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DEPARTMENT OF
WATER RESOURCES

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Attorney for Falls Irrigation District

**IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT
 OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS**

In Re SRBA

Case No. 39576

Subcase Nos. 01-00217, 01-00218, 01-04024,
 and 01-04025 (Minidoka Power Rights)

Subcase Nos. 01-02068 and 01-04054
 (Palisades Power Rights)

AFFIDAVIT OF TERRELL SORENSEN
 In Opposition to Motions for Summary Judgment
 of State of Idaho and United States

STATE OF IDAHO)
)ss
 County of Power)

TERRELL SORENSEN, being first duly sworn, deposes and says:

1. That Affiant is over the age of eighteen and makes this affidavit based on affiant's personal knowledge.

2. I am the Secretary/Manager of Falls Irrigation District of American Falls, Idaho and I have held this position for 21 years. My duties include taking minutes at all meetings of the Board of Directors, preparing an agenda for meetings of the Board of Directors, preparing the annual budget for consideration by the Board of Directors,

maintaining the books and records of the irrigation district and overseeing the operation and maintenance of the delivery system of the irrigation district.

3. Falls Irrigation District is an irrigation district formed by the landowners who own land within the district for the purposes of operating and maintaining the reclamation project within its boundaries constructed by the Bureau of Reclamation, Department of Interior, United States of America ("BOR"), that was authorized by the Congress of the United States, which consists of a pumping plant that pumps water from the Snake River for delivery to lands within the irrigation district by a system of canals and laterals and from the ground water diverted through deep wells and pumps that also provide water to lands within the district. Because of the need to pump all water used to irrigate the lands within the district, the irrigation district requires a source of electric power which is provided by the Bureau of Reclamation pursuant to the Reclamation Act of 1902, as amended and supplemented, and is reserved for the project from the Bureau of Reclamation power pool consisting of power plants constructed as part of the reclamation projects it has constructed in southern Idaho. The irrigation district was further formed as an entity representing the landowners within the district by which the landowners could pay to BOR the construction costs of the project allocated to the irrigation project and the costs of operation and maintenance of the retained works held by BOR, including its dams and power plants.

4. The project operated and maintained by Falls Irrigation District is known as the "Michaud Flats Project, Idaho." After the formation of the Falls Irrigation District, it entered into a repayment contract on behalf of the landowners with the Bureau of Reclamation on December 9, 1955 and an Amendatory and Supplemental Contract with the BOR on September 15, 1964. This contract is often referred to as a "Palisades Repayment Contract" and was approved and affirmed in the "Eagle Decree" which is attached to an Affidavit of the State of Idaho filed with this court in support of its Motion for Summary Judgment. Under Article 27 of that contract, out of the power and energy to be generated in the Palisades powerplant, there is set aside in perpetuity for the benefit of the Falls Irrigation District ("FID" or "District") that power and energy required for the operation of the pumping plants of the District to deliver water to the lands of the District, with the right in the United States to provide from other sources an amount of

power and energy in lieu of all or any part of that so set aside. The power and energy will be furnished to FID at the electric pumping plants or such other points as the parties may agree at rates per kilowatt-hour to govern for irrigation pumping on Federal reclamation projects as to power and energy from the Palisades powerplant and interconnected plants as established from time to time by the Secretary of Interior pursuant to Federal Reclamation Laws.

5. The Palisades powerplant and interconnected plants consist of Palisades, Minidoka, Black Canyon, Anderson Ranch and Boise Diversion powerplants. The rates charged to FID and other reclamation projects are based on the cost of production from all interconnected plants. Under Article 18 of the Palisades Repayment Contract, it is the stated objective of the United States in the operation of the Minidoka powerplant to curtail the release of additional water from American Falls Reservoir for power production at the Minidoka Powerplant during the storage season of any year whenever operation of that powerplant to the full extent of its respective water rights for power production would result in "loss of irrigation water otherwise storable in the reservoir system." To offset the losses in power production under this Article, the United States will make replacement power available by the delivery of power and energy from other reclamation powerplants into the Minidoka power system at the Minidoka powerplant. Payment for this replacement power and energy must be made by FID and all other spaceholders in Palisades Reservoir, Island Park Reservoir and American Falls Reservoir who benefit from the increased storage as a result of the curtailment. The annual replacement requirement ("power loss") for each year is established as the average annual replacement over the preceeding 20 year period.

6. There are no other Articles in the Palisades Repayment Contract which authorize the United States to subordinate its power water rights to any other water rights or for any other purpose other than storage for irrigation water as provided in the contract. For the United States to subordinate its power rights in this subcase would result in power losses that are not recoverable, thereby increasing the power rates for FID and other reclamation projects in southern Idaho.

7. Attached hereto is Attachment A comprised of portions of a Feasibility Report of the U.S. Department of the Interior and what was then the Bureau of

Reclamation entitled "Minidoka Powerplant Rehabilitation & Enlargement" dated March 1981. This Report provides insight into the need for hydropower in Southern Idaho, the importance of the Minidoka Powerplant to the State and to FID, the need for additional hydropower to reach the goals set forth in the State Water Plan. Subordination of the power rights for the Minidoka Powerplant is not recognized in the Report other than as provided in the Palisades Repayment Contracts.

8. The importance of stored water and power costs to FID are fully demonstrated in several publications of the Bureau of Reclamation. Excerpts from its 1977 Water Management Status Report, Attachment B hereto, include the teacup graphs illustrating water stored on September 30, 1976 as compared to water in storage on September 30, 1977. In the BOR's 1978 Water Management Status Report, Attachment C hereto, the BOR reaffirmed its goal and objective to maximize the storage of irrigation water. Attachment D hereto consists of excerpts from the Bureau's 1982 Water Management Status Report. These excerpts provide data that shows the unusual high runoff from the Upper Snake Watersheds (p.6) that occurred that year, the allocation of stored water in July of 1982 (Exhibit 2-8), and, notwithstanding the high runoff, the net power production loss due to restriction of use of Minidoka Water Rights. Notwithstanding the absence of any power loss in 12 of the 20 years used to determine the average loss, there was still a 20 year average annual loss of 5,309,750 Kwh and a computed dollar loss in obtaining replacement power of \$27,079.73. Attachment E hereto contains excerpts from the 1983 Water Management Status Report which shows that high runoffs again occurred in 1983. Notwithstanding the high water flows, the net power loss from restrictions in the use of its power water rights was 14,386,000 Kwh which would have resulted in power replacement costs of \$73,368.60 in the absence of the averaging of these costs over a twenty year period.

9. The significance of the records for 1977 and the early 1980s is to show the power losses by subordination of the BOR power rights in good and poor water years, even when it is only subordinated to storage rights in BOR reservoirs for irrigation. The Palisades Repayment Contracts above referred to, including the contract with FID, clearly provide under Article 24 that the FID and other parties to these contracts may bring and prosecute judicial proceedings for the determination of the character, extent,

priority and validity of any of the water rights of the United States in connection with the rights of the irrigation district under its contract with the United States.

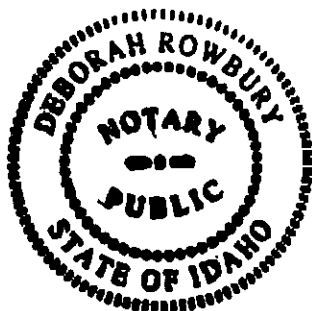
10. Falls Irrigation District is a relatively small irrigation district. It includes approximately 11,550 acres of irrigable land. Power costs incurred by the district each year have increased. Attachment F hereto shows that the costs increased from \$109,071.00 in 1989 to \$272,316.00 in 2008. The cost per Kwh has risen from 2.350 mills in 1972 to 22.80 mills in 2008. Any reduction in power production at any of the integrated power plants of the BOR will have a significant affect on the cost of power to FID and will impact the district's ability to repay to the BOR the district's share of construction costs for the project. All of these costs are ultimately paid by the landowners of the District. Subordination of the water rights of the BOR for power production to any other uses above the Minidoka Powerplant that are not set forth in the Palisades Repayment Contract has never been agreed to by FID, is not authorized by the Palisades Repayment Contracts with the BOR and the District is opposed to the remark language being proposed by the State of Idaho and BOR which would subordinate these power rights to all upstream beneficial uses, thereby jeopardizing the operations of the landowners of the District that were to be protected by the reservation of electric power from reclamation facilities for their benefit at rates that would be affordable.

Further, the affiant sayeth naught.



TERRELL SORENSEN

Subscribed and sworn to before me, a notary public in and for the State of Idaho this 28 day of October, 2009.



Notary Public for Idaho

Residing at American Falls

My Commission expires: 12-9-2011

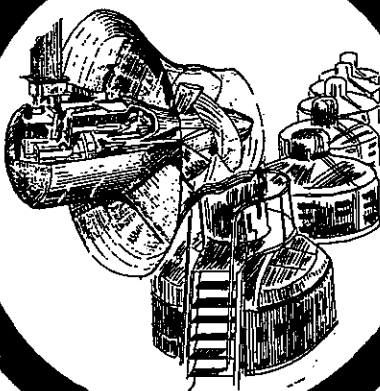
ATTACHMENT 'A'

To

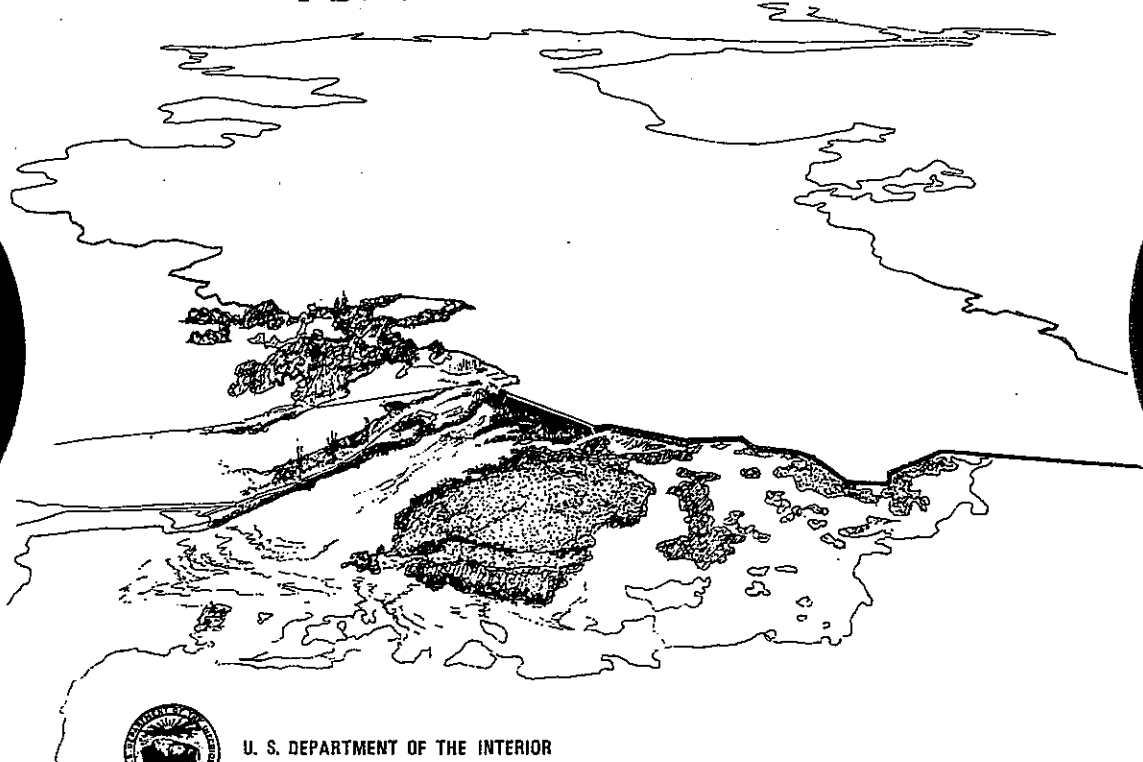
SORENSEN AFFIDAVIT

MINIDOKA POWERPLANT REHABILITATION & ENLARGEMENT

MINIDOKA PROJECT, IDAHO - WYOMING



FEASIBILITY REPORT



U. S. DEPARTMENT OF THE INTERIOR



WATER AND POWER RESOURCES SERVICE

MARCH 1981

The spillway, which is of special interest in the study, is an uncontrolled overflow weir consisting of 334 flashboard bays with a controlled section consisting of four 10-foot by 12-foot radial gates.

Reservoir overflow and downstream irrigation releases which exceed present powerplant capacity are made via the spillway. Spills in excess of 20,000 cubic feet per second (ft^3/s) have occurred. The most recent spill of this magnitude occurred in May 1976 when a flow of 20,200 ft^3/s was released. Average releases are considerably less than this amount, and during the winter when the reservoir water levels are low, there are periods when no water passes over the spillway or through the spillway channel.

The normal operation of the spillway consists of setting the flashboards in the spring to raise reservoir water levels about 5 feet and flashboard removal in the fall to achieve a lower winter reservoir level.

Water is diverted at the dam into two canal systems, one on each side of the Snake River. The canal system on the north side of the river serves the Gravity Division of the Minidoka Project (Minidoka Irrigation District), which consists of 72,000 irrigable acres of land adjacent to the towns of Rupert, Heyburn, and Paul. The system on the south side, which includes three large pumping plants, serves about 48,000 acres near the towns of Burley and Declo and constitutes the South Side Pumping Division (Burley Irrigation District).

Minidoka Powerplant

The powerplant consists of seven units with a total rated capacity of 13.4 megawatts (units 1-6, 8.4 MW and unit 7, 5 MW) and an overload capacity of 15.6 megawatts. Average annual generation is 95,900,000 kilowatt-hours. During maximum generation the plant passes about 5,035 ft^3/s . Power generated at the plant, in excess of the irrigation pumping requirements, is a part of the Federal Columbia River Power System, and marketing is handled through the Bonneville Power Administration (BPA).

The Minidoka Project power system, a pioneer in the Federal power development in the West, provided its first power primarily for electrical energy to supply the lift pumps on the South Side Pumping Division and several small relift pumps on the Gravity Division. Commercial use soon followed to make power operations more economical and more beneficial to the area. Commercial operations provide energy to the cities of Burley, Rupert, Heyburn, Paul, Declo, Minidoka, and Albion, and to the farms of the area through a number of marketing cooperatives (see Location Map).

In 1963 the BPA took over the marketing of commercial power from the Minidoka plant along with the transmission lines and substations. The Service continued the operation of the powerplant and electric service to the project pumping plants. Power produced at Minidoka is used in the BPA's southern Idaho power system mainly in southern Idaho with use occurring in Oregon, Utah, Nevada, Wyoming, and Montana.

The historic nature of the developments was recognized when the dam and powerplant were placed on the National Register of Historic Places in 1974. This register is maintained by the Heritage Conservation and Recreation Service and includes only those places which have been nominated and approved by local and national officials. This powerplant is an example of hydropower operation during the development of the West. Operation of this powerplant was utilized as an example by the founders of the Rural Electric Administration (REA).

Tours of the powerplant have been conducted by dam personnel almost since the commencement of power production activities. These tours have generally been for park visitors, schools, or other groups and special persons. In 1976 a regular program of guided tours and interpretations was initiated for the general public. In 1978 nearly 1,800 persons visited the powerplant.

Lake Walcott

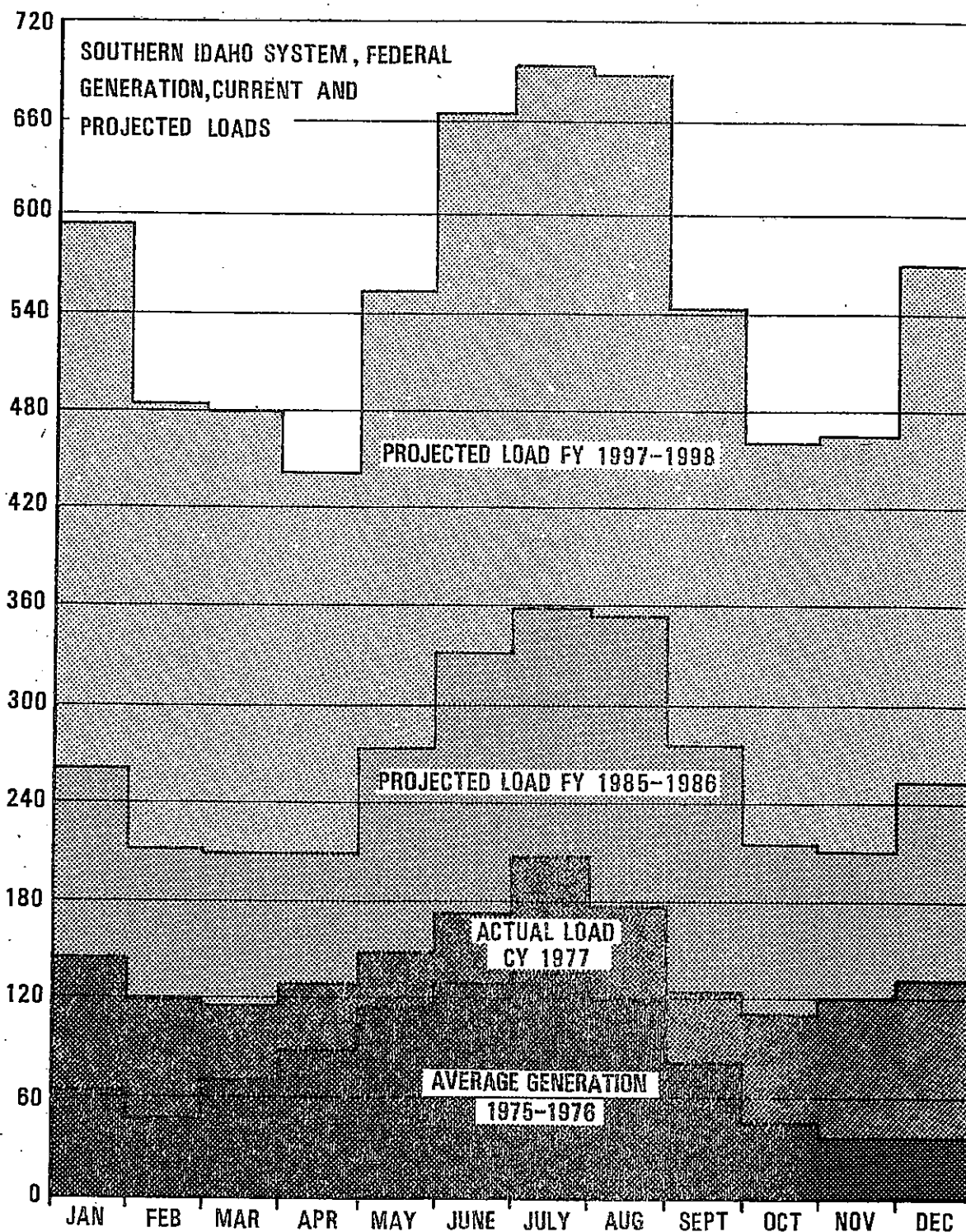
The reservoir behind Minidoka Dam, Lake Walcott, is approximately 26 miles long and has a total storage capacity of 210,000 acre-feet. Active storage is about 95,200 acre-feet. The reservoir's flushing rate is 24.8 times a year with a complete water exchange on the average of about 15 days.

Much of the reservoir is zoned for nonboating use to protect wildlife. The major boating use area is immediately adjacent to Walcott Park near the dam. The only boat access to this area is a two-lane boat ramp in the park.

In addition, there are two narrow lanes of water surface zoned for boating use located near the upper end of the reservoir. They provide fishermen access to Smith and Gifford Springs.

Walcott Park on the north shore of the lake is the principal recreation development near the dam. Walcott Park, consisting of day-use facilities only, has 131 picnic units scattered throughout a pleasant developed recreation area. Drinking water is available and there are parking facilities to accommodate 200 cars. All of the park facilities receive heavy use during the summer recreation season.

ENERGY (AVERAGE LOAD)
MILLIONS OF KILOWATT HOURS



Federal powerloads exceed generation in the BPA southern Idaho power area by a wide margin. BPA projections show large increases in powerloads over the next few years.

Figure 5-1

POWER NEEDS

The current national energy problems have pointed up the critical need to develop new energy production wherever feasible. This feasibility investigation is one of several in response to the national interest for development of additional power generating capacity at existing Federal dams when economically justified and environmentally acceptable.

With units 1-5 in operation nearly 70 years and unit 6 over 50 years, the Minidoka Powerplant is nearing the end of its useful life, and maintaining the plant in operating condition is costly. The 5-MW unit, added in 1942, is still in good operating condition and would not have to be replaced. For its size, this plant has one of the highest annual operating costs of any plant operated by the Water and Power Resources Service. Rehabilitation would be extremely costly, because many replacement parts are no longer available and must be custom made. Also, many facilities are obsolete and not compatible with modern powerplant operations. These facilities need to be replaced, however, doing so would destroy the historical values of the plant. In addition, the power potential of the site would not be fully utilized if the existing plant were rehabilitated.

Southern Idaho Federal Power System

Power Use and Projections

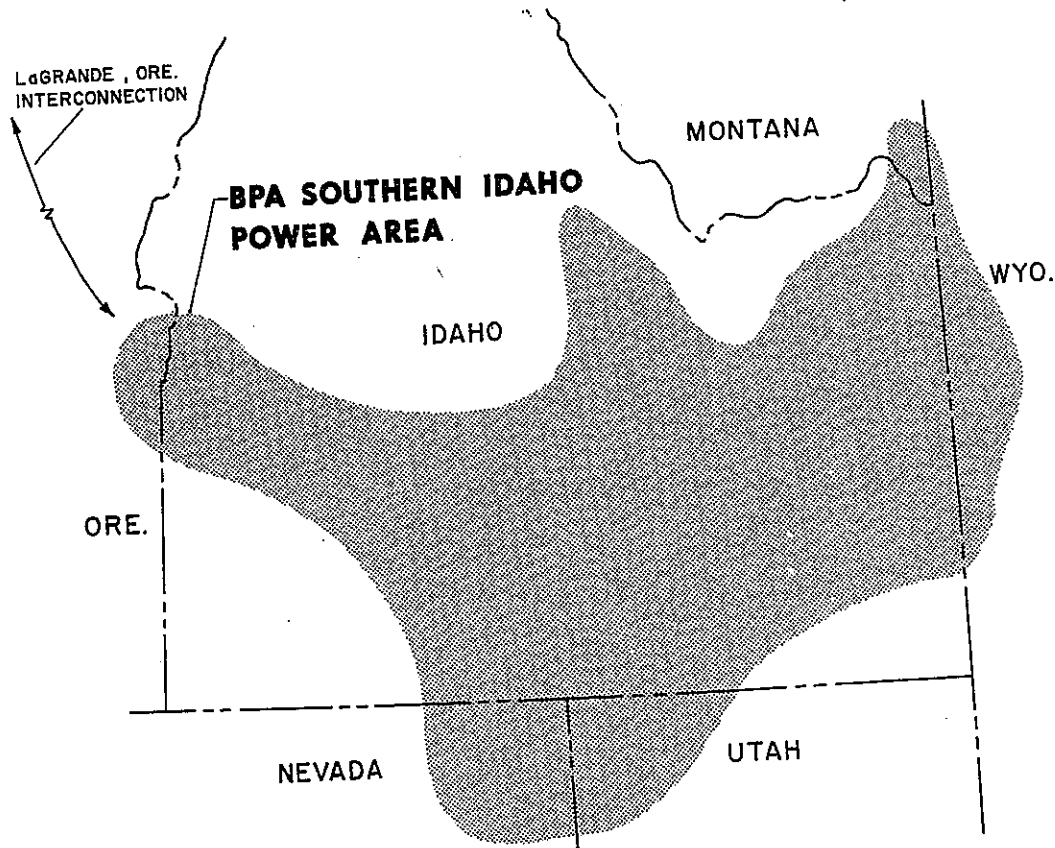
Present demand for Federal power in southern Idaho exceeds Federal generating capacity of the area. As a result, power must be imported to the southern Idaho system from other Federal powerplants in the Pacific Northwest to make up the deficiencies. The demand for Federal power is expected to increase significantly in the future. Additional power generation is needed to help reduce net imports into southern Idaho and to aid in reducing wheeling charges within the system. Also, greater efficiency could be achieved with less transmission and transmission losses. Much of the existing power use and demand in southern Idaho is associated with irrigation pumping on Federal projects. The existing Minidoka Dam and Reservoir is one of the few sites in southern Idaho with the capability for additional power generating capacity.

Power produced at the existing Minidoka Powerplant in excess of assigned irrigation project pumping loads is marketed through the BPA. The BPA markets Federal power throughout the Pacific Northwest.

Power produced at Minidoka Powerplant is used in the BPA's southern Idaho system and mainly in the general southern Idaho area. This situation would probably continue with an enlarged Minidoka Powerplant.

Although the Federal "southern Idaho power system" involves principally powerloads in southern Idaho, it also includes loads in parts of Wyoming, Montana, Utah, Nevada, and eastern Oregon. The

southern Idaho system is generally defined as those powerloads occurring east of the LaGrande, Oregon BPA substation. Power is wheeled from LaGrande over private utility lines to meet southern Idaho system loads which exceed southern Idaho Federal generation (see following map).



The Bonneville Power Administration (BPA) "southern Idaho power area" includes much of southern Idaho as well as parts of Wyoming, Montana, Utah, Nevada, and eastern Oregon. It is made up of the Federal powerloads east of the LaGrande, Oregon BPA substation.

The southern Idaho generating system is an integrated system with regard to powerloads; customer loads are not usually tied to specific powerplants. Some 20 customers are now served by BPA in southern Idaho and surrounding areas, included are municipalities (such as Burley, Rupert, and Idaho Falls) and electrical cooperatives covering large areas. In addition, Federal powerplants in southern Idaho are authorized to supply pumping power to Federal irrigation projects in the area. Some seasonal power is sold to private utilities when supplies are available. These private utilities also supply large numbers of customers in southern Idaho and nearby areas.

Federal generation in southern Idaho comes from powerplants at Palisades, Black Canyon, Anderson Ranch, Boise River Diversion, and Minidoka Dams--all Federal projects (see table 5-3). At this time there are no Federal powerplants or powerplant enlargements authorized for construction in the southern Idaho area. However, the Service is also now studying the feasibility of increasing generating capacity at Anderson Ranch, Boise Diversion Dam, and Black Canyon and of adding generating facilities at existing Arrowrock, Cascade, and Deadwood Dams. The Corps of Engineers is studying the potential for adding a powerplant at the existing Lucky Peak Dam on the Boise River. In addition, the Boise Project Board of Control has a license for power development at the Lucky Peak site.

Table 5-3.--Federal Powerplants in Southern Idaho System

Powerplant	Location	Installed Capacity megawatts	Overload Capacity megawatts	Construction Agency	Date Completed
Palisades	Snake River	119.0	131.1	Water and Power	1958
Minidoka ^{1/}	Snake River	13.4	15.6	Water and Power	1909-42
Anderson Ranch ^{1/}	South Fork				
	Boise River	27.0	34.5	Water and Power	1951
Boise River Diversion ^{2/}	Boise River	1.5	2.2	Water and Power	1912
Black Canyon ^{2/}	Payette River	8.0	10.0	Water and Power	1925
Total		168.9	193.4		

^{1/} Feasibility studies in progress by Water and Power Resources Service on potential powerplant enlargements

^{2/} Appraisal studies in progress by Water and Power Resources Service on potential powerplant enlargements

Projections for the southern Idaho power system made by the BPA show that Federal loads will continue to increase in the future. As a result, either additional Federal generation will be required in the area, power imports will have to be increased, or both (see figure 5-1 on following page).

Assuming no increase in Federal generation in the southern Idaho area, the BPA estimates that imports will increase to 2.2 billion kilowatt-hours in 1985-86, to 3.3 billion kilowatt-hours in 1990-91, and to 5.6 billion kilowatt-hours in 1997-98 compared to a range of 200-500 million kilowatt-hours annually in recent years. The projections to 1985-86 correspond to compound annual growth rates of 6.7 percent, 6.2 percent growth rate to 1990-91, and 6.5 percent growth rate to 1997-98.

The increase in Federal loads requiring additional generation is not unique to the southern Idaho BPA system. The Pacific Northwest faces the possibility of shortages of electricity over the next 10 years unless the region has favorable streamflows, mild weather, and lower than anticipated load growth. For the future, beyond 10 years, projections show no abatement in load growth, requiring increased electrical supplies. More than 110 public utility districts, municipal electric utilities, and cooperatives are BPA preference customers throughout the Northwest. The vast majority rely on BPA for 100 percent of their power requirements. Notices of the future BPA insufficiency have gone out to these customers.

Because of the limited available power resources, the BPA has notified its preference customers that it will not have enough power to meet their growth requirements after mid-1983. The BPA has also given notice to its direct service industrial customers that, under present circumstances, it will not be able to renew their contracts when they expire, mostly in the mid-1980's.

The largest energy usage in the southern Idaho area occurs during the summer, unlike much of the rest of the Pacific Northwest. Although local energy production also increases during the summer, the increased demands for irrigation pumping power and air-conditioning offset the increased generation.

The additional generation from a potential 30-megawatt enlargement at Minidoka (100 million kilowatt-hours annually), together with existing unit 7, would help in reducing net imports to the southern Idaho system in the summertime when energy loads are the highest. Most of the additional generation from an enlarged Minidoka Powerplant would be in the June through August period. The BPA load projections indicate that even with the added Minidoka generation, the increasing powerloads in the near future will require larger imports to supply system deficiencies.

Federal power is wheeled over private utility lines to meet deficiencies in the southern Idaho system. In addition, Federal power is wheeled over private utility lines within the southern Idaho system to the BPA customers. As payment for this wheeling service, BPA provides either energy or a cash payment to the private utility doing the wheeling. Additional generation at Federal plants in southern Idaho would aid in reducing those wheeling charges.

Other sources also point toward increased electrical energy needs. Studies made for the proposed Idaho State Water Plan of December 1976 estimated that average energy loads in Idaho will increase from about 11,700 megawatt-hours in 1973 to 40,600 megawatt-hours in 2000 (a 4-3/4-percent compound annual rate) and to 93,100 megawatt-hours in 2020 (a 4-1/2-percent compound annual rate). These projections compare to actual

load growth over the 1950-73 period at an 8.3-percent compound annual growth rate. Although these projections are not specific to the southern Idaho Federal system area they do indicate that substantial amounts of increased energy supplies will be required for Idaho.

Recent policy at the national level is in agreement with these conclusions of the Idaho Water Resource Board. The Federal administration has pointed out the excellent potential for new energy production which could be achieved by adding generating facilities at existing dams.

Other studies made by public and private entities indicate rapidly increasing demands for electrical energy. Private utility companies are actively considering alternative sites for coal-fired and hydropowerplants in order to keep pace with their own load growth.

The February 1977 Report on the Western Energy Expansion Study, prepared by the Water and Power Resources Service, identified opportunities and formulated proposals for potential hydroelectric development in the western United States. One of the conclusions drawn from this report was "addition of powerplants at existing Service facilities and enlargement of present powerplants are very attractive means of developing additional electrical power and energy." Highest priority was given to expanding power and energy production at existing Water and Power developments.

Enlargement of Minidoka Powerplant is in compliance with the Idaho State Water Plan. The need for increased power sources was recognized in the 1972 Interim State Water Plan which predicted electric energy loads to increase 7-1/2 times during the period 1967-2020. In Part I of the State Water Plan presented in 1974 one of the recommended objectives was to achieve "a reduction in the reliance upon imported power. To achieve this objective, the State water resource policy is to promote and encourage those projects and programs which provide for the development of new electrical energy and more efficient use of existing energy sources." In Part II of the State Water Plan one of the recommendations was to "encourage the installation of additional hydroelectric units at existing dams or installation of units at existing dams that have no power features."

Enlargement of the powerplant at Minidoka Dam is also in keeping with long-range river basin plans developed by multiagency State-Federal work groups. These river basin plans have been developed in close cooperation with the Idaho Water Resource Board and the Idaho Department of Water Resources.

The Pacific Northwest River Basins Commission in 1972 presented broad framework plans and programs for resource management and development to the year 2020 within the Columbia North Pacific Region. This report

concluded that electric power would be provided by, among several sources, "installation of additional capacity of 14,370 MW at existing and new hydroelectric plants. . ." This report further concluded that the addition of new generation to existing plants is economically justified and would result in minimal environmental impacts.

The Snake River Basin Level B Report identified a 1973 deficit of 653 MW of peaking capability and 4,230 million kilowatt-hours of energy within the basin. One of the regional planning goals set forth in this report is to reduce the region's reliance upon imported power. A number of potential hydropower sites are identified. However, as the report points out, most of these are not likely to be constructed because of severe environmental constraints. In the publication entitled "Water--Today and Tomorrow," the Pacific Northwest River Basins Commission describes likely future conditions with regard to the major demands for water and related land resources within the region.

The report further describes several potential actions which should be considered in meeting problems and needs. Citing the region's increasing need for electrical energy, several recommendations for meeting this need are cited, including providing additional hydro-generation by "(1) rehabilitation or expansion of existing plants, (2) adding generation at existing dams lacking such facilities, (3) developing new sites, or (4) a combination of the above."

There is growing awareness of the need for energy conservation, and conservation can slow the rate of growing demand. The BPA, the Idaho Public Utilities Commission, and others, however, have concluded that even a heavy commitment to energy conservation cannot offset the long-term need for additional power facilities based on current evidence. Loads are expected to continue to grow faster than conservation can reduce them as population, economic activity, and incomes increase. Both conservation and new generation are therefore needed.

Water Requirement

A substantial amount of water now passes Minidoka Dam in excess of hydraulic capacity of the powerplant. Increasing the power generating capacity at the site would involve shifting a portion of the summer discharge from the spillway to the powerplant. Existing and applied-for power rights amount to 5,225 cubic feet per second (ft³/s). An enlarged capacity powerplant of 35 MW would require about 11,100 ft³/s, thus requiring application for an additional 5,875 ft³/s. The Water and Power Resources Service permit application for rights for 5,875 ft³/s was approved by the Idaho Department of Water Resources January 8, 1981.

FISH AND WILDLIFE NEEDS

Problems and needs related to fish and wildlife in the general vicinity of Minidoka Dam have been identified by the U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, the Idaho Cooperative Fishery Research Unit at the University of Idaho, and the Water and Power Resources Service and are documented in the Fish and Wildlife Coordination Act Report, dated July 1980.

ATTACHMENT 'B'

To

SORENSEN AFFIDAVIT

*BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
MINIDOKA PROJECT IDAHO*



*1977
WATER MANAGEMENT
STATUS REPORT*

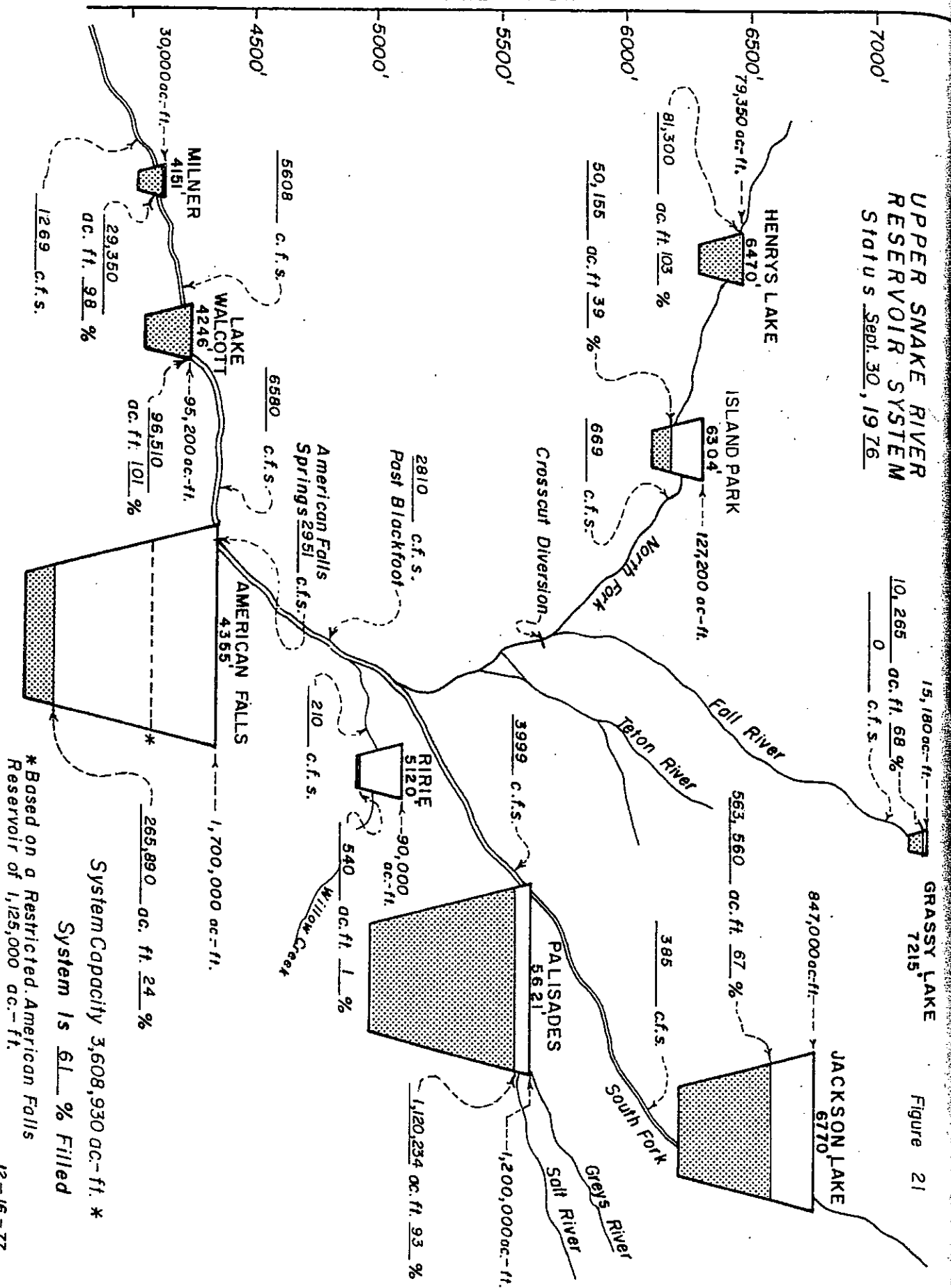
ELEVATION

UPPER SNAKE RIVER RESERVOIR SYSTEM Status Sept. 30, 1976

15,180 ac-ft. ---
10,265 ac-ft. 68 %
0 c.f.s.

GRASSY LAKE
7215

Figure 21



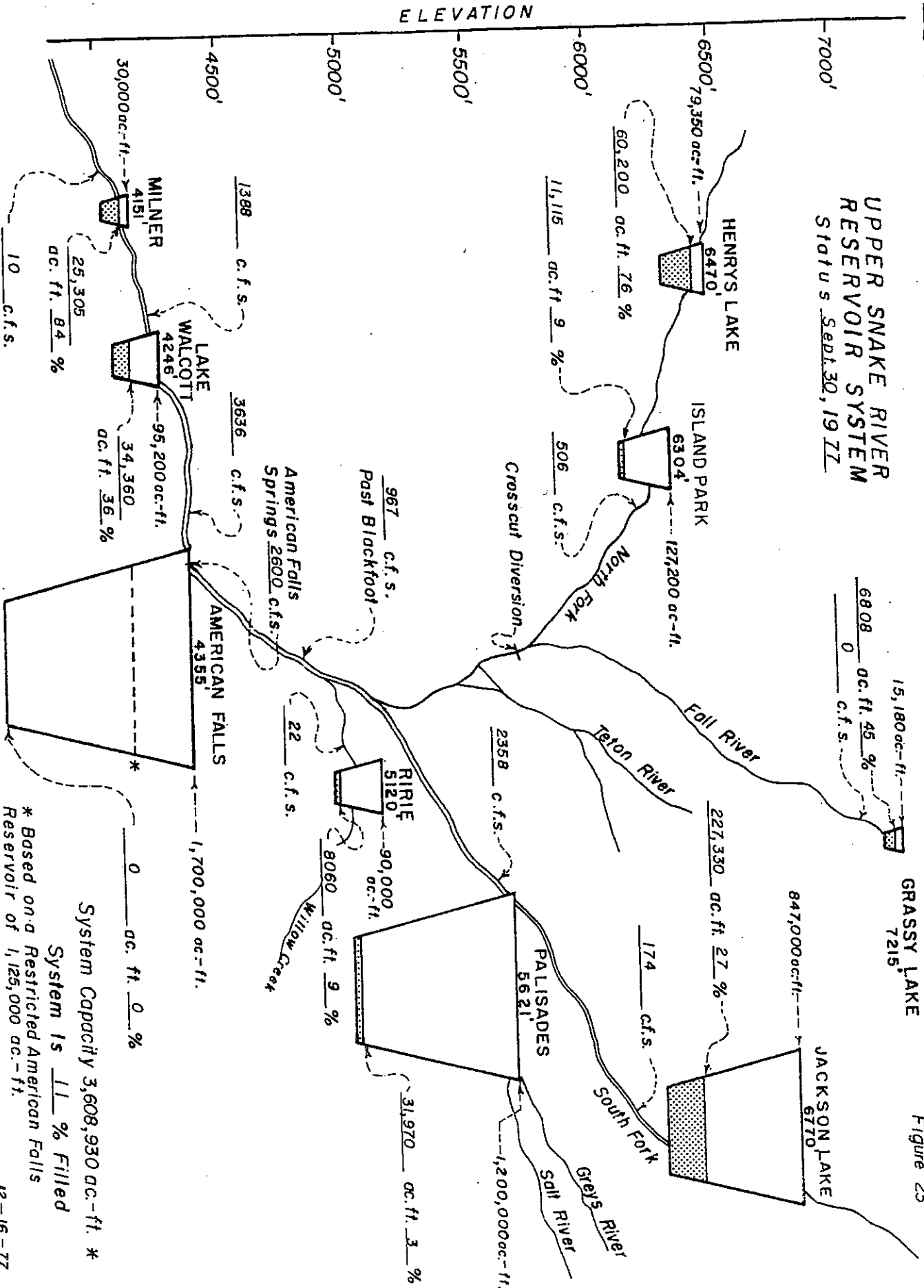
System Capacity 3,608,930 ac-ft. *
System is 61 % Filled
* Based on a Restricted American Falls
Reservoir of 1,125,000 ac-ft.

ELEVATION

UPPER SNAKE RIVER RESERVOIR SYSTEM Status Sept. 30, 1972

GRASSY LAKE
7215'

Figure 23

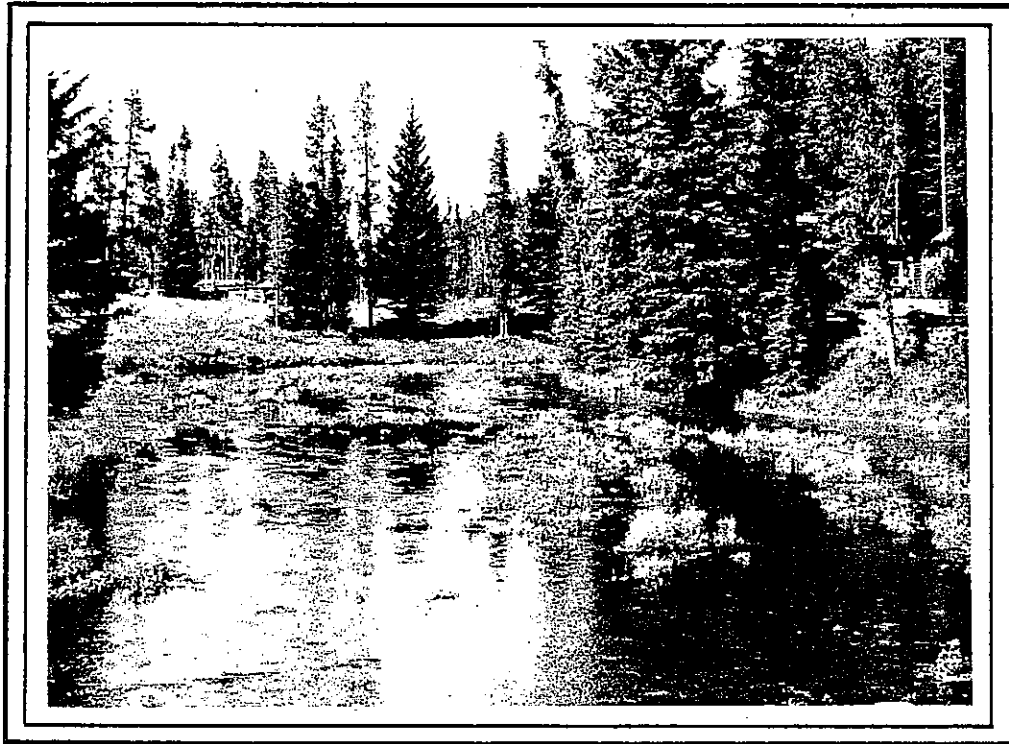


ATTACHMENT 'C'

To

SORENSEN AFFIDAVIT

*BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
MINIDOKA PROJECT IDAHO*



*1978
WATER MANAGEMENT
STATUS REPORT*

I. Introduction

This report is an assessment of the 1978 water year as related to the River Control Branch of the Minidoka Project. The report is intended to provide a summarization of the total water management program within the Upper Snake River Valley.

The 1978 water year activities included: Past 1977 drought operations; storage and flood control operations; Ririe Reservoir first fill; American Falls Reservoir fill; irrigation operations; and water management activities by the Irrigation Management Services (IMS) Program.

The 1978 storage period was met with deep concern by many due to the carryover supplies being 14% of total capacity (See Appendix B - Figure 1). Concern lessened as the snowpack within the Upper Snake River watershed increased and the April 1 forecast indicated an above average projected water supply for the 1978 season (See Appendix B - Figure 2). The 1978 carryover supply within reservoirs was approximately 71% of normal and provides for an adequate 1979 storage water supply.

Irrigation management activities by IMS personnel were conducted in close coordination with river control operations. Activities centered mainly around demonstrations of irrigation scheduling by means of the neutron probe; coordination of Upper Snake River Management Program in identifying distribution of irrigation water supplies within certain areas above American Falls Reservoir; and initiation of a study of irrigation distribution systems, especially, related to seepage loss from such systems. A detailed analysis of of these activities are enclosed.

II. General Statement of Activities

A. Goals and Objectives. The primary consideration for the 1978 water year were as follows:

1. Maximize the storage supply of irrigation water with minimum adverse effect to power production and instream uses. Maintenance flows were established at critical points within the Upper Snake River during the 1978 storage period.

2. To evaluate the potential of using Young Adult Conservation Corp personnel as fieldmen in providing a demonstration scheduling program by means of the neutron probe.

3. To assist in coordinating the Upper Snake River Management Study with the Regional Office personnel.

B. Cooperative Agreements. There were no formal, written agreements entered into this year. However, several verbal agreements to provide services were made as follows:

Generally most comments were favorable to the program. Project personnel did feel that more time should have been spent with individual cooperators in analyzing the charts. Many cooperators also expressed that they would like to have received a computer printout for irrigation scheduling of their crops. It was indicated to them at the time they signed up that a printout would, perhaps, be made available as the season progressed, but the personnel time limitations, mentioned above, precluded use of the computer programs this year.

The Upper Snake River IMS Program was felt to be highly successful. This was measured by comments received from individual cooperators to the degree that one large potato farmer is investigating the possibility of obtaining his own neutron probe. This was the first attempt by the Project to provide a scheduling program in the area above American Falls Dam.

The program was coordinated with the Ririe Dam Field Office and provided excellent support to fieldman activities. The fieldman had an excellent farm background and was from the immediate area. The charts were provided in a highly professional manner.

B. Water Operations

1. Summary. The 1978 water year proved to be a very good year. The Jackson Lake watershed yielded approximately 115% of normal runoff, providing a plentiful supply to fill Jackson Lake Reservoir to the restricted level of 624,360 acre-feet. Because the winter forecasts of the snowpack indicated there would be sufficient water to fill, the winter discharge was increased from 100 cfs to 170 cfs in order to provide a better maintenance flow and thus a better fish habitat in that section of the river immediately below Jackson Lake Dam.

Palisades Reservoir began the water storage season practically empty. Consequently, a discharge of only 1,000 cfs was maintained through the winter months. A small amount of swing was permitted in order to meet peak power loads during the winter months. By early July the reservoir had filled to 87% of its total capacity. The late runoff on the South Fork made it impossible to hold required storage space and still reach 100% fill prior to irrigation demand.

The normal storage capacities of Island Park and Henry's Lake Reservoirs were 100% filled. With the completion of the new American Falls Dam, that reservoir was filled to its normal capacity of 1,700,000 acre-feet.

Storage allocation of 3,368,360 acre-feet of water was made in early July. Because of the good water year and the late runoff, natural flow remained high during most of the irrigation season, thus eliminating another heavy drain on storage water. Consequently the irrigation season ended with a carryover of 2,460,761 acre-feet as of October 1, 1978, which was allocated to the spaceholders.

ATTACHMENT 'E'

To

SORENSEN AFFIDAVIT

US BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
MINIDOKA PROJECT, IDAHO

1983

WATER MANAGEMENT STATUS REPORT



Figure 2-2

1983 Water Year Runoff Upper Snake Watershed

Watershed	Volume (acre-feet)		
	1983 Runoff	Normal	Percent Normal
<u>South Fork</u>			
1/ Jackson	1,184,987	1,041,000	
1/ Heise	6,470,655	5,024,000	114%
* Blackfoot	5,085,396	3,465,000	129%
* Neeley	8,650,417	5,193,000	147%
* Milner	5,623,143	1,792,000	167%
			314%
<u>North Fork</u>			
1/ Island Park	628,589	431,800	
* Ashton	1,603,186	1,054,000	146%
* Fall River	744,453	562,200	152%
(Squirrel)			132%
* Teton	744,345	586,100	
* Rexburg	2,461,468	1,461,000	127%
			168%
1/ Unregulated Flows			
* Observed Flows			

The peak observed runoff at the Snake River gaging site near Heise was 23,179 cfs on June 11, 1983. The unregulated flow (flows within Jackson Lake and Palisades Dam Control) provided a peak flow of 42,393 cfs on May 30, 1983.

Spring operation of Palisades Reservoir included consideration of the nesting Canadian geese below Palisades. The high inflow and above normal water supply made it possible to maintain a flow in excess of 10,000 cfs during the nesting season. From all indications the hatching success rate was very high.

The power generation at Palisades was enhanced by the swing operations only a few times during the coldest part of the winter. For the most part, the winter was fairly moderate and the need to swing the river only occurred a few times. The Heise flows are summarized in hydrograph form as shown in Exhibits 2-4, 2-4a, and 2-4b.

Flood operations ended on the Upper Snake River on July 20, as irrigation demand used up the natural flow, and storage releases from Palisades were controlled, in order to minimize the storage water flowing past the Blackfoot gage, into American Falls Reservoir.

Again this year, releases from Island Park were coordinated with the watermaster in order to meet downstream water rights, thus avoiding the problem of having Palisades water in Island Park. Whenever releases from Island Park are insufficient to

meet downstream rights, water is released from Palisades to meet the irrigation demand. Technically speaking, Fremont-Madison Irrigation District would be "borrowing" water from Palisades. If Palisades would fill the next spring, the water deficit becomes a moot point. However, if it does not fill, the idea that Island Park owes water to Palisades becomes a sensitive issue with the water users. Since Island Park's refill capability is very high and Palisades is not, it is desirable to keep the flow at the Rexburg gage large enough to meet downstream rights.

The water quality below American Falls Dam was again monitored closely this year. When the dissolved oxygen level fell below 6.0 parts per million, Idaho Power Company operators turned on the aspirators forcing air into the tailwater as it left the turbines. When the dissolved oxygen level fell below 5.0 parts per million, the radial gates were opened, by-passing the powerplant until the oxygen level returned to the acceptable level of 6.0 parts per million. Graphs illustrating the dissolved oxygen level and the water temperatures are shown in Exhibit 2-6. A chart of the water quality showing maximum and minimum dissolved oxygen (DO₂) with the times of occurrence; maximum and minimum temperatures and times of occurrence; the times the DO₂ was below acceptable levels, and the amount of by-pass with the time of by-pass are shown in Exhibit 2-7.

A summary of the Upper Snake Reservoir storage with end-of-month averages and carryover values is included in Figure 2-3.

Figure 2-3 Summary of 1983 Upper Snake Reservoir Storage

Reservoir	Content (acre-feet)			1983		
	10/1/82	7/10/83	10/1/82	Average E.O.M.	10/1/83 % Average	Increase Storage Carryover (ac-ft)
Jackson Lake	511,895	724,656	487,166	578,600	84%	-24,729
Palisades Dam	1,178,129	1,210,033	1,153,318	612,300	188%	-24,811
American Falls	1,164,135	1,672,590	1,171,050	612,300	191%	6,916
Minidoka Dam	93,826	94,932	94,932	80,500	188%	1,106
Island Park	81,730	135,603	41,517	74,700	56%	-40,213
Grassy Lake	11,679	15,194	12,343	9,600	129%	664
Ririe Dam	44,922	80,233	47,958	44,100	109%	3,036
<u>Private</u>						
Henry's Lake	71,610	89,534	89,398	68,000	131%	17,788
Milner Lake	29,890	30,051	29,930	30,000	100%	40

TABLE 1

MINIDOKA POWER PLANT
UNITS 1-6

Net Power Production Loss Due to Restriction
of use of Minidoka Water Rights

Unit: Thousands of Kilowatthours

Water Year Oct.-Sept.	Loss From Restriction of Use of Water Rights	Gain From 1/ American Falls Storage	Net Loss
1963	15,959	4,667	11,292
1964	15,326	2,531	12,795
1965	0	0	0
1966	605	605	0
1967	23,559	3,114	20,445
1968	3,703	1,663	2,040
1969	0	0	0
1970	9,818	2,124	7,694
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	1,260	1,260	0
1975	0	0	0
1976	0	0	0
1977	0	0	0
1978	18,969	4,710	14,259
1979	0	0	0
1980	21,061	2,211	18,850
1981	5,026	5,026	0
1982	15,041	655	14,386
Total	130,327	28,566	101,761
20 year av.	6516.4	1428.3	5088.1

$$5,088,100 \text{ kWh} \times \$0.0051 = \$25,949.31$$

1/ Limited to amount of winter losses occurring in the same year.

Palisades @ 10% = \$2,594.93
Island Park @ 12% = \$3,113.92
American Falls @ 78% = \$20,240.46

Exhibit 2-14

F.SnRv
HYI
83410
L70610
L76470
213280
145640
191590
288730
607000
643800
476770
186570
125360
3409230

ATTACHMENT 'D'

To

SORENSEN AFFIDAVIT

U. S. BUREAU OF RECLAMATION

PACIFIC NORTHWEST REGION

MINIDOKA PROJECT, IDAHO

1982

WATER MANAGEMENT STATUS REPORT

6. American Falls Dam

This Reservoir filled to elevation 4354.5 on May 10. On September 9 it had reached its lowest elevation of 4344.2 and began storing slightly.

7. Minidoka Dam

The Dam was filled just prior to irrigation season and full pool was maintained throughout the water year.

B. Water Operations

The 1982 water year began with above normal moisture conditions in October, November, and December. As the winter progressed, the snow fall exceeded the average for the years of 1972 through 1981 as illustrated in Figure 2-1. The April 1 forecast for the Heise runoff turned out to be 127 percent of normal.

Exhibit 2-1 is a graph summary of accumulative average snow water content of the seven measuring sites that are used in the Heise forecast.

Precipitation continued well above normal throughout the spring and summer causing total volume runoffs to be well above normal on all watersheds as shown in Figure 2-2. The additional precipitation throughout the irrigation season reduced the demand on storage water allowing for a very large carry-over in all the reservoirs.

Figure 2-2 1982 Water Year Runoff Upper Snake Watersheds

Watershed	Volume (acre-feet)		
	1982 Runoff	Normal	Percent Normal
<u>South Fork</u>			
1/ Jackson	1,375,759	1,041,000	132%
1/ Heise	6,894,793	5,024,000	137%
* Blackfoot	4,709,700	3,465,000	136%
* Neeley	5,900,397	5,193,000	114%
* Milner	3,040,488	1,792,000	170%
<u>North Fork</u>			
1/ Island Park	506,514	431,800	117%
* Ashton	1,274,452	1,054,000	121%
* Fall River (Squ.)	640,097	562,200	114%
* Teton	764,292	586,100	130%
* Rexburg	1,964,163	1,461,000	134%
1/ Unregulated Flows			
* Observed Flows			

The peak observed runoff at the Snake River gaging site near Heise was 21,300 cfs on July 16, 17, and 18, 1983. The unregulated flow (flows within Jackson Lake and Palisades Dam control) provided a peak flow of 40,257 cfs on



United States Department of the Interior

BUREAU OF RECLAMATION
~~WATER AND POWER RESOURCES SERVICE~~
MINIDOKA PROJECT OFFICE
1359 HANSEN AVENUE
BURLEY, IDAHO 83318

IN REPLY
REFER TO: 405
511.

July 30, 1982

To All Spaceholders:

All of the Minidoka Project Reservoirs filled except Jackson Lake Dam which filled to its restricted capacity.

Your allocation of storage water for the 1982 hydrometric year in the respective project reservoirs is as follows:

Island Park	100%
Grassy Lake	100%
*Jackson Lake.....	73.7%
Palisades	100%
**American Falls	100%
Minidoka Dam	100%

Sincerely yours,

Donald E. Tracy
Project Superintendent

*Restricted capacity is 73.7% of 847,000 acre feet, or 624,360 acre feet.
**Full capacity is now 1,672,590 acre feet.

TABLE 1

MINIDOKA POWER PLANT
UNITS 1-6

Net Power Production Loss Due to Restriction
of use of Minidoka Water Rights

1981 Water Year
Unit: Thousands of Kilowatthours

Water Year Oct.-Sept.	Loss From Restriction of Use of Water Rights	Gain From 1/ American Falls Storage	Net Loss
1962	21,710	2,890	18,820
1963	15,959	4,667	11,292
1964	15,326	2,531	12,795
1965	0	0	0
1966	605	605	0
1967	23,559	3,114	20,445
1968	3,703	1,663	2,040
1969	0	0	0
1970	9,818	2,124	7,694
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	1,260	1,260	0
1975	0	0	0
1976	0	0	0
1977	0	0	0
1978	18,969	4,710	14,259
1979	0	0	0
1980	21,061	2,211	18,850
1981	5,026	5,026	0
Total	136,996	30,801	106,195
20 year av.	6,849.8	1,540	5,309.75

$$5,309,750 \text{ Kwh} \times \$0.0051 = \$27,079.73$$

1/ Limited to amount of winter losses occurring in the same year.

Palisades @ 10% = \$2,707.97

Island Park @ 12% = \$3,249.57

American Falls @ 78% = \$21,122.19

ATTACHMENT 'F'

To

SORENSEN AFFIDAVIT

Falls Irrigation District

Year	Total KWH used	Cost
1989	8,202,807	\$109,071.00
1990	8,772,279	\$100,302.00
1991	7,792,762	\$115,292.00
1992	10,304,696	\$138,484.00
1993	6,892,260	\$95,339.00
1994	9,486,447	\$130,094.00
1995	7,213,914	\$100,715.00
1996	9,119,716	\$123,827.00
1997	8,289,987	\$132,981.00
1998	8,883,209	\$138,724.00
1999	9,193,692	\$143,532.00
2000	10,967,947	\$167,640.00
2001	10,406,443	\$159,952.00
2002	8,029,579	\$143,943.00
2003	8,917,470	\$186,155.00
2004	9,314,974	\$192,455.00
2005	7,735,240	\$200,911.00
2006	8,586,820	\$211,719.00
2007	9,799,060	\$237,740.00
2008	9,696,295	\$272,316.00