UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Salmon National Forest
Salmon, Idaho 83467

2560

REPLY TO: ~~2520~~ Watershed Protection and Management June 16, 1975

SUBJECT: Management Plan - Salmon City Municipal Watershed

TO: District Ranger
Salmon Ranger District

Enclosed are two approved copies of the above management plan. We suggest that you furnish Salmon City with a copy. We also suggest that you develop and install signs to implement Management Decision No. 7. Recreation use should be discouraged but probably not prohibited unless definite water quality problems arise.

We commend you for this well prepared plan.

J. L. Emerson

J. L. EMERSON
Forest Supervisor

DHooper:kaa

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Salmon Ranger District
Salmon, Idaho 83467

REPLY TO: 2520 Watershed Protection and Management June 5, 1975

SUBJECT: Management Plan - Salmon City
Municipal Watershed

TO: Forest Supervisor

Attached for your approval are four copies of a Management Plan for the Salmon City Municipal Watershed. The plan has been reviewed and approved by the Mayor and City Council at their regular meeting on June 2, 1975.

Previously, an Environmental Analysis Report for withdrawing the municipal watershed from mineral entry was submitted to your office. When the EAR is approved, it should also apply to this management plan. No additional EAR should be necessary.

A. T. Schuldt

ALDEN T. SCHULDT
District Ranger

Attachments

1c-letter
4c-enclosure

SALMON [illegible]
COPY
P.C.

JUN 1[illegible]'75

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M A N A G E M E N T P L A N

Salmon Municipal Watershed

Watershed Number 0015

Salmon Ranger District

Salmon National Forest

Region 4

Prepared by: A. T. Schuldt Date 6/12/75

Recommended by: [illegible] Date 6/16/75

Recommended by: _____ Date _____

Approved by: J. B. Emerson Date 6/16/75

A. INTRODUCTION

The Salmon Municipal Watershed consists of the Jesse Creek, Chipps Creek and Pollard Canyon drainages. The lower boundary of the watershed lies approximately one mile west of the City of Salmon.

The Watershed is on the east facing slope of the Salmon River Mountains in Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, and 18, T. 21 N., R. 21 E., B.M.; Sections 1 and 12, T. 21 N., R. 20 E., B.M.; Sections 18, 19, 20, 28, 29, 30, 31, 32, 33, 34, and 35, T. 22 N., R. 21 E., B.M.; Sections 24, 25, and 36, T. 22 N., R. 20 E., B.M. It is a tributary of the Salmon River Drainage of the Snake River Basin in the Columbia River system. Portions of the watershed are in the Lower, Intermediate, and Crest Zones on the Salmon Ranger District, Salmon National Forest, County of Lemhi, State of Idaho.

The watershed contains approximately 13,240 acres of National Forest land and ranges in elevation from 4420 feet to 9150 feet with a mean elevation of 7230 feet. The area is characterized by narrow, steep walled canyons with numerous slide rock or talus slopes. Most of the drainages have very steep talus slopes or ledges at the head with small cirques or cirque basins immediately beneath these slopes.

The majority of substratum material on the watershed is composed of metamorphosed, impure gray quartzite. However, at the upper reaches of Jesse Creek, granitic formations representing the fringe of the Idaho Batholith are present. At the lower reaches, portions of the Carmen formation and Challis volcanics can be found. There are numerous faults within the watershed area, but they are of small displacement and appear to be of no major consequence.

The area contains a degree of mineralization. However, the exact extent is not known. There was a quartzite claim between Turner Gulch and Jesse Creek. A deposit of low grade coal or lignite is located in Pollard Canyon immediately below the Forest boundary.

Soils over the area are variable, ranging from very shallow to moderate in depth. Textures range from silt loams to clays with some granitics at the upper reaches of Jesse Creek.

Precipitation ranges from approximately 9 inches at the lower elevations to 30 inches near the summit. The monthly average precipitation, taken at the Salmon weather station, indicates the precipitation at the lower elevations is fairly well spread with the exceptions of May and June which receive somewhat more precipitation. The majority of the precipitation at the higher elevations comes during the winter in the form of snow. There is a snow measurement course approximately five miles south

of the area in the head of Williams Creek which is read annually during the last of February and March. Measurements taken from this course show an average water content of 14.17 inches on April 1. The average annual precipitation received at Salmon is about 9.39 inches. Temperatures in the area vary considerably. At the Salmon weather station, for the period 1968 through 1974, the high temperature recorded was 105°F. while the lowest was -25°F., with a mean temperature of 45°F. At a mean elevation of 7230 feet on the watershed, the mean temperature would be approximately 33° F. At the 9150 foot elevation, the mean temperature would be approximately 26°F. The area is subject to high intensity, short duration cyclonic storms during the summer months.

Coniferous timber is the major cover type on the watershed area. Douglas-fir is the predominant species. However, lodgepole pine covers much of the area. At the upper reaches and along the ridges, limber pine is common. Along the canyon bottoms and around the small meadows and pot holes, Engelmann spruce is present. Sage-grass slopes and openings are scattered throughout the lower reaches of the watershed.

The City maintains three intake systems, one in Pollard Canyon, one in Chipps Creek and one in Jesse Creek. The intake system in Chipps Creek picks up water and transports it to Pollard Canyon in a twelve inch pipe. The Pollard Canyon intake system picks up the flow from the canyon and the piped flow from Chipps Creek; and transports it to Jesse Creek in a twelve inch pipe. The water is piped directly into a concrete collection tank. The water from the Jesse Creek drainage is slowed in a settling pond or reservoir with about one acre in surface. From there it flows into a wooden flume that carries it to the collection tank. Part of the flow is by-passed so that it does not enter the collection tank but continues downstream as natural flow. Additional water is pumped from a 30 foot well into the collection tank. From the collection tank, the water is piped down to the City's 75,000 gallon reservoir and chlorination system before entering the City mains.

Under construction in 1975 is a three-pond water treatment and storage facility. The facility, known as a slow sand filter, will store 5 million gallons. It will be completed in 1976 at an estimated cost of $100,000.

Although the water flow from the watershed is more than adequate for the City's needs, the City cannot take more than it has rights for. The City has first right to only 215 inches. By agreement, it also takes an additional 100 inches and replaces it with irrigation water pumped from the Salmon River. City officials believe the supply is barely adequate to meet the present demand. Water use by both commercial and domestic users is estimated at 3500 gallons per minute peak use in the summer and 800 gallons per minute peak use in the winter. Converting the City's water right, which is stated in miners inches to gallons per minute (1 M. Inch = 9.0 gallons per minute) indicates a maximum water right of 2835 gallons per minute. An additional small gallonage of water is obtained from the well.

A tabulation of the City's water rights is included as appendix material in this report.

Photo #1. Chipps Creek water intake. The 12 inch pipe carries water to augment the Pollard Canyon flow. This facility is on private land.

November 1974

Photo #2. Outlet of Chipps Creek pipeline just above the Pollard Canyon water intake. This flow from Chipps Creek augments the Pollard Canyon flow.

November 1974

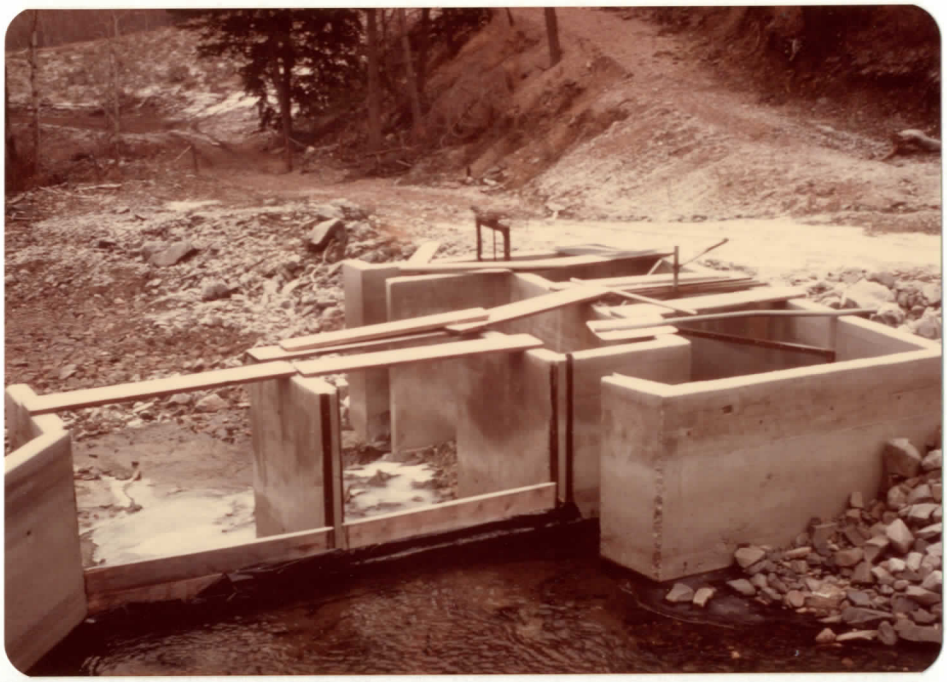


Photo #3. Pollard Canyon water intake. A buried 12 inch pipeline carries water from here to the Jesse Creek water intake.

November 1974

Photo #4. Settling pond in Jesse Creek. This natural pond is maintained by the City to settle out debris before it enters the wood flume.

November 1974

Photo #5. Wood flume in Jesse Creek. The concrete structure is the Jesse Creek water intake.

November 1974

Photo #6. Jesse Creek water intake. Wood flume on right carries Jesse Creek flow. The large black pipe carries water from Pollard Canyon. Near bottom center of photo is a well the City uses to augment the water supply.

November 1974

Photo #7. The new water storage and filtration system under construction. Salmon, Idaho in the background.

November 1974

Prior to 1973, the water intake in Pollard Canyon was located below the confluence of Chipps Creek and Pollard Canyon. To eliminate sediment sources, the system was extended upstream and divided into a water intake in Chipps Creek and one in Pollard Canyon.

Special land uses are limited. Idaho Power Company has a permit dated 5/26/58 for a powerline right-of-way 75 feet in width which passes through a portion of the watershed area for approximately four miles. The City of Salmon has a permit for water transmission lines, structures, and road across the lower end of the watershed from Pollard Canyon to Jesse Creek. There is also a special use permit issued to Edgar Edwards for an irrigation ditch out of Chipps Creek.

Access into the watershed is very limited. There is a low standard road for about 1/2 mile in Jesse Creek. Limited access is also provided by the Salmon River Mountain Road along the west side of the watershed, the old Leesburg Road along the north side on the watershed and the road to the Forest Service administrative site in Jesse Creek at the lower end of the watershed.

B. HISTORY

Settlement of the Salmon area began in 1866 with the discovery of gold in the Leesburg area. The City of Salmon started as a supply point to the gold fields that were located to the west. Farmers and ranchers followed the early mining activity. As the community grew, so did the culinary water requirements. In about 1890, E. S. Edwards built the first water system in the City of Salmon. This system was purchased in 1897 by the Salmon City Water Company. Finally in 1911, the City of Salmon purchased the system and it became known as the Salmon City Municipal Water Works.

During early settlement, the mountains surrounding the area were freely used by the settlers for the grazing of their domestic livestock. Timber was cut for lumber, homes, outbuildings, firewood, and many other uses. As time progressed, water from the watershed became the most important resource. Other uses were eliminated or restricted. Domestic sheep grazing was terminated from the area in 1911, and cattle grazing in 1917. Wild animals continue to use the drainages. Deer are the major big game species seen on the area. However, elk may occasionally be in the area. The watershed also supports limited populations of upland game birds such as bluegrouse, ruffed grouse, and chuckars. Because of the lack of access, recreation use, both in the past and in the foreseeable future, is very limited. There are no existing nor planned recreation developments in the watershed. However, a small lake near the head of Pollard Canyon attracts a few picnickers during the summer months. A few big game hunters use the area for a short time in the fall. The settling pond supports a few trout and receives light fishing use.

There are a few exploratory mines scattered in the area. Even the old exploratory holes have been inactive for many years. Records show one claim as being surveyed. This claim, MS-1237 A and B, consists of approximately 45 acres and lies on the ridge between Turner Gulch and Jesse Creek in Sections 32 and 33, T. 22 N., R. 21 E., B.M. This claim has been inactive for many years and is apparently abandoned. Low grade coal was mined below the Forest boundary on private land. A small amount of coal was mined. Due to poor quality, this venture was unsuccessful.

Fire occurrence within the watershed is fairly low. The area is rated as resource value class 6 because of the very important watershed values of the area. The fuel types on the area vary but in general, they are classified as low rate of spread and high resistance to control. The area has been placed in the two hour control zone, but it is doubtful if portions of the interior could be reached within these time limits due to the limited access.

The Forest Service maintains the Jesse Creek administrative site which is within the lower reaches of the municipal watershed. The area is used primarily as a storage area. The use of the administrative site for storage does not affect the municipal water supply as it is downstream from the intake systems. The administrative site was withdrawn from mineral entry May 18, 1964.

C. MANAGEMENT OBJECTIVES

The management objectives for this watershed are to provide maximum watershed protection to Jesse Creek, Chipps Creek, and Pollard Canyon so they can produce the optimum amount of high quality water for on-site and downstream uses without impairing the other resource values of the area. This is to be accomplished within the guidelines set forth in the Salmon Ranger District Multiple Use Plan and the Cooperative Agreement entered into between the Secretary of Agriculture and the City of Salmon June 8, 1939.

D. HYDROLOGY

The watershed produces an estimated average water flow of 6140 acre feet per year. The city water system serves approximately 3,000 people. By using 100 gallons per person per day, the yearly average water consumption would be 336 acre feet of water for domestic purposes. This does not include water which is used by businesses in the area such as service stations, laundromats, car washes, hotels, motels, and the cheese factory, all of which consume large amounts of water. The city does not measure or meter the water so actual amounts used are not known.

Fluctuations in stream flow vary from 30% in June to 3% in February of the total water yield. Of the 6140 acre feet of water flowing from this watershed per year, approximately 80% or 4298 acre feet occurs during May, June, and July. Peak flows from snow melt generally occur between May 22 and June 14. Even though approximately 70% of the water produced flows from the area in a relatively short period of time, the stream channels within the National Forest boundary are stable and handle the flows without channel erosion. The stabilized condition of the channels indicates no flooding history. Flood potential of the forest lands within the watershed are low because of vegetative and ground cover conditions existing on the area. Although much of the area is covered with talus slopes and rock outcrops, only one problem area has been identified. A small clay basin, containing approximately 5 acres located above the holding reservoir, is a major producer of colloidal sediments in the Jesse Creek drainage. The soils in this basin are composed of plastic, very sticky clays. Vegetative cover is quite sparse, but probably approaches maximum density for the site. The problems associated with the site are aggravated by construction of the Pollard Canyon water transmission line. This activity exposed sterile subsoil at the water line as well as at the ditch that is now abandoned. Mechanical treatment would further aggravate the situation as it is unlikely sufficient vegetation could be established on the disturbed area to stabilize soil movement.

E. WATER MANAGEMENT PROBLEMS

Of the water produced on the watershed, quantity and timing present no problem although there is a wide variation in stream flow. Water samples taken and sent to the State each month for bacterial analysis nearly always test out within acceptable limits. This may be due to the fact that the water is chlorinated. Water samples are taken daily by the City and tested for the chlorine content. Chemical content of the water is good with a pH of approximately 6.9.

In 1967, Robert G. Bailey and Larry J. Schmidt, hydrologists from the Forest Service Regional Office, accompanied by forest personnel, made a reconnaissance of the Salmon Municipal Watershed. Followup investigations and a Hydrologic Problem Analysis Report was made in 1969. This report identifies and suggests remedial action which could be taken on these problems or problem areas. The findings of these investigations indicate the quantity of water produced should generally be adequate as the mean low flow is approximately 450 percent of the estimated need. However, water rationing for lawn sprinkling has been necessary during dry summers.

Even though extension of the water intakes in Chipps Creek and Pollard Canyon have eliminated many of the sources of sediment and organic material, water quality remains a problem. The problem lies in the Jesse Creek drainage. The problem areas in Jesse Creek are located within the

Forest boundary and consists of the small clay basin above the holding reservoir, the nearly vertical banks at the excavation near the Jesse Creek water intake, access road, and the small gully leading into the excavation. From the standpoint of the municipal water supply, the best solution may be to extend the intake works up Jesse Creek to a point above these problem areas.

F. IMPROVEMENT NEEDS AND DEVELOPMENT PROGRAM

Forest Service lands within the watershed have been closed to domestic livestock grazing and timber harvesting for years. A proposal to withdraw the area from mineral entry is presently in progress. This will give added protection to the National Forest lands within the watershed. There are no land treatment measures planned on National Forest lands. The main problems located on Forest land which affect the municipal water supply, are located in the lower portion of the Jesse Creek drainage and are man made or have been aggravated and accelerated by the activities of man. The area believed to be contributing the majority of sediment is a small (4 or 5 acre) clay basin above the holding reservoir. This basin lays on the north facing slope and drains directly into the holding reservoir. The siltation from this basin occurs primarily during the snow melt period or after a heavy rainstorm. Soils in this basin are predominantely clays, appear to be relatively infertile and unstable. The basic nature of these soils limit the types of treatment which could be applied to the area. Presently, the solutions which appear the most feasible would be to extend the intake works up Jesse Creek to a point above the problem area or collect the runoff from this basin and channel it to some point below the intake system.

The water flowing from this watershed, even during the low flow period of February, exceeds the present and foreseeable needs of the City of Salmon. From this standpoint, it is not believed desirable to attempt to manipulate the quantity or timing of water released from the watershed.

Special use permits and cooperative agreements existing within the watershed boundary consist of:

1. A Cooperative Agreement between the City of Salmon, Idaho and the Secretary of Agriculture, dated June 8, 1939 for the purpose of conserving and protecting the municipal water supply for the City of Salmon. (Copy attached in appendix.)

2. Special use permit, dated 3/11/48, to the City of Salmon for a right-of-way to construct and maintain lines, structures, and a road from Pollard Canyon to Jesse Creek. Permit issued free. (A revised special use permit for the additional facilities the City has on the watershed is expected to be issued in May, 1975.)

3. Special use permit dated 5/26/58, to the Idaho Power Company for a 75 foot right-of-way for the construction and maintenance of the Salmon-Blackbird Transmission Line.

4. Special use permit, dated 1/28/74, to Edgar Edwards for an irrigation ditch for transmission of water from Chipps Creek. Charge permit.

The City Council has outlined plans to continue developing the water system and watershed in future years. These plans include filling in the excavation at the Jesse Creek water intake, constructing a road across National Forest land and private land from Jesse Creek to Pollard Canyon, and reserving potential rock rip-rap material in Jesse Creek for emergency use by the City or County whenever the emergency might be.

Due to the uncertainty of how and when these proposed plans will become firm projects, there will be no further discussion of them in this plan.

G. ECONOMICS

Due to the fact that National Forest lands have been closed to most uses for many years, there would be negligible impacts to the National Forest in terms of dollar returns if presently permitted uses are terminated. The only permitted use which has a substantial fee applied to it is the Salmon-Blackbird power transmission line. The 1971 fee for this right-of-way was $270.00. However, should this use be terminated, the effect on the area and persons dependant upon this power source, would be great. Observations and studies do not indicate that this transmission line is presently contributing to unsatisfactory watershed conditions which would require consideration for removing the power line from the municipal watershed.

According to the 1962 timber survey data, there are approximately 35.3 MMBF of merchantable sized sawtimber on the watershed. It is estimated that over one-half of this is not operable due to steep slopes, unstable soil or economics of present logging operations.

The monatary values of this timber, from a sawlog standpoint, is greatly outweighed by its value for watershed protection and other values.

H. MANAGEMENT DECISIONS (See latest M.U. Plan Revision)

Management decisions for the municipal watershed will be in accordance with the Cooperative Agreement dated 6/8/39 between the City of Salmon and the Forest Service, and patterned after those set forth in the Salmon Ranger District Multiple Use Plan. The management decisions are:

1. Withdraw from mineral entry.

2. Construct no roads unless access is controlled by the City and the water supply will not be degraded.

12.

3. Remove the merchantable timber volume from the Forest's inventory.

4. Protect water quality by deferring timber harvesting for the foreseeable future or until methods not requiring roads are feasible.

5. Issue no special use permits which may adversely affect water quality.

6. Continue closure to livestock grazing.

7. Exclude camping and recreational developments. Sign area to discourage recreation use.

8. Apply appropriate watershed restoration practices to correct siltation source in Jesse Creek.

9. Take prompt fire control action on all fires.

10. Give priority to controlling fires in watershed.

11. Use no herbicides nor pesticides within the drainage.

12. Bulldozers will not be used in fireline construction except when fire losses to water quality would exceed the damage caused by their use.

13. Restrict use of fire retardants to absolute minimum. Instruct those in charge of fire management efforts to avoid use of retardants where they may be dropped directly into stream channels.

14. Limit fire retardant use on slopes immediately visible from Salmon.

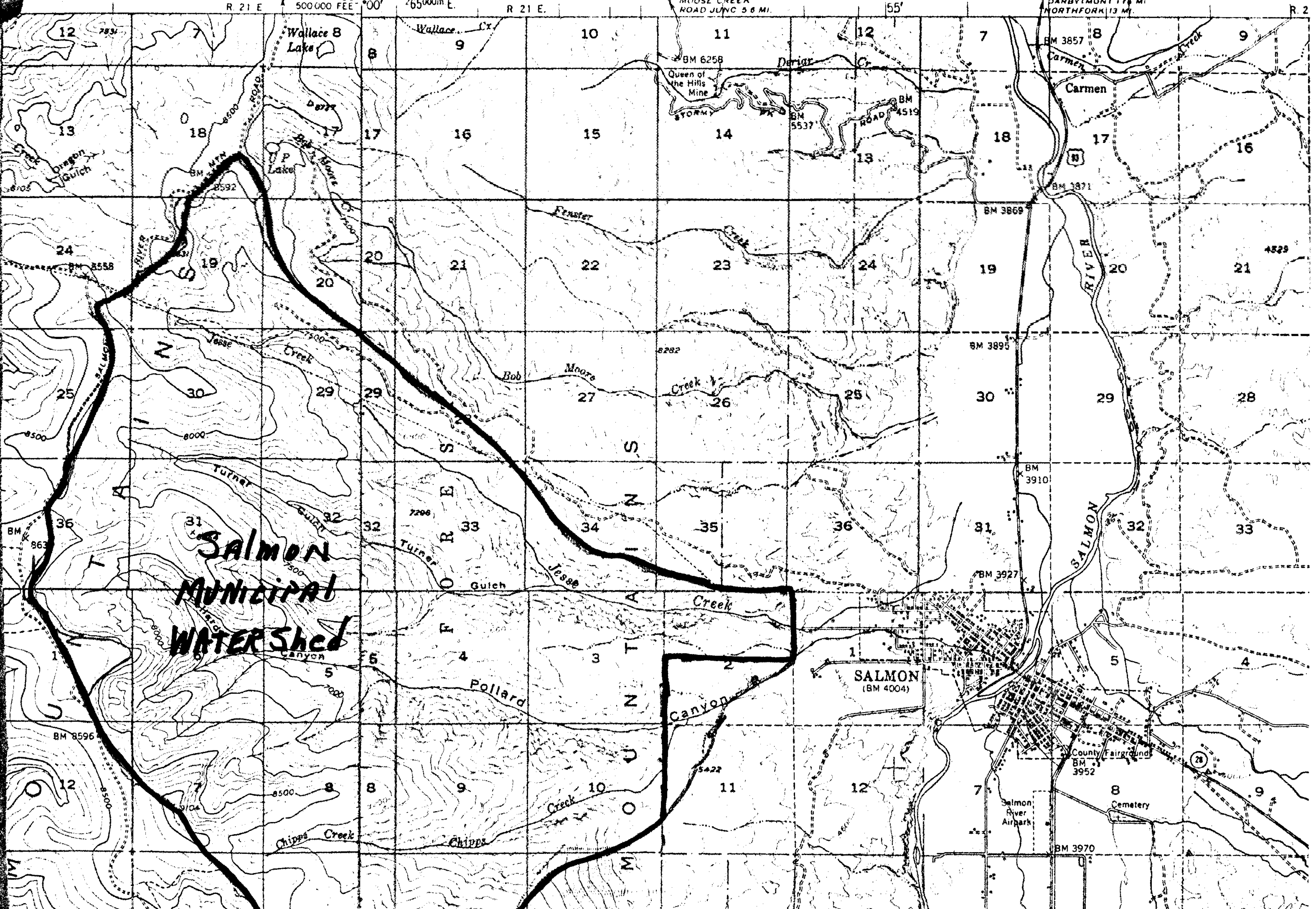
15. Encourage Salmon City to extend Jesse Creek water inlet upstream above clay basin problem area.

16. Determine if a closure of off-road vehicles is necessary and justified.

Appendix

Water Rights - Jesse Creek - 1st Decree

Inches	Decreed To	Present Owner	Remarks
75	Manful	Aldous	Used by Salmon City in exchange for irrigation water
15	Long	Salmon City	
100	Andrews	Salmon City	
24 2/3	Wheeler Willis	Aldous	Used by Salmon City in exchange for irrigation water
60	Wheeler Willis	Salmon City	
15	Wheeler & Willis (Ostrander Ditch	Salmon City	
15	Shoup and McPherson	Salmon City	
10	?	Salmon City	Harold Neyman, City Clerk, was not sure where this 10 inches came from
315 inches			


Salmon Municipal WaterShed
SALMON (BM 4004)
SALMON RIVER
Carmen
Wallace Lake
Queen of the Hills Mine
STORMY PK ROAD
Bob Moore Creek
Jesse Creek
Turner Gulch
Pollard Canyon
Chipps Creek
Fenster Creek
Oregon Gulch
County Fairgrounds
Cemetery
Salmon River Airpark
MOUNTAINS
FOREST
R. 21 E.
MOOSE CREEK ROAD JUNC 5.6 MI.
DARBY MONT 1.6 MI. NORTHFORK 13 MI.