# Summary of
# WATER QUALITY CONDITIONS
# POLLUTION SOURCES
# WATER QUALITY REGULATIONS
# UPPER AND CENTRAL SNAKE RIVER BASINS

Idaho - Oregon

Preliminary Draft

Prepared by

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement
Division of Field Investigations - Denver Center
Denver, Colorado

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# CHAPTER I. INTRODUCTION

## A. STATEMENT OF PROBLEM

Water quality in the Snake River and a number of tributaries is degraded by municipal and industrial waste discharges and agricultural pollution in combination with low streamflow conditions produced by storage and diversion of water for irrigation uses. This degradation results in the impairment of water uses including municipal water supply, propagation of aquatic life, water contact recreation and aesthetics. Dense aquatic growths, fish kills and bacterial contamination are indicators of water quality problems which are found at a number of locations in the Snake River Basin.

Substantial upgrading of municipal and industrial waste treatment has been accomplished in the past few years and additional improvements are under construction or planned. It is apparent, however, that even higher levels of treatment will be needed for some waste sources and that control of pollution from concentrated agricultural pollution sources such as animal feedlots will be required if applicable water quality standards are to be met.

Water quality data are collected at a number of points in the Basin by Federal and State agencies on a continuing and periodic basis. However, a comprehensive basinwide evaluation of water quality has not been made since 1966. A complete inventory of pollution sources and treatment facilities is not available. Such a water quality evaluation and inventory is needed to assess the current status of compliance with water quality standards and other regulations.

## B. OBJECTIVES

The major objectives of this report are to:

1. Summarize applicable water quality regulations.
2. Outline significant water quality and pollution problems.
3. Summarize available water quality data.
4. Assemble available information on known and potential pollution sources.
5. Identify needs for additional investigations to update present information and define the present status of compliance with water quality regulations.

## C. SCOPE

This report is a compilation of existing information on water quality conditions and pollution sources in the Upper and Central Snake River Basin. Emphasis is placed on the main stem Snake River between Brownlee Reservoir and Rexburg, Idaho, a distance of 500 stream miles, and on the lower reaches of the Boise River, Rock Creek, Portneuf River, Henry's Fork and South Fork Teton River. This area includes all major population centers and important agricultural areas along this portion of the Snake River.

A limited field reconnaissance survey of the area was made in May 1971 to update information on major waste sources. The results of this survey were utilized to develop a more complete waste source inventory than the current STORET inventory.

## D. AUTHORITY

This report was prepared in partial fulfillment of a request from the Interim Regional Coordinator, Region X, Portland, Oregon, for the Division

of Field Investigations - Denver Center to conduct investigations of pollution problems in the Snake River Basin upstream from Brownlee Dam with regard to defining the basis for possible enforcement actions.

## E. ACKNOWLEDGEMENTS

Valuable assistance in compiling reference materials for this report was provided by various Region X Water Quality Program staff members. Appreciation is expressed to Messrs. Veirs and Worley in this regard and to Mr. Tangarone who assisted in the field reconnaissance.

## CHAPTER II. SUMMARY AND CONCLUSIONS

1. Available data on water quality conditions in the Upper and Central Snake River Basins are limited. With the exception of basinwide short-term surveys conducted in 1962 and 1966, water quality data prior to 1968 are available for only a few long-term stations. Since 1968, a Federal-State surveillance network has been developed to provide regular collection of water quality information. This network provides data suitable for assessing general water quality conditions and long-term trends, but is not adequate for detailed evaluation of the water quality impact of specific pollution sources.

2. Currently available waste source data are incomplete. Not all known waste discharges are listed in the STORET municipal and industrial inventories. Flow data are missing or outdated. No information is available on specific pollutants discharged. A search of phone directories identified several hundred potential pollution sources not included in any waste source inventory. The number of these sources actually discharging wastes or causing pollution is unknown.

3. Implementation of the Refuse Act Permit Program and the Idaho permit system will provide basic data for updating the STORET inventory. A follow-up survey of potential waste sources not included in permit programs will be needed to complete a waste source inventory.

4. Federal-State water quality standards applicable to the interstate waters of the Snake River Basin have been established pursuant to the Federal Water Pollution Control Act, as amended. These standards specify

water quality criteria and treatment requirements which must be met by all waste sources and establish schedules for completion of necessary waste treatment facilities. Available information is inadequate to assess the current status of compliance with the standards, although it is known that violations of water quality criteria presently occur in several stream reaches and that not all waste sources are meeting their implementation schedules.

5. Water quality problems in the Snake River Basin are primarily associated with population centers, especially areas where streamflows are depleted by irrigation use. Significant water quality degradation occurs in the South Fork Teton River and Henry's Fork near Rexburg, in the Snake River below Idaho Falls, in the lower Portneuf River and American Falls Reservoir at Pocatello, in Lake Milner at Burley, in Rock Creek and the Snake River at Twin Falls, in the Boise River between Boise and the Oregon border, and in the Snake River and Brownlee Reservoir between Oregon and Idaho. Water quality problems are most acute in American Falls Reservoir, Lake Milner and Brownlee Reservoir.

6. Municipal and industrial waste sources are primarily located in 12 population and economic centers known as service areas. Six of these service areas, Idaho Falls, Pocatello, Burley, Twin Falls, Boise and Ontario, create significant pollution problems. Waste sources in the other six areas are generally relatively small and water quality degradation is minor or a local pollution problem only.

7. A number of large food processing plants providing inadequate treatment are located in Idaho Falls. The city provides only primary treatment. Waste loads from municipal and industrial sources degrade water quality in the Snake River at low flow conditions. Expansion of the city system to secondary treatment and connection of most industrial waste sources are planned but are several years away. A water quality and waste source survey is needed to provide the basis for possible enforcement actions if the completion of the city system is delayed.

8. Phosphate wastes from two phosphate processing plants and inadequately treated municipal and industrial wastes from the Pocatello vicinity, in combination with natural sources of phosphates, degrade water quality in the lower Portneuf River and contribute to eutrophic conditions in American Falls Reservoir. A survey to define the sources and magnitudes of phosphate loads discharged to American Falls Reservoir is needed to evaluate the need for potential enforcement actions against the phosphate industries.

9. Large organic waste loads from food processing industries in the Burley area have been responsible for severe water quality degradation in Lake Milner and several major fish kills. Secondary treatment facilities will be placed in operation in Fall 1971 by all major waste sources in the Burley area. It is probable that these facilities will not be adequate to maintain suitable water quality in Lake Milner during low flow conditions. A waste source and water quality survey of the Lake Milner area is needed during the 1971-72 food processing season to assess the adequacy of treatment facilities.

10. Several food processing plants and a sugar refinery located on Rock Creek and the Twin Falls primary treatment plant have caused water quality degradation in Rock Creek and the Snake River. Expansion of the city system to secondary treatment and connection of all industrial wastes to the city system is planned. Such improvements would alleviate present water quality problems. A waste source and water quality survey is needed to provide the basis for possible enforcement actions if the completion of the city system is delayed.

11. A large number of municipal and industrial waste sources including several large food processing plants and a sugar refinery are located in the Boise River Valley below Boise. In the past, these sources contributed to severe degradation of the Boise River. Connection of most of the major industrial waste sources to regional secondary treatment facilities at Boise, Nampa and Caldwell has substantially reduced water quality problems but water quality standards violations persist. In addition, the Nampa plant receives a seasonal organic waste overload from food processing industries resulting in reduced treatment efficiencies. The Caldwell plant is troubled by excessive infiltration during the irrigation season. A comprehensive water quality and waste source survey of the Boise River Valley is needed to provide the basis for assessing the present status of compliance with water quality standards and the need for enforcement actions in this area. An assessment of the water quality impact of reduced treatment efficiencies at Nampa and Caldwell is also needed. Residual pollution from the Boise River creates interstate pollution in the Snake River between Oregon and Idaho.

12. A number of food processing plants and a sugar refinery in the Ontario area contribute waste loads which, in combination with residual wastes from the Boise River, degrade water quality in the Snake River and Brownlee Reservoir between Oregon and Idaho. Pollution in this area is interstate. A waste source and water quality survey is needed in this area to assess the adequacy of waste treatment facilities and to define the present status of compliance with water quality standards.

13. A large number of animal feedlots are concentrated in the Burley, Twin Falls, Boise and Ontario areas. Drainage from some of these feedlots is discharged to State waters in violation of the Idaho water quality standards. Feedlots also contribute to eutrophic conditions and violation of bacterial criteria. A comprehensive bacteriological investigation during wet-weather periods is needed to assess the extent of bacterial contamination from these sources.

# CHAPTER III. DESCRIPTION OF AREA

## A. PHYSICAL DESCRIPTION

The Snake River begins in the northwest corner of Wyoming, flows through southern Idaho where it receives minor drainage from Utah and Nevada, travels northward to mark state boundaries between Idaho and Oregon and Idaho and Washington, and then flows through the Palouse hills to the Columbia River in the State of Washington. The river is over 1,000 miles long and drains an area of nearly 108,000 square miles. As the largest tributary of the Columbia River, the Snake River contributes one-fifth of the total discharge of the Columbia River system, about 33 million acre-feet of water each year.

Most of the area is mountainous, but it is the lowlands of the Snake Plain and the finger valleys like those of the Boise, Payette, and Weiser Rivers which provide some of the world's most fertile farm areas and which are the focus of the agricultural economy and the home of most of the population.

Of the basin's total area, 42 percent is rangeland; 24 percent is forest; 26 percent is agricultural land; and the remaining 8 percent is divided among other uses. Land ownership of the basin is 66 percent Federal, 4 percent state and local, and 30 percent private.

For purposes of water quality management planning, the Snake River Basin is divided into three approximately equal sub-basins; the Upper, the Central or Middle, and the Lower Basin. This report is concerned with water quality in the Upper and Middle Basins only.

The Upper Snake River Basin (see Figure III-1) drains an area of 35,857 square miles in Idaho, Wyoming, Nevada, and Utah. The Snake River is the dominant stream traversing the subregion from east to west. From its headwaters in Yellowstone National Park, the river flows some 500 miles, skirting

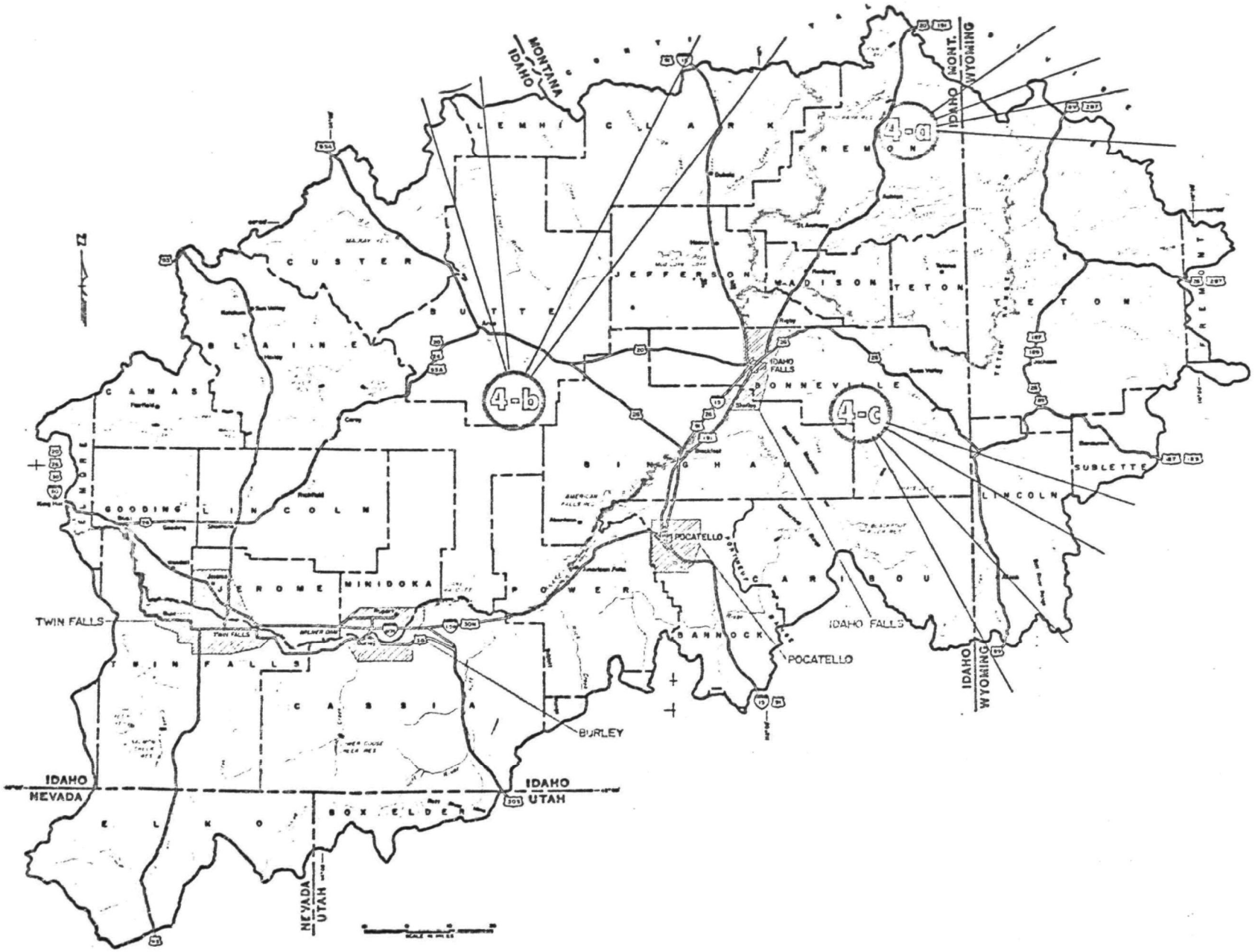


Figure III-1. Upper Snake River Basin

the Snake River Plain on the south before it leaves the subregion on the west. The major tributaries are generally in the southern and eastern portions of the sub-basin. A large area north of the Snake River is drained by streams which sink into the lava fields. The extensive aquifer beneath the Snake River Plain is a distinguished hydrologic feature.

The Central Snake River Basin is the largest sub-basin in the Columbia-North Pacific Region, containing 36,825 square miles in the states of Idaho, Oregon, and Nevada. The largest portion of the sub-basin lies within the Snake River Plateau province. The area is bounded on the northeast by the Northern Rocky Mountains, on the northwest by the Blue Mountains, and on the west and southwest by the Great Basin.

The Snake River is the dominant stream, flowing westerly through the basin to the Oregon border and then northward to Brownlee Dam. A major portion of the tributary inflow in the basin is contributed by the Boise, Payette, and Weiser Rivers in the northeast portion of the basin, while the large semi-arid areas to the south and west of the Snake River contribute small flows.

In both basins, agricultural areas and population centers are located in the low-lying and narrow river valleys while range and forest lands occupy the foothills and mountains.

Elevations in the Basin range from less than 2,000 feet above sea level at Brownlee Dam to more than 13,000 feet in Grand Teton National Park. Throughout much of its length, the Snake River flows on a relatively steep gradient broken by a number of major waterfalls. Elevations of population centers within the study area range from 2,000 to 5,000 feet.

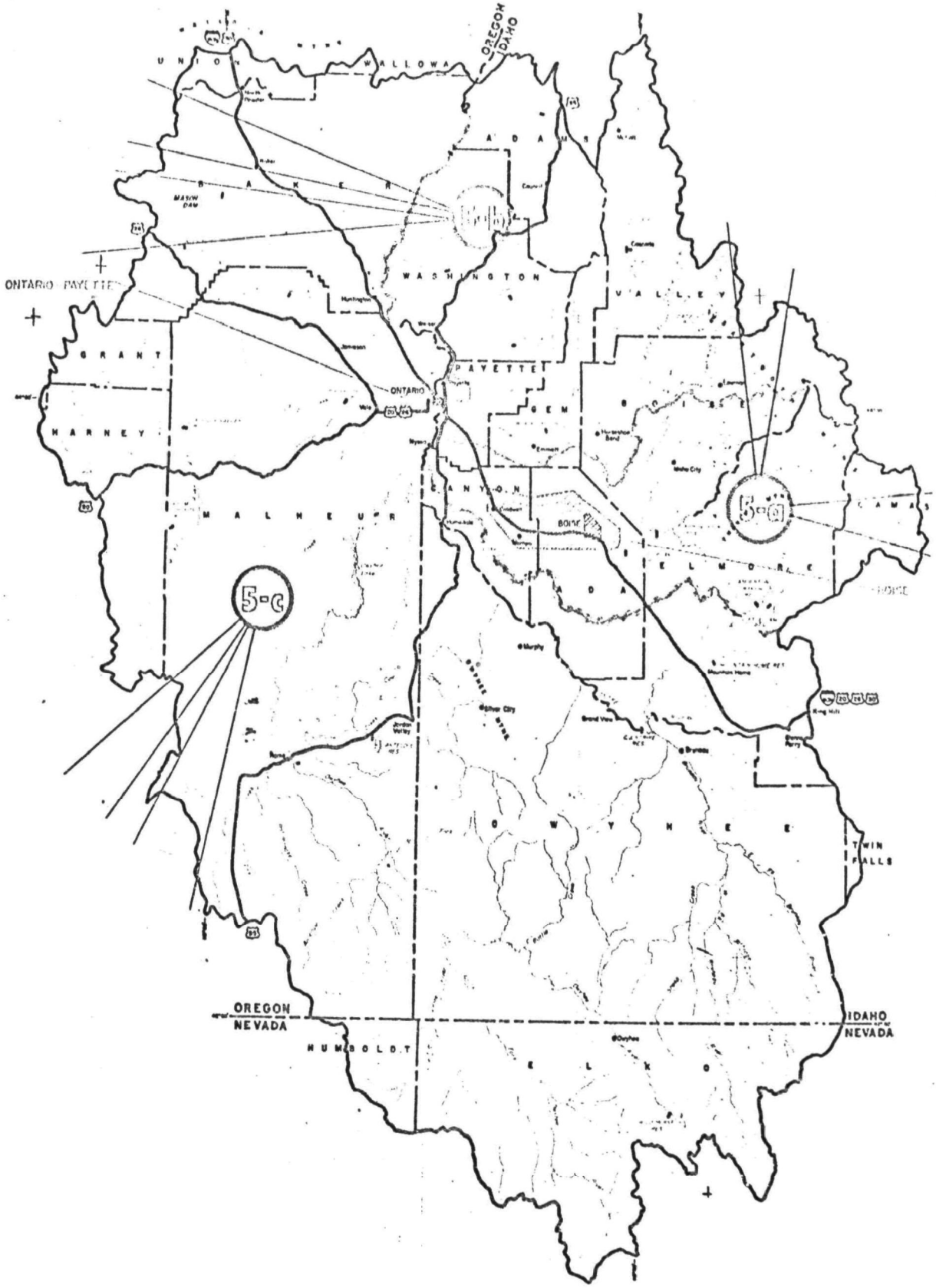


Figure III-2. Central Snake River Basin

## B. CLIMATE

Climate is highly variable throughout the Upper Basin because of its wide range in elevations. The climate is characterized by warm-to-hot, dry summers and cold winters, during which most of the precipitation falls. Extreme temperatures recorded range from -60 to 110° F. The average growing season on the Snake River Plain ranges from 140 to 150 days at the lower end of the plain to about 100 days at the upper end. The average annual precipitation ranges from 10 to 30 inches.

The climate of the Central Basin is typical of other areas east of the Cascade Range -- hot, dry summers and cool winters during which most of the precipitation falls. Average annual temperatures range from 40° to 50° F, and extreme temperatures range from -49° to 117° F. The plateau receives only 6 to 15 inches of precipitation a year, while the mountains average as much as 40 inches. Much of the precipitation at higher elevations is in the form of snow, providing water to streams until June. Summer droughts are a common characteristic, with precipitation averaging less than an inch throughout much of the basin. The growing season ranges from 160 days in the lower valleys to less than 60 days in the mountain valleys.

## C. POPULATION AND ECONOMY

The total population of the Upper Basin is about 302,000 people. About 49 percent reside in four major population centers, Idaho Falls, Pocatello, Burley and Twin Falls. The population density in the remainder of the area is low -- often less than one person per square mile in large areas.

Agriculture and food-processing are the primary economic activities in the Upper Basin. There are over two million acres of irrigated land. The principal crops grown and processed are potatoes and sugar beets. The National

Reactor Testing Station is also an important economic factor. The phosphate industry in southeastern Idaho is the center of western phosphate resources and production. Recreation and tourism are important segments of the economy. Grand Teton National Park, a portion of Yellowstone National Park, Craters of the Moon National Monument, and several national forests are significant attractions. In addition, the sub-basin also contains two of the nation's best winter sport areas (Jackson Hole and Sun Valley).

The population of the Central Basin, which is about 270,000, is concentrated in the area extending from Boise into eastern Oregon. As a result, large areas in the sub-basin are very sparsely populated.

The economy of the Central Basin is also largely based on agricultural production and processing. The principal crops grown and processed are potatoes and sugar beets. The processing of livestock, dairy, and poultry products is also of importance. There is a limited amount of manufacturing in the Boise area.

## D. HYDROLOGY

The Snake River, flowing westward through the Upper Basin, has its source in the remote areas of Yellowstone Park and is fed by such major tributaries as the Gros Ventre, Hoback, and Greys Rivers in Wyoming, and Henry's Fork, Blackfoot, Portneuf, and Big Wood Rivers in Idaho. In the north-central portion of the Basin, the Big Lost and Little Lost Rivers, Birch Creek, and several other streams find no surface outlet to the Snake, but disappear in sinks in the desert area of Butte and Jefferson Counties.

At Heise, where the flow of the Snake River is measured above irrigation diversions in Idaho, the average annual discharge is about 4.7 million acre-feet.

Below Milner Dam, some 250 miles downstream, a residual flow averaging 1.1 million acre-feet remains after irrigation diversions and natural losses to groundwater deplete the flow. Below Milner, substantial inflow -- principally from large springs -- increases the average flow of the Snake River to about 6.2 million acre-feet at King Hill.

The seasonal runoff pattern for most of the Upper Snake Basin is modified by storage regulation, which outweighs natural influences in determining the pattern of runoff. The flood that occurs when spring rains release and augment snowmelt, the natural foundation of flows, is captured in a network of irrigation and flood control reservoirs and distributed through the summer. In the fall, the continuing influence of irrigation return flows acts to maintain stream levels; winter streamflows are restricted severely as reservoirs are filled and return flows diminish. Though summer flows are high at points below impoundments, high summer flows are not an unvarying situation. Below significant diversion points, summer flows may cease entirely at times. Mean monthly discharge data for selected stations are summarized in Table III-1

Table III-1. Upper Basin Streamflow Summary

| Location | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (cfs) | | | | | | | |
| Snake River at Moran, Wyoming | 460 | 150 | 110 | 200 | 1,440 | 1,700 | 1,080 | 1,240 | 1,140 | 410 | 410 | 440 | 1,162 |
| Snake River at Idaho-Wyoming State Line | 1,810 | 1,450 | 1,470 | 3,780 | 10,040 | 13,200 | 8,240 | 5,630 | 5,150 | 2,160 | 2,110 | 1,950 | 5,280 |
| Snake River near Heise, Idaho | 2,760 | 2,550 | 2,520 | 5,310 | 11,780 | 13,180 | 12,150 | 9,720 | 7,870 | 3,400 | 3,150 | 2,880 | 6,549 |
| Henrys Fork near Rexburg, Ida | 1,360 | 1,460 | 1,590 | 1,930 | 2,660 | 2,130 | 970 | 830 | 1,060 | 1,170 | 1,440 | 1,350 | 1,512 |
| Blackfoot River near Blackfoot, Ida | 130 | 130 | 145 | 280 | 230 | 130 | 40 | 50 | 60 | 160 | 265 | 200 | 155 |
| Portneuf River at Pocatello, Idaho | 260 | 300 | 365 | 460 | 170 | 170 | 70 | 80 | 100 | 160 | 440 | 280 | 218 |
| Snake River at Neeley, Idaho | 1,790 | 2,550 | 4,040 | 8,170 | 11,600 | 11,210 | 12,690 | 11,630 | 6,540 | 2,850 | 2,450 | 1,850 | 5,271 |
| Snake River at Milner, Idaho | 2,140 | 2,960 | 3,890 | 3,880 | 1,310 | 210 | 330 | 110 | 90 | 1,040 | 1,010 | 1,450 | 1,555 |
| Big Lost River near Mackay, Idaho | 120 | 130 | 130 | 140 | 440 | 870 | 620 | 380 | 190 | 140 | 90 | 100 | 274 |
| Big Wood River near Gooding, Idaho | 90 | 160 | 300 | 580 | 500 | 315 | 80 | 50 | 80 | 50 | 100 | 90 | 198 |
| Snake River at King Hill, Idaho | 8,920 | 9,430 | 10,470 | 10,400 | 7,990 | 7,120 | 7,230 | 7,550 | 7,900 | 8,610 | 8,420 | 8,480 | 8,540 |

The Upper Snake River is an intensely regulated drainage system. There are 25 existing structures which have storage capacities of 5,000 acre-feet or more. Active storage amounts to about 5.1 million acre-feet. Development has been directed largely to irrigation, and 21 of the major storage structures are principally for this purpose.

Upstream contributions to the Central Basin consist solely of the Snake River flow at King Hill. This inflow is primarily groundwater effluent from the Thousand Springs area, augmented at times by sizable, uncontrolled flood flows.. To this inflow is added the runoff from several major tributaries, which include the Bruneau, Boise, Owyhee, Malheur, Payette, Weiser, Powder, and Burnt Rivers.

The average annual runoff for the present level of development is about 8,600 cfs at King Hill and 16,300 cfs at Oxbow. This indicates an increase of 7,700 cfs within the Basin.

The streamflow regimen of the Snake River and its tributaries in the Central Basin is characterized by high flows from early spring through the first part of the summer and low flows from late summer through the winter. This flow regimen is typical of streams that receive a large part of their annual runoff from melting snow. In general, the maximum floods for the year occur during the snowmelt period between March and the last of June. The runoff of the Snake River at King Hill is relatively uniform throughout the year, since about 70 percent of the average annual runoff at this point comes from a group of springs between Milner and King Hill. Flows of practically every major tributary stream are affected by storage for irrigation and by irrigation diversions which reduce the summer flows and, to some extent, increase the winter

flows through return of irrigation water. Mean monthly discharge data for selected stations are summarized in Table III-2.

Critical low-flow conditions occur mainly in late summer and through the winter. This is also the period of maximum industrial waste production. Occurrence of low flows is also a function of the management regimen of the basin's waters. Low flows are often the result of withholding water to build up storage for irrigation or of the actual diversion to the fields of a significant part of a stream.

There are 36 existing structures which have storage capacities of 5,000 acre-feet or more in the Central Basin. Active storage amounts to about 4.6 million acre-feet. Development has been directed largely to irrigation. The high level of irrigation storage capacity is accompanied by corresponding diversion capacities. Considerable alteration has been imposed on the flow pattern, with two significant effects: winter flows are diminished as reservoirs are filled for the irrigation season, and summer flows are depleted at points below irrigation diversions.

Table III-2. Central Basin Streamflow Summary

| | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CFS | | | | | | | | | | | | |
| Bruneau River near Hot Springs, Idaho | 140 | 180 | 280 | 790 | 1,100 | 850 | 250 | 100 | 80 | 80 | 100 | 120 | 342 |
| Owyhee River below Owyhee Dam, Oregon | 8 | 8 | 200 | 1,200 | 600 | 200 | 200 | 200 | 200 | 40 | 8 | 8 | 252 |
| Boise River near Boise, Idaho | 400 | 1,300 | 1,000 | 4,200 | 5,800 | 5,200 | 4,700 | 4,200 | 3,200 | 800 | 300 | 200 | 2,615 |
| Boise River at Notus, Idaho | 950 | 900 | 1,400 | 2,250 | 1,750 | 1,000 | 350 | 380 | 460 | 680 | 700 | 680 | 960 |
| Malheur River near Hope, Oregon | 80 | 340 | 400 | 600 | 270 | 30 | 50 | 20 | 20 | 20 | 20 | 50 | 162 |
| Payette River near Horseshoe Bend, Ida. | 1,200 | 1,200 | 1,700 | 4,200 | 7,300 | 7,400 | 3,600 | 3,400 | 2,800 | 1,600 | 1,100 | 1,300 | 3,065 |
| Payette River near Payette, Idaho | 1,700 | 1,900 | 2,400 | 4,700 | 6,500 | 6,000 | 1,600 | 1,400 | 1,500 | 1,500 | 1,500 | 1,700 | 2,709 |
| Weiser River near Weiser, Idaho | 650 | 1,150 | 2,150 | 2,750 | 2,450 | 1,300 | 300 | 200 | 150 | 150 | 250 | 600 | 1,006 |
| Snake River at Weiser, Idaho | 13,500 | 15,500 | 19,000 | 23,900 | 21,500 | 18,000 | 10,500 | 10,000 | 11,500 | 12,800 | 12,500 | 12,800 | 15,090 |
| Burnt River near Hereford, Oregon | 20 / | 25 | 73 | 275 | 155 | 108 | 89 | 90 | 60 | 35 | 15 | 18 | 82 |
| Powder River near Robinette, Oregon | 250 | 380 | 650 | 1,100 | 1,390 | 1,270 | 350 | 100 | 100 | 150 | 200 | 220 | 512 |
| Snake River at Oxbow, Oregon | 19,500 | 20,000 | 22,000 | 26,500 | 19,000 | 17,000 | 7,300 | 9,500 | 12,000 | 13,400 | 14,000 | 16,000 | 16,277 |

## CHAPTER IV. APPLICABLE WATER QUALITY REGULATIONS

The Snake River is an interstate stream. Water quality must meet Federal-State water quality standards established in accordance with the Federal Water Pollution Control Act as amended by the Water Quality Act of 1965 (33 U.S.C. 466 et seq.). The Snake River is also a navigable stream. Discharges of industrial wastes to navigable waters must comply with the requirements of the Rivers and Harbors Act of 1899 (33 U.S.C. 401-413). The Water Quality Improvement Act of 1970 (33 U.S.C. 466 h-1) establishes regulations on discharges of oil to navigable waters.

### A. WATER QUALITY STANDARDS

The reaches of the Snake River and its major tributaries considered in this report are located in either Idaho or Oregon. The water quality standards established by these states are thus of interest.

#### Idaho

Water quality standards for the interstate waters of Idaho were established in June, 1967, by the Idaho State Board of Health, in accordance with the provisions of the Water Quality Act of 1965. These standards were subsequently approved as Federal standards by the Secretary of the Interior on August 7, 1967. In August, 1968, the State Board of Health established additional rules and regulations for all waters of the state including interstate waters and establishing water quality standards for all intrastate waters.

The approved Federal standards consist of three components: (1) a designation of water uses to be protected for each interstate stream reach, (2) water quality criteria which specify limits on various water quality parameters, and

(3) an implementation plan which sets forth enforcement and surveillance procedures and a schedule for completion of necessary pollution control facilities at all sources of pollution.

Water uses which are to be protected in the Snake River in Idaho include domestic and industrial water supply, irrigation, livestock watering, salmonid fish rearing, other fishing and aquatic life, hunting and wildlife, swimming and aesthetic qualities. In addition, the Snake River is to be protected for salmonid fish spawning from the Wyoming border to American Falls Reservoir, and water skiing and pleasure boating are to be protected in all reservoirs.

The 1967 standards established general water quality criteria which are applicable to all interstate streams and specific water quality criteria which are applicable to named stream reaches including the Snake River and Henry's Fork in the area considered by this report. The 1968 standards extended the general criteria to all State waters and established specific criteria for additional waters including all tributary waters of interest in the study area. The 1967 and 1968 standards are reproduced in Appendices A and B respectively. Excerpts from these standards of special interest are discussed below.

A significant requirement contained in the initial standards specifies that the best practicable treatment and control will be required for all waste sources. The exact requirement is as follows:

"It shall be the policy of the State Board of Health that, notwithstanding the water quality standards contained herein, where a higher standard can be achieved, the highest and best practicable treatment and/or control of wastes, activities and flows shall be provided so as to maintain dissolved oxygen at the highest desirable levels and overall water quality as good as possible, and water temperatures, coliform bacteria concentrations, dissolved chemical substances,

"toxic materials, radioactivity, turbidities, color, odor and other deleterious factors at the lowest desirable levels. Such policy to apply not only to existing waste sources but to future waste sources as they may develop and for such other interstate streams not listed herein."

The 1968 standards further defined treatment requirements.

"For the purposes of these regulations, minimum adequate treatment for domestic sewage or industrial wastes containing significant organic material shall be equal to that which is commonly known as secondary treatment or the equivalent of 85 percent removal of the biochemical oxygen demand including adequate disinfection of any wastes which may contain organisms that may produce disease in man or animals. In industrial processes, in-plant process controls or alterations, carried out for the primary purpose of waste reduction, shall be considered as a part of the treatment process. Exceptions to secondary treatment requirements may be made by the Department of Health when it can be demonstrated that such exceptions will not adversely effect classified water quality and will offer adequate protection for all beneficial uses. Failure to provide adequate treatment shall be considered a violation of these regulations."

In addition to requiring a minimum of 85 percent BOD removal, the standards require that a treatment facility "shall at all times operate . . . with the highest efficiency that can reasonably be expected. . . ".

Idaho has thus established relatively stringent waste treatment requirements. As discussed in Chapter VI, however, many waste sources do not presently meet these requirements, either because the necessary control facilities have not been completed or existing facilities are overloaded or improperly operated.

In view of the large number of animal feedlots present in the Snake River Basin, the following regulation established in 1968 is of interest. Numerous violations of this regulation have been observed.

"It shall be a violation of these regulations to store, dispose of, or allow to accumulate any deleterious material adjacent to or in the immediate vicinity of any portions of the waters of the State in such a manner that such material will or is likely to enter the stream at times of high water or runoff or where drainage from such materials or accidental failure of storage facilities may transport or allow deleterious material into the water course. Such materials shall include, but not be limited to, trash, rubbish, garbage, oil, gasoline, chemicals, sawdust and accumulations of manure."

Excessive aquatic growths are present during summer in much of the Snake River and its major tributaries. The general water quality criteria applicable to all waters provide that State waters shall not contain "excess nutrients of other than natural origin that cause visible slime growths or other nuisance aquatic growths". A number of waste sources discussed in Chapter VI may be in violation of this criterion.

A stringent limit on phosphorus and nitrogen compounds was established by the 1968 standards for lakes or reservoirs used primarily for recreation, drinking water supplies, fish and wildlife propagation and/or aesthetic purposes. The regulation provides that "no wastes shall be discharged and no activity shall be conducted which alone or in combination with other wastes will cause in these waters measurable concentration of phosphorus or nitrogen compounds above those of natural origin." If applicable to American Falls Reservoir, this regulation is being violated by phosphate industries at Pocatello on the Portneuf River.

Two specific water quality criteria of interest are applicable to all waters in the study area.

"No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples.) Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 percent of samples not to exceed 2,400 per 100 milliliters.

B. Dissolved Oxygen (DO)

DO to be less than 75 percent of saturation at seasonal low or less than 100 percent saturation in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

Exception: Five parts per million at Milner Dam based on a minimum stream flow of 600 cubic feet per second at this point."

The 1968 standards established more stringent bacterial limits for lakes and reservoirs. The average and upper limit concentrations were reduced from 1,000 to 240 per 100 ml and from 2,400 to 1,000 per 100 ml, respectively. Corresponding fecal coliform limits of 50 and 200 per 100 ml were also established.

Available water quality data indicate frequent violation of the bacterial limits in populous areas and/or areas receiving agricultural drainage. From the data, no distinction can be made between human and animal sources of bacterial contamination. Available data are inadequate to assess the extent of violations of the more stringent lake and reservoir criteria.

The dissolved oxygen limits have been frequently violated in the past in certain areas such as Lake Milner and Brownlee Reservoir, during low flow periods. Although improved treatment facilities have reduced the frequency of such violations, such violations still persist.

The implementation plan established by the 1967 standards contained a schedule for completion of necessary treatment facilities by each waste source not providing adequate treatment. In general, the implementation plan provided for completion by 1970 of minimum treatment facilities requi · d to meet the water quality standards and for subsequent upgrading of all facilities to secondary treatment by various dates ranging from 1969 to late 1973. The approved implementation schedule is reproduced in Appendix C. The present status of compliance with this schedule is unknown, although a number of sources are known to have completed treatment facilities or have them under construction in accordance with the schedule. Other sources would appear to be substantially behind schedule.

Oregon

Water quality standards for the Snake River between Oregon and Idaho were established in 1967 by the Oregon State Department of Environmental Quality and subsequently approved as Federal standards by the Secretary of the Interior under the provisions of the Water Quality Act of 1965. The Oregon standards contain general and specific water quality criteria essentially the same as the Idaho criteria established for these waters. The Oregon standards also require "best practicable treatment" for all waste sources. Due to the comparability of standards, specific details of the Oregon standards are not included here.

B. THE RIVERS AND HARBORS ACT OF 1899

The Rivers and Harbors Act of 1899 prohibits the discharge of industrial wastes to navigable waters without a permit from the U.S. Army Corps of Engineers. Section 407 of the Act, referred to as the Refuse Act of 1899, makes it unlawful to discharge from any "... manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water..." provided that a discharge may be permitted under certain conditions specified by the Corps of Engineers.

Executive Order No. 11574, signed by President Nixon on December 23, 1970, tightens enforcement of the Refuse Act of 1899 by requiring that all sources of industrial wastes discharging to navigable waters or their tributaries must apply to the Corps of Engineers by July 1, 1971, for permits to continue such discharges. EPA and the Corps of Engineers have placed in operation a major joint program to process and review applications for permits. Each industrial waste source is also required to have a certification from the appropriate state pollution control agency that the waste discharge will not violate water quality standards.

Oregon currently has in operation a permit system which requires all sources of municipal and industrial wastes to have a permit to discharge. Idaho is in the process of setting up a permit system. All waste sources of interest in the study area will thus be required in the near future to obtain both a State discharge permit and a Federal permit under provisions of the Refuse Act. These permits will provide the basic information from which a complete municipal and

industrial waste inventory can be compiled.

The Rivers and Harbors Act of 1899 and Executive Order No. 11574 are reproduced in Appendices D and E, respectively.

## C. WATER QUALITY IMPROVEMENT ACT OF 1970

Federal rules regulating the discharge of oil to navigable waters were established on September 11, 1970, pursuant to the provisions of Section 11(b)(3) of the Federal Water Pollution Control Act, as amended by the Water Quality Improvement Act of 1970. These rules prohibit discharges of oil to navigable waters from any source which:

"(a) Violate applicable water quality standards, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines".

The complete set of rules is reproduced in Appendix F.

# CHAPTER V. WATER QUALITY CONDITIONS

Available water quality data for the Central and Upper Snake River Basins are limited. With the exception of a few long-term stations in the Ontario, Oregon - Weiser, Idaho area, water quality data prior to 1968 are practically non-existent. A survey conducted in November-December, 1962 by the Public Health Service, and a second survey in August, 1966, conducted by the Federal Water Pollution Control Administration, provided the only comprehensive water quality information on the Basin.

Since early 1968, routine water quality monitoring has been initiated at a number of key locations by the Idaho and Oregon State agencies, and by the Federal Water Quality Administration, which has largely been taken over by the Geological Survey under contract to EPA. With the exception of continuous monitoring during critical seasons at Lake Milner, water quality data are obtained on a periodic basis, primarily on a monthly frequency. Such a sampling frequency and density is useful for defining general water quality conditions and long-term trends but is not adequate to fully evaluate specific pollution problems.

From the available data, general water quality conditions in the Basin have been evaluated as discussed below. The data are not adequate, however, to define any significant long-term enhancement or degradation of quality. A more intensive water quality survey during the fall low-flow period is needed to fully define the present status of water quality.

## A. UPPER BASIN

### Present Water Quality

Streams of the Upper Basin generally exhibit high quality in their upper reaches, which progressively decreases as various uses are made of the water. Water quality degradation is most significant in the lower main-stem Snake River and in the lower reaches of the Henry's Fork, Blackfoot River, Portneuf River and Rock Creek. Water quality problems include excessive production of aquatic growths, depressed dissolved oxygen levels, high bacterial concentrations and high sediment and dissolved solids concentrations.

Main Stem Snake River -- Depressed dissolved oxygen (DO) concentrations are one good indicator of polluted areas in the Basin, since a major pollutant is oxygen-demanding materials. DO concentrations of the Upper Snake are usually found to be near the saturation level. However, the DO levels are depressed at two points within the subregion. These depressions are evident in the generalized DO profile of the Snake River shown in Figure V-1. In summer, the oxygen level of the water behind American Falls Dam drops several milligrams per liter (mg/l) below that of the water entering the reservoir. During 1967, diurnal fluctuations in the dissolved oxygen concentration, caused by the photosynthetic and respirational cycle of algae, resulted in the depression of dissolved oxygen to the point that a fish kill occurred. In winter, flow out of Milner Reservoir drops to a minimum level, ice cover inhibits reaeration for several months; and, with large amounts of organic wastes entering the reservoir, anaerobic conditions and frequent fish kills have resulted.

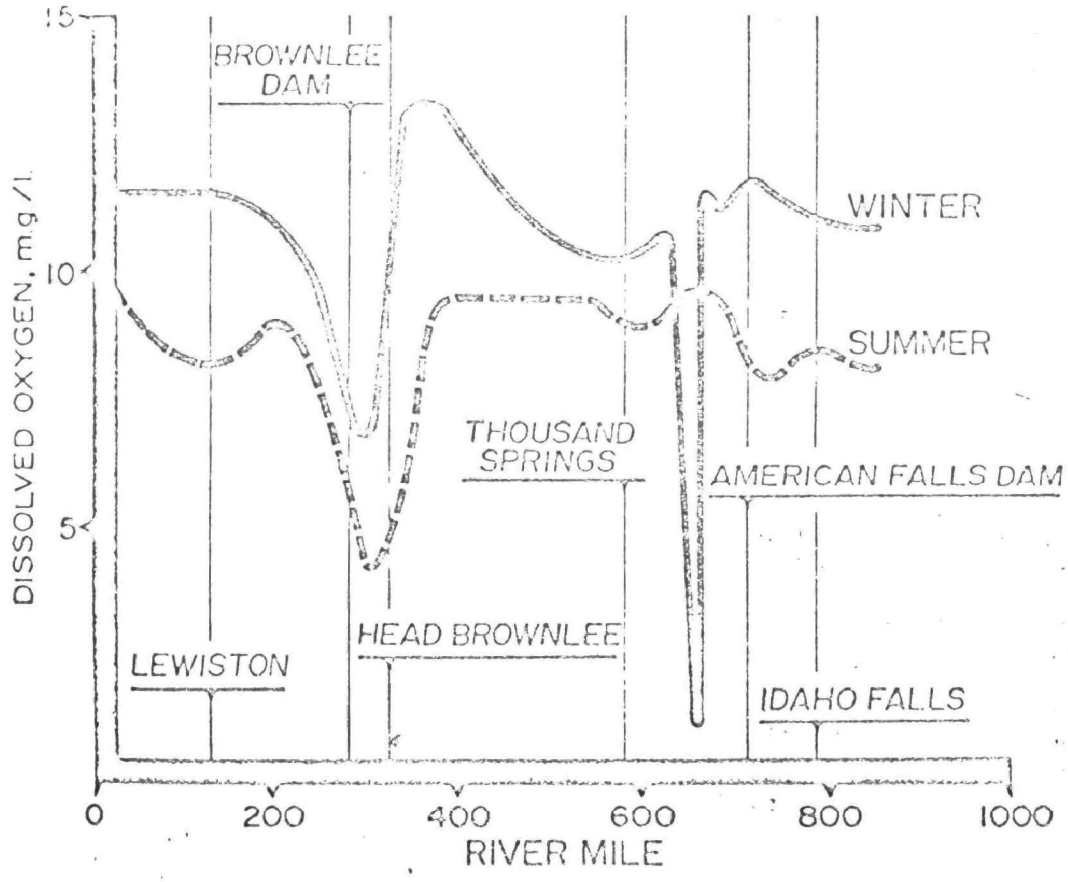


FIGURE V-1. Dissolved Oxygen Profile (Generalized), Snake River

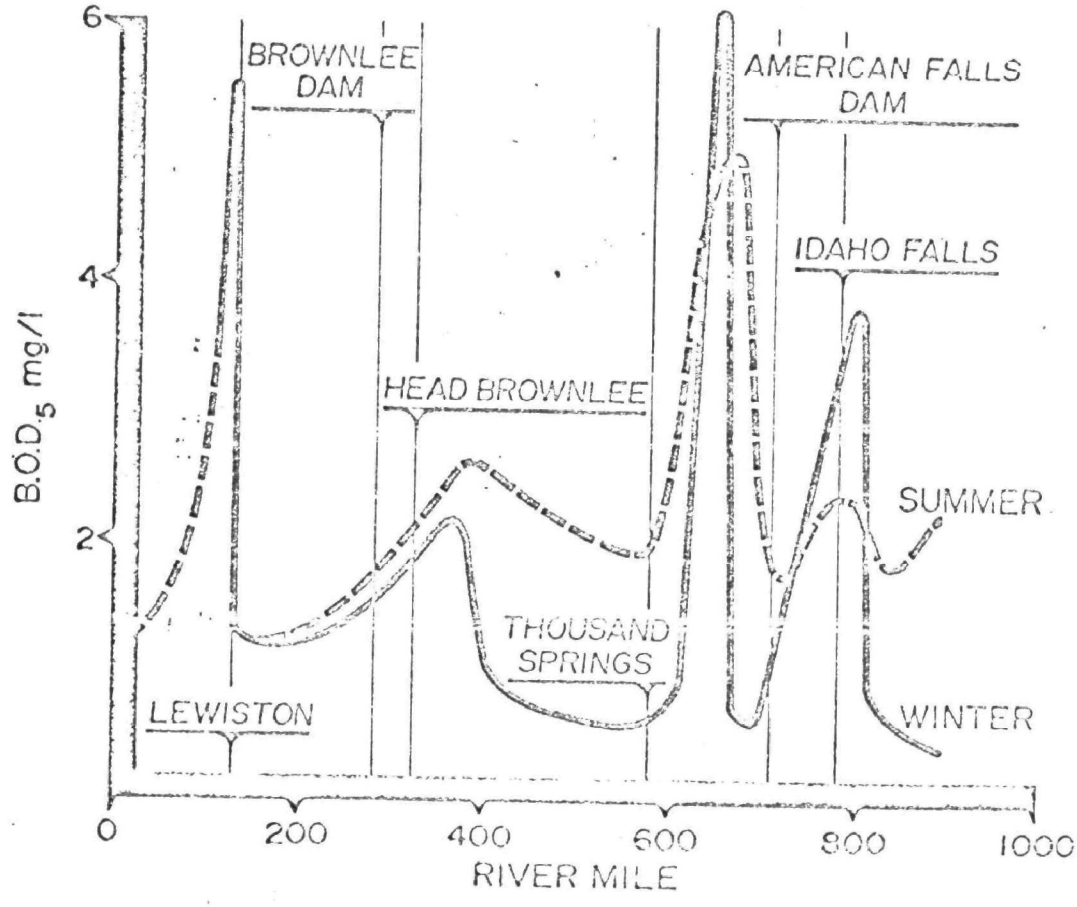


FIGURE V-2. BOD Profile (Generalized), Snake River

Biochemical oxygen demand (BOD), a measure of the oxygen-utilizing potential of organic materials present in water, is also a good indicator of pollution. Stream reaches receiving large organic waste loads exhibit significantly increased BOD, as shown in Figure V-2.

A significant difference can be noted between the winter and summer responses of the river to imposed waste loads. In winter, BOD fluctuates in direct response to waste loadings. Background levels below one mg/l rise sharply as Idaho Falls waste loads enter the river. From Idaho Falls to American Falls Reservoir, the rate of waste stabilization exceeds the rate at which degradable materials enter the stream; and in the reservoir, BOD recedes to background levels. In Milner Reservoir, the wastes of the Burley area create a second peak. Biodegradation and dilution by groundwater in the Thousand Springs area again reduce BOD to background levels.

In summer, observed BOD is significantly higher throughout the Upper Snake Basin than in winter. This increase occurs even though imposed waste loads are substantially lower than in winter in the Idaho Falls and Lake Milner areas. Stream flows are also higher than in winter. Apparently, the increased BOD levels are the result of the extensive aquatic growths present during the summer. Observed DO levels support this supposition. In contrast to winter conditions when DO levels are depressed in stream reaches with high BOD, DO levels during the summer frequently exceed saturation in areas of high BOD.

Bacterial concentrations of the Snake River are highly variable. Coliform densities below population centers are high enough that the water is considered unsuitable for water-contact recreation (greater than 1,000 MPN/100). Very high bacterial concentrations are found in the Burley and Idaho Falls areas. Discharges

of sanitary sewage are unquestionably responsible in some measure for high bacterial concentration throughout most of the Upper Snake; and such sources can be, and have been, reduced by more efficient disinfection. Bacterial concentrations in the Upper Snake derive in great part, however, from the large animal populations and from soil bacteria of the heavily irrigated agricultural areas. A bacteriological survey to evaluate fecal coliform and fecal streptococci concentrations is needed to better define the source of this contamination so that controls may be initiated.

A generalized temperature profile for extreme winter and summer months under existing conditions for the Snake River is presented in Figure V-3. Winter temperatures are generally close to freezing except in areas where flow is derived largely from ground water. Reservoirs in the Upper Snake freeze over annually, and modest icing occurs at other ponded locations. Near the headwaters, flows derived from snowmelt remain below 60° F during the summer. Downstream warming results from exposure to solar radiation and is accelerated by the effects of some impoundments, streamflow depletion, and irrigation return flows. At King Hill, temperatures are moderate throughout the year, reflecting the fact that most of the flow is derived from the Thousand Springs area.

Sediment and suspended organic material result in turbid conditions at many points in the Basin. During periods of high runoff, sediment concentrations reach objectionable levels throughout the area. Suspended organic matter is often found in heavy concentrations below food-processing sites, although this problem is abating as improved waste treatment facilities are completed.

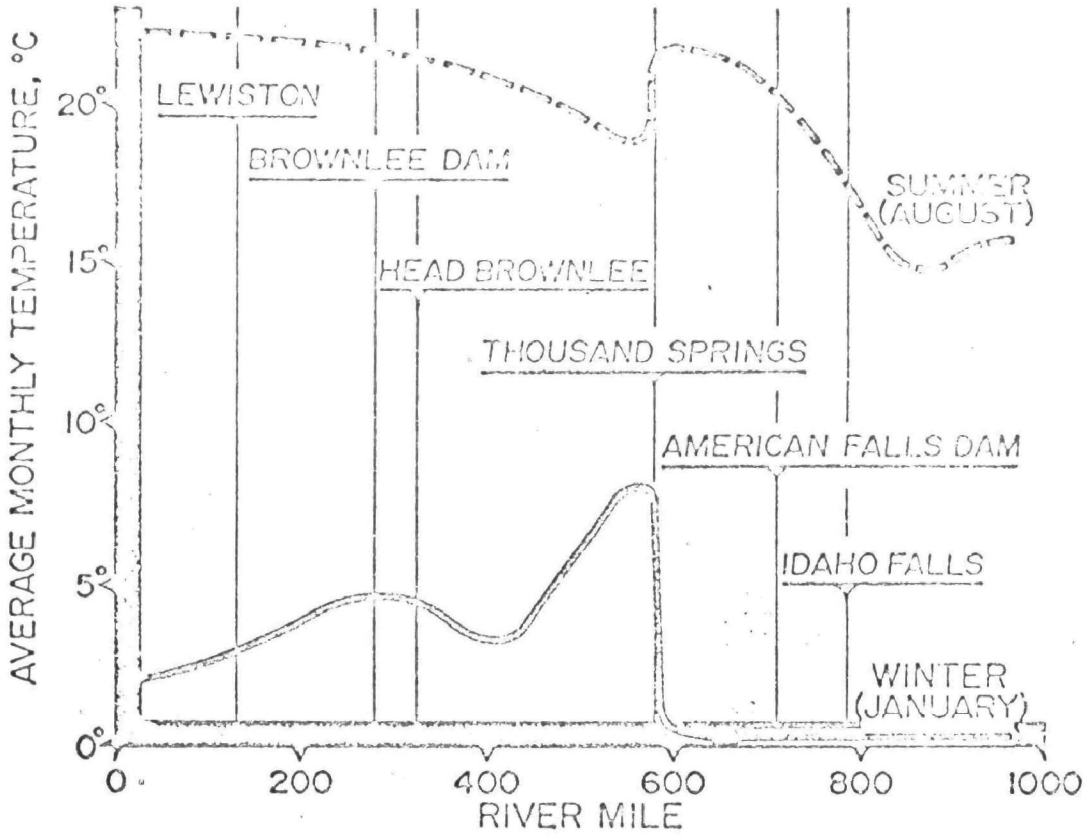


FIGURE V-3. Water Temperature Profile (Generalized), Snake River

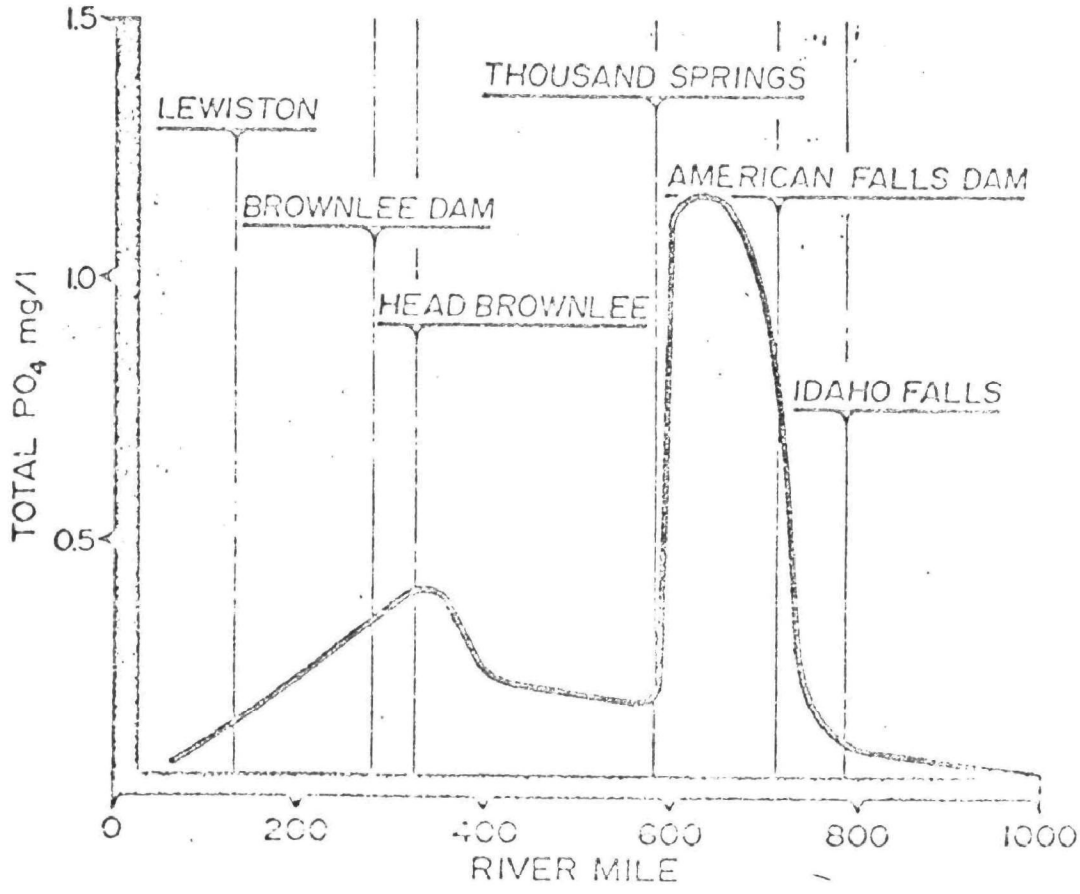


FIGURE V-4. Total Phosphate Profile (Generalized), Snake River

The headwaters of the Upper Snake River are relatively low in mineral content (100 mg/l dissolved solids or less) and are characterized as calcium bicarbonate waters. However, dissolved solids and sodium content show marked increases downstream as a result of irrigation use. Samples collected during a low-flow period in 1965 in the reach from the Idaho-Wyoming border to Buhl, Idaho, showed a progressive increase in both dissolved solids concentration and sodium-adsorption ratio (SAR). Dissolved solids increased from about 175 to more than 400 mg/l, and SAR increased from 0.2 to 1.5 mg/l. Below Buhl, the dissolved solids concentration dropped to 340 mg/l because of dilution by spring inflow. Although pickup of salts from the alluvial materials in the area contributes somewhat to the downstream increase in mineral content, pickup of salts by irrigation return flow, coupled with the concentrating effects of consumptive use for irrigation, are the primary contributors. The water is still satisfactory for irrigation of crops; however, in some areas treatment is required before the water can be used as a municipal or industrial water supply.

Concentrations of the two major nutrients, nitrogen and phosphorus, run high throughout much of the Snake River. Figure V-4 presents a generalized total phosphate concentration profile for the Snake River. High phosphate concentrations are evident at all points in the Upper Snake River. Phosphate concentrations rise steadily above Idaho Falls, then nearly triple at the head of American Falls Reservoir as the result of large phosphate loads carried by the Blackfoot and Portneuf Rivers. Much of the phosphate load is contributed by Pocatello's phosphate processing industries. Continuing to rise rapidly through the sequence of reservoirs -- American Falls, Lake Walcott, and Milner -- phosphate

concentrations suggest the influence of groundwater inflows that pass through natural phosphate deposits and possibly of irrigation return flows, municipal wastes, and buildup of populations of aquatic biota as well. In the Thousand Springs area, phosphates are diluted significantly although concentrations sustain levels well above those prevailing upstream from American Falls Reservoir.

There is a progressive rise in nitrates in the Upper Basin that is most marked in the Thousand Springs and American Falls areas, which suggests that groundwater inflow may be the major influence determining nitrate concentrations. Concentrations recede below Thousand Springs. Winter levels materially exceed those encountered in summer. The lower production of algae and other plants under winter conditions restricts biologic uptake of nitrates, while nitrates contained in food processing may add in some degree to concentrations.

Throughout its course of passage in the Upper Snake Subregion, the Snake River supports luxuriant growths of vegetable matter. Thick blooms of algae make the water a characteristic opaque green. Floating rafts of tangled water weeds are prevalent on the surface of the Snake and form clinging slimes where they adhere to rocks and banks. At times the growths of algae and water weeds form a complete cover over ponded water and clog irrigation canals.

Very little information is available on pesticide concentrations in the Basin. During the 1966 water quality survey previously discussed, the FWPCA found lethal pesticide levels in dead fish below American Falls Reservoir. In view of the large agricultural areas which drain to the Snake River, an evaluation of pesticide levels is needed.

In general, the quality of the Upper Snake River deteriorates progressively as it flows through the Subregion and is subjected to intensive use. Due to a number of factors, however, this degradation exerts only a limited influence on water quality in the Middle Basin downstream. A major portion of the Upper Basin water supply is consumptively used for irrigation and other purposes. Although the concentrations of a number of constituents such as phosphates exceed desirable limits, the flow carried by the Snake River near the downstream portion of the Basin is relatively small, averaging about 1,500 cubic feet per second (cfs) at Milner Dam. High quality groundwater inflows in the Thousand Springs area increase the average streamflow leaving the Upper Basin to about 8,600 cfs. The spring flows, in essence, create a new river of excellent quality. Water quality problems in the Upper Basin can thus be considered essentially intrastate problems.

Tributaries -- Dissolved oxygen tends to be high in tributaries. Even Rock Creek, a small stream that receives industrial wastes from Twin Falls, maintains good dissolved oxygen levels. Main Drain and Aberdeen Drain, irrigation return streams, provide exceptions to the generally high dissolved oxygen pattern of the subregion. Even at the height of the irrigation season, oxygen levels in the drains are low in places; and in winter when a large portion of the flows is food-processing wastes, oxygen contents are often totally depleted.

Bacterial quality in tributaries is highly variable. In general, however, coliform densities below population centers are high enough that the water is considered unsuitable for water-contact recreation. Very high bacterial counts have been recorded in Rock Creek, Aberdeen Drain, and Main Drain.

Sediment and suspended organic materials result in turbid conditions in many tributaries. During periods of high runoff, sediment concentrations reach objectionable levels throughout the area. Inorganic materials are visible in the waters of the Portneuf River below the J. R. Simplot phosphate processing plant near Pocatello and result in thick, unsightly bank and bottom deposits. Irrigation returns are a summer source of localized turbidity. Silt, vegetable matter, and colloidal materials of soil or vegetable origin are often visible floating or in suspension in waters flowing through agricultural areas.

The major tributaries entering the Snake River from the north contain waters of the calcium-magnesium bicarbonate type, with smaller amounts of sodium, chloride, and sulfate. Their dissolved solids concentrations range from less than 100 to slightly more than 300 mg/l and average less than 250 mg/l. Tributaries entering the Snake River from the south are usually more mineralized and have larger percentages of sodium, chloride, and sulfate.

Concentrations of basic nutrients, nitrogen and phosphorus, are high in several tributaries. The Portneuf and Blackfoot Rivers consistently discharge heavy phosphate loadings to the Snake River. The largest increment of Snake River phosphate loading occurs with the entry of the Portneuf River, which carries the wastes of phosphate reduction processing plants. At least 35,000 pounds per day of phosphates enter American Falls Reservoir from the Portneuf. This amount provides the greatest share of more than 40,000 pounds per day that are carried by the Snake River. The Blackfoot Reservoir, near the head of Blackfoot River, is situated on top of a seam of phosphate-bearing earths. This has resulted in significant phosphate concentrations in the Blackfoot River.

Heavy aquatic growths are also present in these streams as a result of the high nutrient contents. Problems of nuisance aquatic growths occur in many other tributaries in the Upper Snake Basin, but are generally localized in extent.

Summary of Water Quality Problem Areas

Water quality problem areas are summarized graphically in Figure V-5. These problem areas are primarily associated with the Idaho Falls, Pocatello, Burley, and Twin Falls population centers.

A combination of inadequately treated municipal and industrial wastes from the Burley area and reduced stream flows during winter months has produced severe water quality degradation in Lake Milner, resulting in three major fish kills. Dissolved oxygen during the fish kills was depressed to almost anaerobic conditions. Most industrial waste sources in the Burley area are constructing secondary treatment facilities which are scheduled to be operational by Fall, 1971. This level of treatment may not be adequate, however, to maintain suitable water quality in Lake Milner.

American Falls Reservoir suffers from excessive aquatic growths, dissolved oxygen depressions, and high pesticide levels. Quality problems are caused by residual waste loads from upstream sources, phosphate-processing wastes from the Pocatello area, and agricultural waste water from the area immediately adjacent to the reservoir. Excessive nutrient concentrations promote nuisance-level algal growth within the reservoir. Impairment of reservoir use for recreation and fishery purposes has occurred.

Water quality problems occur in the Snake River below Idaho Falls and in the South Fork Teton River where low dissolved oxygen and high bacterial densities

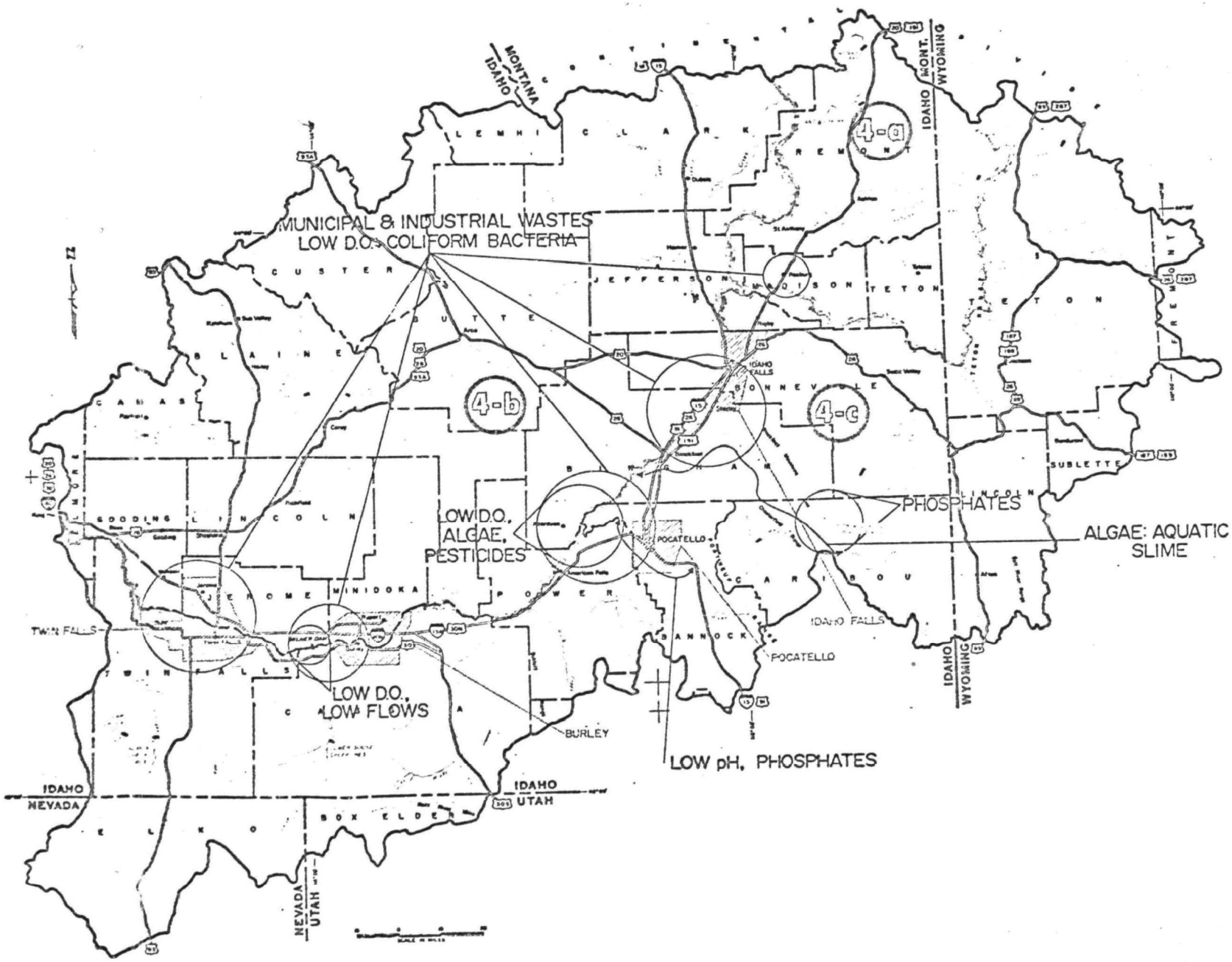


Figure V-5. Major Water Quality Problem Areas - Upper Basin

result from a combination of municipal and industrial waste discharges and streamflow depletions caused by irrigation diversions.

Aberdeen Drain, Main Drain, and Rock Creek suffer from low dissolved oxygen levels, high bacterial densities, and nuisance aesthetic conditions. Each of these small waterways receives large quantities of inadequately treated municipal and industrial wastes and agricultural waste waters.

The Portneuf River is characterized by low pH levels, high phosphate concentrations, sludge beds, and high bacterial counts. These problems result from inadequately treated domestic wastes, phosphate processing plant wastes, and land drainage.

The Blackfoot Reservoir, located on the top of a seam of phosphate-bearing earths, is fouled with algae. Downstream, the river is characterized by a thick silt bottom that is choked with growths of grasses and water weeds.

## B. CENTRAL BASIN

### Present Water Quality

Water quality conditions in the Central Snake Basin follow a pattern similar to the conditions present in the Upper Basin: high quality in upper stream reaches with progressive degradation below areas of intensive water use. The most serious water quality problems occur in the Boise River below Boise, Idaho, and in the Snake River between Idaho and Oregon below the mouth of the Boise River.

Main Stem Snake River -- As the Snake River enters the Central Snake Basin, groundwater inflows in the Thousand Springs area create, in essence, a new river of excellent quality. A progressive deterioration in water quality occurs as the Snake flows through the Basin, particularly in the reach of the stream below the mouth of the Boise River.

Brownlee Reservoir, located on the downstream edge of the Central Basin, produces substantial enhancement of water quality through assimilation of upstream pollution loads. Water quality leaving the Central Basin is thus significantly improved over conditions above Brownlee Reservoir.

A generalized DO profile for the Snake River is shown in Figure V-1. DO concentrations of the Central Snake are usually found to be near the saturation level. However, a persistent oxygen depression occurs in Brownlee Reservoir. Surface DO levels in the reservoir are consistently four or five mg/l under the levels found immediately upstream. During late summer the deeper portions of the reservoir are frequently devoid of oxygen.

As shown by Figure V-2, BOD in the Central Snake River varies significantly from summer to winter. In winter, BOD directly reflects the effects of imposed organic waste loads. Background levels around one mg/l rise sharply as the result of food processing and other waste loads in the Boise, Idaho, and Ontario, Oregon, areas. Between Ontario, Oregon, and Brownlee Reservoir, BOD declines since the rate of waste stabilization exceeds the rate at which oxygen-demanding materials enter the stream. Further stabilization occurs in Brownlee Reservoir.

Summer BOD levels are substantially higher in much of the Snake River. As in the Upper Snake Basin, this is apparently the result of extensive aquatic growths.

Bacterial concentrations in the Central Snake River are highly variable with levels exceeding acceptable limits for water-oriented recreation frequently occurring below agricultural areas and/or population centers. Very high bacterial concentrations are found in the Snake River below the mouth of Boise River. Runoff from animal feedlots may be largely responsible for this contamination.

A comprehensive bacteriological survey is needed to define the sources of bacterial pollution.

Water temperatures in much of the Snake River in this Basin are influenced by the Thousand Springs' inflow as shown in Figure V-3. Near the upper end of the Basin, stream temperatures are moderated by the spring flows. In winter, cooling results as the warmer, spring-fed waters pass through the Basin. In summer, significant temperature increases occur, since flow depletions due to storage and diversions and the surface return of irrigation waters warmed on fields act together to raise prevailing temperatures. During June and July the average monthly water temperature at King Hill is between 65° and 66° F. The average monthly water temperature is increased to over 70° F at Weiser, and daily maximum temperatures of 75° to 76° F are commonly recorded. Brownlee Reservoir moderates temperatures leaving the Basin, releasing cooler waters than reservoir inflows in summer and warmer waters in winter.

Sediment and suspended organic material result in turbid conditions at many points. During periods of high runoff, sediment concentrations reach objectionable levels throughout the area. Suspended organic matter is often found in heavy concentrations below food processing plants, although this problem is receding as waste treatment advances.

The average dissolved solids concentration as the Snake River enters the subregion is about 340 mg/l. The dissolved solids level of the Snake charges very little, even though the highly mineralized waters of the Malheur and Owyhee Rivers may exceed a concentration of 1,000 mg/l.

Figure V-4 shows a generalized total phosphate profile for the Snake River. In the Thousand Springs area, phosphate concentrations decline due to the effect

of dilution from groundwater inflow. However, concentrations are still considerably above 0.03 mg/l, often considered to be the threshold level for nuisance algal production. Tributary inflows of the Owyhee, Malheur, and Boise Rivers cause an increase in the level of phosphate concentrations. The deep pool environment of Brownlee Reservoir results in sequestration of phosphates, probably through the settling of dead aquatic growths that incarnate phosphorus. The result is that the Snake River below Brownlee carries much lighter loads of phosphates than it does within the reservoir.

High nitrate concentrations are evident at most points in the Central Snake River. There is a marked rise in the Thousand Springs area to concentrations above 1.0 mg/l, suggesting that groundwater inflows may be the major influence determining nitrate concentrations. Concentrations recede below Thousand Springs to about 0.5 mg/l at Brownlee Dam. Winter levels materially exceed those encountered in summer. No explanation is available, although it may be said that lower production of algae and other plants under winter climatic conditions restricts biological uptake of nitrates, while nitrates contained in wastes of food processing may add in some degree to concentrations.

As in the Upper Basin, the high nutrient concentrations support heavy aquatic growths throughout the Central Snake River. These growths are responsible for nuisance conditions in a number of areas.

Tributaries -- Water quality in tributaries of the Central Snake Basin is highly variable. The mountain streams (Payette and Weiser) tend to be clear and cool with high chemical quality. The Bruneau, Owyhee, Malheur, and other tributaries that flow through the immense plateau south and west of the Snake are usually

warm and are high in sediment and dissolved solids. The Boise River is of excellent quality in its headwater areas, but various waste sources significantly degrade the quality in the lower reaches.

Dissolved oxygen levels tend to be high in tributaries. Even Indian Creek, a small stream that receives the wastes from Nampa, Idaho, maintains good dissolved oxygen levels. However, dissolved oxygen deficiencies have occurred in sections of the Boise River where, seasonally, waste discharges constitute the major portion of the flow.

Bacterial quality in tributaries is highly variable, with high concentrations frequently occurring below population centers. As on the Snake River, animal wastes may be largely responsible for such contamination. The Boise River and Indian Creek, a tributary of the Boise River, have exhibited excessive bacterial levels.

As elsewhere in the Basin, sediment and suspended organic materials result in turbid conditions at many locations, with objectionable levels occurring during periods of high runoff. Sludge deposits produced by the settling out of organic materials from food processing have been a problem in the past in the Boise River.

The natural chemical quality of the tributaries reflects the variation in climate. In the headwaters of the Boise, Payette, and Weiser Rivers, where precipitation averages about 40 inches, the waters are a dilute (less than 100 mg/l dissolved solids) calcium-magnesium bicarbonate type. The other streams draining this Basin (Bruneau, Owyhee, Malheur, and Powder Rivers) are typical of most semiarid areas of the Snake River. They contain fairly dilute (100 to 200 mg/l dissolved solids) bicarbonate type waters in their upper reaches. The amounts

of calcium and sodium vary, with calcium usually predominating during the high flow periods. During most of the year, however, sodium is the predominant cation. Most of the streams show dramatic changes in mineral quality as a result of irrigation return flows. The dissolved solids concentration can increase tenfold or more, and the chemical composition is altered. The Owyhee, Boise, and Malheur Rivers show the greatest change.

## Summary of Water Quality Problem Areas

Water quality problem areas are summarized graphically in Figure V-6. These areas are primarily located between Boise, Idaho, and Brownlee Dam.

The lower Boise River has repeatedly become polluted under circumstances that included deficient streamflow. Efficient waste treatment is generally practiced by the municipalities and industries in this reach, but diversions for irrigation and flow interruptions connected with the operation of Lucky Peak Dam have had undesirable consequences on downstream water quality. Also, agricultural drainages from cattle feedlots and irrigation return flows have contributed to increased stream temperatures, turbidity, bacterial contamination, and heavy algal growths in the lower Boise River.

The Snake River between the mouth of the Boise River and Brownlee Reservoir is characterized by settling and floating solids from the discharge of municipal and industrial wastes. These conditions have tended to form offensive and use-inhibiting nuisances. Bacterial contamination has also been evident in this reach.

Brownlee Reservoir serves as a trap for residual pollution loads and sediments from the lower Central Snake Basin. As a result, the reservoir has a

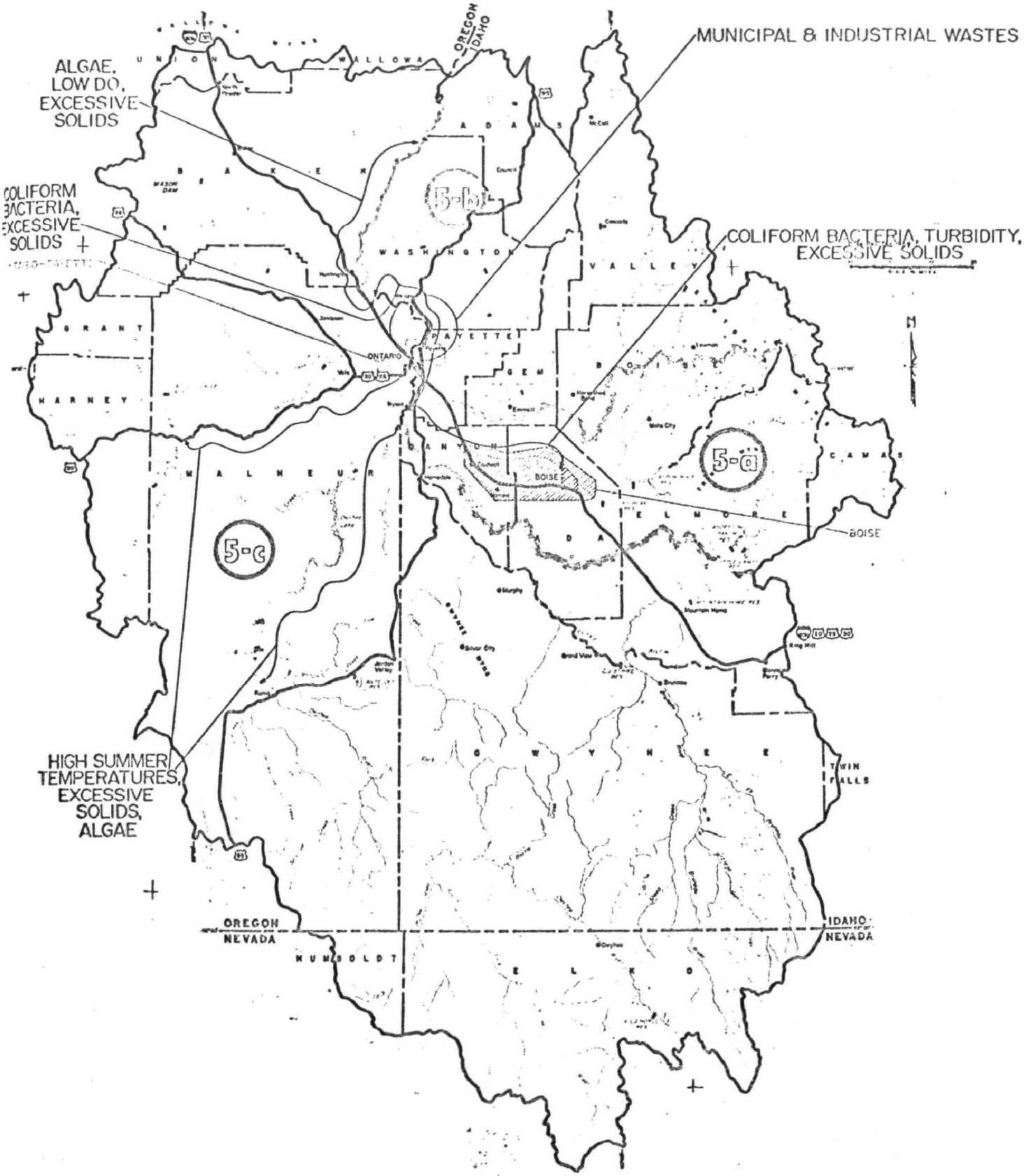


Figure V-6. Major Water Quality Problem Areas - Central Basin

constant oxygen deficiency of four to five mg/l. Lush growths of algae mark the pool during much of the year, and anaerobic decomposition of organic material that has settled to the bottom of the pool produces noxious odors when reservoir turnover occurs.

The Owyhee and Malheur Rivers have naturally low water quality, and intensive irrigation use degrades them further. These streams are seasonally warm, high in sediment and dissolved solids, and burdened with heavy aquatic growths.

# CHAPTER VI. SUMMARY OF POLLUTION SOURCES

With the exception of excessive nutrient concentrations and sediment loads which are partially attributable to natural sources of pollution, the major water quality problems in the Snake River are the result of various man-made sources of pollution in combination with man's manipulation of stream flows. Due to the relatively low population density, domestic wastes alone are not a significant source of pollution where adequate treatment is provided. In a number of cases, however, municipal waste facilities treat large industrial waste loads and discharge major pollution loads.

Industrial waste sources, of which food processing plants and sugar refineries are the most important, discharge large organic waste loads with inadequate treatment in most cases. Return flows from large irrigated areas and drainage from numerous animal feedlots are significant sources of agricultural pollution.

Available data on pollution sources were compiled from three basic types of information. Most municipal and industrial waste sources listed in the current STORET inventories were visited during the field reconnaissance and some updating of source data was obtained. A thorough review of phone directories for all the major population centers was utilized to produce an expanded inventory of potential industrial waste sources including some feedlots. A few of these sources were visited and actual waste discharges verified. Water quality management planning reports provided information on other types of pollution sources.

There are a number of distinct population centers in the Snake River Basin which are created by either proximity of communities and/or economic ties of

industries. There are twelve such areas, called service areas, which have been designated within the area covered by this report. For simplicity, pollution sources will be discussed by service area. Service area descriptions are summarized in Table VI-1. Locations are shown in Figure VI-1.

## A. MUNICIPAL AND INDUSTRIAL WASTE SOURCES

### Rexburg Service Area

This service area is located at the upstream limit of the study area covered by this report. Due to the small population, municipal waste loads in this area are small, totaling slightly more than two mgd. Specific sources are listed in Table VI-2, which was prepared from STORET Municipal Inventory data. For some sources, this table reflects updated information obtained by the field reconnaissance. Municipal waste treatment facilities in this area are believed to be adequate.

Potential industrial waste sources for this area are listed in Table VI-3. Of the 17 potential sources listed in the phone directory, five are listed in the STORET inventory and two are known to have waste discharges. Only one discharge is considered to be a major waste source (greater than one million gallons per day). Rogers Brothers Co., a large potato processing plant, formerly discharged wastes to the South Fork Teton River following primary treatment. A large scale land disposal system was placed in operation during the past processing season. The adequacy of this disposal system has not been evaluated by field surveys.

Saint Anthony Starch Co., a small starch manufacturing plant located in Saint Anthony, discharges inadequately treated wastes to Henry's Fork. Although this source is small, at low streamflow conditions produced by diversion

TABLE VI-1

Summary of Economic Service Areas
Upper and Middle Snake River Basins

| Service Area | Communities | Counties | 1965 Population (1000) | Streams Directly Affected |
|---|---|---|---|---|
| 1. Rexburg | Rexburg<br>St. Anthony | Madison<br>Fremont | 15.0 | Henry's Fork &<br>S.Fk. Teton R. ** |
| 2. Rigby | Rigby<br>Lewisville<br>Ririe<br>Roberts | Madison<br>Jefferson<br>"<br>" | 9.1 | Snake R. |
| 3. Idaho Falls * | Idaho Falls | Bonneville | 52.3 | Snake R. below<br>Idaho Falls ** |
| 4. Blackfoot | Blackfoot<br>Firth<br>Shelley | Bingham<br>"<br>" | 15.9 | Snake R. above<br>American Falls<br>Reservoir ** |
| 5. Pocatello * | Pocatello<br>Inkom<br>Aberdeen | Banock<br>"<br>Bingham | 47.7 | Portneuf River **<br>American Falls<br>Reservoir ** |
| 6. American Falls | Am. Falls | Power | 4.1 | Snake River |
| 7. Burley * | Burley<br>Heyburn<br>Paul<br>Rupert | Cassia<br>Minidoka<br>"<br>" | 24.5 | Milner Reser-<br>Reservoir ** |
| 8. Twin Falls * | Twin Falls<br>Buhl<br>Filer<br>Jerome<br>Gooding<br>Tuttle | Twin Falls<br>"<br>"<br>Jerome<br>Gooding<br>" | 40.5 | Rock Creek **<br>Snake River |
| 9. Mtn. Home | Mtn. Home | Elmore | 12.0 | Snake River |

* Major service area

** Water quality problem area

Summary of Economic Service Areas (continued)
Upper and Middle Snake River Basins

| Service Area | Communities | Counties | 1965 Population (1000) | Streams Directly Affected | |
|---|---|---|---|---|---|
| 10. Boise * | Boise | Ada | 146.3 | Boise R. | ** |
| | Eagle | " | | Snake R. | |
| | Garden City | " | | | |
| | Caldwell | Canyon | | | |
| | Nampa | " | | | |
| | Homedale | Owyhee | | | |
| 11. Emmett | Emmett | Gem | 4.0 | Payette R. | |
| 12. Ontario | Ontario,Ore. | Malheur,Ore. | | Snake R. | |
| | Nyssa, Ore. | " | | Brownlee | |
| | Vale, Ore. | " | | Reservoir | ** |
| | Weiser | Washington | | | |
| | Payette | Payette | | | |
| | Fruitland | " | | | |
| 13. Baker | Baker | Baker | 10.0 | Powder R. | |

TABLE VI-2

Municipal Waste Sources

Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | | Rexburg Service Area | | |
| Ashton | Drain Ditch to Snake River | 1,167 | 0.13 | Lagoons |
| St. Anthony Youth Center | Henry's Fork | -- | -- | See St. Anthony |
| Parker | -- | 380 | -- | None |
| St. Anthony | Henry's Fork | 2,000 | 0.54 | Lagoons |
| Rexburg | S. Fk. Teton R. | 7,025 | 1.35 | Lagoons |
| Sugar City | Henry's Fork Teton River | 500 | 0.20 | Aerated Lagoons |
| | | Rigby Service Area | | |
| Menan | No Discharge | 495 | | None |
| Rigby | Snake River | 2,500 | | Aerated Lagoons |
| Ririe | No Discharge | 500 | | Lagoons |
| Roberts | Roberts Slough to Snake River | -- | | Secondary |
| | | Idaho Falls Service Area | | |
| Ammon | No Discharge | 2,450 | | None |
| Idaho Falls | Snake River | 33,161 | 6.0 | Primary with chlorination |

TABLE VI-2 (continued)

Municipal Waste Sources

Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | | Blackfoot Service Area | | |
| Blackfoot | Snake River | 7,000 | .9 | Primary |
| Firth | Snake River | 250 | .03 | Lagoons |
| Fort Hall | Local Drain to Snake River | 600 | | Lagoons |
| Shelley | Snake River | 1,800 | .3 | Lagoons |
| | | Pocatello Service Area | | |
| Chubbuck | Portneuf River | 2,000 | | None. Pocatello Future |
| Inkom | Portneuf River | 500 | | Aerated Lagoons |
| Pocatello | Portneuf River | 38,000 | 5.5 | Primary |
| Aberdeen | Aberdeen Drain | 985 | .1 | Septic Tank |
| | | American Falls Service Area | | |
| American Falls | Snake River | 2,000 | .3 | Trickling Filter Chlorination |
| | | Burley Service Area | | |
| Albion | -- | 415 | | None |
| Burley | Snake River | 7,500 | 11. | Aerated Lagoons |
| Delco | Marsh Creek | 235 | | None |

TABLE VI-2 (continued)

Municipal Waste Sources
Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | | Burley Service Area (continued) | | |
| Heyburn | Snake River | 850 | 2. | Primary w/chlorination |
| Paul | Main Drain, Minidoka Project | 500 | .01 | Imhoff Tank - Chlorination |
| Rupert | Snake River | 4,800 | 1.8 | Aerated Lagoons - Chlorination |
| | | Twin Falls Service Area | | |
| Gooding | Little Wood River | 2,000 | .30 | Highrate Tricklin Filter-Chlorination |
| Hagerman | -- | 430 | | None |
| Wendell | No Discharge | 1,400 | .10 | Lagoons |
| Jerome | Irrigation Canal | 4,900 | .80 | Highrate Tricklin Filter-Chlorination |
| Buhl | Mud Creek | 2,800 | .30 | Aerated Lagoons |
| Castleford | -- | 275 | | None |
| Filer | Ditch to Lava Crevice | 1,350 | .13 | Aerated Lagoons |
| Hansen | Drain to Snake River | -- | | Lagoons |
| Kimberly | Drain Ditch | 1,300 | .13 | Highrate Tricklin Filter-Chlorination |
| Murtaugh | No Discharge | 208 | .02 | None |

TABLE VI-2 (continued)

Municipal Waste Sources

Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | | Twin Falls Service Area (continued) | | |
| Twin Falls | Snake River | 18,000 | 2.6 | Primary w/ Chlorination |
| | | Mountain Home Service Area | | |
| Mountain Home | West Side Canal | 9,000 | .6 | Lagoons |
| | | Boise Service Area | | |
| Ada County Fairgrounds | Boise River | -- | | Aerated Lagoons Chlorination |
| Idaho State Correction Institution | Local Drain to Boise River | 55 | .01 | Lagoon |
| Boise | Boise River | 75,000 | 9.0 | Activated Sludge-Chlorination |
| Boise Bench Sewer District | Boise City System | 21,700 | | See Boise |
| Gowen Field Boise | Drain to Boise River | 1,200 | | Highrate Tricklir Filter |
| Eagle | Eagle Drain to Boise River | 750 | | Lagoons |

TABLE VI-2 (continued)

Municipal Waste Sources

Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | Boise Service Area (continued) | | | |
| Garden City | Davis Drain to Boise River | 1,000 | .3 | Highrate Tricklin Filter - Chlorination |
| Kuna | No Discharge | 530 | .1 | Lagoons - Chlorination |
| Meridian | Drain to Ten Mile Creek to Boise Cr. | 1,800 | 7.6 | Highrate Tricklin Filter - Chlorination |
| Northwest Boise | To City of Boise to Boise River | 8,000 | | See Boise |
| Star | Drain Ditch to Boise River | 500 | .1 | Lagoons |
| Caldwell | Boise River | 10,000 | 6.0 | Highrate Tricklin Filter - Chlorination |
| Greenleaf | Drain to Boise R. | 100 | | None |
| Melba | No Discharge | 300 | | None |
| Middleton | N. Middleton Drain to Boise River | 500 | .1 | Lagoons |
| Nampa | Indian Creek | 20,500 | 11.4 | Highrate Tricklin Filter - Chlorination |

TABLE VI-2 (continued)

Municipal Waste Sources

Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | Boise Service Area (continued) | | | |
| Notus | Boise River | 250 | .03 | Lagoons |
| Parma | Boise River | 1,400 | .65 | Lagoons |
| Wilder | Wilder Drain to Snake River | 600 | .1 | None |
| Homedale | Snake River | 1,250 | .12 | Lagoons |
| Marsing | Snake River | 500 | .1 | Aerated Lagoons |
| | Emmett Service Area | | | |
| Emmett | Payette River | 3,500 | | Lagoons |
| | Ontario Service Area | | | |
| Fruitland | Snake River | 600 | .9 | Lagoons |
| Fruitland Gayway Water & Sewer Assn. | Snake River | 500 | | Lagoons |
| New Plymouth | Drain Ditch to Payette River | 1,000 | .6 | Lagoons |
| Payette | Payette River | 3,500 | .6 | Primary w/ Chlorination |

TABLE VI-2 (continued)

Municipal Waste Sources
Upper and Middle Snake River Basins

| Community | Receiving Waters | Population Served | Flow MGD | Type Treatment |
|---|---|---|---|---|
| | | IDAHO | | |
| | | Ontario Service Area (continued) | | |
| Weiser | Snake River | 4,000 | 1. | Primary |
| | | OREGON | | |
| | | Ontario Service Area | | |
| Nyssa, Ore. | Snake River | 2,500 | .5 | Secondary |
| Ontario, Ore. | Malheur River | 6,390 | 2.7 | Lagoons - Chlorination |
| Ontario, Ore. Project #1 | Malheur River | 6,400 | | None |
| Ontario, Ore. Project #2 | Malheur River | -- | | None |
| Vale, Ore. | Malheur River | 1,700 | .2 | Lagoons |

TABLE VI-3.

Potential Industrial Waste Sources - Rexburg Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | **Rexburg** | | |
| Madison Co-Op Assn. Inc. | Agricultural Chemicals | 101 East Main | |
| Nelson-Ricks Creamery Co. | Cheese | 17 Carlson Ave. | |
| Garner Ted Ready-Mix Concrete Co. | Concrete-Ready Mix Sand & Gravel | 247 N. 1st E. | |
| Walters Ready-Mix Concrete Co. | Concrete-Ready Mix Sand & Gravel | 342 W. 4th N. | * |
| Challenge Fine Dairy Foods | Dairies | 33 N. 1st E. | |
| Ellen's Dairy & Snack Bar | Dairies | 148 S. Center | |
| Young Ron Meadow Gold Distr. | Dairies | 314 E. 3rd S. | |
| Rexburg Livestock Auction Inc. | Livestock Auction Markets | N. of Rexburg | |
| Chuck's Custom Pack | Meat Packers | W. of Rexburg | |
| Rogers Brothers Co. | Potatoes-Processed | N. of Rexburg | * # M |
| | **Sugar City** | | |
| American Oil Farm Ctr. | Chemicals | Sugar City | |
| Meyers Bros. Feed Lots, Inc. | Livestock Buyers Livestock Feeding | Sugar City | |
| | **St. Anthony** | | |
| Hopperdietzel Cheese Factory | Cheese | 39 E. 6th S. | |

TABLE VI-3 (continued)

Potential Industrial Waste Sources - Rexburg Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | St. Anthony (continued) | | |
| Garrett Grover Ready-Mix | Concrete-Ready Mix | 1012 S. 4th W. | * |
| R T P Concrete Co. | Concrete-Ready Mix Sand & Gravel | St. Anthony | * |
| Dairyland Dairy | Dairies | 630 E. 2nd N. | |
| St. Anthony Starch Co. | Starch Manuf. | 251 S. Bridge | * # |

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* Source listed in STORET Industrial Inventory

\# Known waste discharge

M Major waste source

and/or storage of flow for irrigation purposes, significant pollution has resulted. A similar situation exists below Rexburg on the South Fork Teton River.

The magnitude of waste sources in this service area would appear to indicate that pollution is primarily a local nuisance problem and has little downstream effect. Provision of adequate treatment for the Saint Anthony Starch Co. would minimize present problems if the Rogers Bros. Co. disposal system performs as designed. This area could probably be eliminated from an intensive field investigation.

Rigby Service Area

This service area also has a small population and few industrial waste discharges. Municipal waste sources are listed in Table VI-2. Municipal waste treatment facilities are believed to be adequate. No known significant water quality problems exist in this area.

At Ririe, a small Kraft Food Co. cheese plant discharges untreated wastes to an irrigation canal. This discharge, which causes nuisance conditions when the canal is dry, would appear to be a local pollution problem.

Idaho Fresh Pak, Inc., operates a large potato processing plant adjacent to Dry Bed Creek near Lewisville. The adequacy of treatment at this facility is unknown. Dry Bed Creek flows into the Snake River about five miles below the waste discharge. A potential for a local pollution problem exists at this location.

A total of 18 potential industrial waste sources have been identified in this service area. Of this total, five are listed in the STORET inventory and

TABLE VI-4

Potential Industrial Waste Sources - Rigby Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | **Ririe** | | |
| Hunter Chemical & Farm Supply | Agricultural Chemicals | 350 E. Miller | |
| Krafts Food Div. of Kraftco Corp. | Cheese | 115 W. Hiway 26 | * # |
| | **Rigby** | | |
| Rigby Coal, Feed & Seed Co. | Chemicals | 201 S. State | |
| Rigby Ready Mixed Concrete | Concrete-Ready Mix Sand & Gravel | Rigby | |
| Dairyland Dairy | Dairies Dairy Prod.-Retail | 260 S. State | |
| Al Straughn Livestock Co. | Livestock Buyers | Rigby | |
| Jones Custom Meat | Meat-Retail | N. of Rigby | |
| Paramount Locker Service | Meat-Retail | 171 E. Main | |
| Rushton Custom Butchering | Meat-Retail | Rigby | |
| Utah-Idaho Sugar Co. | Sugar Refiners | Rigby | |
| | **Roberts** | | |
| Idaho Feeders, Inc. | Livestock Buyers & Com'l Feeding | Roberts | |
| Glenwood Custom Pack | Meat Packers | 2 E. Park Ave. | |
| Golden Valley Packers, Inc. | Meat-Retail "complete rendering service available" | 3 mi. S. on Idaho Falls Hwy. | * |

TABLE VI-4 (continued)

Potential Industrial Waste Sources - Rigby Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Lewisville | | |
| Clement Bros. Livestock | Livestock Feeding | Lewisville | |
| Tolman Merc. | Meat-Retail "meat cut & wrapped for freezers" | Lewisville | |
| √Ball Bros. Produce Co. | Potatoes | Lewisville | * |
| Clement Bros. | Potatoes Produce-Wholesale | Lewisville | * |
| √Idaho Fresh-Pak Inc. | Potatoes Potatoes-Processed | Lewisville | * # M |

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* Source listed in STORET Industrial Inventory

\# Known waste discharge

M Major waste source

only two are known to have a waste discharge including one major discharge.

Idaho Falls Service Area

This major service area, with a population in excess of 50,000 and a large number of industries, exerts a detrimental effect on water quality in the Snake River during low flow periods. Idaho Falls is served by a primary treatment plant which also treats some industrial wastes. This treatment level is inadequate.

A total of 44 potential industrial waste sources have been identified for this area. Only ten of these sources are listed in STORET. Four sources are known to discharge inadequately treated wastes, three of which are major sources. It is highly probable that a number of other sources discharge inadequately treated wastes including the large Utah-Idaho Sugar Co. refinery at Lincoln, for which the waste treatment status is unknown. Known major waste sources include the Idaho Potato Division of Western Farmers Association, the Idaho Potato Foods Co., and Rogers Bros. Co.

A number of industrial sources apparently plan to connect to the Idaho Falls city system when a planned secondary treatment facility is constructed. The timing on this facility is unknown but would appear to be several years away. Water quality conditions below Idaho Falls in the Snake River are substantially degraded during low flow periods. A source survey and water quality investigation is needed in this area to provide a basis for evaluating the need for enforcement actions.

Blackfoot Service Area

This is a small service area. Its location adjacent to the reach of the Snake River affected by Idaho Falls pollution sources and presence of several

TABLE VI-5

Potential Industrial Waste Sources - Idaho Falls Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Idaho Falls | | |
| Cominco American | Agr. Chem. Fertilizers-Dlrs | St. Leon Road | |
| Geisler Farm Supply | Agr. Chem. | 2211 Lewisville Hwy | |
| Simplot Soilbuilders | Agr. Chem. | 1020 W. Broadway | |
| Wasatch Chem. Co. | Agr. Chem. | S. Highway | |
| Idaho Portland Cement Company | Cement-Wholesale & Manufacturers | S. Highway | |
| Wallace Dairy | Cheese | Sunnyside Road | |
| Bonneville Supply | Chemicals | 350 S. Yellowstone Ave. | |
| Farm Builder Bio Chem | Chemicals | 2090 Industrial Blvd | |
| R T P Concrete Co. | Concrete-Ready Mix | Milligan Road | * |
| Burns Bros. Concrete | Concrete-Ready Mix | 2300 Leslie Ave. | * |
| Challenge Fine Dairy Foods | Dairies | 751 Chamberlain Ave. | # |
| Cream Top Dairy | Dairies | 751 Chamberlain Ave. | |
| Dairyland Dairy | Dairies | 2884 Fieldstream Ln. | |
| Eastern Idaho Dairy | Dairies | 465 E. Anderson | |
| Reed Bros. Dairy Farm Depot | Dairies | Reeds Corner - 1 mi. west of skyline | |
| Rowland's Dairy | Dairies | 477 W. 17th | |
| Wallace Dairy | Dairies | Sunnyside Road | |

TABLE VI-5 (continued)

Potential Industrial Waste Sources - Idaho Falls Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Idaho Falls (cont'd) | | |
| Farm Builder Bio Chem | Fertilizers-Dlrs | 2090 Industrial Blvd. | |
| Geisler Farm Supply | Fertilizers-Dlrs | 2211 Lewisville Hwy | |
| Idaho Falls Bonded Produce & Supply | Fertilizers-Dlrs | (ofc) 201 S. Blvd<br>(liquid fert. plant) N. Higbee Avenue | |
| Bonneville Supply | Fertilizers-Dlrs | 350 S. Yellowstone Ave. | |
| Simplot Soilbuilders | Fertilizers-Dlrs | 1020 W. Broadway | |
| Kitchen Queen Food Products | Food Products | 502 W. 16th | |
| Geisler Farm Supply | Insecticides-Dlrs | 2211 Lewisville Hwy | |
| Wasatch Chem. Co. | Insecticides-Dlrs | S. Highway | |
| Idaho Livestock Auction | Livestock Auction Markets | 701 Northgate Mile | |
| Maritt, Virgil | Livestock Buyers | Mobile Telephone, Idaho Falls | |
| Idaho Falls Meat Co. | Meat Packers | S. Highway | * |
| Frank Gompert Inc. | Meat Packers | 325 Briggs | |
| King B Pack | Meat Packers | 1690 S. Yellowstone | |
| Fred's Custom Butchering | Meat-Retail | Lincoln | |
| Glenn's Cold Storage Locker Service | Meat-Retail | 241 Cliff | |

TABLE VI-5 (continued)

Potential Industrial Waste Sources - Idaho Falls Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Idaho Falls (cont'd) | | |
| Bass & Hurley, Inc. | Potatoes-Processed | 177 Market, Ucon | |
| Rogers Bros. Co. | Potatoes-Processed | 3100 Rollandet | * # M |
| Western Farmers Assn Idaho Potato Div. | Potatoes-Processed | 100 S. Utah Ave. | * # M |
| Idaho Potato Foods | Potatoes-Processed | W. River Road | * # M |
| Commons Poultry Co. | Poultry-Wholesale "custom processing" | 530 W. 20th | |
| Idaho Falls Animal Products Co. | Rendering | 1125 N. Higbee Ave. | * |
| Hartwell Excavating Company | Sand & Gravel | Milligan Road | |
| Kennaday Paving Co. | Sand & Gravel | Milligan Road | |
| Idaho Potato Starch Co. | Starch | S. Hiway, I.F. | * |
| Menan Starch Co. | Starch | 851 Chamberlain Av. | * |
| Idaho Stockyards Co. | Stockyards | Idaho Falls | |
| Utah-Idaho Sugar Co. | Sugar Refiners | Lincoln | * |

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* Source listed in STORET Industrial Inventory

\# Known waste discharge

M Major waste source

large food processing industries, however, create the potential for a major impact on Snake River water quality. Residual wastes from this area also contribute to pollution of American Falls Reservoir.

With the exception of Blackfoot which has a primary treatment plant, municipalities in this area are small and provide adequate treatment. Municipal waste sources are listed in Table VI-2.

A total of 35 potential waste sources identified for this service area are listed in Table VI-6. Eight of these sources are listed in STORET. Three major sources are known to have discharges to the Snake River. The American Potato Co. at Collins, near Blackfoot, has the largest single industrial waste discharge in the study area (13 MGD). The adequacy of waste treatment is unknown.

Idaho Supreme Potatoes, Inc., at Firth discharges inadequately treated wastes. A land disposal system is planned.

R. T. French Co. at Shelley has a secondary treatment facility constructed under an EPA grant to demonstrate treatment processes for potato wastes. Complete operating records are available.

Due to the interrelationship of the Idaho Falls and Blackfoot areas with respect to water quality impacts on the Snake River, these areas should be surveyed concurrently.

Pocatello Service Area

This service area includes Pocatello and surrounding communities on the Portneuf River a short distance upstream from the southeastern shore of American Falls Reservoir and waste sources in Aberdeen which discharge to Aberdeen Drain, a small tributary entering the north side of American Falls Reservoir. Waste

TABLE VI-6

Potential Industrial Waste Sources - Blackfoot Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Blackfoot | | |
| Simplot Soilbuilders | Agr. Chem. Fertilizers-Dlrs | Collins | |
| Kraft Foods Div. of Kraftco Corp. | Cheese | 295 S. Ash | |
| American Oil Prod. American Oil Farm & Home Service | Chemicals Fertilizers-Dlrs | 1180 S. Broadway | |
| Bingham Cooperative Inc | Chemicals Fertilizers-Dlrs | Arco Hwy | |
| Blackfoot Ready Mix Concrete Inc. | Concrete-Ready Mix | Airport Road | * |
| R T P Concrete Co. | Concrete-Ready Mix | West Bridge St. | * |
| Cammack Dairy | Dairies Dairy Prod. - Retail | 498 S. Fisher Ave. | |
| Dairyland Dairy | Dairies Dairy Prod.-Retail | 67 N. Maple | |
| Rowland's Dairy | Dairies Dairy Prod.-Retail | Weeding Lane | |
| Agricultural Services Inc. | Fertilizers-Dlrs | Hiway 26 | |
| Collaer Crop Boosters | Fertilizers-Dlrs | 445 S. Broadway | |
| Velvet Foods Inc. | Food Processing | 321 N.W. Main | |
| Bingham Cooperative Inc. | Insecticides-Dlrs | Arco Highway | |
| Blackfoot Livestock Commission Co. | Livestock Auction Markets | E. Rich Lane | |

TABLE VI-6 (continued)

Potential Industrial Waste Sources - Blackfoot Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Blackfoot (cont'd) | | |
| Harding Livestock & Land Co. | Livestock Feeding | 29 W. Bridge | |
| Nonpareil Angus Feedlot | Livestock Feeding | Rose | |
| Warren Hill Custom Meat & Mobile Butchering | Meat Packers | Pingree | |
| Hopkins' Packing Co. | Meat Packers | W. River Bridge | * |
| Jerry's Grocery | Meat-Wholesale "custom cut, processed & wrapped" | 1311 S. Broadway | |
| Mickelsen Ray Pack | Meat-Wholesale | Riverton Road | |
| Idaho Potato Packers Corp. | Potatoes | Collins | |
| American Potato Co. | Potatoes-Processed | Collins | * # M |
| Jorgensen Poultry Farm & Hatchery | Poultry-Retail | SE Blackfoot | |
| Valley By Products | Rendering | Pingree | |
| Blackfoot Ready Mix Concrete Inc. | Sand & Gravel | Airport Road | |
| Gary Hone Excavating | Sand & Gravel | 400 Horrocks Dr. | |
| R T P Concrete Co. | Sand & Gravel | W. Bridge | |
| Indian Springs Trout Farms Div., Thousand Springs Trout Farms Inc. | Trout Farms | Pingree | |

TABLE VI-6 (continued)

Potential Industrial Waste Sources - Blackfoot Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | **Firth** | | |
| Firth Mill & Elevator | Agr. Chem. | 101 E. Center | |
| Idaho Supreme Potatoes Inc. | Potatoes-Processed | Firth | * # M |
| | **Shelley** | | |
| Hampton Ready Mix | Concrete-Ready Mix | E. of Shelley | * |
| US Steel Farm Service Center | Fertilizers-Dlrs | N. Hwy, Shelley | |
| N.O. Wattenbarger Meat Packer | Meat Packers | N. of Shelley | * |
| Doug's Wholesale Meat | Meat-Wholesale | 907 S. State | |
| R.T. French Co. | Potatoes-Processed | 434 S. Emerson Ave. | * # M |
| Utah-Idaho Sugar Co. | Sugar Refiners | Hays Project Rd. | |

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* Source listed in STORET Industrial Inventory

\# Known waste discharge

M Major waste source

sources in this service area contribute to pollution of American Falls Reservoir in addition to degrading water quality in Aberdeen Drain and the lower Portneuf River.

Municipal waste facilities (see Table VI-2) including Pocatello's primary plant, provide inadequate treatment. Secondary treatment facilities are planned but are presently behind schedule.

A total of 35 potential industrial waste sources located in this study area are listed in Table VI-7. It is probable that many of these sources are on the Pocatello city system, but this needs to be verified. Eight of the sources are listed in STORET. Nine sources are known to have waste discharges, of which three are major.

The largest waste discharges are produced by the large phosphate processing plants operated by FMC Corporation and J. R. Simplot Co. In the past, these plants were responsible for severe degradation of the lower Portneuf River and contributed large phosphate loads to the lower Snake River system. Improved treatment facilities have been installed, but the adequacy of the facilities has not been evaluated by water quality surveys.

The Union Pacific Railroad operates a large yard and railroad shops in Pocatello. This operation is a potential source of oil pollution. Waste disposal practices are unknown.

Four industrial waste sources are located in the small community of Aberdeen. Western Farmers potato processing plant discharges a moderate-sized waste load. The combination of these sources severely degrades Aberdeen Drain in Fall and Winter. Evidence of a recent small oil spill to the drain from an oil bulk plant was also noted during the field reconnaissance. Treatment practices in this location are clearly inadequate. This is primarily a local pollution

TABLE VI-7

Potential Industrial Waste Sources - Pocatello Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Pocatello | | |
| Challenge Cream & Butter Assn | Cheese | 702 S. 1st Av. | |
| FMC Corporation | Chemicals | West of Pocatello | * # M |
| Midstate Distributing Co | Chemicals<br>Soil Conditioners | Industrial Park | |
| Patton & Linton | Concrete-Ready Mix<br>Sand & Gravel | Philbin Rd & Hwy 30 W | |
| R T P Concrete Co. | Concrete-Ready Mix<br>Sand & Gravel | 2300 N. Main | * |
| Cream Top Dairy | Dairies<br>Dairy Prod-Retail | 421 Fredregill Rd. | |
| Dairyland Dairy | Dairies<br>Dairy Prod-Retail | 404 W. Maple | |
| Maple Leaf Dairy | Dairies | 739 Wyldwood Ln. | |
| Rowland Bros. Dairy | Dairies<br>Dairy Prod-Retail | W. of Pocatello | |
| Upper Snake River Valley Dairymen's Assn | Dairies<br>Dairy Prod-Retail | 421 Fredregill Rd. | |
| Challenge Cream & Butter Assn Cheese Processing Plant | Dairy Prod - Wholesale | 702 S. 1st Ave. | |
| Crop Boosters | Fertilizers-Dlrs | 935 S. 1st Ave. | |
| J. R. Simplot Co. | Fertilizers-Wholesale & Mfrs | W. of Pocatello | * # M |
| Kennedy's Food Town | Frozen Food Locker Plts "wholesale meats-cutting & wrapping" | 5027 Yellowstone Hwy | |

TABLE VI-7 (continued)

Potential Industrial Waste Sources - Pocatello Service Area

| Industry Name. | Industry Type | Address | Status |
|---|---|---|---|
| | Pocatello (cont'd) | | |
| McMonigle's | Frozen Food Locker Plts "cutting - wrapping" | 800 E. Alameda Rd. | |
| Pocatello Cold Storage Co. | Frozen Food Locker Plants | 657 S. 1st Ave. | |
| Bar 61 Inc. | Livestock Feeding | Michaud | |
| Nurs-Ette Fed Lot | Livestock Feeding | W. of Pocatello | |
| Anderson's Custom Pack | Meat Packers | 620½ Cottage Ave. | |
| Custom Packing Co. | Meat Packers "custom cutting, curing & wrapping" | W. of Pocatello | # |
| Mont's Wholesale Meats | Meat-Wholesale "custom cutting & wrapping" | 150 N. 3rd Ave. | |
| Zweigart Packing Co. | Meat-Wholesale | W. of Pocatello | * # |
| Idaho Metal Finishing & Bumper Exchange | Plating | Chubbuck | |
| Bannock Paving Co. | Sand & Gravel | Batiste Road | |
| Christensen Sand & Gravel | Sand & Gravel | N. of Pocatello | |
| Hunziker Sand & Gravel | Sand & Gravel | Philbin Rd & Hwy 30 W. | |
| Union Stock Yards | Stock Yards | N. of Pocatello | |
| Utah-Idaho Sugar Co. | Sugar Refiners | Tyhee | |
| Papoose Springs Trout Ranch Inc. | Trout Farms | W. of Pocatello | |
| Union Pacific Railroad Company | Railroad Shops | Pocatello | * |

TABLE VI-7 (continued)

Potential Industrial Waste Sources - Pocatello Service Area

| Industry Name* | Industry Type | Address | Status |
|---|---|---|---|
| | **Aberdeen** | | |
| ✓ Western Farmers, Inc. | Food Processing | Aberdeen | * # M |
| ✓ Idaho Potato Growers | Potatoes-Processed | Aberdeen | # |
| ✓ Idaho Potato Starch Co. | Starch Mfg. | Aberdeen | # |
| ✓ Kraft Foods Co. | Cheese | Aberdeen | * # |
| | **Inkom** | | |
| Idaho Portland Cement Co. Div. of Oregon Portland Cement | Cement-Wholesale & Manufacturers | Inkom | * # |

* Source listed in STORET Industrial Inventory

\# Known waste discharge

M Major waste source

problem, although nutrients and residual wastes can be carried into American Falls Reservoir.

Pollution sources in the Pocatello area are probably the major factors affecting water quality in American Falls Reservoir, although natural sources of phosphates and residual wastes from the Idaho Falls and Blackfoot areas are also important. This area needs further study to assess waste treatment requirements.

American Falls Service Area

This is a very small service area located at the downstream end of American Falls Reservoir. The municipal treatment plant, which discharges to the Snake River below the falls, is believed to be adequate.

No industries are listed in STORET for this location and no search of the phone directory was made. Lamb-Weston, a large potato processing plant, is located north of American Falls. The plant utilizes land disposal for its wastes, which has resulted in an odor problem. There are no known water pollution problems in this service area.

Burley Service Area

This service area is a major source of organic waste loads which severely degrade Lake Milner during Winter low streamflow conditions. Both the Burley and Rupert municipal waste facilities treat large industrial waste loads. Burley has large lagoons which achieve high treatment efficiencies. Rupert has a primary plant followed by an aerated lagoon which achieves an overall BOD reduction of seventy percent. Periodic plant overloads caused by industrial discharges in excess of contractual BOD loads have caused problems at Rupert. Additional treatment facilities are planned.

TABLE VI-8

Potential Industrial Waste Sources - Burley Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Burley | | |
| Burley Co-Op Supply Association, Inc. | Agr.Chem.Fertil. Insecticides | 1234 Hansen Ave. | |
| Simplot Soilbuilders | Agr. Chem. Fertilizers-Dlrs | 1029 Overland Ave. | |
| Graham Seed & Floral | Chemicals Insecticides-Dlrs | 1240 Oakley Ave. | |
| Hoffbuhr Ready Mix, Incorporated | Concrete-Ready Mix Sand and Gravel | East of Burley | * |
| Magic Valley Sand and Gravel | Concrete-Ready Mix Sand and Gravel | 419 W. 2nd. | |
| Ida Gem Dairymen, Incorporated | Dairies Dairy Prod-Retail | 245 N. Overland Ave. | |
| Stoker Dairy and Milk Depot | Dairies | 301 E. 16th | |
| Young's Dairy Prod. | Dairies Dairy Prod-Retail | 1506 Washington Ave. | |
| American Oil Farm Service Center | Fertilizers-Dlrs | 1138 Burton Ave. | |
| Bean Growers Warehouse Association, Inc. | Fertilizers-Dlrs | Milner | |
| Cenex Plant Food Co. | Fertilizers-Dlrs | (Burley) mobile phone | |
| Pacific Supply Co-Op | Fertilizers-Dlrs Fertilizers - Wholesale & Mfg. | 1234 Hansen Ave. | |
| Burley Processing Co. | Food Processing | 632 W. Main | # |
| Del Monte Corporation | Food Processing | 305 W. Hiway 30 | |
| La Chiquita Corn Products Mfg Co. | Food Processing | 818 Occidental Ave | |

TABLE VI-8 (Continued)

Potential Industrial Waste Sources - Burley Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | **Burley (Continued)** | | |
| Ore-Ida Foods Inc. | Food Processing Frozen Foods - Processors | 280 W. Hiway 30 | *#M |
| Burley Livestock Commission Co. | Livestock Auction Markets | 1100 Occidental Ave. | |
| Conrad Land & Livestock Inc. | Livestock Buyers | 450 S. 600 W. | |
| Interstate Feeders | Livestock Feeding | | |
| Martin & Anderson Farms | Livestock Feeding | 1100 S 48 W | |
| Shults & Allred | Livestock Feeding | 575 W 400 S | |
| Gibson Brothers Meats | Meat Packers | E 5 & Hiland | |
| Blaine Nielsen | Meat Packers | Mobile Telephone | |
| Clark's IGA | Meat-Retail "custom slaughtering, meat processing" | 201 W. 16th | |
| Bryant's Packing Co. | Meat-Wholesale | | |
| Great Atlantic & Pacific Tea Co. Inc. | Potatoes-Processed | West of Burley | *#M |
| | **Rupert** | | |
| Coats Bros. Contractors | Concrete-Rdy Mixed | Rupert | |
| Custom Packing Co. | Meat Packers | 114 E. Baseline | * |
| Kraft Food Co. | Cheese | Rupert | * |
| Magic Valley Foods, Inc. | Food Processing | Hiway 24 | * |
| Simplot Soilbuilders | Fertilizers | Rupert | |

TABLE VI-8 (Continued)

Potential Industrial Waste Sources - Burley Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Rupert (Continued) | | |
| Wasatch Chemical Xo. | Chemicals | 200 W. 075 S. | |
| Western Livestock Corp. | Livestock Feeding | 300 N. 025 E. | |
| Peoples Packing Co. | Meat Packers | 125 S. 125 W. | * |
| | Heyburn | | |
| Western Seed, Inc. | Agr. Chem. | 1531 Highway 30 | |
| Idaho Hide & Tallow | Animal Carcass Removal | 1341 18th | |
| Idaho Portland Cement | Cement-W'sale & Mfr | 1500 J | |
| Pennwalt Chem. Corp. | Chemicals | Heyburn | |
| Pacific Supply Co-Op | Fertilizers-Wholesale & Manufacturers | Heyburn | |
| J. R. Simplot Co. | Food Processing Potatoes | Heyburn | *#M |
| Blincoe Farms | Livestock Producers | 725 W 200 S | |
| Eastern Idaho Packing Corp | Potatoes | 1301 Highway 30 | |
| | Paul | | |
| Kloepfer Ready Mix Concrete Co. | Concrete-Rdy Mixed Sand & Gravel | Highway 25 | * |
| US Steel Farm Service Center | Fertilizers-Dlrs | 400 W 075 S | |
| Amalgamated Sugar Co. | Sugar Refiners | Paul | *#M |

* Source listed in STORET Industrial Inventory
# Known waste discharge
M Major waste source

A large number of industrial sources are present in this area, with 47 potential sources identified. Many of the sources are connected to the Burley or Rupert systems. Major sources which discharge to Lake Milner include J. R. Simplot Co. in Heyburn, and Ore-Ida Foods, Inc., Burley Processing Co., and A & P, Inc., in Burley. All of these sources are in the process of installing additional treatment facilities which are to be in operation by Fall 1971. These facilities may not be adequate to provide suitable water quality in Lake Milner. A follow-up water quality survey is needed during the 1971-72 processing season to assess the adequacy of treatment facilities.

In Rupert, all of the food processing industries except Peoples Packing Co. are connected to the city system. Improved treatment levels at the city facility would reduce the industrial waste load.

Amalgamated Sugar Company operates a large refinery at Paul. The industry reportedly has a water reuse system which has substantially reduced its waste discharge,which formerly degraded Main Drain, a small drain tributary to Lake Milner. The adequacy of waste disposal practices has not been evaluated by field surveys.

Degradation of Lake Milner is one of the most significant water quality problems in the Snake River Basin. Present treatment improvements will probably not alleviate this problem fully. Animal feedlots also cause problems in this area, as discussed in a later section. Documentation of waste loads and water quality conditions in this area following treatment improvements is needed.

Twin Falls Service Area

Almost the entire flow of the Snake River is diverted at Lake Milner for irrigation purposes during low flow periods. Snake River flows at Twin Falls

are thus very low. Due to the diversions, residual wastes from the Burley area have little effect on the Twin Falls area. Below Twin Falls, groundwater inflows from the Thousand Springs area dilute these low flows and eliminate any water quality degradation resulting from the Twin Falls area. Water pollution in this area is thus essentially a local problem.

With the exception of Twin Falls which has a primary treatment plant, municipal waste sources in the Twin Falls area are small and provide treatment facilities which are probably adequate (see Table VI-2). An engineering study is currently underway to develop plans for connection of all industrial waste sources at Twin Falls to the city system and for adding secondary treatment facilities. Such improvements would probably eliminate all but a few minor local pollution problems in this area. The timing of planned improvements is unknown.

There are a very large number (115) of potential industrial pollution sources in the Twin Falls area. It is probable that most of these sources exert little or no impact on water quality, but present information is inadequate to determine the extent of waste loads and how many actual waste discharges exist.

With the exception of several large waste sources discharging to Rock Creek, most industries in the area covered by the Twin Falls sewerage system are connected to the city system. There are no major waste discharges located in the surrounding communities, although the cumulative effect of the various smaller sources may be significant.

Agricultural chemicals and fertilizer dealers and handlers account for 32 of the potential pollution sources. These facilities in most cases probably do not produce any waste discharge, although the potential for adding to

TABLE VI-9

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Jerome | | |
| Magic Valley Growers | Agr. Chem. Fertilizers | West of Jerome | |
| Simplot Soilbuilders | Agr. Chem. Fertilizers | W. Avenue C. | |
| L & H Mobile Butchers | Butchering | 222 W. Main | |
| RTP Concrete Co. | Concrete-Rdy Mixed | Jerome | |
| Challenge Dairy Prod.. (Ida Gem Dairymen Inc) | Dairies Dairy Prod-Retail | 220 S. Birch | * |
| Snoco Dairy (Young's Dairy Prod) | Dairies | 107 W. Ave. C. | |
| Marshall Warehouses | Fertilizers-Dlrs | West Main | |
| Jerome Canning Kitchen Inc. | Food Processing | 325 North Date | |
| Producers Livestock Marketing Assn | Livestock Auction Markets | West of Jerome | |
| Circle 4 Cattle Co. | Livestock Feeding | Southwest of Jerome | |
| King of Spuds | Potatoes-Processed | West Main | * |
| Producers Livestock Marketing Assn | Stock Yards | West of Jerome | |
| | Kimberly-Hansen | | |
| Henry's Farm Sales | Agr. Chem. Fertilizers | 446 Hiway 30 | |
| L. W. Moore W'hse | Agr. Chem. | 14 Railroad Ave. | |
| Collins Bert & Sons Fertilizers and Pesticides | Fertilizers-Dlrs | Oak | |
| Farm Service Inc. | Fertilizers-Dlrs | 121 Tyler St. E. | |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Kimberly-Hansen (Continued) | | |
| W. B. Savage Produce Co. | Fertilizers-Dlrs | 516 Main St. N. | |
| USS Farm Svc Center | Fertilizers-Dlrs | West of Hansen | |
| B & B Cattle | Livestock Producers | Southwest of Kimberly Hansen | |
| Kimberly Cold Storage | Meat-Retail | 130 Main St. N. | |
| McCarty Gravel Co. | Sand & Gravel | Southeast of Kimberly-Hansen | |
| | Hagerman | | |
| Idaho, State of | Fishery Hatchery | Hagerman | |
| Aquaculture Industries | Frout Farms | Hagerman | |
| Idaho Spgs Trout Farm | Trout Farms | Hagerman | |
| Magic Spgs Trout Co. | Trout Farms | Hagerman | |
| Ranger Trout Research Station | Trout Farms | Hagerman | |
| Thousand Springs Trout Farms Inc. | Trout Farms | Hagerman | |
| | Gooding | | |
| Gooding Seed Co. | Agr. Chem. Fertilizers | 304 1st Ave. E. | |
| Challenge Dairy Prod. (Ida Gem Dairymen Inc.) | Dairies Dairy Prod-Retail | 222 Idaho | |
| Dairy K | Dairy Prod-Retail | 232 3rd Ave. E. | |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Gooding (Continued) | | |
| Gooding Livestock Commission Co. | Livestock Auction Markets | | |
| France Feed Lots | Livestock Feeding | Northeast of Gooding | |
| Magic Valley Packing Co. | Meat Packers | East of Gooding | |
| Ohlinger Meat Co. | Meat Packers | North Oregon | |
| | Filer | | |
| Bean Growers Warehouse Assn Inc. | Fertilizers-Dlrs | 400 Front | |
| O. J. Childs Seed Co. | Fertilizers-Dlrs | 528 Front | |
| USS Farm Svc Center | Fertilizers-Dlrs | West of Filer | |
| Williams Meat Processing Plant | Meat Packers "custom slaughtering" | 1156 S. Adell | |
| Idaho Trout Processors Co. | Trout Farms | West of Filer | |
| | Buhl | | |
| Shields Warehouse | Agr. Chem. | 903 Elm | |
| √Green Giant Co. | Canners | 430 7th Ave. S. | |
| RTP Concrete Co. | Concrete-Rdy Mixed Sand & Gravel | | * |
| Challenge Dairy Prod (Ida Gem Dairymen Inc.) | Dairies Dairy Prod-Retail | 105 13th Ave. S. | |
| Smith's Dairy Prod. | Dairies Dairy Prod-Retail | 205 Broadway S. | |
| √Pet Milk Inc. | Dairy Prod-W'sale | 500 Candensary Road | * |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Buhl (Continued) | | |
| Rangen Inc. | Fertilizers-Dlrs | 115 13th Ave. S. | |
| Shields Warehouse | Fertilizers-Dlrs | 903 Elm | |
| West End Fertilizer | Fertilizers-Dlrs | East of Buhl | |
| Magic Valley Growers | Fertilizers-W'sale & Manufacturers | West of Buhl | |
| Clear Spgs Trout Co. | Fish Hatcheries | North of Buhl | |
| Rim View Trout Co. | Fish Hatcheries | North of Buhl | |
| Snake River Trout Farm | Fish Hatcheries | North of Buhl | |
| Thousand Springs Trout Farms Inc. | Fish Hatcheries | North of Buhl | |
| Northland Cold Storage Plant | Meat-Retail | 121. 11th Ave. S. | |
| Cascade Commodities Corp. | Rendering Companies | Northwest of Buhl | |
| Clear Spgs Trout Co. | Trout Farms | North of Buhl | |
| Rainbow Trout Farms Inc. | Trout Farms | Northeast of Buhl | |
| Rim View Trout Co. | Trout Farms | North of Buhl | |
| Snake River Trout Farm | Trout Farms | North of Buhl | |
| Thousand Springs Trout Farms Inc. | Trout Farms | North of Buhl | |
| | Twin Falls | | |
| American Oil Farm & Home Service | Agr. Chem. | Eastland Drive S. | |
| Bean Growers W'hse Assn Inc. | Agr. Chem. | 348 4th Ave. S. | |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Twin Falls (Continued) | | |
| Magic Valley Growers | Agr. Chem. Fertilizers | West of Twin Falls | |
| Simplot Soilbuilders | Agr. Chem. | 700 Shoshone St. W. | |
| Idaho Hide & Tallow Co. | Animal Carcass Removal | East of Twin Falls | * |
| Idaho Portland Cement Co. | Cement-W'sale & Manufacturers | South Park Ave. | |
| RTP Concrete Co. | Concrete-Rdy Mixed Sand & Gravel | Addison Avenue W. | * |
| Colonial Concrete Inc. | Concrete-Rdy Mixed Sand & Gravel | Addison Avenue W. | * |
| Bingham Dairy | Dairies | Addison Avenue E. | |
| Challenge Dairy Prod (Ida Gem Dairymen Inc.) | Dairies Dairy Prod-Retail | 702 3rd St. W. | |
| Home Dairies of Twin Falls | Dairies | Madrona Street N. | |
| Meadow Gold Dairy Products | Dairies | 227 Third Avenue W. | |
| Stoker Drive-In Milk Depot | Dairies | 1138 Morningside Dr.<br>269 Washington St. N. | |
| Young's Dairy Prod. | Dairies | 143 4th Avenue W. | * |
| Swift & Co. | Dairy Prod-W'sale | 264 4th Avenue S. | * |
| Idaho Grange Co-Op | Fertilizers-Dlrs | 150 2nd Avenue W. | |
| American Oil Farm & Home Service | Fertilizers-Dlrs | Eastland Dr. S. | |
| Rangen Inc. | Fertilizers-Dlrs | Twin Falls | |
| Simplot Soilbuilders | Fertilizers-Dlrs | (liquid plant)<br>Floral Avenue | |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Twin Falls (Continued) | | |
| Western Nursery | Fertilizers-Dlrs | 540 Filer Avenue | |
| Blue Lakes Trout Farm Inc. | Fish Hatcheries Trout Farms | 266 Buchanan | |
| Greene's Trout Farm | Fish Hatcheries Trout Farms | 266 Buchanan | |
| Magic Springs Inc. | Food Processing | East of Twin Falls | |
| J. R. Simplot Food Processing Co. | Food Processing | Twin Falls | |
| Idaho Frozen Foods Inc. | Frozen Foods-Processors | 856 Fall St | *#M |
| Idaho, State of | Fish Hatchery | 320 Blue Lakes Blvd S. | |
| American Oil AG Chemical Form Plant | Insecticides-W'sale & Mfr | Eastland Drive South | |
| Stockgrower's Commission Co. | Livestock Auction Markets | 536 Maxwell Avenue | |
| Twin Falls Livestock Commission Co. | Livestock Auction Markets | 630 Railroad Avenue | |
| Garrard Feed Lots | Livestock Feeding | South of Twin Falls | |
| Olmstead Cattle Co. | Livestock Feeding | Southeast of Twin Falls | |
| Wagner Feed Yark | Livestock Feeding | Blue Lakes Blvd S. | |
| Falls Brand Meat - Independent Meat Co. | Meat Packers | Orchard Drive | # |
| American Oil Co. | Oil Refiners | 525 Blue Lakes Blvd North | |
| Quick Fix Potato Co. | Potatoes-Processed | 384 Locust St. S. | |

TABLE VI-9 (Continued)

Potential Industrial Waste Sources - Twin Falls Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Twin Falls (Continued) | | |
| Northwest Crane Rigging & Transport Co. | Sand & Gravel | Addison Ave. W. | |
| Amalgamated Sugar Co. | Sugar Refiners | Southeast of Twin Falls | *#M |
| Frame Trout Farm | Trout Farms | Rock Creek Cyn Rd. | |
| Magic Springs Inc. | Trout Farms | East of Twin Falls | |

* Source list in STORET Industrial Inventory
# Known waste discharge
M Major waste source

pesticide and nutrient loads is present.

Due to the numerous springs in the area, a large number (25) of fish hatcheries and trout farms are located around Twin Falls. The potential water quality impact of these installations is unknown, but may be significant.

Rock Creek, which flows through Twin Falls, has been severely degraded in the past by the Amalgamated Sugar Company refinery discharge and several food processing plant discharges. Treatment facilities have been installed at these sources, but additional waste load reductions are needed to maintain suitable water quality in Rock Creek.

Contact with several of the industries on Rock Creek produced the information that they had delayed installing higher level treatment pending completion of the Twin Falls plans for a regional system.

A waste source inventory is needed to define the actual waste sources in this service area. A water quality survey is also needed to establish the basis for enforcement actions to speed up the completion of the Twin Falls regional system if additional delays result in the future.

Mountain Home Service Area

This is a small service area located remote from the Snake River. There are apparently no significant industrial waste sources in the area and municipal wastes are minor. There are no known pollution problems.

Boise Service Area

The Boise service area is the largest in the study area and includes the major cities of Nampa and Caldwell in addition to Boise. The majority of the pollution sources are related to the intensive agricultural development of the Boise River valley between Boise and the Oregon border. Waste loads from this

area impact water quality in the lower Boise River and the Snake River downstream to Brownlee Reservoir. Pollution from this area produces interstate effects on Oregon water uses.

Some type of secondary waste treatment is provided for all significant municipal sources in the area (see Table VI-2). Boise, Nampa and Caldwell have regional sewerage systems that treat most industrial wastes in the communities. There are no major industrial waste sources on the Boise system. As a result, the treatment facility achieves a consistently high level of waste removal (85-90 percent BOD reduction). In contrast, the Nampa facility treats large industrial waste loads including wastes from an Amalgamated Sugar Company refinery and a large food processing plant operated by Western Farmers Association. Although achieving high treatment efficiencies during much of the year, high organic loads during the peak food processing season reduce BOD removal efficiency to less than 70 percent at times. During the 1970-71 season, a maximum BOD load of 106,000 pounds per day was treated, far in excess of the design loading of 46,000 pounds per day. This overload is primarily the result of inadequate pretreatment and/or violation of waste discharge contracts by the food processing industries and Amalgamated Sugar Company. Western Farmers Association is apparently the worst violator. Hydraulic loads at the plant are below design levels. The water quality impact of reduced plant efficiency has not been investigated.

The Caldwell sewerage system has a serious infiltration problem. Average flows at the treatment facility range from 3 MGD in Winter to 9 MGD during the irrigation season. The increased flow is primarily the result of infiltration. The plant has a hydraulic design capacity of 10 MGD. It would appear that substantial over-design of the plant was needed to handle the infiltration. The

impact of the dilute flows on treatment efficiency is unknown.

A total of 162 potential industrial waste sources have been identified in the Boise River valley. As in the Twin Falls service area, a large number (42) of these are agricultural chemical and fertilizer dealers and warehouses which may or may not contribute any significant pollution. Another 31 sources are various types of meat packing and processing facilities. Several of these sources are known to be connected to the three regional systems discussed above. However, most of the plants are small, widely scattered operations with unknown adequacy of treatment or waste magnitude. There are also 16 dairy facilities with spatial distribution similar to the meat packing facilities.

There are at least 27 significant livestock feeding and/or holding facilities in the valley with many more small feedlots. As discussed in a later section, the water quality impact of such pollution sources is not well defined.

Of the remaining 46 potential waste sources, it is probable that a majority is on a regional treatment system or has no significant discharges. Only one major source, the J. R. Simplot Co. food processing plant west of Caldwell, is known to have a discharge. The adequacy of treatment at this source is unknown. It is apparent that a complete source inventory of this area is needed to define which sources are on regional systems and the present status of treatment at other sources.

An investigation of the effects of infiltration and industrial waste overloads on treatment efficiencies and downstream water quality impacts at Caldwell and Nampa is needed, also.

Emmett Service Area

This is a small service area on the Payette River 30 miles upstream from Payette and the Snake River. Municipal wastes from Emmett are treated in lagoons.

TABLE VI-10

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Boise | | |
| Steve Regan Co. | Agr. Chem. | 5115 Gage | |
| VanWaters & Rogers | Agr. Chem. | 3430 Americana Ter. | |
| Aldape Mobile Butchering | Butchering | 604 Main | |
| Lamert's Mobile Butchering | Butchering | 3770 N. Five Mile Road | |
| Main Quickfreeze & Mobile Butchering | Butchering | 604 Main | |
| Oregon Portland Cement Co. | Cement-W'sale & Manufacturers | 1410 Borah | |
| American Chemical Supply Co. | Chemicals | 616 Front | |
| Sim-Chem Div. J. R. Simplot | Chemicals | Simco | |
| Smith & Ardussi | Chemicals W'sale & Mfr | Bank of Idaho Bldg | |
| Techni-Chem | Chemicals | 1604 Front | |
| Capital Concrete | Concrete-Rdy Mixed | 2502 S. Owyhee | * |
| Wallace Cements & Sons Concrete Co. | Concrete-Rdy Mixed Sand & Gravel | 821 S. 13th | |
| Consolidated Concrete Co. | Concrete-Rdy Mixed Sand & Gravel | 625 N. 31st | * |
| Morrison-Knudsen Ready Mix Div. | Concrete-Rdy Mixed | Division & Beacon | |
| RTP Concrete | Concrete-Rdy Mixed Sand & Gravel | Hiway 44 | * |
| Buchanan's Dairy | Dairies | 8011 Ustick Road | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Boise (Continued) | | |
| Jolley Butchers | Meat Packers | 5529 Overland Road | |
| Van's Packing Plant | Meat Packers<br>Meat-W'sale | 717 Stilson Road | |
| Davis Packing Co. | Meat Packers | West of Boise | |
| Pacific Cold Storage Lockers | Meat-Wholesale | 101 S. 23rd | |
| Bonus Photo Processing (Film Service Corp) | Photo Finishing-Wholesale | 3009 Woodlawn | |
| Gem State Photo Inc. | Photo Finishing-Wholesale | 1025 Main | |
| Anderson Buick-Opel-Jeep | Plating | 601 S. Capitol Blvd | |
| Idaho Electroplating Service | Plating | 2518 Main | |
| Wallace Plating Co. | Plating | 3235 Chinden Blvd | |
| Asphalt Paving & Construction Co. | Sand & Gravel | 3206 Pleasanton Ave. | |
| Boise Sand & Gravel | Sand & Gravel | 3206 Pleasanton Ave. | |
| M C H Inc. | Sand & Gravel | 5033 West State | |
| Nelson Sand & Gravel Co. Inc. | Sand & Gravel | 4301 Federal Wy | |
| Quinn-Robbins Co. Inc. | Sand & Gravel | 703 Americana Blvd | |
| Snelling & Sons Well Drilling | Sand & Gravel | 6212 West State | |
| Stafford Excavation & Demolition | Sand & Gravel | 1904 Overland Road | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Boise (Continued) | | |
| Steiger Construction | Sand & Gravel | 821 Clover Drive | |
| Idaho Trout Processors Co. | Trout Farms | 1220 Vista Avenue | |
| Rim View Trout Farm Inc. | Trout Farms | 2903 W. Idaho | |
| | Caldwell | | |
| Feed Service Inc. | Agr. Chem. Fert. Sers. | East Hiway 20 | |
| Wasatch Chemical Co. | Agr. Chem. Fertilizers-Mer. | 915 Main | |
| Wilbur-Ellis Co. | Agr. Chem. | 211 N. Airport Ave. | |
| American Oil Farm & Home Service | Agr. Chem. Fert. Dealers | Paynter & Aven Ave. | |
| Niagara Chemical Div, FMC Corporation | Agr. Chem. | 704 W. Aven Ave. | |
| Simplot Soilbuilders | Agr. Chem. | West of Caldwell | |
| Idaho Concrete Pipe Co. Inc. | Concrete-Rdy Mixed Sand & Gravel | West of Caldwell | |
| Dairymen's Creamery Assn Inc. | Dairy Products - Wholesale | 520 Albany | |
| Home Dairies Co. | Dairies | Franklin Lane | |
| Sun Ray Drive-In Dairy & Bakery | Dairies | 4th Ave. & Blaine | |
| American Oil Farm & Home Service | Fertilizers-Dlrs | Paynter & Aven Ave. | |
| Feed Service Inc. | Fertilizers-Dlrs | E. Hiway 20 | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Caldwell (Continued) | | |
| Cooperative Oil Assn | Fertilizers-Dlrs | 423 Main | |
| J. R. Simplot Co. | Food Processing | West of Caldwell | *#M |
| Wasatch Chemical Co. | Insecticides-W'sale & Manufacturers | 915 Main | |
| Wilbur-Ellis Co. | Insecticides-W'sale & Manufacturers | 211 N. Airport Ave. | |
| O K Livestock | Livestock Auction Markets | 21st Ave. & Railroad | |
| Treasure Valley Livestock Auction Co. | Livestock Auction Markets | 1900 E. Chicago | |
| I O N Cattle Co. | Livestock Buyers | 116 S 7 Ave. | |
| Feed Yard | | Middleton | |
| Western States Cattle Co. | Livestock Buyers | Notus | |
| Jacobson Feed Lots | Livestock Feeding | 21st Ave. & Railroad | |
| Lake Lowell Feeder Co. | Livestock Feeding | South of Caldwell | |
| Richardson Feed Lot Inc. | Livestock Feeding | West of Caldwell | |
| Greenleaf Pack & Freeze | Meat Packers | Greenleaf | |
| Idaho Meat Packers | Meat Packers | 1602 Chicago | |
| Johnston Bros Custom Slaughtering | Meat Packers | West of Caldwell | |
| | Nampa | | |
| Cominco American | Agr. Chem. Fert.-Dlrs | 416 1st St. S. | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Nampa (Continued) | | |
| Kellogg Mills | Agr. Chem. | 104 6th Ave. S. | |
| Idaho Animal Products Co. | Animal Carcass Removal | N. Sugar Avenue | |
| O K Lockers Mobile Butchering Service | Butchering | West Flamingo Ave. | |
| Nampa Custom Cannery | Canners | Central Midland Blvd | |
| Shields Seed Co. | Chemicals Fert.-Dlrs. | 16 18th Ave. S. | |
| G & B-Ready Mix | Concrete-Rdy Mixed | East of Nampa | * |
| Idaho Concrete Pipe Co. Inc. | Concrete-Rdy Mixed | 222 Nampa-Caldwell | * |
| Home Dairies | Dairies | 424 12th Ave. Road | |
| Sun Ray Drive-In Dairy & Bakery Inc. | Dairies | 923 12th Ave. Rd. | |
| Triangle Dairy | Dairies | 11 Canyon | |
| US Steel Farm Service Center | Fertilizers-Dlrs | Karcher Rd. | |
| Producers Supply Co-Op Inc. | Fertilizers-Dlrs | Hiway 30 West | |
| $NH_3$ Fertilizer & Equipment Co. (Shell Farm Serv.) | Fertilizers-Dlrs | 2616 2 St. S Ext | |
| Birds Eye Div. of Gen'l Food Corp | Food Processing | City Acre | * |
| World Wide Foods Inc. | Food Processing | 428 1st St. S. | |
| Hagen & Son Inc. | Livestock Buyers | Middleton Road | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Nampa (Continued) | | |
| McGreggor Feed Lots | Livestock Buyers | North Side Blvd | |
| R & S Bargain Ranch | Livestock Buyers | North of Nampa | |
| Seal Bros Livestock | Livestock Buyers | North of Nampa | |
| Ralph Little Feed Lots | Livestock Feeding | West of Nampa | |
| Lone Star Cattle Co. Inc. | Livestock Feeding | Lone Star Road | |
| Pitman & Baker | Livestock Feeding | East of Nampa | |
| Armour & Co. | Meat Packers | East of Nampa | * |
| H. H. Keim C. Ltd. | Meat Packers | Northwest of Nampa | |
| Nampa Packing to. | Meat Packers<br>Meat Wholesale | 909 Lake Lowell Ave. | * |
| C & J Custom Slaughtering | Meat Packers | Firport Road | |
| Greenfield Packing | Meat Packers | Amity Road | |
| Hillcrest Packing Co. | Meat Packers | East of Nampa | |
| Guy's Market | Meat-Retail<br>"meat custom cut" | 1239 Canyon | |
| H & M Food Service | Meat-Retail & W'sale<br>"custom butchering" | 1211 9th St. S. | |
| Idaho Potato Div., Western Farmers Assn | Potatoes-Processed | Nampa-Caldwell Blvd | M |
| World Wide Potato Processing -- World Wide Foods Inc. | Potatoes | 428 1st St. S. | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Nampa (Continued) | | |
| Bowman Sand & Gravel Co. | Sand & Gravel | S. Midland Blvd | |
| Nampa Rock & Sand | Sand & Gravel | Lone Star Road | |
| Strang Sand & Gravel | Sand & Gravel | East of Nampa | |
| C. Wright Construction Co. | Sand & Gravel | Hiway 30 East | |
| Nampa Livestock Market Inc. | Stock Yards | 2 St. S Ext | |
| Amalgamated Sugar Co. | Sugar Refiners | Northwest of Nampa | *M |
| | Eagle | | |
| Idaho, State of | Eagle Fish Hatchery | Eagle | |
| Boise Valley Packing Co. | Meat Packers Meat-W'sale | Eagle | * |
| Double R Cattle Co. | Livestock Feeding | Star | |
| Flying W Ranch | Livestock Feeding | Star | |
| | Emmett | | |
| City Transfer Ready-Mix Inc. | Concrete-Rdy Mixed Sand & Gravel | 120 E. Park | |
| Emmett Dairy | Dairies | 109 East 4th | |
| Emmett Valley Fruits Inc. | Fertilizers-Dlrs | 220 East Park | |
| Emmett Livestock Commission Co. | Livestock Auction | Southwest of Emmett | |
| Gem Island Cattle Co. | Livestock Buyers | East Main | |
| Holstein Heifer Ranch Feed Lot Inc. | Livestock Feeding | Northwest of Emmett | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Emmett (Continued) | | |
| Highland Livestock & Land Co. | Livestock Producers | 210 West Main | |
| High Boy Meats | Meat Packers | 711 Williams Road | |
| Emmett Meat Co. | Meat - Retail | West 4th | |
| Shamrock Market | Meat - Retail "custom-cutting" | North of Emmett | |
| DelMonte Sand Co. | Sand & Gravel | West of Emmett | |
| | Homedale | | |
| Stone Chemical Co. | Chemicals Fert.-Dlrs | Homedale | |
| Co-operative Oil Assn | Fertilizers-Dlrs | Homedale | |
| J. C. Watson Co. | Fertilizers-Dlrs "& insecticides" | Homedale (SE) | |
| Keller Feed Lots Inc. | Livestock Feeding | Northeast of Homedale | |
| Owyhee Meat Packers | Meat Packers | Southeast of Homedale * | |
| | Meridian | | |
| Simplot Soilbuilders | Agr. Chem. Fert.-Dlrs | 360 East Bower | |
| Kaiser Cement Order Dept & Terminal | Cement-W'sale & Manufacturers | 510 E. Bower Ave. | |
| Bailey's Kim-Ko Inc. | Chemicals | E. Hiway 30 | |
| Carroll's Dairy | Dairy Products-Wholesale | Northwest of Meridian | |
| Dairymen's Creamery Assn Inc. | Diary Products Wholesale | 37 E. Broadway Ave. | |

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Meridian (Continued) | | |
| Simplot Soilbuilders | Fertilizers-Dlrs | 360 E. Bower | |
| Cooperative Oil Assn | Fertilizers-Dlrs | E. Bower | |
| Zamzow's Inc. | Fertilizers-Dlrs | 611 E. 1st | |
| Meridian Sales Yard | Livestock Auction Markets | 615 East Bower | |
| Mosher, Dwight | Livestock Buyers | West Pine Ave. | |
| Meridian Meat Packers· | Meat Packers | North of Meridian | |
| Meridian Meats & Sausage Specialties | Meat Packers | 119 E. Bower Ave. | |
| Paul's Clover Farm | Meat-Retail "custom meat cutting" | 834 East 2nd | |
| A Black Cat Sand & Gravel Inc. | Sand & Gravel | Black Cat Road | |
| ADA Sond & Gravel Inc. | Sand & Gravel | 1 ½ mi S. of Freeway Kuna Hiway | |
| | Garden City | | |
| Concrete Ready Mix Co. | Concrete-Rdy Mixed Sand & Gravel | Hiway 20 West | |
| Davis Packing Co. | Meat Packers | West of Garden City | * |
| | Wilder | | |
| Simplot Soilbuilders | Agr. Chem. | Wilder | |
| Inland Chemical Co. | Agr. Chem. | Wilder | |
| Simplot Soilbuilders | Agr. Chem. | Wilder | |

* Source listed in STORET Industrial Inventory
# Known waste discharge
M Major waste source

TABLE VI-10 (Continued)

Potential Industrial Waste Sources - Boise Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Wilder (Continued) | | |
| Treasure Valley Farm Sales | Fertilizers-Dlrs | Hiway 20-26 East Parma | |
| US Steel Farm Service Center | Fertilizers-Dlrs | East of Wilder | |
| Choteau Cattle Co. | Livestock Feeding | Arena Valley | |
| Johnson-Falen Cattle Feeders | Livestock Feeding | West of Wilder | |

Only one industry, the small Stokely Van Camp food processing plant, is known to have a waste discharge in this area. The area was not visited and a phone directory listing was not compiled. This area could probably be eliminated from an intensive field investigation.

Ontario Service Area

This service area is situated on the Oregon-Idaho border between the mouth of the Boise River and Brownlee Reservoir. Pollution sources in this area impact water quality in the Snake River and, in combination with residual wastes from the Boise River, degrade water quality in Brownlee Reservoir. Since the Snake River is the boundary between Oregon and Idaho in this area, all pollution has interstate implications.

With the exception of Payette and Weiser, which have primary treatment plants, municipal sources are believed to provide adequate treatment (see Table VI-2).

Of the 61 potential industrial waste sources identified in this service area (see Table VI-11), eleven are associated with agricultural chemicals or fertilizers, nine are meat packing facilities, 13 are livestock feeding or holding operations and 10 are food processing plants. The magnitude of waste discharges and adequacy of treatment for most of these sources is unknown.

Two major waste sources, Amalgamated Sugar Company's refinery at Nyssa and Ore-Ida Foods, Inc. food processing plant at Ontario, are located in this service area. The adequacy of present treatment facilities is unknown.

It is apparent that a waste source survey is needed in this area to fully define waste loads and treatment provided. An intensive water quality survey is also needed to evaluate the extent of interstate pollution and to document the sources of water quality degradation in Brownlee Reservoir.

TABLE VI-11

Potential Industrial Waste Sources - Ontario Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Ontario | | |
| Andrews Seed & Fertilizer Co. | Agr. Chem. | 580 S. Oregon | |
| Simplot Soilbuilders | Agr. Chem. | 301 SE 1st | |
| Home Dairies of Oregon Inc. | Cheese Dairies | 65 SW 5 Ave. | |
| Pacific Supply Cooperative Warehouse | Chemicals | 95 SE 8 Ave. | |
| Flynn's Sand & Gravel Products | Concrete-Rdy Mixed | 2875 Goodell Lane | * |
| RTP Concrete Co. | Concrete-Rdy Mixed | 1551 N. Oregon | |
| Meadow Gold Dairies | Dairy Products-Wholesale | 256 NE 2 Ave. | |
| Cominco American | Fertilizers-Wholesale & Manufacturers | 1431 SE 1st | |
| Ore-Ida Foods Inc. | Frozen Foods - Processors | 175 NE 6 Ave. | *#M |
| Ontario Livestock Commission Co. | Livestock Auction Markets | 1750 SW 4 | |
| Silver Falls Packing Co. Feed Lot | Livestock Buyers | 1831 SE 2 | |
| Delta Feeders | Livestock Feeding | Ontario | |
| Boston's Beef House | Meat Packers | 1515 SE 2 | |
| Coast Packing Co. | Meat Packers | Ontario | * |

TABLE VI-11 (Continued)

Potential Industrial Waste Sources - Ontario Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Ontario (Continued) | | |
| Western Packing Co. | Meat Packers | 32 Valley Lane | |
| Jefferies Harry Sand & Gravel | Sand & Gravel | Ontario | |
| Ontario Livestock Commission Co. | Stock Yards | 1750 SW 4 | |
| | Payette | | |
| American Fine Foods Inc. | Canners | 25 N. 6th | * |
| Dairymen's Creamery Assn Inc. | Dairy Products - Wholesale | 619 1 Ave. S. | |
| Payette Cider & Vinegar Co. | Food Processing | 201 S. 6th | |
| J. R. Simplot Onion Processing Plant | Food Processing | 237 10 Ave. N. | |
| Anderson Cattle Co. | Livestock Feeding | Little Willow | |
| B & B Feed Lot | Livestock Feeding | SE of Payette | |
| Givens Livestock Co. | Livestock Feeding | SE of Payette | |
| Wells & Davies Inc. | Meat Packers | 6 Ave. S. | * |
| Idaho Animal Products Co. | Rendering Companies | N. 9 St. Ext | |
| Donoho Sand & Gravel | Sand & Gravel | S. Park | |
| | Nyssa | | |
| Simplot Soilbuilders | Agr. Chem. | 1 Walnut Avenue | |
| Feed Service Inc. | Agr. Chem. | E. Gem Avenue | |

TABLE VI-11 (Continued)

Potential Industrial Waste Sources - Ontario Service Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | **Nyssa (Continued)** | | |
| American Fine Foods Inc. | Canners<br>Food Processing | Northeast of Nyssa | |
| Oregon Concrete Products | Concrete-Rdy Mixed | Nyssa | |
| Cominco American Inc. | Fertilizers-<br>W'sale & Mfr | 328 S. 1st | |
| Munn Feed Lot Inc. | Livestock Feeding | Mitchell Butte Road | |
| Hopkins Wholesale Meat | Meat Packers | Nyssa | |
| Bartron Earl<br>Excavating Contractor | Sand & Gravel | 1102 Park Avenue | |
| | **Fruitland** | | |
| Occidental Chemical Co. | Agr. Chem. | Iowa Avenue | |
| Allen's Custom Cannery | Canners<br>Food Processing | E. of Snake River Bridge | |
| Fruitland Canning Assn Inc. | Canners<br>Food Processing<br>Frozen Foods Processors | Colo | * |
| American Fine Foods Inc. | Canners<br>Food Processing | North of New Plymouth | |
| Top Canning Inc. | Canners | 432 W. Blvd | |
| Occidental Chemical Co. | Insecticides-<br>Wholesale & Mfr | Iowa Ave. | |
| Penguin Lockers | Meat Packers | Fruitland | |
| | **Vale** | | |
| Simplot Soilbuilders | Agr. Chem. | 213 Oregon St. E. | |
| Vale Livestock Auction | Livestock Auction Markets | 670 12 St. N. | |

TABLE VI-11 (Continued)

Potential Industrial Waste Sources - Ontario Shrvice Area

| Industry Name | Industry Type | Address | Status |
|---|---|---|---|
| | Vale (Continued) | | |
| Russell Land & Livestock | Livestock Feeding | 431 15 th St. N. | |
| Hawley Meat Pack | Meat Packers | Vale | * |
| | Weiser | | |
| Simplot Soilbuilders | Agr. Chem. | 243 W. Coml | |
| Petty Ready Mix | Concrete-Rdy Mixed | 747 E. Coml | |
| Home Dairies of Weiser | Dairies | Pioneer Raod | |
| Lewis Berry Inc. | Frozen Foods-Processors | Sunnyside | |
| Weiser Livestock Commission Co. | Livestock Auction Markets | West Railroad | |
| Virgil Sweet Livestock | Livestock Buyers | 430 State | |
| 101 Feedlot Co. | Livestock Feeding | Sunnyside | |
| Shuck's Freezer Meats | Meat-Retail "mobile butchering..." | W. 7 & Pioneer Rd. | |
| Ron's Meat Service | Meat-Retail "mobile butchering..." | Mann Creek | |
| C.& W Sand & Gravel | Sand & Gravel | W. Weiser Flat | |
| Donoho Sand & Gravel | Sand & Cravel | E. 12 & River | |

* Source listed in STORET Industrial Inventory
# Known waste discharge
M Major waste source

## B. AGRICULTURAL SOURCES

### Irrigation Return Flows

Irrigation return flows are sources of suspended sediments, pesticides, nutrients, organic materials, and dissolved solids. These pollutants are carried from irrigated lands back into watercourses. Also, return flows are usually a higher temperature than streams. In extensive irrigated areas, the volumes of these return flows are large and significant water quality degradation may result in streams which have been depleted by diversion and consumptive use of water for irrigation.

Return flows are usually diffuse, entering streams by numerous surface and subsurface routes. For this reason, such pollution sources are difficult to quantify. The water quality impact on receiving streams can readily be evaluated but specific sources may not be identifiable.

It is probable that irrigation return flows contribute to the entrophic conditions found in much of the Basin. Any nutrient investigations should give consideration to agricultural sources.

With the exception of a few possible industrial sources and surface runoff from lawns and gardens in urban areas, most of the pesticides present in Basin watercourses probably originated from agricultural areas. Irrigation return flows are a prime means for transporting pesticides into the streams. There is some evidence that pesticide concentrations in certain areas of the Basin may be significant. A reconnaissance survey is needed to evaluate the potential presence of a pesticide problem. Potential problem areas which receive substantial irrigation return flows include American Falls Reservoir, Lake Milner, the Snake River in the Twin Falls vicinity, the Boise River, and the Snake River in the Ontario vicinity. Since pesticides may be attached to sediments in

return flows or turbid streams, a survey should also include examination of bottom sediments.

Feedlots

It is estimated that there are more than 800,000 head of cattle concentrated in the river valleys of the study area. Many of these animals are crowded into feedlots or holding pens in close proximity to various watercourses. A total of 80 livestock feedlots or markets (which normally have sizeable holding pens) were listed in phone directories for the study area. These livestock facilities are listed in the tables of potential industrial waste sources discussed above. It is probable that there are numerous other sizeable livestock facilities not listed in the phone directories. It is also apparent that the many small feedlots scattered through the agricultural areas collectively pose a significant pollution source. Areas with large feedlot concentrations include the Burley, Twin Falls, and Ontario service areas and the Boise River valley.

Drainage from feedlots contains organic materials, nutrients and bacteria. Such drainage can thus be a significant source of BOD and bacterial contamination and can contribute to the eutrophic conditions of Basin streams.

Idaho's water quality standards prohibit allowing accumulations of manure in proximity to watercourses in such a manner that surface runoff or drainage may carry materials into State waters. In spite of this requirement, numerous feedlots were observed on the banks of streams where the cattle have direct access to the water or where drainage from pens was piped directly into waterways. Large feedlots adjacent to the Amalgamated Sugar Company refinery at Paul and the J. R. Simplot Co. food processing plant at Caldwell were examples of the latter type of drainage violation.

Available bacteriological data are primarily total coliform concentrations which do not distinguish between animal contamination. A comprehensive bacteriological survey during wet weather periods, using additional bacterial indicators such as fecal coliform and fecal streptococcus concentrations, is needed to evaluate the significance of bacterial and other pollution from feedlots.

## C. NATURAL SOURCES

Natural sources contribute sediments, dissolved solids, nitrates and phosphates which alone or together with man-made contributions create undesirable water quality conditions. The contributions of nitrates and phosphates are perhaps of the most concern.

Natural phosphate-bearing earths are found in the drainages of the Portneuf and Blackfoot rivers southeast of Pocatello. Blackfoot Reservoir is located on top of one outcrop of these phosphate materials. As a result, the reservoir and river are fouled with aquatic growths during warm months. The Blackfoot River contributes a significant phosphate load to American Falls Reservoir.

A number of springs contribute phosphates to the Portneuf River. This stream also receives a large phosphate load from the phosphate plants at Pocatello. A major portion of the phosphate load carried by the Upper Snake River at American Falls Reservoir originates in the Portneuf River drainage area.

Available data on phosphate concentrations in waters of the Upper Basin are very limited. An intensive survey of phosphate loads entering American Falls Reservoir is needed to define the sources of phosphates and to evaluate the loads contributed by man-made sources such as the J. R. Simplot Co. and FMC Corporation plants at Pocatello. Control of phosphate sources could potentially achieve a substantial reduction in algal growths in American Falls Reservoir.

Available data on nitrate concentrations are also limited. Nitrates are high below the Thousand Springs area, suggesting that groundwater inflow may be a major source of nitrates. As in the case of phosphates, the relative magnitude of natural and man-made sources of nitrates is unknown.

# APPENDIX A

# IDAHO WATER QUALITY STANDARDS

# FOR INTERSTATE STREAMS

# JUNE 1967

# RULES AND REGULATIONS

# FOR

# STANDARDS OF WATER QUALITY FOR THE

# INTERSTATE WATERS OF IDAHO

# AND DISPOSAL THEREIN OF SEWAGE AND INDUSTRIAL WASTES

IDAHO STATE BOARD OF HEALTH

June 1967

These Rules and Regulations for Standards of Water Quality for the Interstate Waters of Idaho and Disposal of Wastes of Sewage and Industrial Wastes shall be in full force and effect after the 5th day of July, 1967.

Adopted by the Board of Health of the State of Idaho pursuant to the authority granted to the Board in Sections 39-105 and 39-112 through 39-119, Idaho Code.

Attest. Tarrell O. Carver

Tarrell O. Carver, M.D.
Secretary, Board of Health
of the State of Idaho

Date: June 26 1967

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## DEFINITIONS

The following definitions shall apply to the interpretation and the enforcement of these regulations:

"Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places together with such ground water infiltration and surface water as may be present. The admixture with sewage as above defined of industrial wastes or wastes, as defined in the following paragraphs 2 and 3, shall also be considered "sewage."

"Industrial waste" means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.

"Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of the public waters of the state.

"Pollution" means such contamination or other alteration of the physical, chemical or biological properties of the public waters of the state, including change in temperature, taste, color, turbidity or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into the waters of the state which either by itself or in connection with any other substance present, will or can reasonably be expected to create a public nuisance or render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational or other legitimate uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof.

"Standard" or "standards" means such measure of quality or purity in relation to their reasonable and necessary use as may be established by the State Board of Health.

"River mile" means the distance in miles a specified location is from the mouth of the stream.

1. POLICIES OF THE STATE BOARD OF HEALTH

A. INTERSTATE COMPACTS, COURT DECREES AND ADJUDICATED WATER RIGHTS

It shall be the policy of the State Board of Health that the adoption of water quality standards for interstate streams and the enforcement of such standards is not intended to conflict with the apportionment of water to the State of Idaho through any of the interstate compacts or court decrees or to interfere with the rights of Idaho appropriators in the utilization of the water appropriations which have been granted to them under the statutory procedure or water quality criteria established by mutual agreement of the participants in interstate water pollution control enforcement procedures.

B. HIGHEST AND BEST PRACTICABLE TREATMENT AND CONTROL REQUIRED

It shall be the policy of the State Board of Health that, notwithstanding the water quality standards contained herein, where a higher standard can be achieved, the highest and best practicable treatment and/or control of wastes, activities and flows shall be provided so as to maintain dissolved oxygen at the highest desirable levels and overall water quality as good as possible, and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor and other deleterious factors at the lowest desirable levels. Such policy to apply not only to existing waste sources but to future waste sources as they may develop and for such other interstate streams not listed herein.

2. RESTRICTIONS ON THE DISCHARGE OF SEWAGE AND INDUSTRIAL WASTES AND HUMAN ACTIVITIES WHICH AFFECT WATER QUALITY IN THE WATERS OF THE STATE

No wastes shall be discharged and no activities shall be conducted in such a way that said wastes or activities either alone or in combination with other wastes or activities will violate or can reasonably be expected to

violate the water quality standards contained herein.

3. MAINTENANCE OF STANDARDS OF QUALITY

A. The degree of sewage or waste treatment required to restore and maintain the standards of quality shall be determined in each instance by the State Board of Health and shall be based upon the following:

(1) The uses which are or may likely be made of the receiving stream.

(2) The size and nature of flow of the receiving stream.

(3) The quantity and quality of the sewage or wastes to be treated.

(4) The presence or absence of other sources of pollution on the same watershed.

B. The water quality standards are subject to revision (following public hearings and concurrence of the U. S. Secretary of Interior in the case of interstate streams) as technical data, surveillance programs, and technological advances make such revisions desirable.

C. For purposes of enforcement of these standards, sampling will be done at a point where these standards can be evaluated, except for areas immediately adjacent to outfalls. Cognizance will be given to the opportunity for admixture of waste effluents with receiving waters.

D. Tests or analytical procedures to determine compliance with standards will, insofar as practicable and applicable, be made in accordance with the methods given in the twelfth edition of "Standard Methods for the Examination of Water and Waste Water" published by the American Public Health Association, or in accordance with tests or analytical procedures that have been found to be equal or more applicable and satisfactory and accepted and approved by the State Board of Health, as set forth in Appendix 1.

GENERAL WATER QUALITY STANDARDS FOR INTERSTATE STREAMS

The following General Water Quality Standards shall apply to all interstate waters of the state in addition to the water quality standards set forth herein for the various specified and unspecified interstate waters of the state. Interstate waters shall not contain:

A. Toxic chemicals of other than natural origin in concentrations found to be of public health significance or adversely affect the use indicated.* ~~(See Appendix 2)~~

B. Deleterious substances of other than natural origin in concentrations that cause tainting of edible species or tastes and odors to be imparted to drinking water supplies.

C. Radioactive materials of other than natural origin shall not be present in any amount which reflects failure in any case to apply all controls which are physically and economically feasible. In no case shall such materials exceed the limits established in the 1962 U. S. Public Health Service Drinking Water Standards.

D. Floating or submerged matter not attributable to natural causes.

E. Excess nutrients of other than natural origin that cause visible slime growths or other nuisance aquatic growths.

F. Visible concentrations of oil, sludge deposits, scum, foam or other wastes that may adversely affect the use indicated.

G. Objectionable turbidity which can be traced to a point source.

*Guides such as the Water Quality Criteria published by the State of California Water Quality Control Board (Second Edition, 1963) will be used in evaluating the tolerances of the various toxic chemicals for the use indicated.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE BEAR RIVER, BEAR LAKE, CUB RIVER, WARM/NORM CREEK AND THE MALAD RIVER

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

   A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

      Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 per cent of samples not to exceed 2,400 per 100 milliliters.

   B. Dissolved Oxygen (DO)

      DO to be less than 75 per cent of saturation at seasonal low or less than 100 per cent saturation in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

   C. Hydrogen Ion Concentration (pH)

      pH values to be outside the range of 7.0 to 8.5. Induced variation not to be more than 0.5 pH unit.

   D. Temperature

      Any measurable increase when stream temperatures are 68°F. or above, or more than 2°F. increase when stream temperatures are 66°F. or less.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE MAIN STEM OF THE SNAKE RIVER FROM THE WYOMING-IDAHO BORDER (RIVER MILE 918) TO THE OREGON-IDAHO BORDER (RIVER MILE 407); NORTH FORK TETON RIVER; HENRY'S FORK FROM JUNCTION WITH FALLS RIVER TO THE SNAKE RIVER; RAFT RIVER; GOOSE CREEK; SALMON FALLS CREEK; JARBRIDGE/JARBIDGE RIVER AND THE PRUNEAU RIVER.

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

   A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 per cent of samples not to exceed 2,400 per 100 milliliters.

B. Dissolved Oxygen (DO)

DO to be less than 75 per cent of saturation at seasonal low or less than 100 per cent saturation in spawning areas during spawning, hatching and fry stages of salmonid fishes.

Exception: Five parts per million at Milner Dam based on a minimum stream flow of 600 cubic feet per second at this point.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 7.0 to 9.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 68°F. or above, or more than 2°F. increase when stream temperatures are 66°F. or less.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE MAIN STEM OF THE SNAKE RIVER FROM THE OREGON-IDAHO BORDER (RIVER MILE 407) TO THE HELLS CANYON DAM (RIVER MILE 247).

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 per cent of samples not to exceed 2,400 per 100 milliliters.

B. Dissolved Oxygen (DO)

DO to be less than 75 per cent of saturation at seasonal low or less than 100 per cent saturation in spawning areas during spawning,

hatching, and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 7.0 to 9.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 70°F. or above, or more than 2°F. increase when river temperatures are 68°F. or less.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE MAIN STEM OF THE SNAKE RIVER FROM THE HELLS CANYON DAM (RIVER MILE 247) TO THE INTERSTATE LINE AT LEWISTON, IDAHO (RIVER MILE 139) AND THE PALOUSE RIVER #4

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

Average concentration of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 per cent of samples not to exceed 2,400 per 100 milliliters.

Exception: Average concentration of coliform bacteria to exceed 240 per 100 milliliters for the lower Snake River (River Mile 170-139) and the Palouse River.

B. Dissolved Oxygen (DO)

DO to be less than 75 per cent saturation at seasonal low or less than 100 per cent saturation in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 7.0 to 9.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 68°F. or above, or more than 2°F. increase when river temperatures are 66°F. or less.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE KOOTENAI, CLARK FORK, MOYIE, COEUR D'ALENE, PRIEST AND SPOKANE RIVERS

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters:

A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 per cent of samples not to exceed 2,400 per 100 milliliters.

Exception: Average concentrations of coliform bacteria to exceed 240 per 100 milliliters for the Spokane and Moyie Rivers.

B. Dissolved Oxygen (DO)

DO to be less than 75 per cent of saturation at seasonal low or less than 100 per cent saturation in spawning areas during spawning, hatching and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 6.5 to 8.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 68°F. or above, or more than 2°F. increase when stream temperatures are 66°F. or less.

WATER QUALITY STANDARDS FOR PUBLIC WATERS OF THE PEND OREILLE RIVER, PEND OREILLE LAKE, PRIEST LAKE AND COEUR D'ALENE LAKE

1. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in these waters

A. Organisms of the Coliform Group where Associated with Fecal Sources (MPN, equivalent MF or appropriate test using a representative number of samples)

Average concentrations of coliform bacteria to exceed 240 per 100 milliliters along shore line of lakes and 50 per 100 milliliters in the main body of the lake or stream.

B. Dissolved Oxygen (DO)

DO to be less than 75 per cent saturation at seasonal low or less than 100 per cent in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 6.5 to 8.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 68°F. or above, or more than 2°F. increase when river temperatures are 66°F. or less.

## Appendix 1

## LABORATORY TESTS AND PROCEDURES

Standard Methods for the Examination of Water and Wastewater, Twelfth Edition, 1965, prepared and published jointly by American Public Health Association, American Water Works Association, Water Pollution Control Federation.

## BENEFICIAL USES TO BE PROTECTED

Appendix 2

| | Domestic Water Supply | Industrial Water Supply | Irrigation | Livestock Watering | Salmonid Fish Spawning | Salmonid Fish Rearing | Other Fishing & Aquatic Life | Hunting & Wildlife | Water Skiing and Swimming | Pleasure Boating | Aesthetic Qualities |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bear River, Cub River, Worm Creek, and Malad River | X(1) | X | X | X | X(5) | X | X | X | X(2) | X(2) | X |
| Bear Lake | X | X | X | X | X | X | X | X | X | X | X |
| Henry's Fork and North Fork Teton River | X | X | X | X | X | X | X | X | X(2) | X(2) | X |
| Snake River: | | | | | | | | | | | |
| Wyoming Border to American Falls Reservoir | X | X | X | X | X | X | X | X | X(2) | X(2) | X |
| American Falls Reservoir to Hagerman | X | X | X | X | | X | X | X | X(2) | X(2) | X |
| Hagerman to Hells Canyon Dam | X | X | X | X | | X | X | X | X(2) | X(2) | X |
| Hells Canyon Dam to Lewiston | X | X | X | X | X(3) | X | X | X | X | X | X |
| Raft River, Goose Creek, Salmon Falls Creek, Yarbridge River, Bruneau River | X | X | X | X | X | X | X | X | X(2) | X(2) | X |
| Palouse River | X | X | X | X | X(5) | X | X | X | X | | X |
| Pend Oreille River, Pend Oreille Lake, Priest Lake, Coeur d'Alene Lake | X | X | X | | X | X | X | X | X | X | X |
| Kootenai River, Clark Fork River, Moyie River, Priest River | X | X | X | X | X | X | X | X | X | X | X |
| Spokane River, Coeur d'Alene River above Enaville (4) | X | X | X | X | X(5) | X | X | X | X | | X |

(1) Domestic water supply for Bear River

(2) Water skiing and pleasure boating on reservoir portions of stream

(3) Anadromous fish passage use as well

(4) Determination of uses of Coeur d'Alene River below Enaville will be done when construction of domestic and mine waste treatment facilities has been completed, or not later than July 1, 1969

(5) Upper reaches of stream

# APPENDIX B

# IDAHO WATER QUALITY STANDARDS

# FOR ALL STATE WATERS

SEPTEMBER 1968

# RULES AND REGULATIONS

# FOR

# THE ESTABLISHMENT OF STANDARDS OF WATER QUALITY

# AND FOR WASTE WATER TREATMENT REQUIREMENTS FOR WATERS OF THE STATE OF IDAHO


IDAHO STATE BOARD OF HEALTH

September 1968

# RULES AND REGULATIONS
# FOR THE ESTABLISHMENT OF STANDARDS OF WATER QUALITY AND FOR WASTE WATER TREATMENT REQUIREMENTS FOR WATERS OF THE STATE OF IDAHO

## LEGAL AUTHORITY

The Idaho State Board of Health, pursuant to the authority granted in Title 39, Chapter 1, Idaho Code, sections 39-105 and 39-112, did adopt the following Rules and Regulations for the Establishment of Standards of Water Quality and for Waste Water Treatment Requirements for Waters of the State of Idaho while in regular quarterly session on August 15, 1968, at Coeur d'Alene, Idaho, and did determine the effective date to be September 4, 1968.

## PREAMBLE

It shall be the policy of the State Board of Health to provide for an orderly and economically feasible comprehensive water pollution control program, which program shall be administered to conserve the waters of the State for all legitimate beneficial uses, including uses for domestic purposes, agriculture, industry, recreation, and fish and wildlife propagation.

The Board recognizes that the control of water pollution involves many factors, including multiple water uses, economic considerations and overall benefits to the citizens of the State. It shall be the policy of the Board to carry out such a program on a cooperative voluntary and educational basis insofar as such a policy is compatible with statutory duties of the Board.

The Department of Health shall, on the basis of necessary technical studies, determine waste treatment needs throughout the State and shall establish recommended time tables for the provision of such treatment facilities as will be necessary to abate pollution of the waters of the State.

These regulations are intended to be in harmony with existing interstate stream regulations and as an administrative guide for the continuation and supplementation of the program previously carried out by the Board. The regulations are general in nature and are intended for use until such time as the staff of the Department of Health may be able to gather sufficient data to determine more precise quality standards for such individual streams as uses may indicate and until such time as the staff of the Department develops the capability of initiating a permit system as provided in the Idaho statutes.

For these reasons, paragraph 3A should be considered as the basic working arrangement of the water pollution control program which provides, in effect, special consideration for each and every waste source on the basis of special problems peculiar to that source.

## DEFINITIONS

The following definitions shall apply to the interpretation and the enforcement of these regulations:

"Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places together with such ground

water infiltration and surface water as may be present. The admixture with sewage as above defined of industrial wastes or wastes, as defined in the following agraphs 2 and 3, shall also be considered "sewage."

"Industrial waste" means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.

"Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of the public waters of the State.

"Pollution" means such contamination or other alteration of the physical, chemical or biological properties of the public waters of the State, including change in temperature, taste, color, turbidity or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into the waters of the State which either by itself or in connection with any other substance present, will or can reasonably be expected to create a public nuisance or render such waters harmful, detrimental or injurious to public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof.

"Standard" or "standards" means such measure of quality or purity in relation to their reasonable and necessary use as may be established by the State Board of H lth.

1. WATER RIGHTS

It shall be the policy of the State Board of Health that the adoption of water quality standards and regulations and the enforcement of such standards and regulations is not intended to conflict with the apportionment of water to the State of Idaho, to any of the interstate compacts or court decrees, or to interfere with the rights of Idaho appropriators in the utilization of water rights.

2. HIGHEST AND BEST PRACTICABLE TREATMENT AND CONTROL REQUIRED

Notwithstanding the water quality standards contained herein, where a higher standard can be achieved, the highest and best practicable treatment and/or control of wastes, activities and flows shall be provided so as to maintain dissolved oxygen at the highest desirable levels and overall water quality as good as practicable, and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor and other deleterious factors at the lowest desirable levels.

3. RESTRICTIONS ON THE DISCHARGE OF SEWAGE AND INDUSTRIAL WASTES AND HUMAN ACTIVITIES WHICH AFFECT WATER QUALITY IN THE WATERS OF THE STATE

A. No wastes shall be discharged and no activities shall be conducted in such a way that said wastes or activities either alone or in combination

with other wastes or activities will violate or can reasonably be expected to violate the water quality standards and/or regulations contained herein.

B. It is noted that from time to time certain short-term activities which are deemed necessary to accommodate essential activities and protect the public interest may be specially authorized by the Department of Health under such conditions as the Department of Health may prescribe even though such activities may result in a reduction of water quality conditions below those criteria and classifications established by this regulation.

4. MAINTENANCE OF STANDARDS OF QUALITY

A. The degree of sewage or waste treatment required to restore and/or maintain the standards of quality and/or maintain existing quality shall be determined in each instance by the State Board of Health and shall be based upon the following:

(1) The uses which are or may likely be made of the receiving stream.

(2) The size and nature of flow of the receiving stream.

(3) The quantity and quality of the sewage or wastes to be treated.

(4) The presence or absence of other sources of pollution on the same watershed.

B. For purposes of enforcement of these standards and regulations, sampling will be done at a point where these standards and/or regulations can be evaluated, except for areas immediately adjacent to outfalls. Cognizance will be given to the opportunity for admixture of waste effluents with receiving waters, where such admixing is planned and carried out in a manner that will provide minimum degradation to receiving waters.

5. GENERAL WATER QUALITY STANDARDS FOR WATERS OF THE STATE

The following general water quality standards will apply to waters of the State, both surface and underground, in addition to the water quality standards set forth on specifically identified waters. Waters of the State shall not contain:

A. Toxic chemicals of other than natural origin in concentrations found to be of public health significance or to adversely affect the use indicated. (Guides such as the Water Quality Criteria, published by the State of California Water Quality Control Board (Second Edition, 1963) will be used in evaluating the tolerances of the various toxic chemicals for the use indicated.)

B. Deleterious substances of other than natural origin in concentrations that cause tainting of edible species or tastes and odors to be imparted to drinking water supplies.

C. Radioactive materials or radioactivity in water which exceed (1) 1/30th of the MPC values given in Column 2, Table I, Appendix A, Part C, Rules and Regulations for the Control of Radiation in the State of Idaho, (2) exceeds concentration limits of the Idaho Drinking Water Standards for waters used for, or likely to be used for, domestic supplies, (3) results in accumulations of radioactivity in edible plants and animals that present a hazard to consumers, and/or (4) is harmful to aquatic life.

D. Floating or submerged matter not attributable to natural causes.

E. Excess nutrients of other than natural origin that cause visible slime growths or other nuisance aquatic growths.

F. Visible concentrations of oil, sludge deposits, scum, foam or other wastes that may adversely affect the use indicated.

G. Objectionable turbidity which can be traced to a point source or sources.

ON THE BASIS OF THE PRECEDING GENERAL WATER QUALITY STANDARDS, THE FOLLOWING NUMERICAL STANDARDS, WHERE APPLICABLE, SHALL BE APPLIED, EXCEPT WHERE DIFFERENCES OCCUR BETWEEN NUMERICAL STANDARDS CONTAINED HEREIN AND THOSE PREVIOUSLY ADOPTED FOR SPECIFICALLY IDENTIFIED INTERSTATE STREAMS. IN SUCH CASES, STANDARDS FOR INTERSTATE STREAMS SHALL APPLY.

6. NO WASTES SHALL BE DISCHARGED AND NO ACTIVITIES SHALL BE CONDUCTED WHICH EITHER ALONE OR IN COMBINATION WITH OTHER WASTES OR ACTIVITIES WILL CAUSE IN THESE WATERS:

A. Organisms of the Coliform Group where Associated with Fecal Sources

(MPN, equivalent MF or appropriate test using a representative number of samples.) Average concentrations of coliform bacteria to exceed 1,000 per 100 milliliters, with 20 percent of samples not to exceed 2,400 per 100 milliliters.

B. Dissolved Oxygen (DO)

DO to be less than 75 percent of saturation at seasonal low or less than 100 percent saturation in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 6.5 and 9.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increases when stream temperatures are 68° F. or above, or more than 2° F. increase when stream temperatures are 66° F. or less.

E. Turbidity

Turbidity, other than of natural origin, to exceed 10 Jackson Turbidity Units (JTU). (This turbidity requirement shall not be deemed to rigidly apply to streams, drain ditches, etc., receiving irrigation return flow. However, every reasonable effort should be made to prevent excessive turbidity from such wastes.)

IN ADDITION TO THE GENERAL STANDARDS CONTAINED HEREIN, THE FOLLOWING NUMERICAL STANDARDS SHALL APPLY TO THOSE WATERS OF THE STATE WHICH ARE PRESENTLY UPSTREAM FROM EXISTING SIGNIFICANT WASTE SOURCES AND TO ALL LAKES AND RESERVOIRS USED PRIMARILY FOR RECREATION, DRINKING WATER SUPPLIES, FISH AND WILDLIFE PROPOGATION AND/OR AESTHETIC PURPOSES.

7. NO WASTES SHALL BE DISCHARGED AND NO ACTIVITY SHALL BE CONDUCTED WHICH ALONE OR IN COMBINATION WITH OTHER WASTES WILL CAUSE IN THESE WATERS:

A. Organisms of the Coliform Group

Average concentration of coliform bacteria to exceed 240 per 100 milliliters with 20 percent of the samples not to exceed 1,000 per 100 milliliters and fecal coliform not to exceed 50 per 100 milliliters with 20 percent of the samples not to exceed 200 per 100 milliliters.

B. Dissolved Oxygen (DO)

DO to be less than 75 percent of saturation at seasonal low or less than 100 percent saturation in spawning areas during spawning, hatching, and fry stages of salmonid fishes.

C. Hydrogen Ion Concentration (pH)

pH values to be outside the range of 6.5 to 9.0. Induced variation not to be more than 0.5 pH unit.

D. Temperature

Any measurable increase when stream temperatures are 56° F. or above, or more than 2° F. increase when stream temperatures are 64° F. or less.

E. Turbidity

Turbidity, other than of natural origin, to exceed 5 Jackson Turbidity Units (JTU).

F. Phosphorus or Nitrogen Compounds

Measurable concentration of phosphorus or nitrogen compounds above those of natural origin.

8. REGULATIONS GOVERNING WASTE DISCHARGES

A. Any person or persons, corporation, officers of any municipality, sewer district or association which owns or operates any facility or carries

out any operation which results in the discharge of waste water shall furnish to the Department of Health such information concerning quality and quantity of discharged waste waters and maintain such treatment records as the Department may reasonably require to evaluate the effects on any receiving waters.

B. For the purposes of these regulations, minimum adequate treatment for domestic sewage or industrial wastes containing significant organic material shall be equal to that which is commonly known as secondary treatment or the equivalent of 85 percent removal of the biochemical oxygen demand including adequate disinfection of any wastes which may contain organisms that may produce disease in man or animals. In industrial processes, in-plant process controls or alterations, carried out for the primary purpose of waste reduction, shall be considered as a part of the treatment process. Exceptions to secondary treatment requirements may be made by the Department of Health when it can be demonstrated that such exceptions will not adversely affect classified water quality and will offer adequate protection for all beneficial uses. Failure to provide adequate treatment shall be considered a violation of these regulations.

C. Any person, persons, corporation or officials of a municipality or sewer district who owns or operates any sewage or other water-borne waste treatment facility shall at all times operate such facility under reasonably competent supervision and with the highest efficiency that can reasonably be expected and shall maintain such facility in good repair.

D. In cases of subsurface sewage or waste disposal, such disposal facilities shall be so located that such sources of pollution including bacteriological, organic or inorganic nutrient pollution will not or will not be likely to enter adjacent waters. In no case shall any portion of such disposal system be located closer than 50 feet horizontally from the edge of any water course, including lakes or reservoirs, as determined from the known highest water level of such water course, lake or reservoir. Improperly or inadequately treated sewage shall not be allowed to accumulate on the ground surface in such a manner that it may create a health hazard.

E. It shall be a violation of these regulations to store, dispose of, or allow to accumulate any deleterious material adjacent to or in the immediate vicinity of any portions of the waters of the State in such a manner that such material will or is likely to enter the stream at times of high water or runoff or where drainage from such materials or accidental failure of storage facilities may transport or allow deleterious material into the water course. Such materials shall include, but not be limited to, trash, rubbish, garbage, oil, gasoline, chemicals, sawdust and accumulations of manure.

F. In case of accidental spills of deleterious materials, persons in responsible charge shall make every reasonable effort to contain spilled material in such a manner that it will not contaminate or pollute any waters of the State, and shall immediately notify the Department of Health of any such spills.

G. Sewage sludge or solid material which may contain disease-producing organisms, when applied to lawns, root crop fields or fields producing foods which may be consumed raw, or otherwise used in such a manner that exposure to persons may be a health hazard, shall be heated to 135° F. or higher for a period of one hour or any equivalent combination of time and temperature approved by the Department of Health before such use.

H. Waste discharges to underground waters shall receive, prior to discharge of such wastes, such treatment as is necessary to render them equal in quality to existing underground waters or such treatment as is necessary to bring such discharge into conformance with the Idaho Drinking Water Standards. The provisions of Paragraph 8H will not be considered as strictly applicable to the existing sink wells used exclusively for irrigation waste water disposal where such disposal does not adversely affect domestic water sources. However, it should be recognized that the long-term preservation of Idaho's vast underground water resources is of great importance and that every reasonable effort should be made to reduce pollution from this source and that a long-term research and development program should be established that will lead to the total elimination of disposal wells that directly affect underground aquifers that are not subject to adequate filtration and percolation to eliminate significant pollution.

Further, this paragraph shall not be construed to preclude the use of deep disposal wells which may be constructed to discharge into underground water strata whose quality is such that it is not likely to be used for other beneficial purposes, provided necessary precautions are taken to prevent contamination of usable aquifers.

I. Sewage Treatment Design Standards and Subsurface Sewage Disposal Standards, as adopted by the Idaho Department of Health, shall be revised from time to time and shall be used as a guide in the review of plans and specifications for waste treatment facilities as required by Section 39-112, Idaho Code.

Regulations relating to Water Pollution Control adopted by the Idaho State Board of Health May 11, 1959, are hereby rescinded.

These Regulations shall be in full force and effect on and after September 4, 1968.

Section 39-112, Par. E --All plans and specifications for the construction of new sewage systems, sewage treatment or disposal plants or systems, or other waste treatment, or disposal facilities, or for improvement or extensions to existing sewerage systems or sewage treatment or disposal plants, shall be submitted to and be approved by the board, before construction thereof may begin.

# APPENDIX C

# IDAHO IMPLEMENTATION PLAN

LEGEND
A - Engineering Report
B - Arrangement of Financing
C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TIME SCHEDULE FOR
CURRENT WASTE TREATMENT NEEDS
TO MEET
ESTABLISHED WATER QUALITY STANDARDS

TABLE II

| City or Industry | 1967 2 | 1968 1 | 1968 2 | 1969 1 | 1969 2 | 1970 1 | 1970 2 |
|---|---|---|---|---|---|---|---|
| Bear River, Cub River, Malad River, Worm Creek and Bear Lake | | | | | | | |
| City of Paris | A | B,C | D,E | | | | |
| Cheese Plant at Grace | C | D,E | | | | | |
| Gem Valley Cheese at Grace | C | D,E | | | | | |
| Snake River from Wyoming-Idaho Border (River Mile 918) to American Falls Reservoir (River Mile 736) | | | | | | | |
| *St. Anthony Starch Co. | D;E | | | | | | |
| Rogers Bros., Potato Processing - Rexburg | | | A | B | C | D | E |
| Idaho Fresh Pak, Potato Processing - Lewisville | | | A | B | C | D | E |
| *Rogers Bros., Potato Processing - Idaho Falls | E | | | | | | |
| *Idaho Potato Growers, Potato Processing - Idaho Falls | E | | | | | | |
| *Idaho Potato Foods, Potato Processing - Idaho Falls | E | | | | | | |
| *Menan Starch Co., Potato Starch - Idaho Falls | E | | | | | | |
| *Idaho Potato Starch Co., Potato Starch - Idaho Falls | E | | | | | | |
| *R. T. French Co., Potato Processing - Shelley | E | | | | | | |
| *Idaho Supreme, Potato Processing - Firth | E | | | | | | |
| *American Potato Co., Potato Processing - Blackfoot | E | | | | | | |

* Silt Removal

LEGEND
A - Engineering Report
B - Arrangement of Financing
C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TABLE II continued

| City or Industry | 1967 2 | 1968 1 | 1968 2 | 1969 1 | 1969 2 | 1970 1 | 1970 2 |
|---|---|---|---|---|---|---|---|
| *Idaho Potato Starch Co., Potato Starch - Blackfoot | E | | | | | | |
| Snake River from American Falls Reservoir (River Mile 736) to Twin Falls (River Mile 600) | | | | | | | |
| *Lamb-Weston Inc., Potato Processing - American Falls | E | | | | | | |
| City of Aberdeen | | A | B | C,D | E | | |
| Idaho Potato Growers, Potato Processing - Aberdeen | | A | B | C,D | E | | |
| Idaho Potato Starch Co., Potato Starch - Aberdeen | | A | B | C,D | E | | |
| Kraft Foods Co., Milk Products - Aberdeen | | A | B | C,D | E | | |
| City of Rupert | B,C,D | E | | | | | |
| Kraft Foods Co., Milk Products - Rupert | B,C,D | E | | | | | |
| Magic Valley Foods, Potato Processing - Rupert | B,C,D | E | | | | | |
| City of Paul | | A | B | C | D,E | | |
| City of Heyburn | | | A | B | C | D | E |
| J. R. Simplot Co., Potato Processing - Heyburn | | | A | B | C | D | E |
| Ore-Ida Co., Potato Processing - Burley | | | A | B | C | D | E |
| A & P Co., Potato Processing - Burley | | | A | B | C | D | E |
| City of Kimberly | A | B | C | D | E | | |

* Silt Removal

LEGEND
A - Engineering Report
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C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TABLE II continued

| City or Industry | 1967 2 | 1968 1 | 1968 2 | 1969 1 | 1969 2 | 1970 1 | 1970 2 |
|---|---|---|---|---|---|---|---|
| Amalgamated Sugar Co., Beet Sugar - Twin Falls | | A | B,C | D,E | | | |
| Independent Meat Co., Meat Packers - Twin Falls | D | E | | | | | |
| City of Filer | E | | | | | | |
| City of Jerome | A | B | C,D | E | | | |
| Ida-Gem Dairy, Milk Products - Jerome | A | B | C,D | E | | | |
| King of Spuds, Potato Flour - Jerome | A | B | C,D | E | | | |
| Snake River from Twin Falls (River Mile 600) to Hells Canyon Dam (River Mile 247) | | | | | | | |
| City of Glenns Ferry | B | C,D | E | | | | |
| City of Wilder | B | C,D | E | | | | |
| Northwest Boise Sewer District | | B | C | D | E | | |
| City of Boise | E | | | | | | |
| Swift & Co., Meat Packing - Boise | | E | | | | | |
| Triangle Dairy, Milk Products - Boise | E | | | | | | |
| Star Sewer District | | B | C | D | E | | |
| J. R. Simplot Co., Potato Processing - Caldwell | | | A | B | C | D | E |
| City of Notus | B | C | D | E | | | |
| City of McCall | B,C | D | E | | | | |

LEGEND
A - Engineering Report
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1 - January - June
2 - July - December

TABLE II continued

| City or Industry | 1967 2 | 1968 1 | 1968 2 | 1969 1 | 1969 2 | 1970 1 | 1970 2 |
|---|---|---|---|---|---|---|---|
| City of Donnelly | A | B,C | D | E | | | |
| City of Cascade | C,D | E | | | | | |
| Gem Canning, Food Processing - Emmett | C | D,E | | | | | |
| Del Monte Sand & Gravel, Gravel Wash - Emmett | C | D,E | | | | | |
| Cambridge | C,D | E | | | | | |
| Snake River from Hells Canyon Dam (River Mile 247) to Lewiston, Idaho (River Mile 139) and the Palouse River | | | | | | | |
| City of Lewiston | | A | B | C | D | E | |
| Lewiston Orchards Sewer District - Lewiston | | A | B | C | D | E | |
| Seabrook Farms Inc., Pea Processing - Lewiston | | A | B | C | D | E | |
| Smith Foods Inc., Pea Processing - Lewiston | | A | B | C | D | E | |
| Potlatch Forests, Inc., Pulp & Paper - Lewiston | C | D | E | | | | |
| Riverside Sewer and Water District | E | | | | | | |
| City of Craigmont | A | B | C | D | E | | |
| City of Salmon | A | B,C | D,E | | | | |
| Kootenai River, Priest River, Pend Oreille Lake and River, Coeur d'Alene Lake and River, and Spokane River | | | | | | | |
| City of Bonners Ferry | C,D | E | | | | | |

LEGEND

A - Engineering Report
B - Arrangement of Financing
C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TABLE II continued

| City or Industry | 1967 2 | 1968 1 | 1968 2 | 1969 1 | 1969 2 | 1970 1 | 1970 2 |
|---|---|---|---|---|---|---|---|
| City of Coeur d'Alene | A | B | C | D | E | | |
| City of Mullan | B | C | D | E | | | |
| City of Wallace | B | C | D | E | | | |
| City of Burke | B | C | D | E | | | |
| City of Silverton | B | C | D | E | | | |
| City of Osburn | B | C | D | E | | | |
| City of Wardner | B | C | D | E | | | |
| Elizabeth Park Sewer District | B | C | D | E | | | |
| City of Smelterville | B | C | D | E | | | |
| Pinehurst Community | B | C | D | E | | | |
| Lucky Friday Mine & Mill - Mullan | | D | E | | | | |
| Star Mine & Mill - Osburn | | D | E | | | | |
| Galena Mine & Mill - Wallace | | D | E | | | | |
| Polaris Mill - Wallace | | D | E | | | | |
| Bunker Hill - Kellogg | | D | E | | | | |

LEGEND
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1 - January - June
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TIME SCHEDULE FOR
WASTE TREATMENT NEEDS WHEREBY ALL
DOMESTIC AND INDUSTRIAL WASTE TREATMENT FACILITIES
WILL BE UPGRADED TO SECONDARY OR EQUIVALENT

TABLE III

| City or Industry | 1969 1 | 1969 2 | 1970 1 | 1970 2 | 1971 1 | 1971 2 | 1972 1 | 1972 2 | 1973 1 | 1973 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Bear River, Cub River, Malad River, Worm Creek and Bear Lake | | | | | | | | | | |
| City of Montpelier | | | | A | B | C | D | E | | |
| City of Soda Springs | | | | A | B | C | D | E | | |
| Snake River from Wyoming-Idaho Border (River Mile 918) to American Falls Reservoir (River Mile 736) | | | | | | | | | | |
| City of Idaho Falls | | A | B | C | D | E | | | | |
| U & I Sugar Co., Idaho Falls | C | D,E | | | | | | | | |
| Rogers Bros., Potato Processing-Ida. Falls | | A | B | C | D | E | | | | |
| Idaho Potato Growers, Potato Processing, Idaho Falls | | A | B | C | D | E | | | | |
| Idaho Potato Foods, Potato Processing, Idaho Falls | | | A | B | C | D | E | | | |
| R.T. French Co., Potato Processing, Shelley | | | A | B | C | D | E | | | |
| Idaho Supreme, Potato Processing, Firth | | | | A | B | C | D | E | | |
| American Potato Co., Potato Processing, Blackfoot | | | | A | B | C | D | E | | |
| Menan Starch Co., Potato Starch, Idaho Falls | | A | B | C | D | E | | | | |
| Idaho Potato Starch, Potato Starch, Idaho Fal | | A | B | C | D | E | | | | |

LEGEND
A - Engineering Report
B - Arrangement of Financing
C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TABLE III continued

| City or Industry | 1969 1 | 1969 2 | 1970 1 | 1970 2 | 1971 1 | 1971 2 | 1972 1 | 1972 2 | 1973 1 | 1973 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| City of Blackfoot | | | | A | B | C | D | E | | |
| Idaho Potato Starch Co., Potato Starch, Blackfoot | | | | A | B | C | D | E | | |
| St. Anthony Starch Co., Potato Starch, St. Anthony | | | A | B | C | D | E | | | |
| City of Pocatello | | | | | | A | B | C | D | E |
| Snake River from American Falls Reservoir, (River Mile 736) to Twin Falls (River Mile 600) | | | | | | | | | | |
| Magic Valley Co., Potato Starch, Twin Falls | | | | | A | B | C | D | E | |
| City of Twin Falls | | | | | A | B | C | D | E | |
| Bertie's Poultry, Chicken Processing, Twin Falls | | | | | A | B | C | D | E | |
| Swift & Co., Milk Products, Twin Falls | | | | | A | B | C | D | E | |
| Young's Dairy, Milk Products, Twin Falls | | | | | A | B | C | D | E | |
| Idaho Frozen Foods, Potato Processing, Twin Falls | | | | | A | B | C | D | E | |
| Snake River from Twin Falls (River Mile 600) to Hells Canyon Dam (River Mile 247) | | | | | | | | | | |
| City of Payette | | | | | A | B | C | D | E | |

LEGEND

A - Engineering Report
B - Arrangement of Financing
C - Construction Plans
D - Start of Construction
E - Placed in Operation
1 - January - June
2 - July - December

TABLE III continued

| City or Industry | 1969 1 | 1969 2 | 1970 1 | 1970 2 | 1971 1 | 1971 2 | 1972 1 | 1972 2 | 1973 1 | 1973 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Wells & Davies, Meat Packing, Payette | | | | | A | B | C | D | E | |
| City of Weiser | | | | | | A | B | C | D | E |
| Snake River from Wells Canyon Dam (River Mile 247) to Lewiston, Idaho (River Mile 139) and the Palouse River | | | | | | | | | | |
| City of Orofino | | | A | B | C | D | E | | | |
| Kootenai River, Priest River, Pend Oreille Lake and River, Coeur d'Alene Lake and River, and Spokane River | | | | | | | | | | |
| City of Sandpoint | A | B | C | D | E | | | | | |
| City of Priest River | | A | B | C | D | E | | | | |

# APPENDIX D

# RIVERS AND HARBORS ACT OF 1899

# RIVERS AND HARBORS ACT OF 1899

## (33 U.S.C. 401-413; Section 407 is referred to as the Refuse Act of 1899)

§401. Construction of bridges, causeways, dams or dikes generally

It shall not be lawful to construct or commence the construction of any bridge, dam, dike, or causeway over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of the Army: *Provided* That such structures may be built under authority of the legislature of a State across rivers and other waterways the navigable portions of which lie wholly within the limits of a single State, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of the Army before construction is commenced: *And provided further.* That when plans for any bridge or other structure have been approved by the Chief of Engineers and by the Secretary of the Army, it shall not be lawful to deviate from such plans either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of the Army.

§403. Obstruction of excavations and filling in of navigable waters generally; wharves; piers, etc.;

The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, canal, lake, harbor or refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to the beginning the same.

§404. Establishment of harbor lines; conditions to grants for extension of piers, etc.

Where it is made manifest to the Secretary of the Army that the establishment of harbor lines is essential to the preservation and protection of harbors he may, and is, authorized to cause such lines to be established, beyond which no piers, wharves, bulkheads, or other works shall be extended or deposits made, except under such regulations as may be prescribed from time to time by him: *Provided,* That whenever the Secretary of the Army grants to any person or persons permission to extend piers, wharves, bulkheads, or other works, or to make deposits in any tidal harbor or river of the United States beyond any harbor lines established under authority of the United States, he shall cause to be ascertained the amount of tidewater displaced by any such structure or by any such deposits, and he shall, if he deem it necessary, require the parties to whom the permission is given to make compensation for such displacement either by excavating in some part of the harbor, including tidewater channels between high and low water mark, to such an extent as to create a basin for as much tidewater as may be displaced by such structure or by such deposits, or in any other mode that may be satisfactory to him.

§406. Penalty for wrongful construction of bridges, piers, etc.; removal of structures

Every person and every corporation that shall violate any of the provisions of sections 401, 403, and 404 of this title or any rule or regulation made by the Secretary of the Army in pursuance of the provisions of section 404 of this title shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding $2,500 nor less than $500, or by imprisonment (in the case of a natural person) not exceeding one year, or by both such punishments, in the discretion of the court. And further, the removal of any structures or parts of structures erected in violation of the provisions of the said sections may be enforced by the injunction of any district court exercising jurisdiction in any district in which such structures may exist, and proper proceedings to this end may be instituted under the direction of the Attorney General of the United States.

§407. Deposit of refuse in, navigable waters generally

It shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water

from which the same shall float or be washed into such navigable water, and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed. *Provided*, That nothing herein contained shall extend to, apply to, or prohibit the operations in connection with the improvement of navigable waters or construction of public works, considered necessary and proper by the United States officers supervising such improvement or public work: *And provided further*, That the Secretary of the Army, whenever in the judgment of the Chief of Engineers anchorage or navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such material: and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful.

§407a. Deposit of debris of mines and stamp works

In places where harbor-lines have not been established, and where deposits of debris of mines or stamp works can be made without injury to navigation, within lines to be established by the Secretary of the Army, said officer may, and is authorized to, cause such lines to be established; and within such lines such deposits may be made, under regulations to be from time to time prescribed by him . . .

§408. Taking possession of, use of, or injury to harbor or river improvements

It shall not be lawful for any person or persons to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating, or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works: *Provided*, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned public works when in his judgment such occupation or use will not be injurious to the public interest.

§411. Penalty for wrongful deposit of refuse; use of or injury to harbor improvements, and obstruction of navigable waters generally

Every person and every corporation that shall violate, or that shall knowingly aid, abet, authorize, or instigate a violation of the provisions of sections 407, 408, and 409 of this title shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding $2,500 nor less than $500 or by imprisonment (in the case of a natural person) for not less than thirty days nor more than one year, or by both such fine and imprisonment, in the discretion of the court. One half of said fine to be paid to the person or persons giving information which shall lead to conviction.

§413. Duty of United States attorneys and other Federal officers in enforcement of provisions; arrest of offenders

The Department of Justice shall conduct the legal proceedings necessary to enforce the provisions of sections 401, 403, 404, 406, 407, 408, 409, 411, 549, 686, and 687 of this title; and it shall be the duty of United States attorneys to vigorously prosecute all offenders against the same whenever requested to do so by the Secretary of the Army or by any of the official hereinafter designated, and it shall furthermore be the duty of said United States attorneys to report to the Attorney General of the United States the action taken by him against offenders so reported, and a transcript of such reports shall be transmitted to the Secretary of the Army by the Attorney General; and for the better enforcement of the said provisions and to facilitate the detection and bringing to punishment of such offenders, the officers and agents of the United States in charge or river and harbor improvements, and the assistant engineers and inspectors employed under them by authority of the Secretary of the Army, and the United States collectors of customs and other revenue officers shall have power and authority to swear out process, and to arrest and take into custody, with or without process, any person or persons who may commit any of the acts or offenses prohibited by the said sections, or who may violate any of the provisions of the same: *Provided*, That no person shall be arrested without process for any offense not committed in the presence of some one of the aforesaid officials: *And provided further*, That whenever any arrest is made under such sections, the person so arrested shall be brought forthwith before a commissioner, judge, or court of the United States for examination of the offenses alleged against him; and such commissioner, judge, or court shall proceed in respect thereto as authoized by law in case of crimes against the United States.

# APPENDIX E

# EXECUTIVE ORDER 11574

# EXECUTIVE ORDER 11574

## Administration of the Refuse Act Permit Program

By virtue of the authority vested in me as President of the United States, and in furtherance of the purposes and policies of section 13 of the Act of March 3, 1899, c. 425, 30 Stat. 1152 (33 U.S.C. 407), the Federal Water Pollution Control Act, as amended (33 U.S.C. 1151 et. seq.), the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-666c), and the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), it is hereby ordered as follows:

Section 1. *Refuse Act permit program.* The executive branch of the Federal Government shall implement a permit program under the aforesaid section 13 of the Act of March 3, 1899 (hereinafter referred to as "the Act") to regulate the discharge of pollutants and other refuse matter into the navigable waters of the United States or their tributaries and the placing of such matter upon their banks.

Sec. 2. *Responsibilities of Federal agencies* (a) (1) The Secretary shall, after consultation with the Administrator ecting water quality matters, issue and amend, as opriate, regulations, procedures, and instructions for receiving, processing, and evaluating applications for permits pursuant to the authority of the Act.

(2) The Secretary shall be responsible for granting, denying, conditioning, revoking, or suspending Refuse Act permits. In so doing:

(A) He shall accept findings, determinations, and interpretations which the Administrator shall make respecting applicable water quality standards and compliance with those standards in particular circumstances, including findings, determinations, and interpretations arising from the Administrator's review of State or interstate agency water quality certifications under section 21(b) of the Federal Water Pollution Control Act (84 Stat. 108). A permit shall be denied where the certification prescribed by section 21(b) of the Federal Water Pollution Control Act has been denied, or where issuance would be inconsistent with any finding, determination, or interpretation of the Administrator pertaining to applicable water quality standards and conside.ations

(B) In addition, he shall consider factors, other than water quality, which are prescribed by or may be lawfully considered under the Act or other pertinent laws.

(3) The Secretary shall consult with the Secretary of the Interior, with the Secretary of Commerce, with the Administrator, and with the head of the agency exercising administration over the wildlife resources of any affected State, regarding effects on fish and wildlife which are not reflected in water-quality considerations, where the discharge for which a permit is sought impounds, diverts, deepens the channel, or otherwise controls or similarly modifies the stream or body of water into which the discharge is made.

(4) Where appropriate for a particular permit application, the Secretary shall perform such consultations respecting environmental amenities and values, other than those specifically referred to in paragraphs (2) and (3) above, as may be required by the National Environmental Policy Act of 1969.

(b) The Attorney General shall conduct the legal proceedings necessary to enforce the act and permits issued pursuant to it.

Sec. 3. *Coordination by Council on Environmental Quality.* (a) The Council on Environmental Quality shall coordinate the regulations, policies, and procedures of Federal agencies with respect to the Refuse Act permit program

(b) The Council on Environmental Quality, after consultation with the Secretary, the Administrator, the Secretary of the Interior, the Secretary of Commerce, the Secretary of Agriculture, and the Attorney General, shall from time to time or as directed by the President advise the President respecting the implementation of the Refuse Act permit program, including recommendations regarding any measures which should be taken to improve its administration.

Sec. 4. *Definitions.* As used in this order, the word "Secretary" means the Secretary of the Army, and the word "Administrator" means the Administrator of the Environmental Protection Agency.

RICHARD NIXON

THE WHITE HOUSE,
December 23, 1970.

# APPENDIX F

# OIL POLLUTION REGULATIONS

# DISCHARGE OF OIL

## (Code of Federal Regulations, Title 18, Chapter V, Part 610)

Sec.



AUTHORITY: The provisions of this Part 610 are issued under sec. 11 (b) (3) of the Federal Water Pollution Control Act, as amended (84 Stat. 92; 33 U.S.C. 1161).

### §610.1 Definitions.

As used in this part, the following terms shall have the meaning indicated below:

(a) "Oil" means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, oil mixed with ballast or bilge, and oil mixed with wastes other than dredged spoil;

(b) "Discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping;

(c) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel;

(d) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce;

(e) "United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands;

(f) "Person" includes an individual, firm, corporation, association, and a partnership;

(g) "Contiguous zone" means the entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and the Contiguous Zone;

(h) "Onshore facility" means any facility (including, but not limited to motor vehicles and rolling stock) of any kind located in, on, or under, any land within the United States other than submerged land;

(i) "Offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States other than a vessel or public vessel,

(j) "Applicable water quality standards" means water quality standards adopted pursuant to section 10(c) of the Federal Act and State-adopted water quality standards for waters which are not interstate within the meaning of that Act.

(k) "Federal Act" means the Federal Water Pollution Control Act, as amended, 33 U.S.C. 466, et seq.

(l) "Sheen" means an iridescent appearance on the surface of water.

(m) "Sludge" means an aggregate of oil or oil and other matter of any kind in any form other than dredged spoil having a combined specific gravity equivalent to or greater than water.

### §610.2 Applicability.

The regulations of this part apply to the discharge of oil into or upon the navigable waters of the United States, adjoining shorelines or into or upon the waters of the contiguous zone, prohibited by section 11 (b) of the Federal Act.

### §610.3 Discharge into navigable waters harmful.

For purposes of section 11 (b) of the Federal Act, discharges of such quantities of oil into or upon the navigable waters of the United States or adjoining shorelines determined to be harmful to the public health or welfare of the United States, at all times and locations and under all circumstances and conditions, except as provided in section 610.6 of this part, include discharges which:

(a) Violate applicable water quality standards, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

### §610.4 Discharge into contiguous zone harmful.

For purposes of section 11 (b) of the Federal Act, discharges of such quantities of oil into or upon the waters of the contiguous zone determined to be harmful to the public health or welfare of the United States, at all times and locations and under all circumstances and conditions, except as provided in section 610.6 of this part, include discharges which:

(a) Violate applicable water quality standards in navigable waters of the United States, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

§610.5 Discharge prohibited.

As provided in section 11 (b) (2) of the Federal Act, no person shall discharge or cause or permit to be discharged into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone any oil, in harmful quantities as determined in sections 610.3 and 610.4 of this part, except as the same may be permitted in the contiguous zone under Article IV of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended.

§610.6 Exception for vessel engines.

For purposes of section 11 (b) of the Federal Act, discharges of oil from a properly functioning vessel engine are not deemed to be harmful; but such oil accumulated in a vessel's bilges shall not be so exempt.

§610.7 Dispersants.

Addition of dispersants or emulsifiers to oil to be discharged which would circumvent the provisions of this part is prohibited.

§610.8 Demonstration projects.

Notwithstanding any other provisions of this part, the Secretary of the Interior may permit the discharge of oil into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, in connection with research, demonstration projects, or studies relating to the prevention, control, or abatement of oil pollution.

§610.9 Notice.

Any person in charge of any vessel or onshore or offshore facility shall, as soon as he has knowledge of any discharge of oil from such vessel or facility in violation of section 610.5 of this part, immediately notify the U.S. Coast Guard of such discharge in accordance with such procedures as the Secretary of Transportation may prescribe.

Dated: September 9, 1970.

WALTER J. HICKEL,
*Secretary of the Interior.*

[F.R. Doc. 70-12180; Filed, Sept. 10, 1970; 8:52 a.m.]