00	8,470.00
	13A825	S	356.0	20	5.5	4298.7	123.7	210.0	126.7	84.2	3,150.00	7,480.00
	17A825	S	358.7	20	5.5	4260.9	119.9	205.0	122.9	81.7	3,075.00	7,260.00
	10A922	I	372.0	20	5.7	4271.3	223.3	310.0	226.3	153.9	4,650.00	11,440.00
	10B922	I	183.4	16	2.8	4271.3	223.3	310.0	226.3	76.6	3,410.00	6,930.00
	3A922	I	431.0	20	6.6	4295.0	232.0	320.0	235.0	187.4	4,800.00	12,650.00
	3B922	I	212.5	20	3.3	4295.0	232.0	320.0	235.0	93.7	4,800.00	6,250.00
	9A922	S	368.7	20	5.7	4259.1	228.6	315.0	231.6	159.5	4,725.00	11,550.00
	15A922	I	614.0	24	9.5	4258.2	212.2	300.0	215.2	247.1	5,400.00	18,700.00
	15B922	I	300.7	20	4.6	4258.2	212.2	300.0	215.2	119.7	4,500.00	10,010.00
	23A922	S	316.4	20	4.9	4251.6	174.6	260.0	177.6	105.2	3,900.00	8,800.00
	22A922	I	379.0	20	5.8	4257.7	219.7	305.0	222.7	156.1	4,575.00	11,440.00
	22B922	I	186.2	16	2.9	4257.7	219.7	305.0	222.7	76.1	3,355.00	6,230.00
	22C922	S	288.1	20	4.5	4259.5	238.5	325.0	241.5	131.3	4,875.00	~~[illegible]~~ 10,560
	18A922	S	493.0	24	7.6	4251.2	268.2	355.0	271.2	249.1	6,390.00	16,700.00
	7A922	I	650.0	24	10.0	4283.0	277.5	365.0	280.5	339.0	6,570.00	19,800.00
	7B922	I	325.0	20	5.0	4283.0	277.5	365.0	280.5	169.5	5,475.00	11,880.00
	8A922	I	211.1	20	3.3	4275.0	263.0	350.0	266.0	106.1	5,250.00	8,800.00
	20C922	S	213.0	20	3.3	4237.1	240.6	325.0	243.6	97.1	4,875.00	8,470.00
	20A922	I	422.0	20	6.5	4259.3	254.8	340.0	257.8	202.5	5,100.00	13,750.00
	20B922	I	207.3	20	3.2	4259.3	254.8	340.0	257.8	99.7	5,100.00	8,890.00
	28A922	S	335.0	20	5.2	4237.1	230.1	315.0	233.1	146.5	4,725.00	11,100.00
	35C822	S	135.0	16	2.1	4330.0	245.0	330.0	248.0	62.9	3,630.00	3,390.00
	2A824	S	119.0	16	1.9	4295.5	159.0	245.0	162.0	37.2	2,695.00	2,310.00
	5A824	S	132.0	16	2.0	4312.0	189.0	275.0	192.0	46.4	3,025.00	3,190.00
Total or Aver. 30 wells			9964.5 ~~9966.2~~								128,795.00	~~292,240.00~~ 292,290.00
Relifts												
	9RB24		200.0		3.1					8.8		1,500.00
	9GB24		115.0		1.8	Gravity						
	17RB24		155.0		2.4					4.4		1,300.00
	17GB24		104.3		1.6	Gravity						
	20RB24-R		117.0		1.8					7.0		1,350.00
Total or Aver. Relifts			691.3									4,150.00
Total or Aver.			10485.8 ~~10491.5~~									~~296,440.00~~ 296,370.00

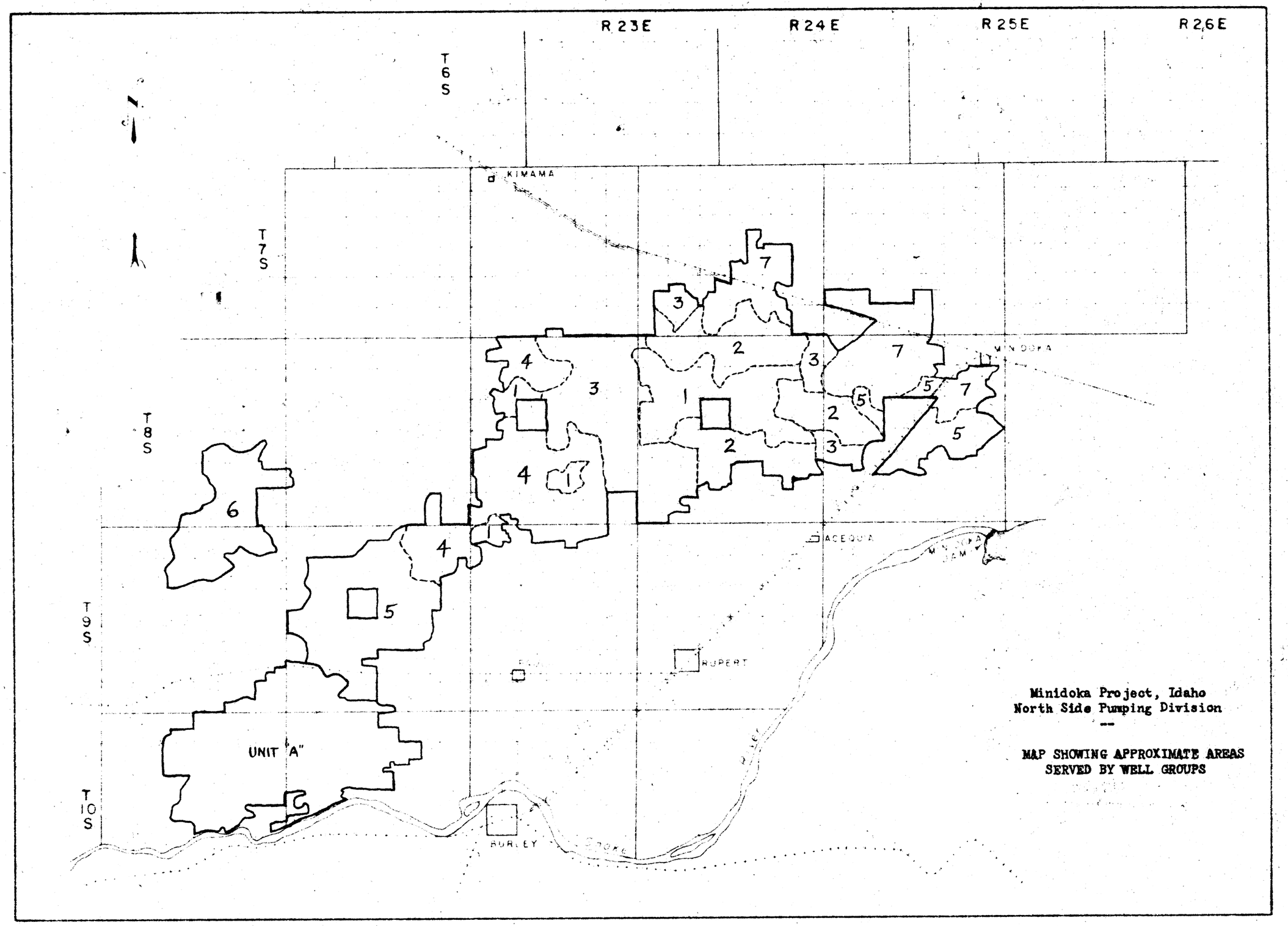
Drawn

1	2	3	4	5	6	7	8	9	10	11	12	13
Gr. No.	Well No.	Single or Interconnected	Total Irrigable Acreage	Well Dia.	G.P.M.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	19A922	S	481.5	20	7.4	4252.0	278.0	365.0	281.0	251.3	5,475.00	18,750.00
	28B922	S	257.6	20	4.0	4242.4	229.9	315.0	232.9	112.6	4,725.00	9,460.00
	33B922	S	467.5	20	7.2	4245.0	230.0	315.0	233.0	202.7	4,725.00	13,750.00
	11B921	S	392.6	20	6.1	4274.6	308.6	395.0	311.6	229.7	5,925.00	17,600.00
	1A921	S	495.5	24	7.6	4291.2	299.2	385.0	302.2	277.6	6,930.00	19,250.00
	3A921	S	144.0	16	2.2	4252.5	280.5	365.0	283.5	73.4	4,015.00	6,710.00
	3B921	S	427.0	20	6.6	4246.7	282.2	370.0	285.2	227.5	5,550.00	17,380.00
	10A921	S	418.1	20	6.4	4239.3	278.8	365.0	281.8	218.0	5,475.00	15,620.00
	35A821	S	153.4	16	2.4	4235.0	297.5	385.0	300.5	87.2	4,235.00	7,810.00
	35B821	I	686.0	24	10.6	4281.9	287.9	375.0	290.9	372.6	6,750.00	7,810.00
	35C821	I	340.8	20	5.2	4281.9	287.9	375.0	290.9	182.8	5,625.00	12,430.00
	30A821	S	325.0	20	5.0	4290.6	269.1	355.0	272.1	164.4	5,325.00	11,660.00
	26A821	I	650.0	24	10.0	4303.6	298.1	385.0	301.1	363.9	6,930.00	21,780.00
	23A821	I	443.4	20	6.8	4283.1	273.6	360.0	276.6	227.3	5,400.00	17,050.00
	31A022	S	143.3	16	2.2	4276.0	265.0	350.0	268.0	71.3	3,850.00	6,270.00
	32A723	S	208.5	16	3.2	4329.0	227.0	315.0	230.0	88.9	3,465.00	7,920.00
	26B821	I	328.8	20	5.0	4303.6	298.1	385.0	301.1	181.9	5,775.00	12,320.00
Total or Aver 17 Wells			6359.0								90,175.00	237,710.00
Relifts												
	29R824		125.8		2.0					4.4		1,300.00
	24RA823		295.5		4.6					15.1		1,900.00
	24RB823		154.0		2.4					6.8		1,350.00
												4,550.00
Total or Aver. Relifts			575.3									242,260.00
Total or Aver.			6934.3									

22,000

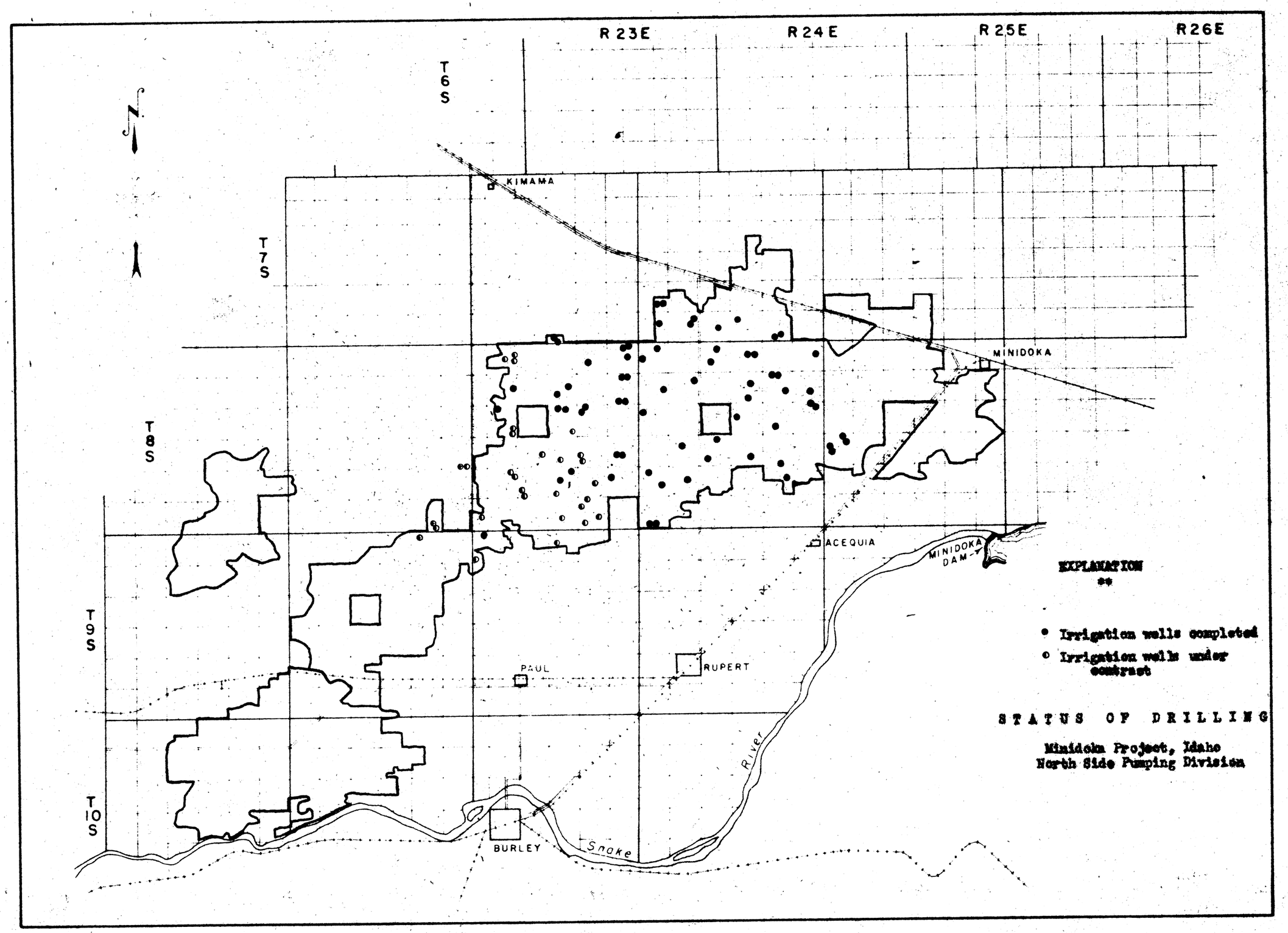
Group 7

1	2	3	4	5	6	7	8	9	10	11	12	13
Op. No.	Well No.	Single or Inter-connected	Total Irrigable Acreage	Well Dia.	C.F.S.	Ground Surface Elevation	Depth to Water	Drilling Depth	Depth to Water & Drawdown	K. W. Load	Est. Cost of Drilling	Est. Cost of Pump & Motor
	28A724	I	405.0	20	6.2	4342.0	214.0	300.0	217.0	162.6	4,500.00	11,700.00
	28B724	I	199.3	20	3.1	4342.0	214.0	300.0	217.0	81.3	4,500.00	7,300.00
	33B724	I	280.8	20	4.4	4336.0	208.0	295.0	211.0	112.2	4,425.00	9,600.00
	26A724	S	488.0	24	7.5	4327.0	194.0	280.0	197.0	178.6	5,040.00	12,200.00
	3C825	I	380.0	20	5.9	4349.0	207.0	290.0	210.0	149.7	4,350.00	11,200.00
	3D825	I	187.4	20	2.9	4349.0	207.0	290.0	210.0	73.6	4,350.00	6,600.00
	5A825	I	645.6	24	9.9	4335.0	195.0	280.0	198.0	236.9	5,040.00	18,150.00
	5B825	I	322.8	20	5.0	4335.0	195.0	280.0	198.0	119.6	4,200.00	10,000.00
	6A825	I	432.0	20	6.6	4304.0	165.0	250.0	168.0	134.0	3,750.00	10,700.00
	6B825	I	216.0	20	3.3	4304.0	165.0	250.0	168.0	67.0	3,750.00	5,800.00
	12A825	I	653.0	24	10.0	4330.0	184.0	270.0	187.0	226.0	4,860.00	17,000.00
	12B825	I	326.6	20	5.1	4330.0	184.0	270.0	187.0	115.3	4,050.00	9,700.00
	11A825	I	264.8	20	4.1	4314.0	169.0	255.0	172.0	85.2	3,825.00	7,600.00
	14C825	S	155.8	16	2.4	4306.0	161.0	245.0	164.0	47.6	2,695.00	3,400.00
	15A724	S	129.0	16	2.0	4351.0	220.0	305.0	223.0	53.9	3,355.00	4,200.00
	22A724	S	122.7	16	1.9	4335.0	204.0	290.0	207.0	47.5	3,190.00	3,400.00
	22B724	S	387.3	20	6.0	4340.0	211.0	295.0	214.0	155.2	4,425.00	11,400.00
	22C724	S	243.6	20	3.8	4329.0	197.0	280.0	200.0	91.9	4,200.00	8,100.00
	23A724	S	373.0	20	5.8	4339.0	206.0	290.0	209.0	146.5	4,350.00	11,100.00
	26B724	S	142.1	16	2.2	4321.0	186.0	270.0	189.0	50.3	2,970.00	3,700.00
	27A725	S	128.4	16	2.2	4349.0	206.0	290.0	209.0	55.6	3,190.00	4,400.00
	33A725	S	441.3	20	6.8	4344.0	203.0	290.0	206.0	169.3	4,350.00	11,900.00
	34A725	S	375.3	20	5.8	4351.0	208.0	295.0	211.0	147.9	4,425.00	11,200.00
	29A725	S	244.5	20	3.8	4370.0	229.0	315.0	232.0	106.5	4,725.00	9,185.00
	30A725	S	430.6	20	6.6	4365.0	226.0	310.0	229.0	182.7	4,650.00	12,430.00
	3A825	I	565.0	24	8.7	4351.0	208.0	295.0	211.0	221.8	5,310.00	16,280.00
	3B825	I	278.5	20	4.3	4351.0	208.0	295.0	211.0	109.6	4,425.00	9,350.00
	3E825	S	128.8	20	2.0	4351.0	207.0	290.0	210.0	50.8	4,350.00	6,270.00
Total or Aver. 28 wells			8947.1								117,250.00	263,865.00

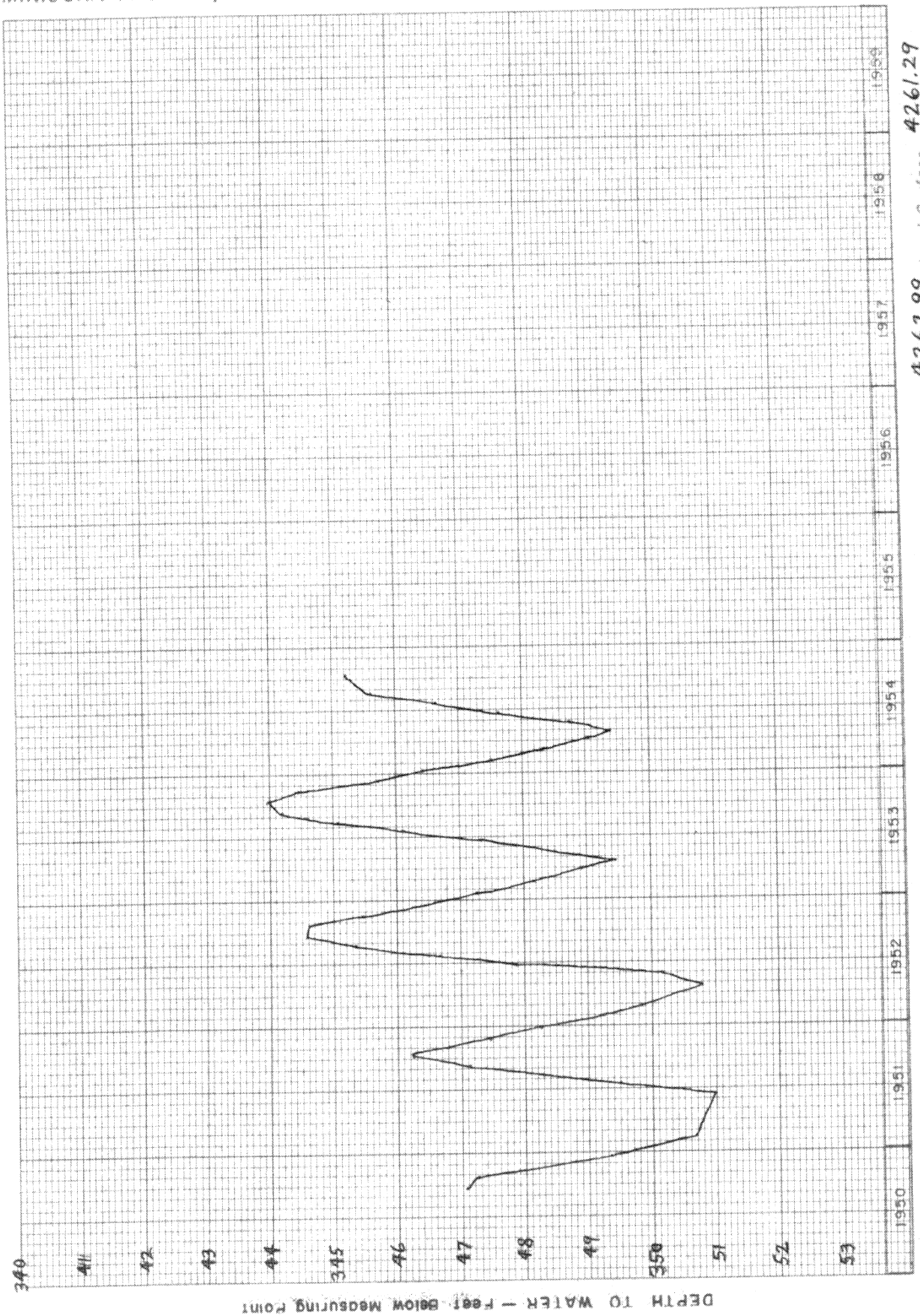


Minidoka Project, Idaho
North Side Pumping Division
--

MAP SHOWING APPROXIMATE AREAS
SERVED BY WELL GROUPS


R 23E
R 24E
R 25E
R 26E
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
N
KIMAMA
MINIDOKA
ACEQUIA
MINIDOKA DAM
PAUL
RUPERT
BURLEY
Snake
River
EXPLANATION
• Irrigation wells completed
○ Irrigation wells under contract
STATUS OF DRILLING
Minidoka Project, Idaho
North Side Pumping Division

MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 1 U.S.G.S. Well No. 9S20E-1da1



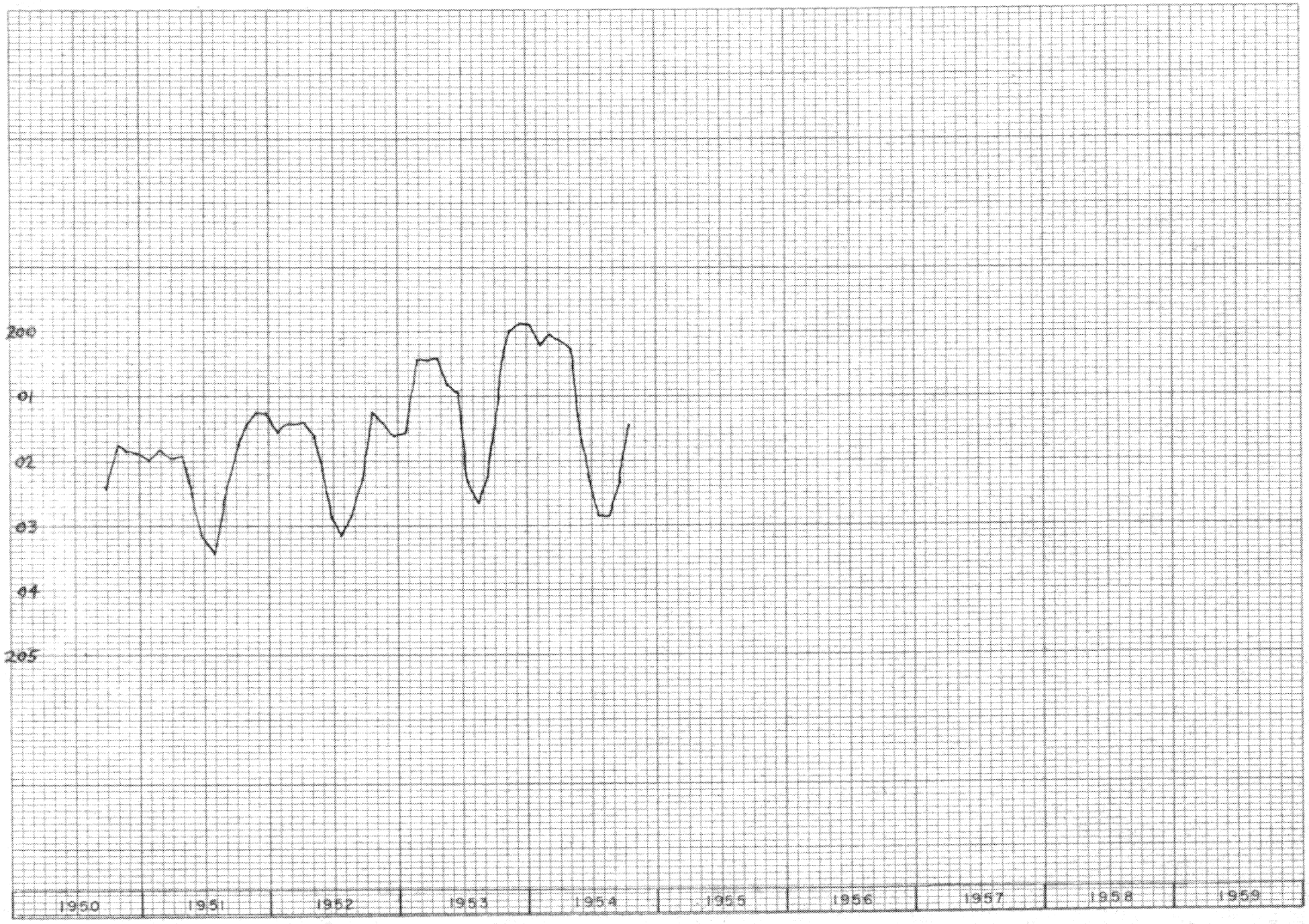
ELEVATIONS ~~MSL~~ DATUM: Measuring Point 4262.99, Land Surface 4261.29

(Subtract 50 ft. from USBR elevations

NO. 340-34 DIETZGEN GRAPH PAPER 12 X 20 PER INCH
EUGENE DIETZGEN CO.

NO. 340-134 DIETZGEN GRAPH PAPER
12 X 20 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.

MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 2 U.S.G.S. Well No. 8S23E-2ba1



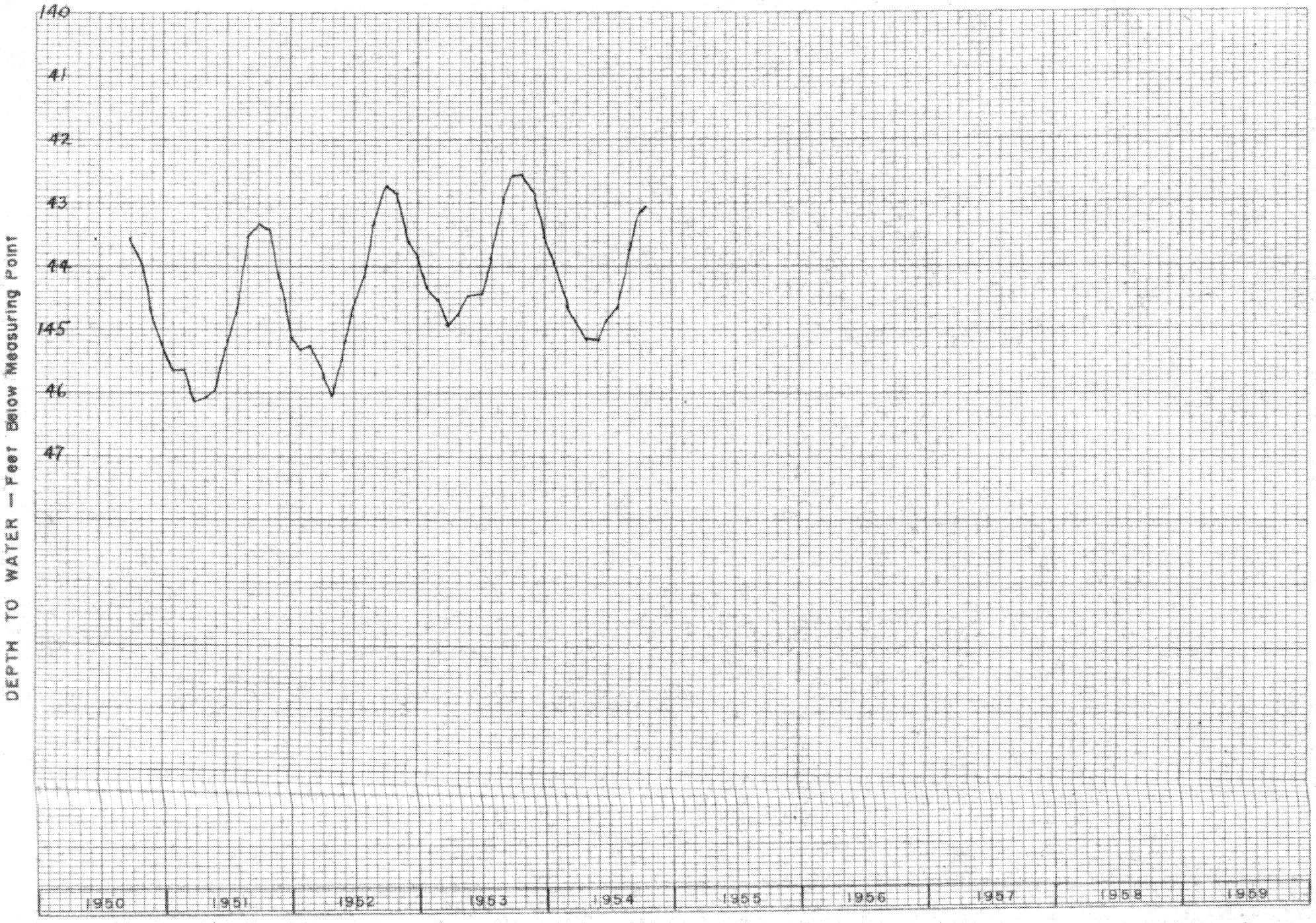
(Subtract 50 ft. from USBR elevations to get Mean Sea Level elevations)

ELEVATIONS ~~USGS~~ U.S.B.R. DATUM: Measuring Point 4315.52, Land Surface 4313.62

NO. 340-34 DIETZGEN GRAPH PAPER
12 X 20 PER INCH

EUGENE DIETZGEN CO.
MADE IN U.S.A.

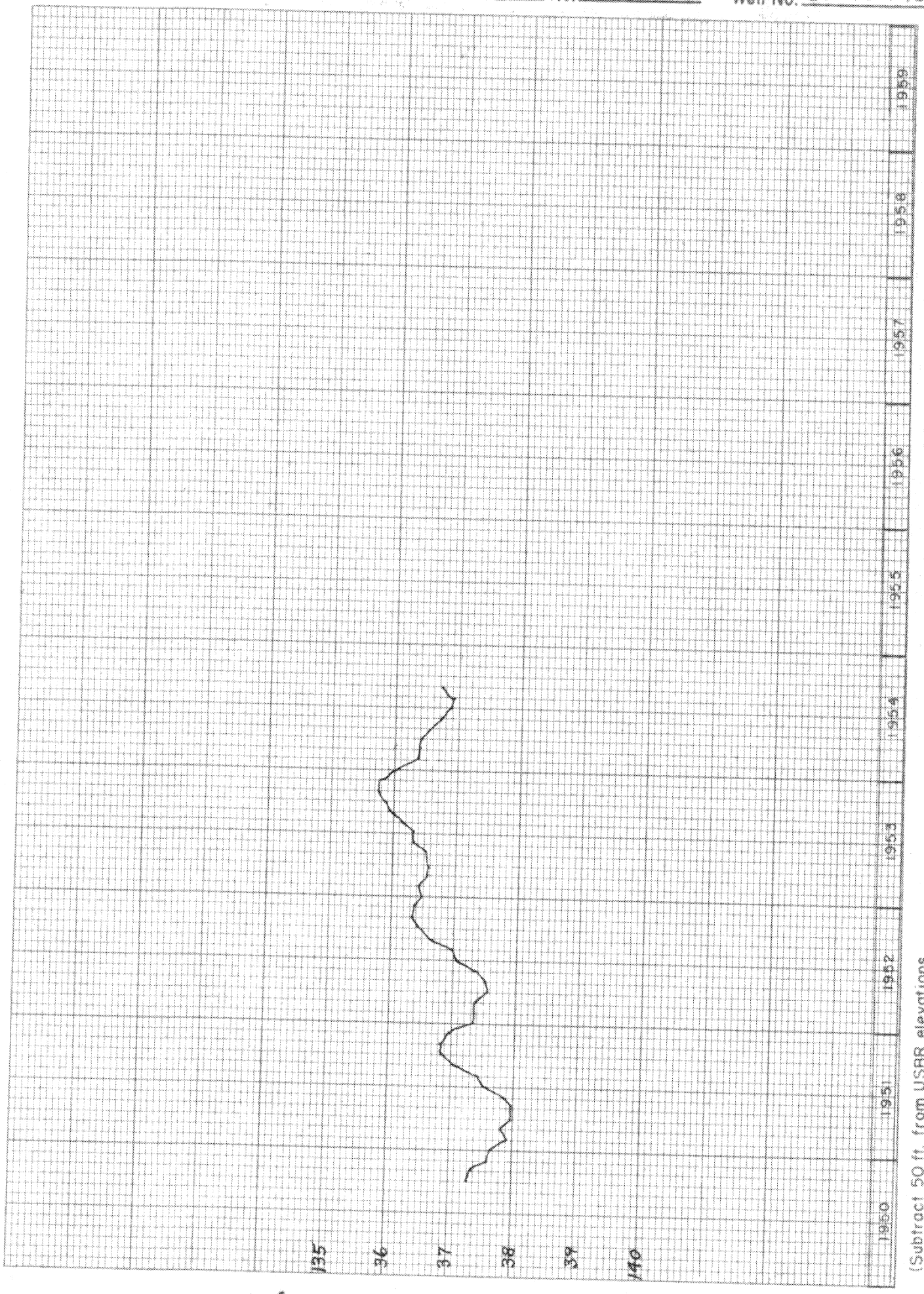
MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 3 Well No. [illegible]



(Subtract 50 ft. from USBR elevations

ELEVATIONS ~~USGS~~ USBR DATUM: Measuring Point 4278.29, Land Surface 4276.49

MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 4 U.S.G.S. Well No. 8S 25E-24bd1

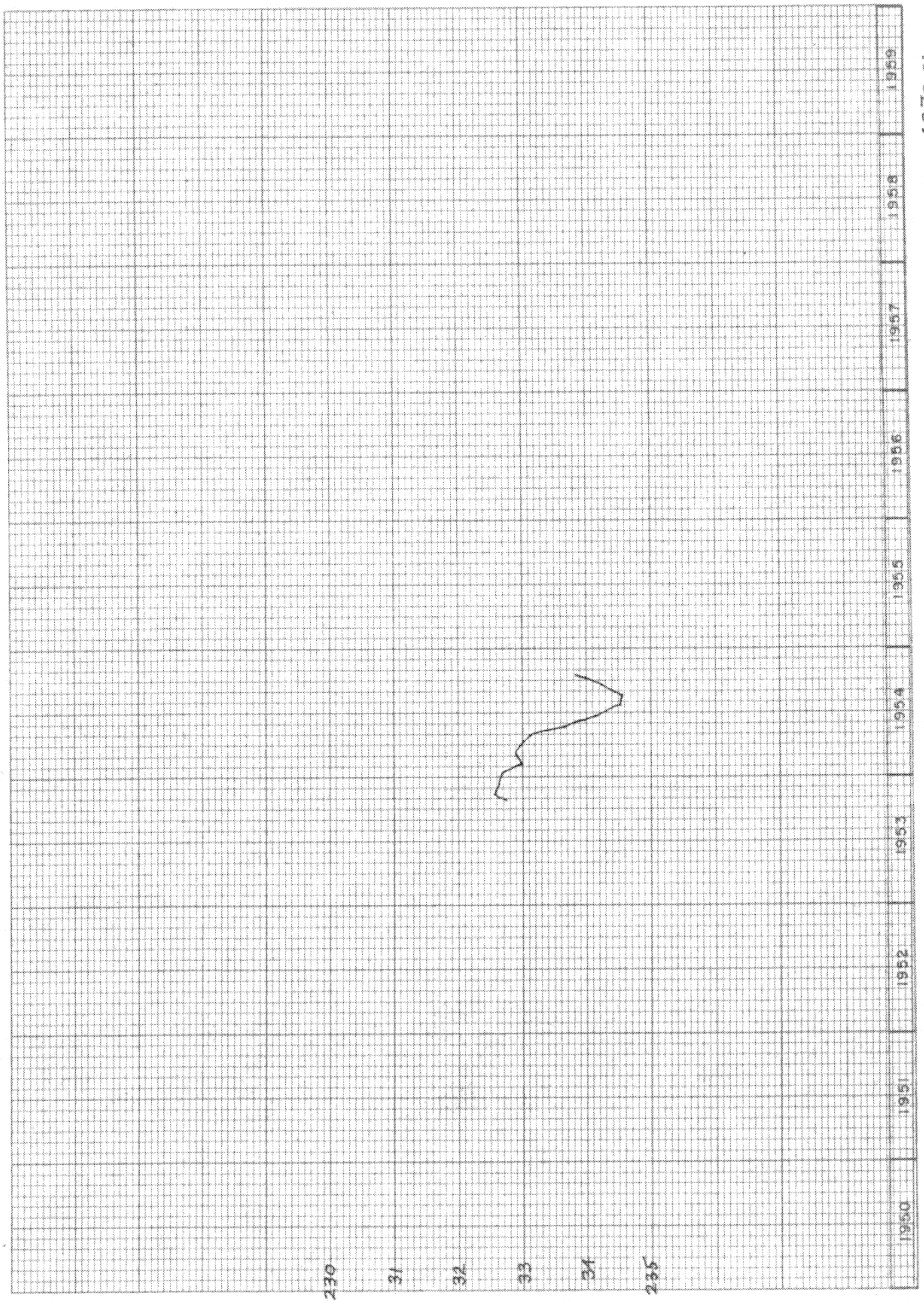


ELEVATIONS ~~[illegible]~~ USBR DATUM: Measuring Point 4284.78, Land Surface 4282.68

(Subtract 50 ft. from USBR elevations to get Mean Sea Level elevations)

EUGENE DIETZGEN CO. MADE IN U.S.A.
12 X 20 PER INCH

MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 13 U.S.G.S. Well No. 7S 25E - 19ba1



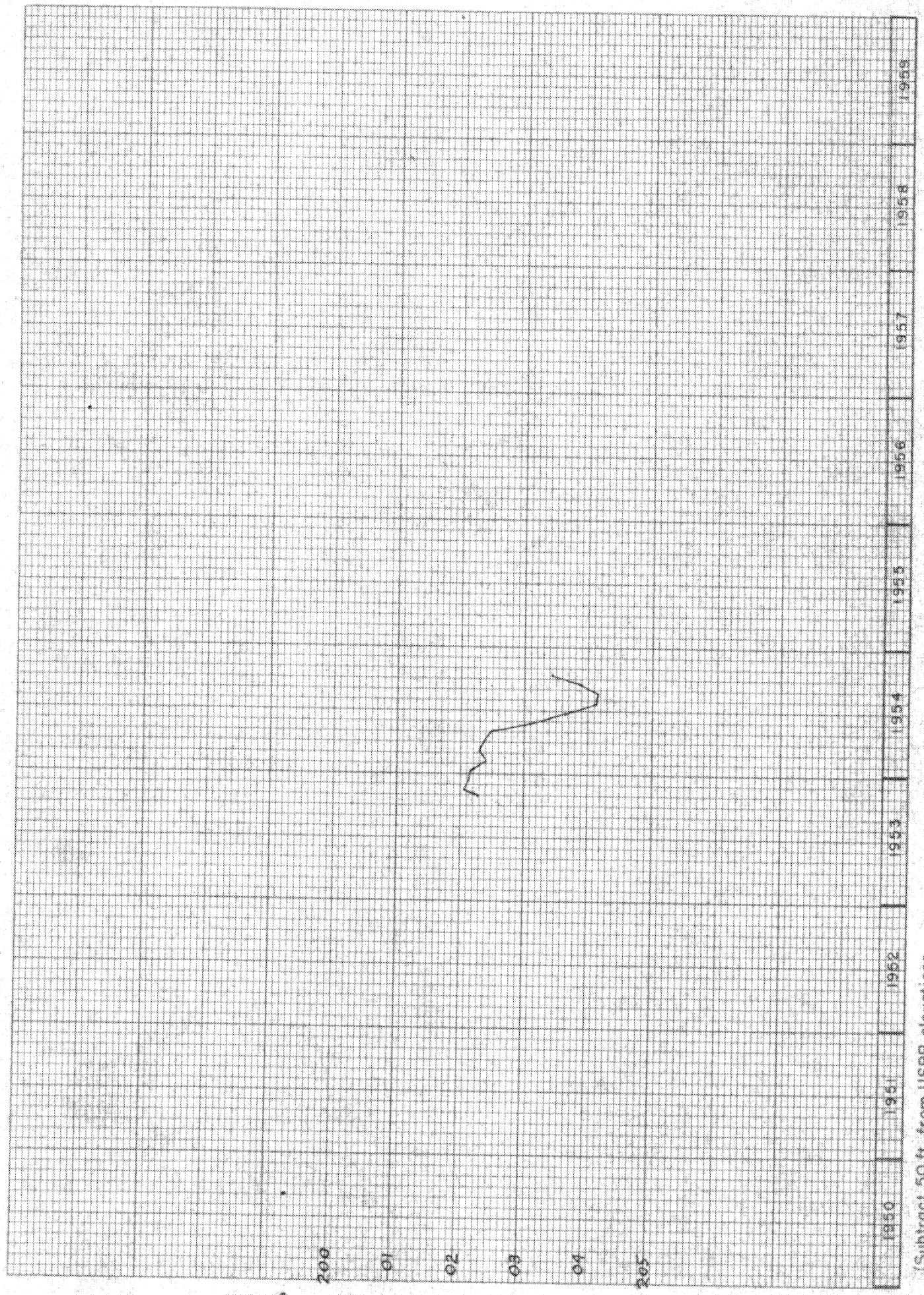
DEPTH TO WATER — Feet Below Measuring Point

ELEVATIONS ~~MSL~~ USGS DATUM: Measuring Point 4371.01, Land Surface 4370.01

(Subtract 50 ft. from USBR elevations

NO. 340-34 DIETZGEN GRAPH PAPER 12 X 20 PER INCH
EUGENE DIETZGEN CO. MADE IN U.S.A.

MINIDOKA PROJECT, IDAHO Owner USBR No. Obs. 14 U.S.G.S. Well No. 7S 24E-2ad1

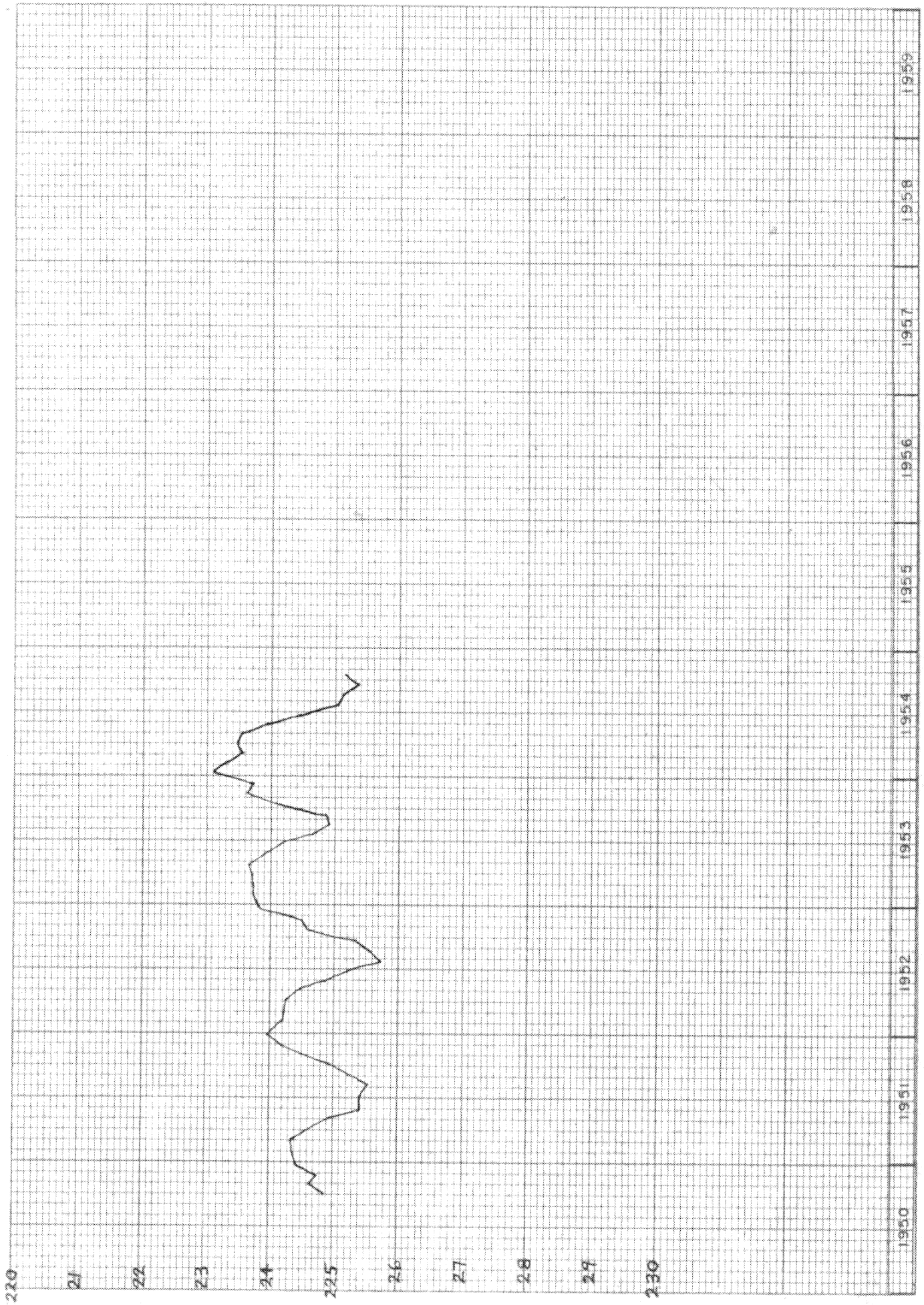


ELEVATIONS: USBR DATUM: Measuring Point 4336.80, Land Surface 4335.30

(Subtract 50 ft. from USBR elevations to get Mean Sea Level elevations)

EUGENE DIETZGEN CO. MADE IN U.S.A.
12 X 20 PER INCH

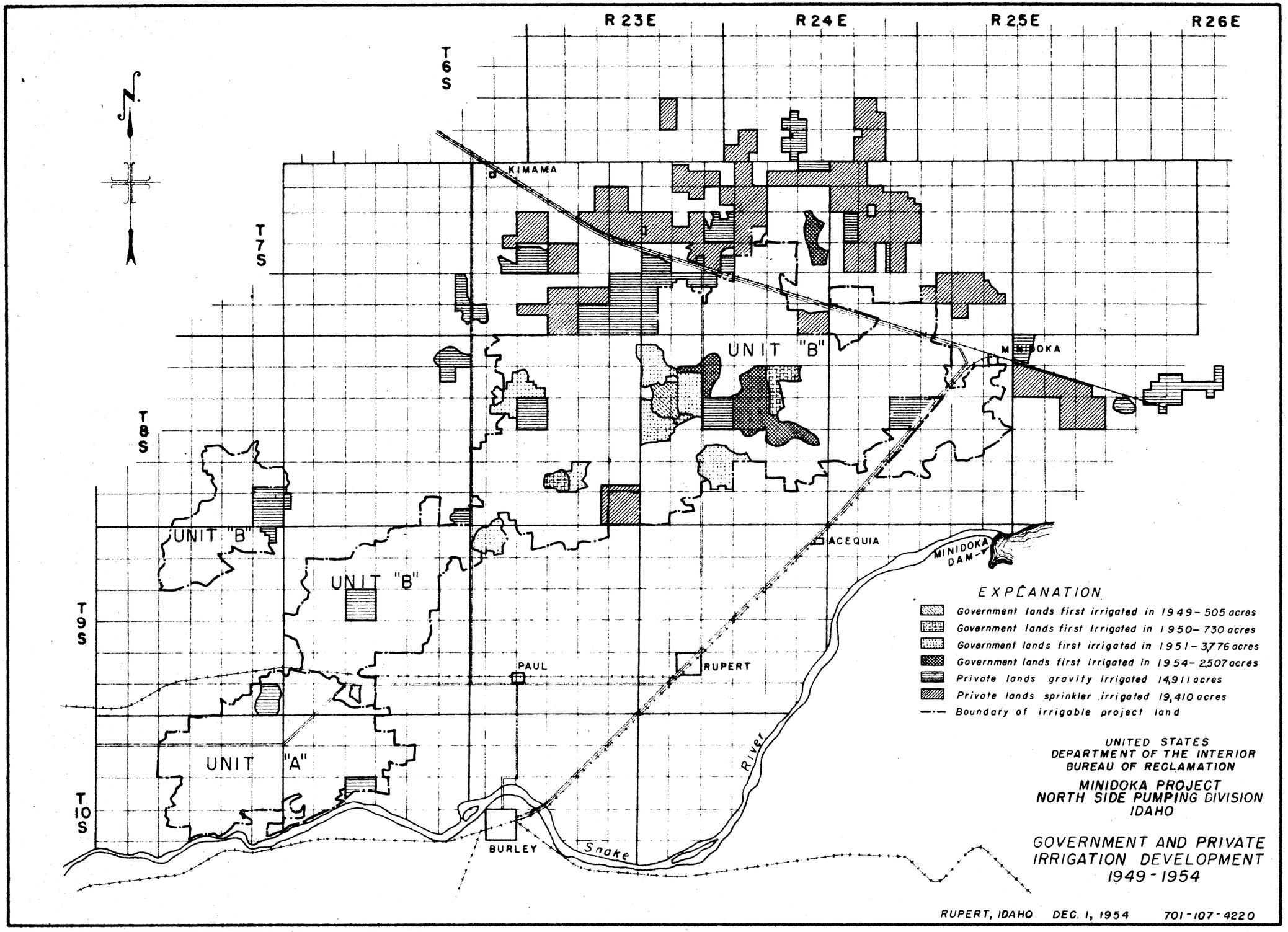
MINIDOKA PROJECT, IDAHO Owner USBR No. P.O.W. Well U.S.G.S. Well No. 9S 22E-33ab1



ELEVATIONS DATUM: Measuring Point 4235.20 Land Surface 4234.70

(Subtract 50 ft. from USBR elevations

NO. 340-34 DIETZGEN GRAPH PAPER 12 X 20 PER INCH
EUGENE DIETZGEN CO. MADE IN U.S.A.


R 23E
R 24E
R 25E
R 26E
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
N
KIMAMA
MINIDOKA
ACEQUIA
MINIDOKA DAM
PAUL
RUPERT
BURLEY
Snake
River
UNIT "B"
UNIT "B"
UNIT "B"
UNIT "A"
EXPLANATION
Government lands first irrigated in 1949 - 505 acres
Government lands first irrigated in 1950 - 730 acres
Government lands first irrigated in 1951 - 3,776 acres
Government lands first irrigated in 1954 - 2,507 acres
Private lands gravity irrigated 14,911 acres
Private lands sprinkler irrigated 19,410 acres
Boundary of irrigable project land
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MINIDOKA PROJECT
NORTH SIDE PUMPING DIVISION
IDAHO
GOVERNMENT AND PRIVATE
IRRIGATION DEVELOPMENT
1949 - 1954
RUPERT, IDAHO DEC. 1, 1954 701-107-4220

North Side Pumping Division
Minidoka Project, Idaho

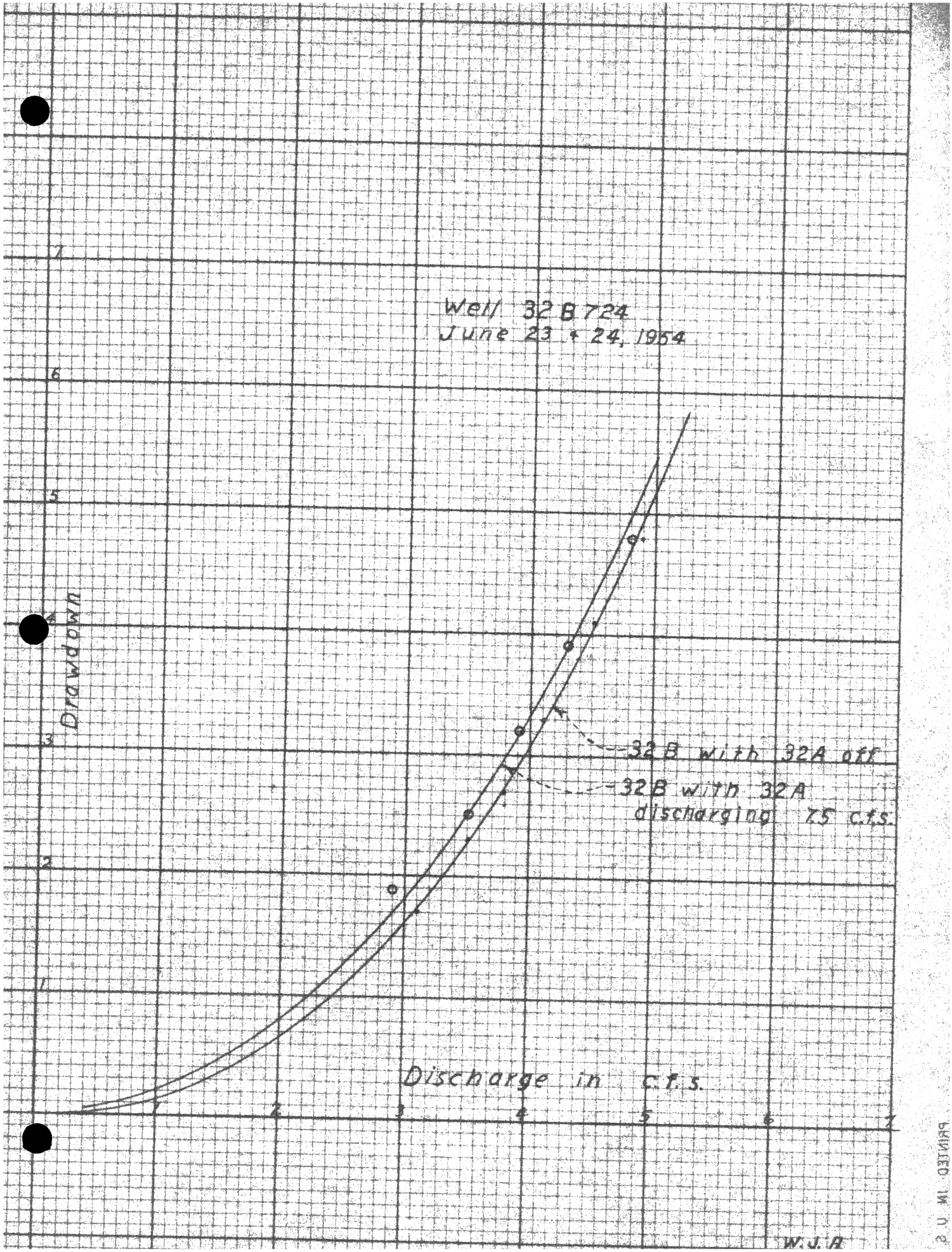
- - -

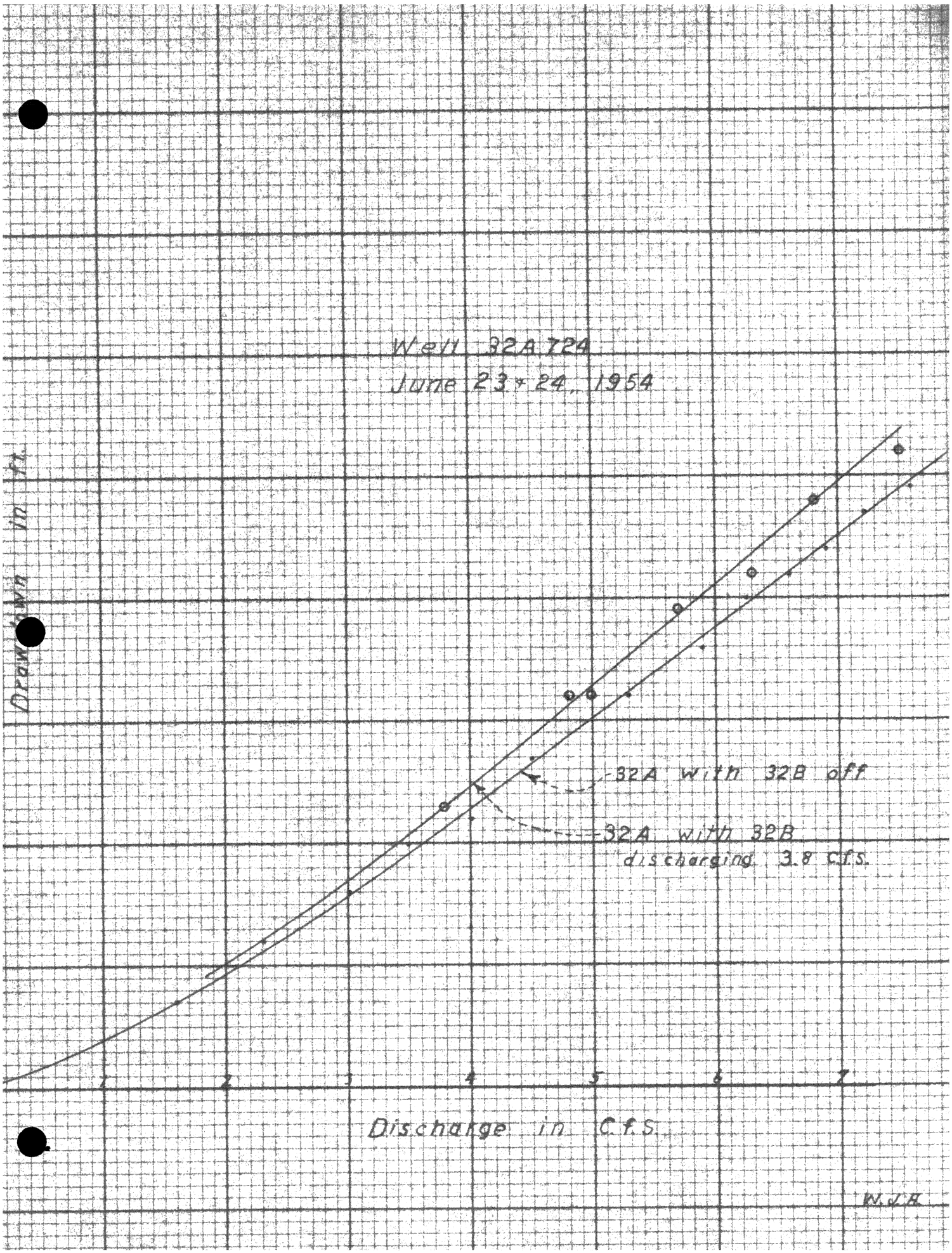
SEASONAL PUMPING FROM PROJECT WELLS - (Acre Feet)

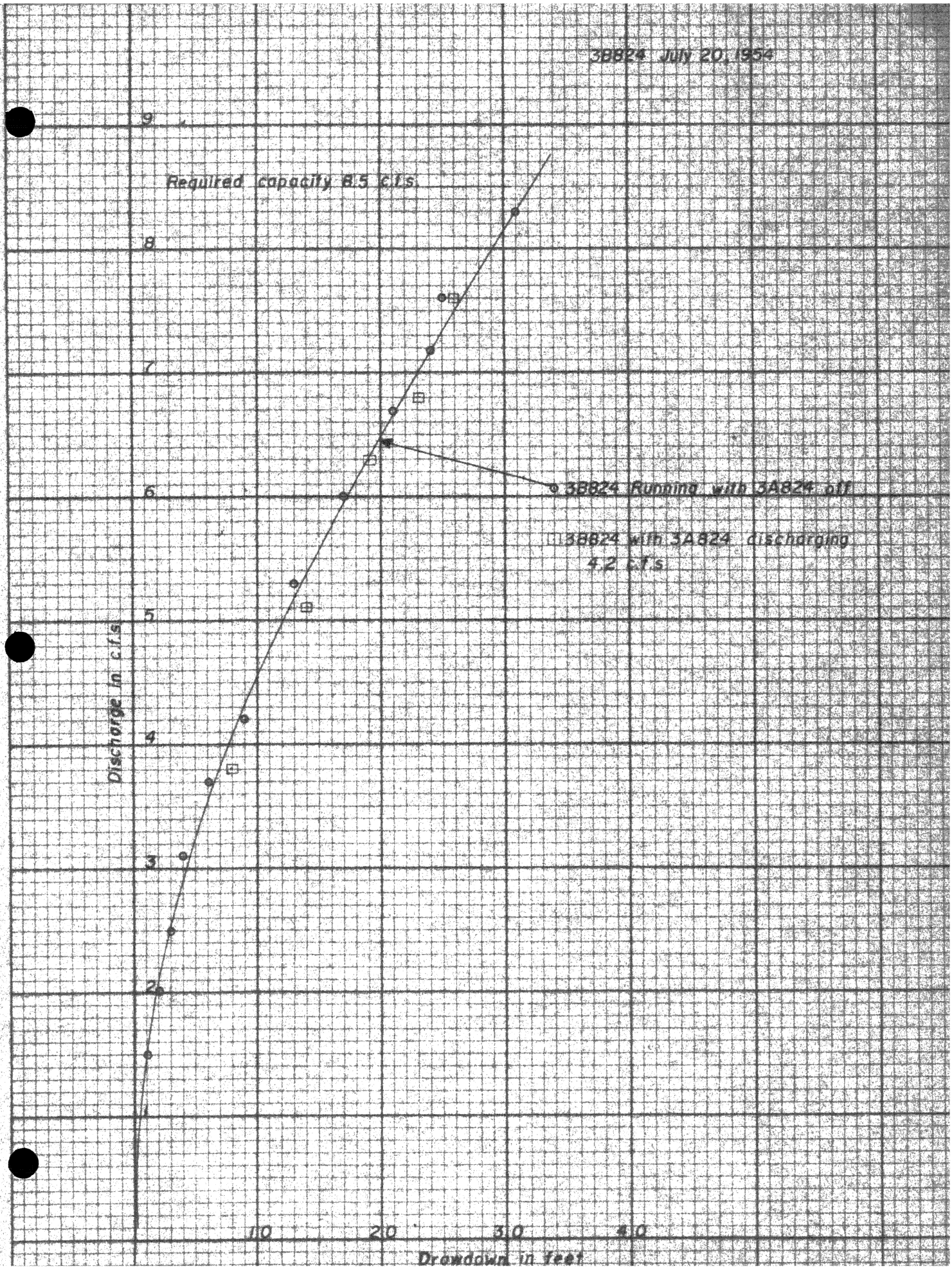
Well No.	Acres*	1949	1950	1951	1952	1953	1954
11A824	498.4	--	1848	1825	2208	2061	1744
7B824	505.3	1334	2110	1494	1710	1219	**
27A823	284.3	--	1196	871	1127	1054	2295
27A823	294.9	--	--	749	1011	921	
18A824	482.1	--	--	1087	2074	1807	**
6A824	645.0	--	--	1967	2542	2218	5584**
6A923	431.3	--	--	1438	1719	1420	1681
21A824	726.2	--	--	1784	2618	2475	2379
8A823	609.3	--	--	1160	1986	1679	1353
14A824	486.0	--	--	--	--	--	1657
15A824	359.1	--	--	--	--	--	1173
10A824	902.1	--	--	--	--	--	3291
10B824		--	--	--	--	--	
8A824	548.1	--	--	1460	2045	2209	3477
4B824	417.1	--	--	--	--	--	
33A922	70.	--	--	219	279	203	236
Irrigable Acres	7259.2						
Irrigated Acres		370	1090	4782	4812	5170	6612
Pumping Ac.-Ft.		1334	5154	14054	19319	17266	24871

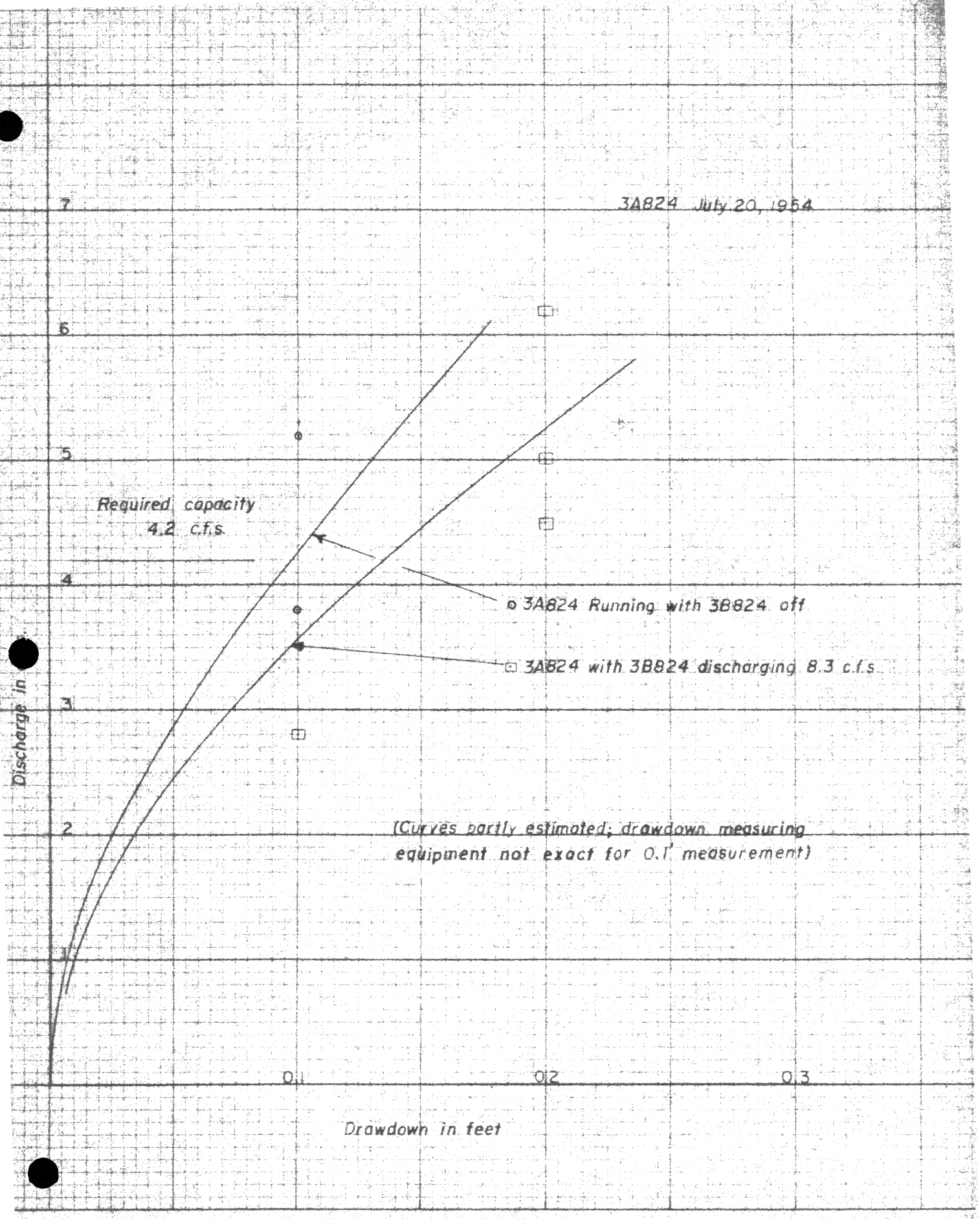
Footnotes: * - Irrigable acreage served by each well
** - Pumpage combined in 1954 for wells 7B824, 18A824, and 6A824

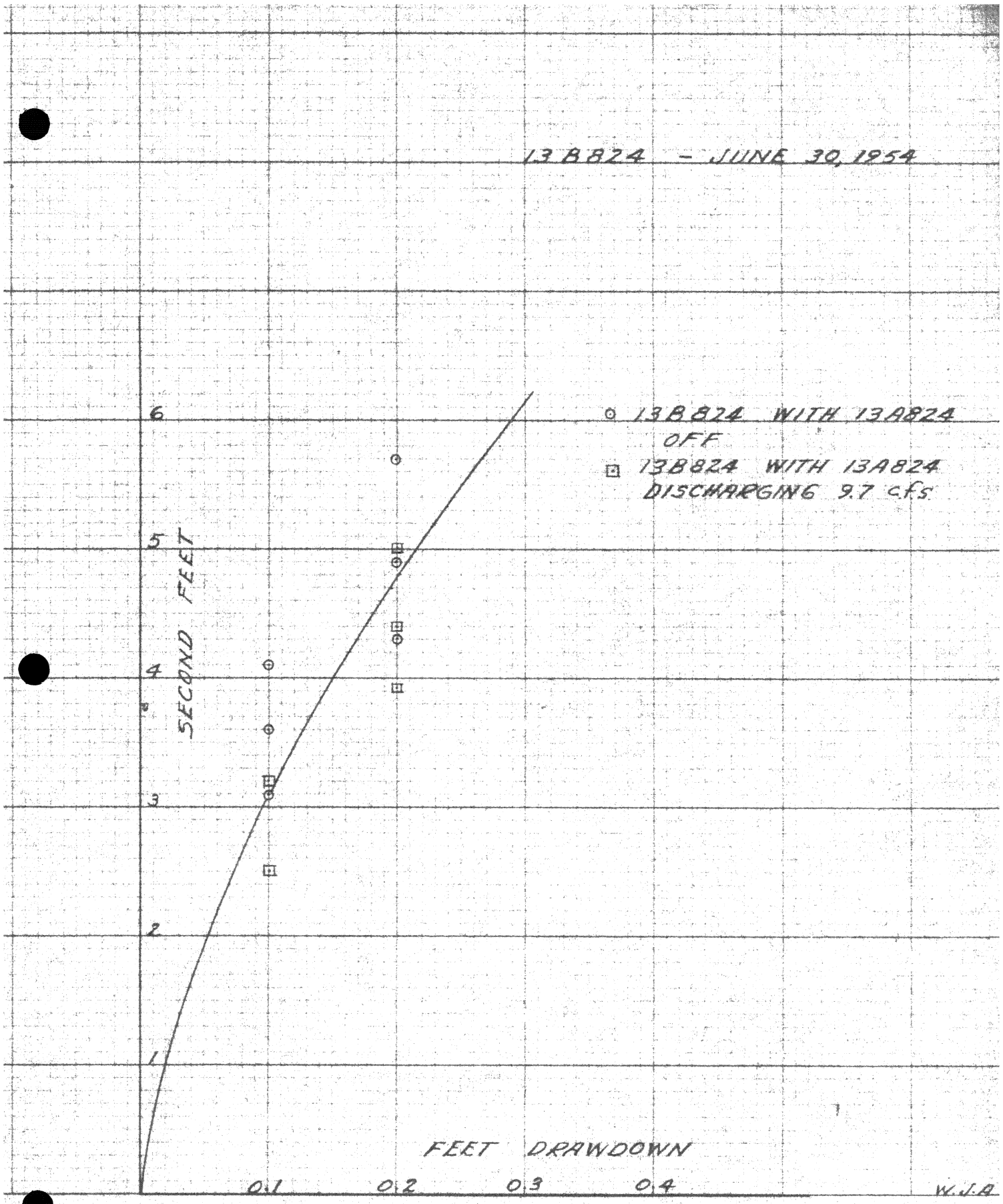
--Nov. 1954

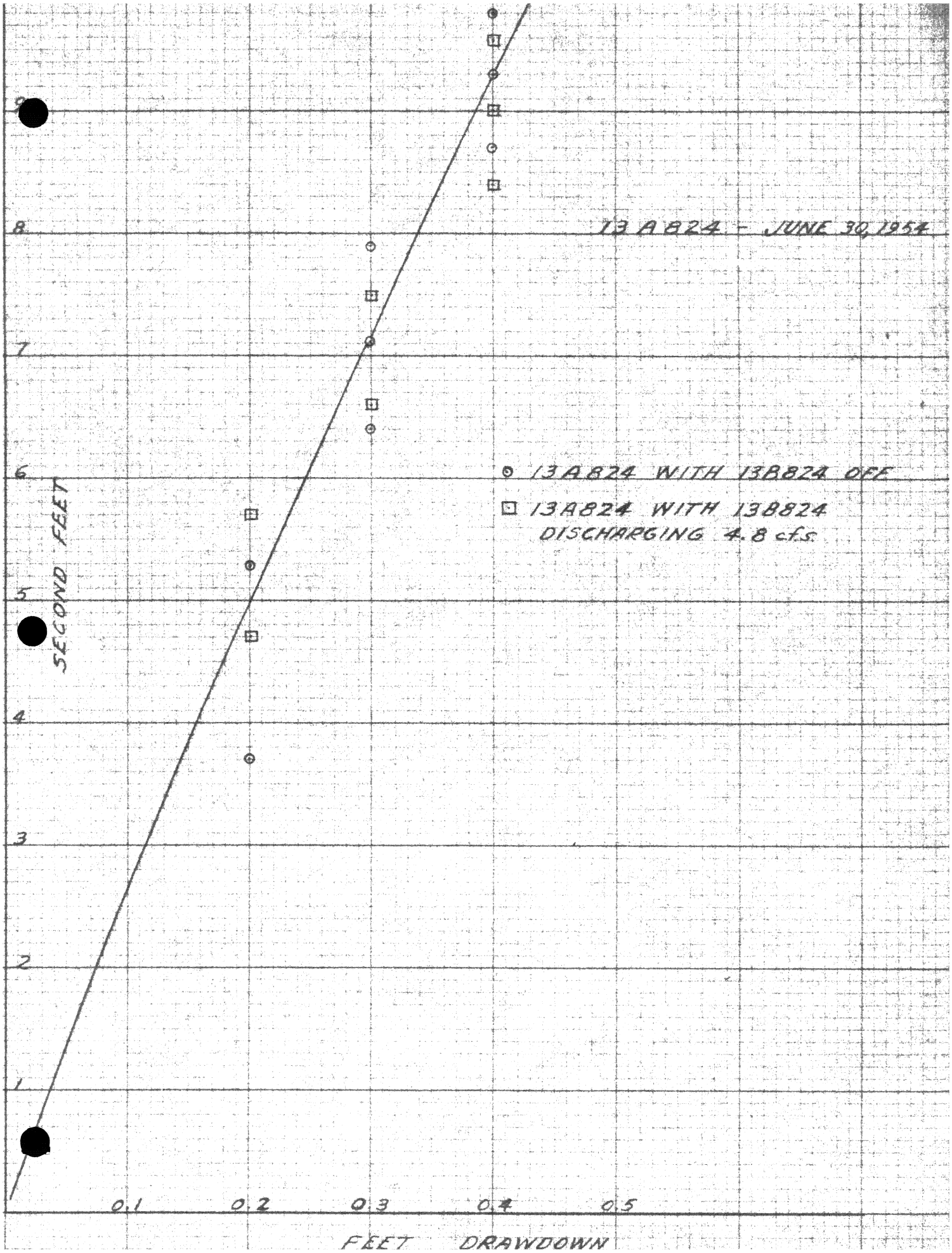

Well 32 B 724
June 23 & 24, 1954
Drawdown
Discharge in c.f.s.
32 B with 32A off
32 B with 32A discharging 7.5 c.f.s.
1
2
3
4
5
6
7
W.J.A.

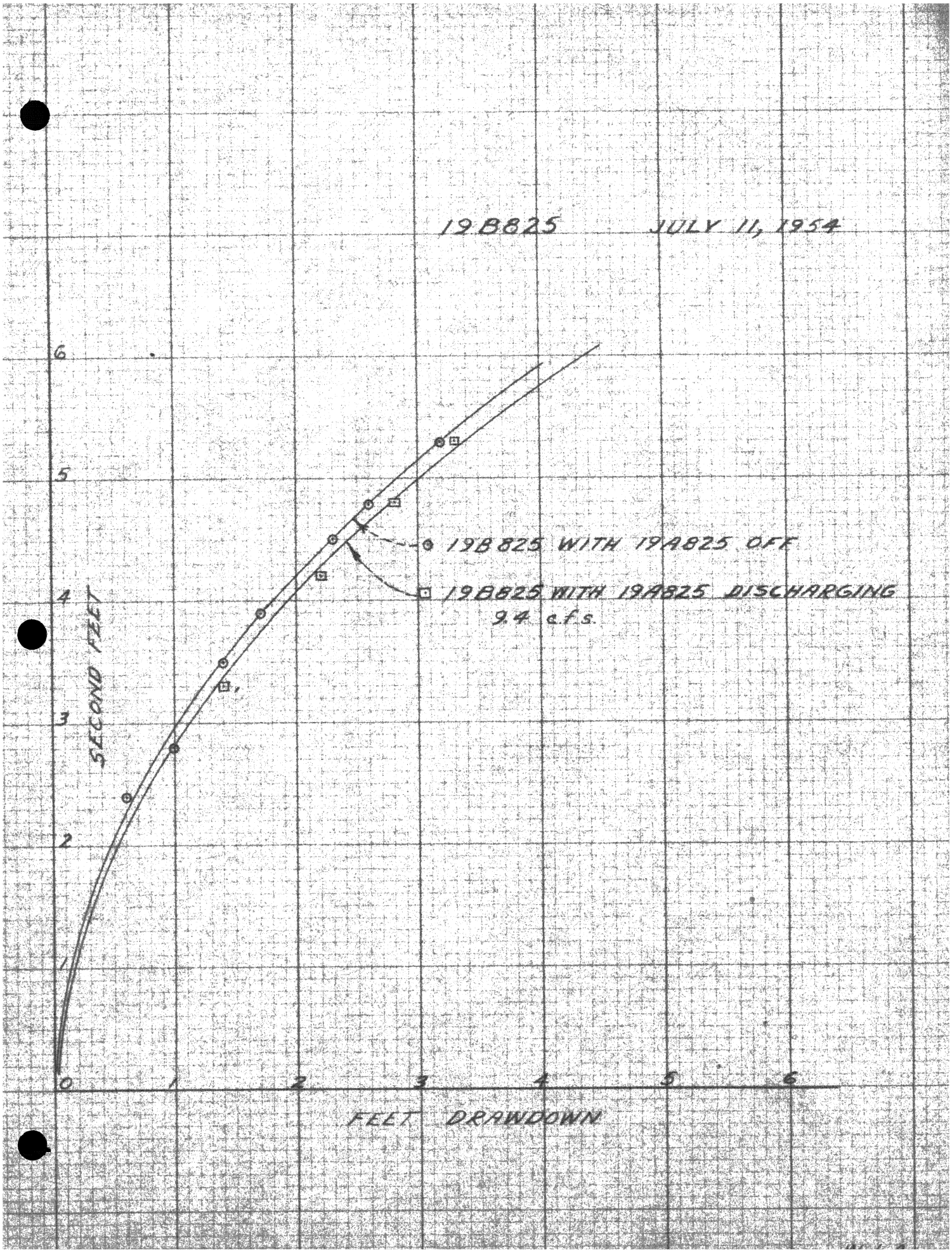

Well 32A 724
June 23 & 24, 1954
Drawdown in ft.
32A with 32B off
32A with 32B discharging 3.8 c.f.s.
1
2
3
4
5
6
7
Discharge in C.f.s.
W.J.H.

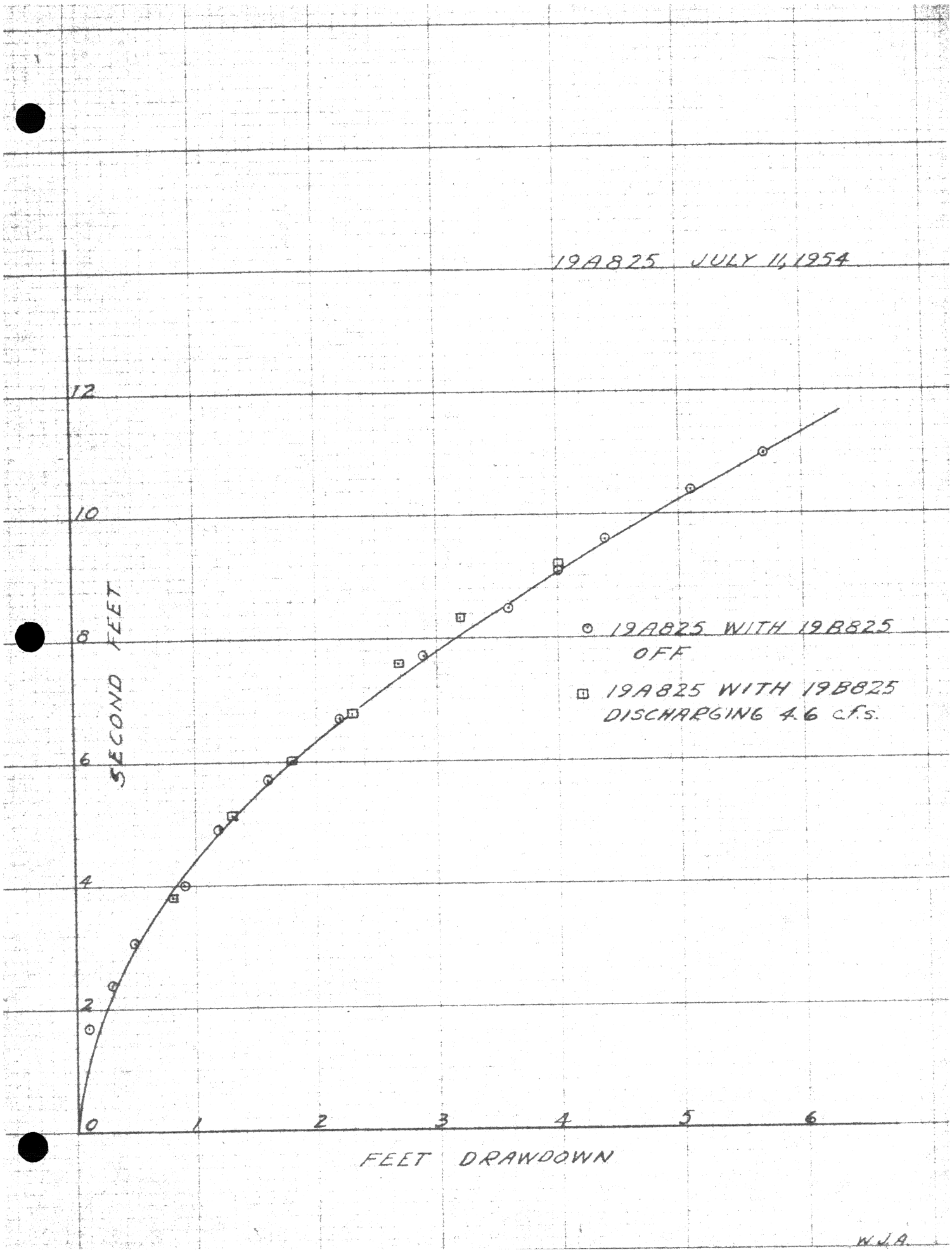

3B824 July 20, 1954
Required capacity 8.5 c.f.s.
3B824 Running with 3A824 off
3B824 with 3A824 discharging 4.2 c.f.s.
Discharge in c.f.s.
Drawdown in feet
1
2
3
4
5
6
7
8
9
1.0
2.0
3.0
4.0

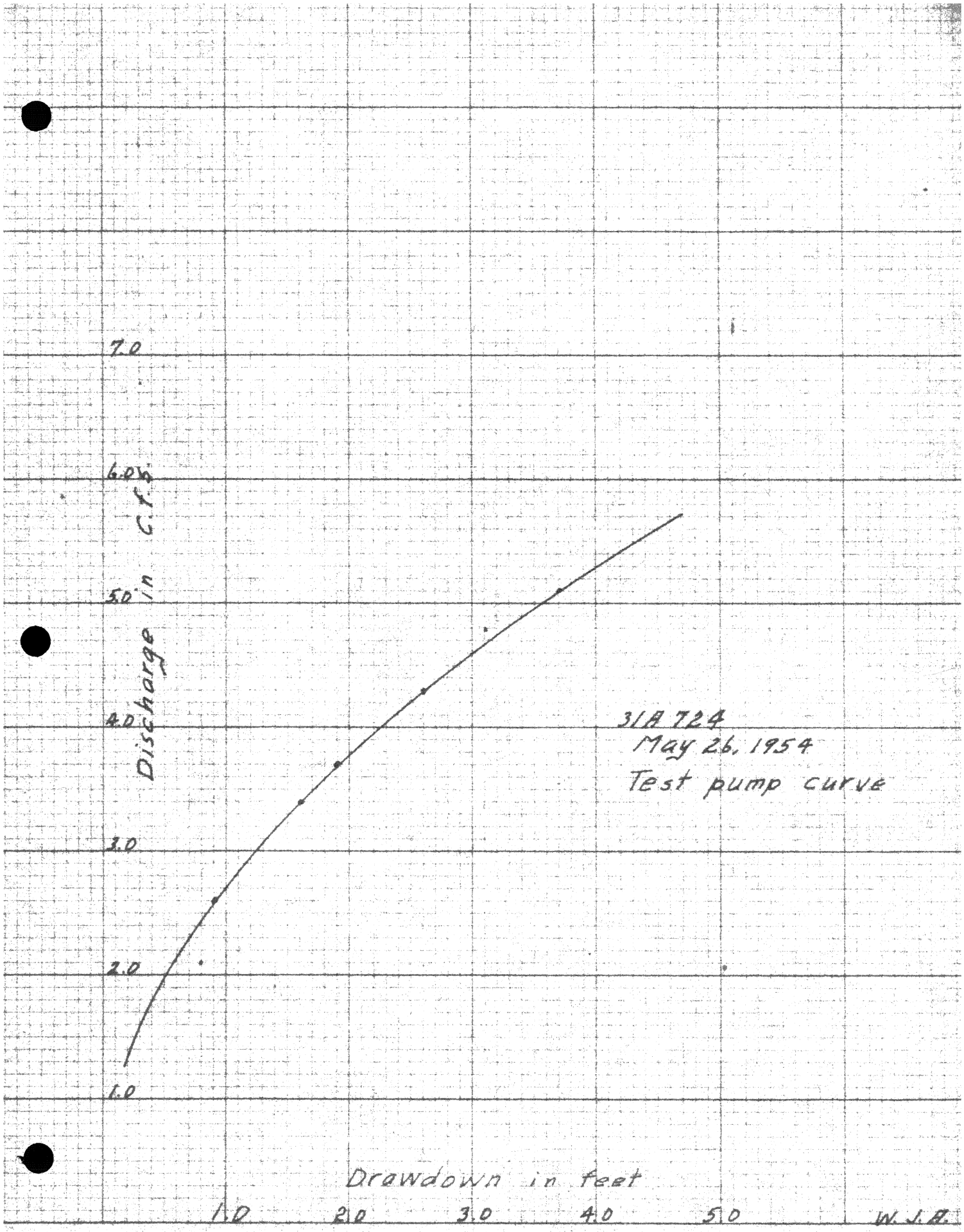

3A824 July 20, 1954
7
6
5
4
3
2
1
Required capacity
4.2 c.f.s.
3A824 Running with 3B824 off
3A824 with 3B824 discharging 8.3 c.f.s.
(Curves partly estimated; drawdown measuring equipment not exact for 0.1' measurement)
Discharge in
0.1
0.2
0.3
Drawdown in feet

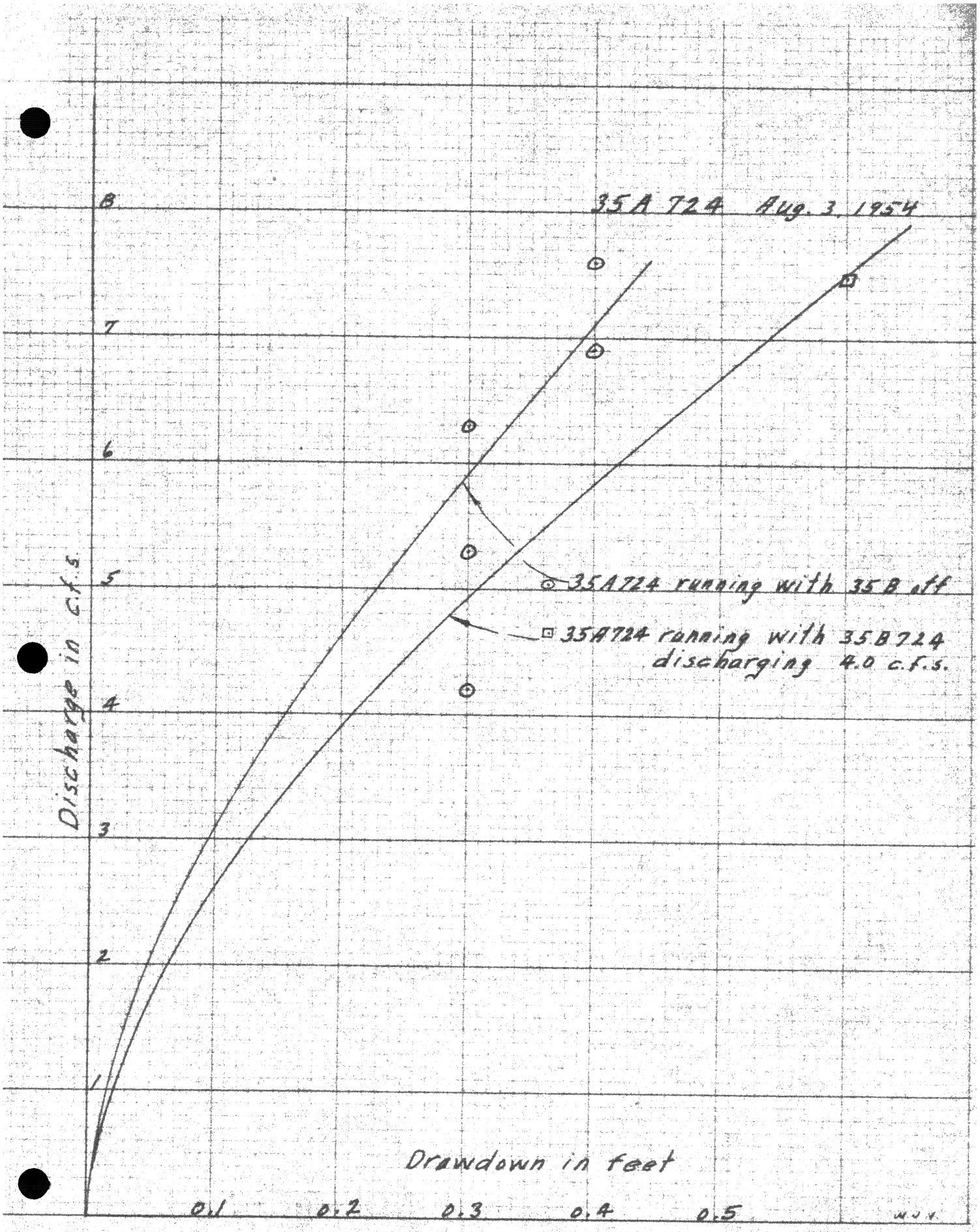

13B824 - JUNE 30, 1954
13B824 WITH 13A824 OFF
13B824 WITH 13A824 DISCHARGING 9.7 c.f.s.
SECOND FEET
FEET DRAWDOWN
1
2
3
4
5
6
0.1
0.2
0.3
0.4
W.J.A.

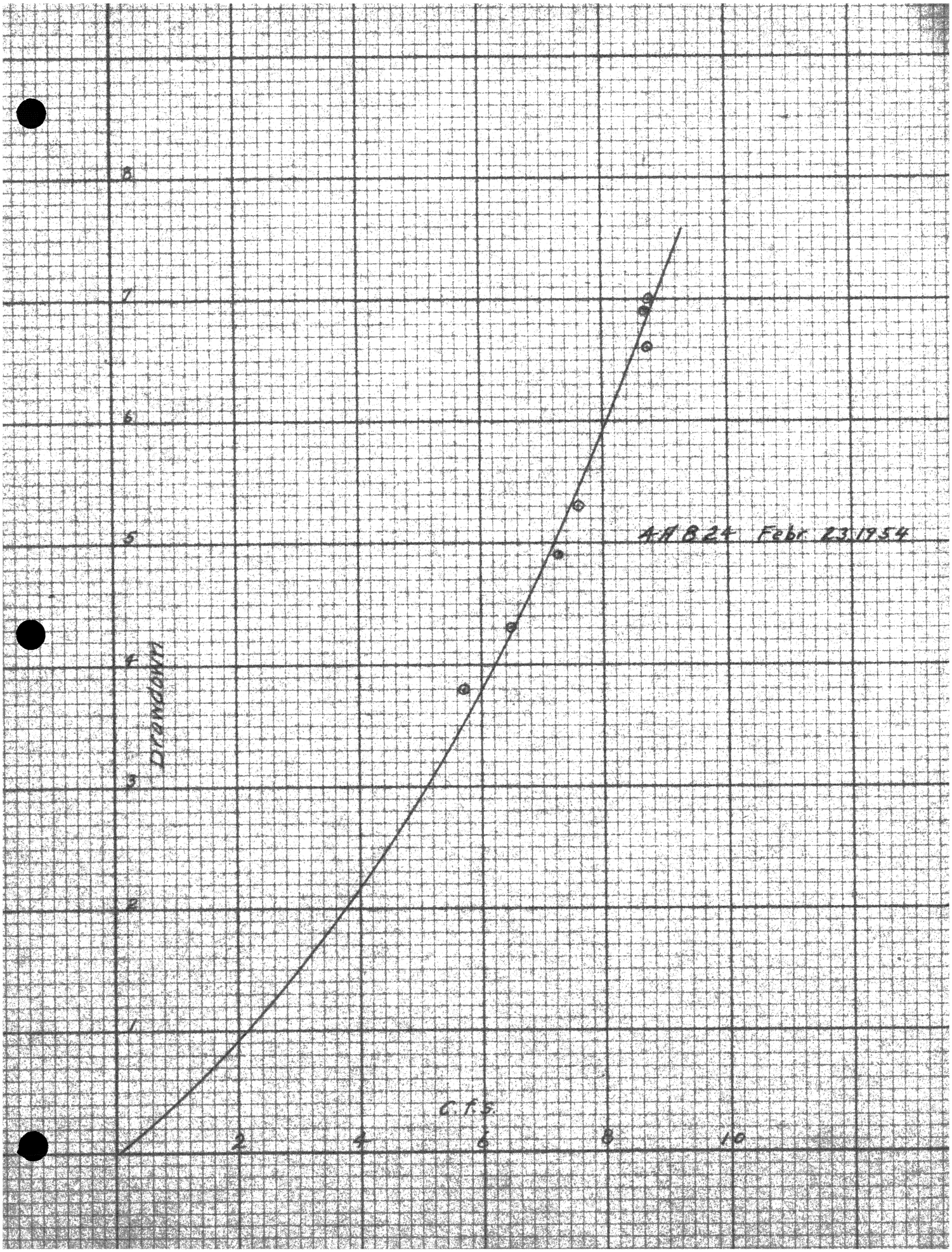

13 A 824 - JUNE 30, 1954
13A824 WITH 13B824 OFF
13A824 WITH 13B824 DISCHARGING 4.8 c.f.s.
SECOND FEET
FEET DRAWDOWN
1
2
3
4
5
6
7
8
9
0.1
0.2
0.3
0.4
0.5

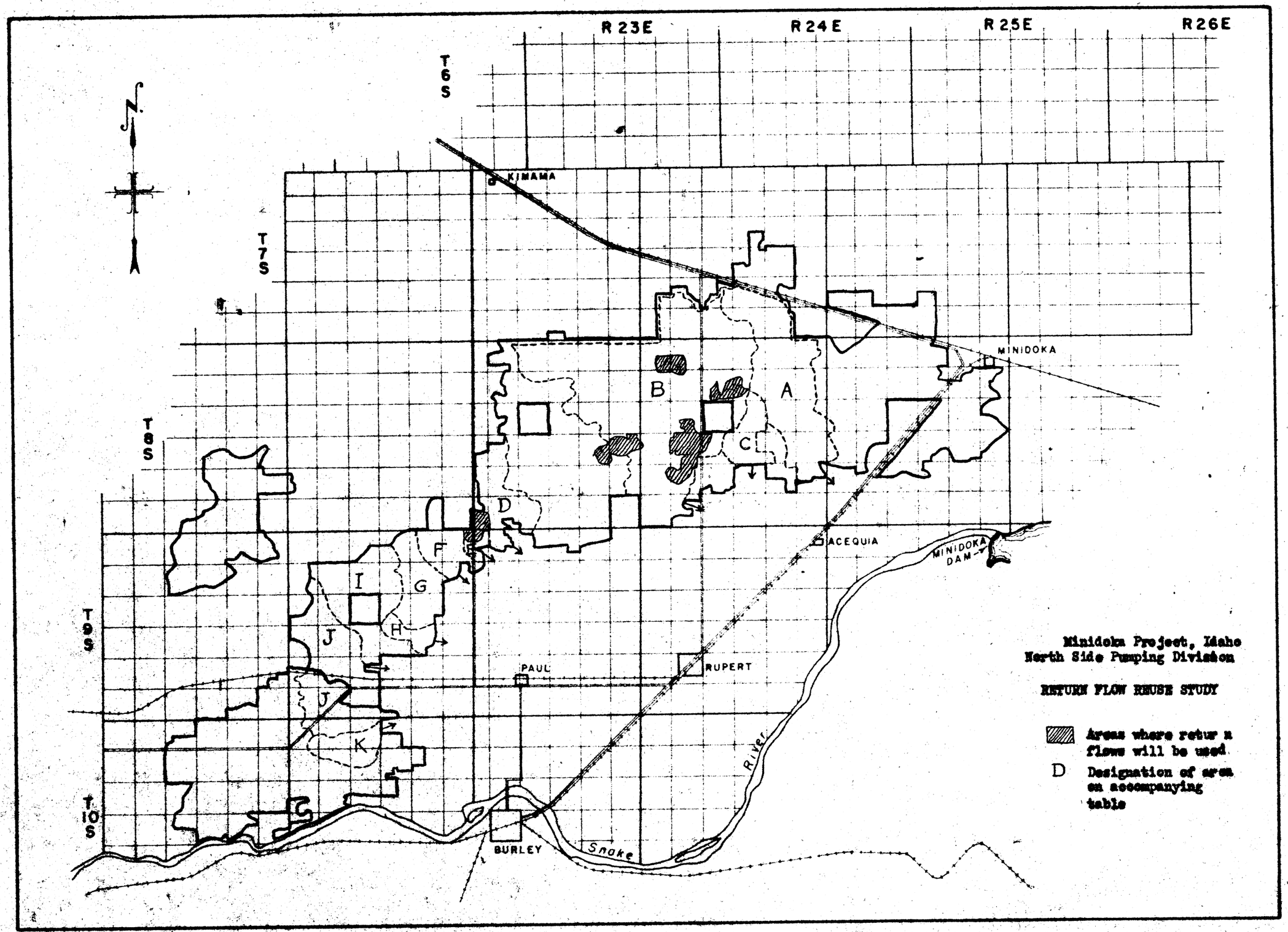

19B825 JULY 11, 1954
19B825 WITH 19A825 OFF
19B825 WITH 19A825 DISCHARGING 9.4 c.f.s.
SECOND FEET
FEET DRAWDOWN
0
1
2
3
4
5
6


19A825 JULY 14, 1954
12
10
8
6
4
2
0
1
2
3
4
5
6
SECOND FEET
FEET DRAWDOWN
19A825 WITH 19B825 OFF
19A825 WITH 19B825 DISCHARGING 4.6 c.f.s.
W.J.A.


7.0
6.0
5.0
4.0
3.0
2.0
1.0
Discharge in C.F.S.
31A 724
May 26, 1954
Test pump curve
Drawdown in feet
1.0
2.0
3.0
4.0
5.0
W. J. A.


35A 724 Aug. 3, 1954
35A724 running with 35B off
35A724 running with 35B724 discharging 4.0 c.f.s.
Discharge in c.f.s.
Drawdown in feet
1
2
3
4
5
6
7
8
0.1
0.2
0.3
0.4
0.5


8
7
6
5
4
3
2
1
Drawdown
C.F.S.
2
4
6
8
10
AA B24 Febr. 23 1954


R 23E
R 24E
R 25E
R 26E
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
N.
KIMAMA
MINIDOKA
ACEQUIA
MINIDOKA DAM
PAUL
RUPERT
BURLEY
Snake
River
A
B
C
D
F
G
H
I
J
K
Minidoka Project, Idaho
North Side Pumping Division
RETURN FLOW REUSE STUDY
Areas where retur n flows will be used
D Designation of area on accompanying table

MINIDOKA PROJECT, IDAHO
North Side Pumping Division

REUSE OF RETURN FLOW

Area Designation	Location of Outlet	Tributary Acreage	Total Flow	Reuse	Residual Flow
A	E 1/2 25 - 8 - 24	8,680	13.4	--	13.4
B	SE 32 - 8 - 24	16,900	26.0	22.4	3.6
C	N 1/2 27 - 8 - 24	1,275	2.0	--	2.0
D	SE 5 - 9 - 23	3,300	5.1	2.5	2.6
E	SW 5 - 9 - 23	500	0.8	--	0.8
F	NE 12 - 9 - 22	1,530	2.4	--	2.4
G	NW 13 - 9 - 22	1,920	3.0	--	3.0
H	NE 23- 9 - 22	655	1.0	--	1.0
I	NW 27 - 9 - 22	2,100	3.2	--	3.2
J	28 - 9 - 22	6,250	9.6	--	9.6
K	NW 3 -10 - 22	1,750	2.7	--	2.7

(Flows tabulated above are in cubic feet per second)

Most of the 24.9 cfs of return flow reuse shown above is by relift pumping; a minor part is by gravity diversion.

A proposed contour ditch would collect runoff from areas D-K (18,005 acres) and carry it to the Minidoka Irrigation District distribution system that now obtains water by pumping from their main drain in SW 1/4 sec. 2, T 10 S, R 22 E.

--November 1954

LABORATORY REPORT

Water Analyses — Ten wells on Unit B, Minidoka North Side Pumping Division, Idaho (Analyses by U.S.G.S.)

Sample No.	pH	ECx10⁶ @25°C	Boron p.p.m.	Anions, m.e./L.				Cations, m.e./L.				Residual Na_2CO_3 m.e./L.	SAR	Salinity Laboratory Rating
				CO_3	HCO_3	Cl	SO_4	Ca	Mg	Na	K			
S-24E-35ca1														
9/28/53	7.6	338	-	-	2.46	0.34	0.58	1.50	1.07	0.74	0.09	none	0.65	C2 - S1
S-24E-5cc1														
10/2/53	8.3	351	0.10	-	2.44	0.48	0.62	1.50	1.07	0.87	0.10	none	0.77	C2 - S1
S-25E-35bc1														
6/29/51	7.6	353	0.15	0.00	2.64	0.37	0.67	1.80	1.15	0.74	0.06	none	0.61	C2 - S1
S-23E-27bd1														
9/17/50	-	609	0.02	0.00	4.08	1.24	1.04	2.90	1.81	1.74	- 1/	none	1.14	C2 - S1
6/29/51	7.8	614	0.15	0.00	4.08	1.18	0.96	2.85	1.81	1.61	0.19	none	1.06	C2 - S1
S-24E-7da1														
6/11/49	-	502	0.00	-	3.31	0.96	0.90	2.30	1.32	1.57	- 1/	none	1.16	C2 - S1
9/17/50	7.8	519	0.02	0.00	3.38	1.07	0.96	2.30	1.48	1.48	0.16	none	1.08	C2 - S1
S-24E-11ba1														
9/17/50	-	477	-	0.00	3.08	0.87	0.92	2.15	1.40	1.35	- 1/	none	1.01	C2 - S1
6/21/51	7.8	457	0.11	0.00	3.05	0.73	0.92	2.15	1.40	1.09	0.10	none	0.85	C2 - S1
S-24E-16bb1														
9/19/50	-	654	-	0.26	3.66	1.52	1.19	2.65	1.81	2.22	- 1/	none	1.49	C2 - S1
S-25E-1cb1														
6/3/53	7.7	381	0.09	0.00	2.66	0.39	0.77	2.00	1.23	0.74	0.07	none	0.58	C2 - S1
4/8/49	-	388	0.01	-	2.62	0.51	0.82	2.00	1.23	0.74	- 1/	none	0.58	C2 - S1
S-25E-16da1														
9/17/50	-	489	0.02	0.00	3.44	0.82	0.90	2.30	1.48	1.39	- 1/	none	1.01	C2 - S1
S-22E-33ad1														
6/29/51	7.9	984	0.25	0.00	6.11	2.08	2.19	4.05	2.47	4.00	0.13	none	2.30	C3 - S1

1/ Included as Na

LABORATORY REPORT

Water Analyses **Minidoka North Side Pumping Division** **Sheet 1 of 2**

Sample No.	pH	ECx10^6 @25°C	Boron p.p.m.	Anions, m.e./l.				Cations, m.e./l.				Residual Na_2CO_3 m.e./l.	SAR	Salinity Laboratory Rating
				CO_3	HCO_3	Cl	SO_4	Ca	Mg	Na	K			
Snake R. at Minidoka Dam														
1/ Low Sp.C. 7/9-7/26/49	8.11	350	-	0.36	2.47	0.60	0.75	2.08	1.20	0.66	0.27	none	0.52	C2 - S1
High Sp.C. 4/18-5/16/49	8.24	500	-	0.74	2.55	0.99	1.05	2.35	1.70	1.07	0.18	none	0.75	C2 - S1
Average 1948-49	-	410	-	0.34	2.59	0.74	0.91	2.15	1.29	0.84	0.26	none	0.64	C2 - S1

1/ Analyses by University of Idaho (Research Bulletin No. 19, February 1951)

LABORATORY REPORT

Water Analyses Minidoka North Side Pumping Division

Sample No.	pH	EC x 10⁶ @25°C	Boron p.p.m.	Anions, m.e./l. CO_3	HCO_3	Cl	SO_4	Cations, m.e./l. Ca	Mg	Na	K	Residual Na_2CO_3 m.e./l.	SAR	Salinity Laboratory Rating
Drainage Water 1/														
M-1	5.85	770	0.08	0.00	5.58	1.09	0.34	4.17	2.83	2.07	0.52	none	1.11	C3 - S1
M-2	7.60	600	0.04	0.00	4.88	0.85	1.17	3.79	1.91	3.18	0.22	none	1.88	C2 - S1
M-3	7.70	540	0.08	0.00	4.71	0.65	0.98	3.71	1.78	1.08	0.19	none	0.65	C2 - S1
M-4	7.85	700	0.08	0.00	5.88	1.04	1.46	3.82	2.24	2.08	0.26	none	1.20	C2 - S1
M-5	7.75	640	0.04	0.00	5.62	0.99	1.34	3.62	2.63	1.27	0.26	none	0.72	C2 - S1
M-6	7.80	770	0.08	0.00	6.20	1.20	1.94	3.44	3.45	2.43	0.32	none	1.31	C3 - S1

M-1 On bridge, main highway W. of N-1/4 Cor., Sec. 32, T. 9 S., R. 23 E.

M-2 On main highway bridge near mid. Sec. 31, T. 9 S., R. 24 E.

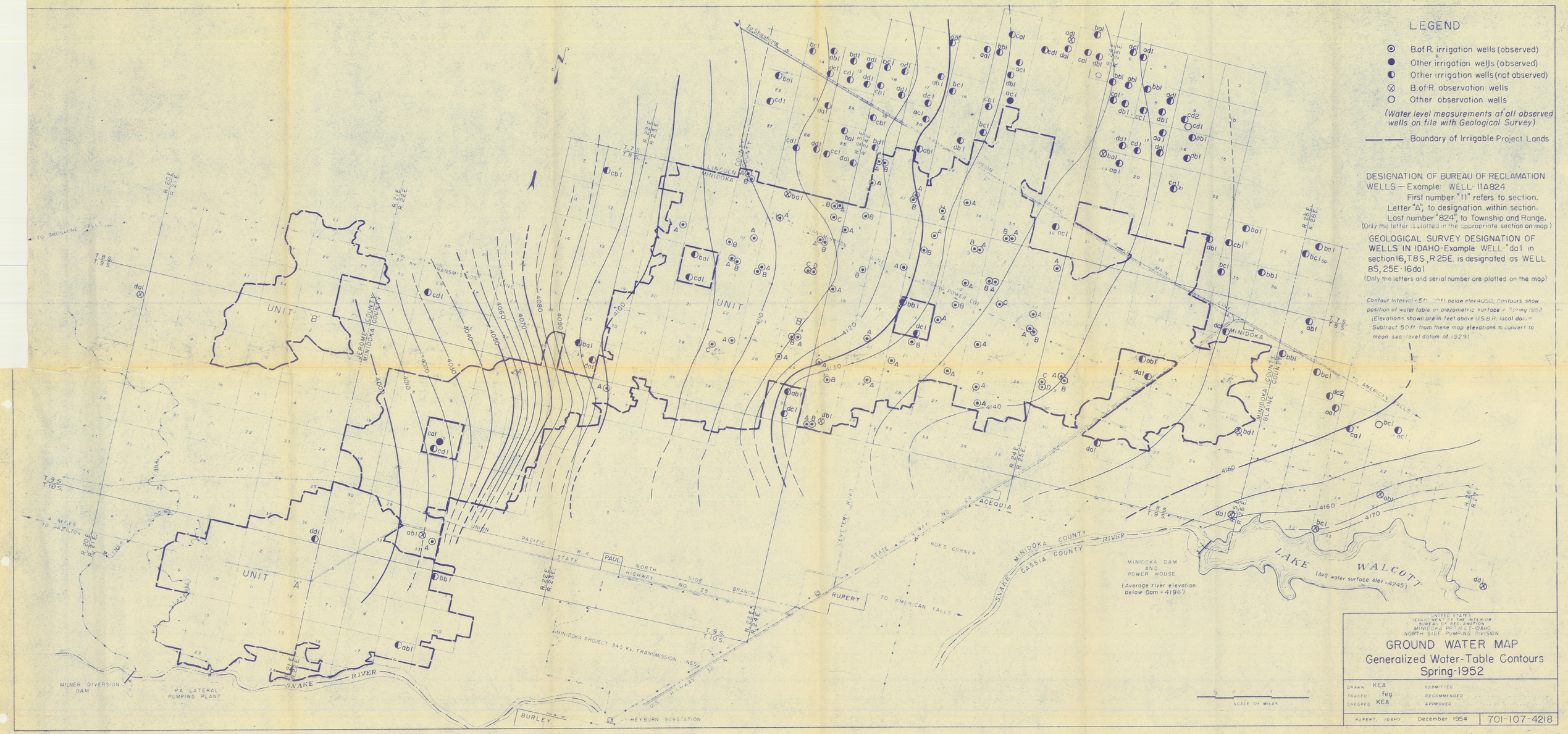
M-3 From bridge near N.W. Cor. Sec. 27, T. 9 S., R. 24 E.

M-4 Near N.W. Cor. Sec. 3, T. 10 S., R. 24 E.

M-5 From bridge near E-1/4 Cor. Sec. 10, T. 10 S., R. 23 E.

M-6 From bridge near N-1/4 Cor. Sec. 14, T. 10 S., R. 23 E.

1/ Analyses by U.S.B.R. Regional Laboratory, Boise, Idaho, December 4, 1947.


LEGEND
B.of R. irrigation wells (observed)
Other irrigation wells (observed)
Other irrigation wells (not observed)
B.of R. observation wells
Other observation wells
(Water level measurements of all observed wells on file with Geological Survey)
Boundary of Irrigable Project Lands
DESIGNATION OF BUREAU OF RECLAMATION WELLS — Example: WELL- 11A824
First number "11" refers to section.
Letter "A", to designation within section.
Last number "824", to Township and Range.
(Only the letter is plotted in the appropriate section on map.)
GEOLOGICAL SURVEY DESIGNATION OF WELLS IN IDAHO-Example WELL-"da1 in section 16, T.8 S., R.25 E. is designated as WELL 8S, 25E-16da1
(Only the letters and serial number are plotted on the map)
Contour Interval = 5 ft. (10 ft. below elev. 4050). Contours show position of water table or piezometric surface in Spring 1952
(Elevations shown are in feet above U.S.B.R. local datum. Subtract 50 ft from these map elevations to convert to mean sea-level datum of 1929)
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MINIDOKA PROJECT-IDAHO
NORTH SIDE PUMPING DIVISION
GROUND WATER MAP
Generalized Water-Table Contours
Spring-1952
DRAWN KEA
TRACED feg
CHECKED KEA
SUBMITTED
RECOMMENDED
APPROVED
RUPERT, IDAHO December 1954
701-107-4218
UNIT A
UNIT B
UNIT
MINIDOKA DAM AND POWER HOUSE
(Average river elevation below Dam = 4196')
LAKE WALCOTT
(avg water surface elev. = 4245)
SNAKE RIVER
MINIDOKA PROJECT 345 KV. TRANSMISSION LINES
MILNER DIVISION DAM
PA LATERAL PUMPING PLANT
HEYBURN SUBSTATION
BURLEY
RUPERT
PAUL
ACEQUIA
RUES CORNER
TO AMERICAN FALLS
TO SHOSHONE FALLS
4 MILES TO HAZELTON
SCALE OF MILES