

BEFORE THE STATE ENGINEER OF OREGON

IN THE MATTER OF APPLICATIONS NOS. )  
R-29369, R-29370 and 25068 IN THE )  
NAME OF THE EUGENE WATER AND ELECTRIC )  
BOARD FOR THE PROPOSED BEAVER MARSH )  
PROJECT ON THE MCKENZIE RIVER. )

O R D E R

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Application No. R-29369 in the name of the Eugene Water and Electric Board was filed in the office of the State Engineer on August 3, 1954. The application is for permit to construct a reservoir in Fish Lake and to store therein 3200 acre feet of water which would be released through Clear Lake as needed for a power development at Beaver Marsh.

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Application No. R-29370 by the same applicant was also filed on August 3, 1954. This application is for permit to store a maximum of 2700 acre feet of water in Clear Lake for utilization by the same project. The maximum water elevation in the lake except during floods would be 3018 feet, the approximate present normal high water level. Minimum elevation during the winter season of years of low runoff would be 3000 feet.

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Application No. 25068 by the same applicant was filed on July 31, 1950. It is for an appropriation of 600 second-feet of water from McKenzie River for development of 27,300 theoretical horsepower, the power plant to be located at Beaver Marsh. The application was amended on August 2, 1954 to name the source of water as McKenzie River and Fish Lake and Clear Lake Reservoirs and to increase the quantity of water to 1200 second-feet for development of 54,500 theoretical horsepower.

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Several protests to the approval of these applications were filed with the State Engineer and on June 1 and 2, 1955 a public hearing was held

by the State Engineer in the Vets Memorial Building in Eugene, Oregon. Applicant and protestants were represented by counsel and many witnesses were heard for and against the issuance of permits. A complete transcript of the proceedings was kept and reduced to writing by a qualified reporter. The transcript, together with exhibits introduced at the hearing, are now before the State Engineer.

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The objections of protestants center around the preservation of the McKenzie River and the tributaries involved in this proceeding for the benefit of fish life, scenic values and recreation. There was frequent and repeated testimony that construction and operation of the Beaver Marsh Project would constitute a severe loss in these natural values by damage to fish through fluctuation of water levels and siltation, injury to scenic values by construction of the project works and loss of income to the recreation industry because the stream and valley would be less attractive to recreationists. It was contended by protestants that storage of water in Clear Lake with its attendant water surface fluctuations would injure fish life in the lake and make the lake less attractive. There was testimony that construction of the dam at Fish Lake would result in deposition of silt or mud in Clear Lake, causing turbidity of the usually crystal clear water and covering the bottom which shows white in places and can be seen at great depths. There were objections to the reduction of flow over the Upper and Middle Falls, located between Clear Lake and Beaver Marsh on the grounds that the scenic value of these falls would be impaired. Much testimony was to the effect that the proposed transmission line between Beaver Marsh power plant and Leaburg would deface the natural scenery. One witness saw a fire hazard in the clearing operations for the transmission line.

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Testimony and exhibits submitted by the applicant concerned the need for the power the project would provide, the particular value of this development

for peaking purposes on the system load, the regional present and prospective power shortage which requires new generating facilities, the economic justification for the Beaver Marsh Project, the proposed designs and methods of construction to minimize possible injury to fish and recreation, the proposal to include with the project works camp facilities at Fish Lake and Beaver Marsh and the enhancement of fish potential in Fish Lake and Beaver Marsh by providing year-around water areas where none now exist. Applicant introduced evidence to show that the Upper and Middle Falls, although deprived of a large part of the natural flow of water would still be attractive as scenic spots. The applicant presented testimony that the construction operations would be conducted without severely injurious siltations. Further evidence was introduced to show that minor fluctuations in releases from the Beaver Marsh re-regulating pond would have minor influence downstream due to the flow at Beaver Marsh being only some ten percent of the flow at Vida, twenty percent of the flow at McKenzie Bridge, and thirty percent of the flow below the Lower Falls, approximately one mile below Beaver Marsh.

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Applicant introduced in evidence an agreement entered into on April 18, 1955 between the Eugene Water and Electric Board and the Oregon State Game Commission wherein the objections of the Commission to issuance of permits are withdrawn under conditions set forth in said agreement. The provisions of the agreement are substantially concurred in by the State Engineer and to the extent of such concurrence are made a part of this order.

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The question here to be decided cannot be simply stated as one of alternative: power versus fish and recreation. One cannot evaluate and reduce to monetary terms the complete benefits attributable to the power development or to recreation and fish in case the power development is prohibited.

About all that can be stated is that any development of the Upper McKenzie area, be it roads, power facilities or camp grounds, changes the primitive atmosphere and scenery and in some measure detracts from purely aesthetic values. On the other hand the roads, camp grounds and resort facilities are necessary for the accommodation of the increasing numbers of recreationists and the overall value of the area as a recreational asset is enhanced by these developments.

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A comparison may be drawn between the construction of a modern highway through this area and the construction of the proposed power project. Both are designed to benefit an increasing population of the state as well as local communities. The highway will furnish easier access to recreation areas as well as a route for through traffic between the Eugene area and Central Oregon. The power development will produce benefits in stimulation of local industry with an attendant increase in population and community income. The highway with its right of way clearing and its heavy cuts and fills along the mountain slopes adjacent to the river is a much greater disturbance to the primitive natural aspects than would be the power facilities.

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The waters involved, Fish Lake, Clear Lake and the McKenzie River, belong to the people of Oregon. Assuming for the sake of discussion, that the Beaver Marsh Project would in some measure adversely affect the commercial recreation industry along the river, it might still be desirable and of greater benefit to permit utilization of the valuable power resource.

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The proposed Beaver Marsh Project is economically feasible and desirable. Because of the available pondage the electrical output is particularly valuable for peaking purposes on the system of the applicant. The energy can be produced at less cost to the applicant than energy generated by steam power or energy on a similar load factor purchased from any presently

available source.

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The State Engineer is convinced that construction of the Beaver Marsh Project to a design and in a manner to minimize the disturbance of the natural features of the McKenzie River will not materially reduce scenic values. Reduction of the natural flow over the Upper and Middle Falls is an intangible loss to their attractiveness, but impossible to evaluate. There can be no positive determination that the falls will be less attractive to all visitors or that fewer people will stop to look at them.

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Construction and operation of the Beaver Marsh Project can be accomplished with negligible damaging effect on fish life. That portion of McKenzie River between Clear Lake and Beaver Marsh is of little value for propagation of fish or for angling due to the steep gradient, cataracts and falls. Fish Lake Reservoir cannot injure and may enhance the fish life by providing a permanent water body in an area which now goes dry in summer. Beaver Marsh re-regulating pond may provide a new habitat for fish. There is some hazard to fish life in Clear Lake in the periodic fluctuation of water level during the non-recreation season, thus alternately flooding and drying the shrimp beds which produce food for the fish.

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Any possible injury to fish life in the McKenzie River below Beaver Marsh is believed to be negligible. Daily fluctuations of the flow below the power plant as a result of plant operations can be minimized to the point of being practically unobservable. While construction operations will unavoidably produce some turbidity, it will be of short duration and of no lasting consequence.

The proposed maximum drawdown of the level of Clear Lake to elevation 3000, 18 feet below the normal high water level, in addition to a reduction of fish food potential, would expose tops of many of the submerged trees which have stood there for several hundred years. The trees are of scientific interest and an awesome spectacle to fisherman and recreationists who visit the lake. They can be seen to great depths in the clear water. Action of wind and ice on the exposed tops of these trees would be expected to damage or destroy them and result in an irreparable loss.

Storage capacity in Clear Lake between elevations 3018 and 3010 is approximately 1200 acre feet. Evidence presented by the applicant shows that during normal water years no drawdown below elevation 3010 is contemplated or necessary. On the basis of stream flow records it is estimated that the maximum drawdown to elevation 3000 would occur only once in 21 years. This last 10 feet of drawdown between elevations 3010 and 3000 would provide only 1300 acre feet of water, sufficient to operate the Beaver Marsh power plant at full capacity for 13 hours. Curtailment of plant output for a few hours during occasional years of extremely low runoff would not seriously affect the economic feasibility of the project.

The plans of the applicant for the dam and overflow channel at the outlet of Clear Lake do not appear to be in the best interests of preserving water levels in the lake within normal limits or preventing abnormal flood flows below the lake. Both the dam and outlet channels as planned have crest elevations of 3018 feet. Length of the dam would be 80 feet and breadth of the outlet channel 100 feet. The outlet channel would have an earth "fuse plug"

which would blow when water elevation in the lake exceeded 3022 feet. The proposal is to utilize daily pondage in the lake during the recreation season, varying the elevation of the lake surface between elevations 3018 and 3016.

Records for the water years 1947-48 through 1953-54 show the average low water, usually occurring in October or November, as about 3017 feet. Extreme low was 3016.62. Low water elevations during the recreation season, average about 3019 in May and June, 3018 in July, 3017.5 in August and 3017.3 in September.

The highest stage of the lake recorded occurred on January 18, 1953 when the elevation was 3022.53 and the discharge was 2600 cubic feet per second. No doubt this stage has been exceeded and will again be exceeded. If the proposed works had been in place in 1953 and the diversion tunnel to the power plant not operating the stage in the lake would have exceeded 3022, the plug in the outlet channel would have gone out and the lake surface would have quickly fallen to perhaps 3019. Immediately after the plug failed an additional 2000 to 3000 second feet would have been released into the river along with the earth plug, which would result in an abnormally high flood and considerable turbidity.

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It appears that more advantageous and desirable water level conditions in Clear Lake will be possible, even better than present conditions, if both the dam and outlet channel crests are placed at elevation 3019 and no plug placed in the channel. Drawdown of two feet for daily operation would be between elevations 3019 and 3017. Drawdown for weekly operation during the non-recreation season, October through April, would be between elevations 3019 and 3011. In case of a flood flow similar in magnitude to that of 1953,

the maximum water level in the lake would approximate 3021.6 feet, about one foot lower than under natural conditions.

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The proposed high voltage transmission line between Beaver Marsh and Leaburg is the feature of the project which will most disturb the natural scenery along the valley of the McKenzie River. However, it must be remembered that the valley is already greatly altered by roads, power lines, sawmills, log ponds, clearings for agriculture and commercial establishments. If reasonable efforts are made to hold clearings for the transmission line to the minimum necessary and to keep the location back from the highway where possible, no great injury will result. The average tourist or recreationalist will notice the clearing and the line but it will not be offensive to nor will it interfere with his enjoyment of the river and mountain scenery. The State Engineer believes that it will not result in measurable loss to the recreation industry.

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IT IS THEREFORE ORDERED that upon payment of the statutory fees, Applications Numbers R-29369, R-29370 and 25068 in the name of the Eugene Water and Electric Board be approved and permits issued thereon subject to the following terms and conditions:

Application Number R-29369 for permit to construct the Fish Lake Reservoir and to store therein 3,200 acre feet of water is approved with the limitations that

1. The dam shall have a top elevation of 3163 feet; the storage shall be limited to 1600 acre feet in accordance with the plans for said dam and reservoir filed with the State Engineer on June 9, 1955.



2. The dead storage in said reservoir shall be maintained at the minimum depth of nine feet unless the Oregon State Game Commission finds that such depth results in a substantial winter kill of fish, in which case the minimum depth shall be not less than 12 feet.

3. The dam shall be constructed during the period when there is no surface flow from Fish Lake into Clear Lake.

4. Construction procedures shall be such as to cause the minimum possible turbidity of waters entering Clear Lake.

5. The spillway shall be lined or riprapped to prevent erosion and consequent carrying of soil into Clear Lake.

6. The slopes of the dam shall be sodded or riprapped to prevent erosion.

7. Complete plans and specifications for construction of the dam shall be submitted to and approved by the State Engineer before construction is begun.

Application Number R-29370 for permit to construct the Clear Lake Reservoir and to store therein 2,700 acre feet of water is approved with the limitations that

1. The dam shall have a top elevation of 3019 feet and the storage shall be limited to 1280 acre feet between water surface elevations 3019 and 3011.

2. The overflow spillway channel shall have a crest elevation of 3019 feet and shall not be plugged.

3. During the months of May, June, July, August and September the storage utilized shall consist of daily pondage wherein the

daily water surface fluctuation shall not exceed two feet and the minimum water surface elevation shall be not less than 3017 feet and the lake level shall reach elevation 3019 feet at least once each day.

4. During the months of October through April the storage utilized may consist of weekly pondage wherein the weekly water surface fluctuation shall not exceed eight feet, the minimum water surface elevation shall be not less than 3011 feet and the lake surface shall reach elevation 3019 at least once each week.

5. There shall be released from Clear Lake Reservoir during the months of May through September not less than 40 acre feet per day for the protection of fish life and maintenance of a flow of water over the Upper and Middle Falls between the hours of 7:00 o'clock A. M. and 7:00 o'clock P. M. of each day at a uniform rate of 40 cubic feet per second except when natural spills from the lake increase this rate of flow.

6. The rates and times of release of the 40 acre feet per day may be modified by further order of the State Engineer after consulting with the Oregon State Game Commission and others interested.

7. The dam shall be constructed during the non-recreation season, October through April, and in such manner as to minimize as far as practicable the turbidity of the waters of Clear Lake and the outflow.

8. The dam shall be designed to permit installation of a fish ladder and said ladder shall be provided if found necessary

and ordered by the Oregon State Game Commission, and the applicant shall cooperate with said Commission in fish salvage that may be found necessary as a result of construction and operation of the project and make an expenditure of not exceeding \$750 per year toward such program on request of said Commission.

Application No. 25068 for permit to appropriate 1200 second feet of water from the McKenzie River and Fish Lake and Clear Lake Reservoirs for development of 54,500 theoretical horsepower is approved with the following limitations, terms and conditions

1. The tunnel intake and headworks in Clear Lake shall be constructed during the non-recreation season, October through April.

2. The headworks shall be designed and constructed so as to facilitate installation of an effective fish screen or other fish barrier at the tunnel intake. Such barrier shall be installed when in the judgment of the Oregon State Game Commission a tangible loss of fish requires it and the said Commission orders such installation.

3. Cofferdamming and excavation for the Clear Lake headworks, and the handling and disposition of material excavated from the tunnel penstock area, power house and tail race sites shall be accomplished with the least possible deposits of soil into the waters of Clear Lake and McKenzie River. The spoil shall be utilized in the construction of Beaver Marsh Dam and roadways and in no case shall any spoil be left in unsightly piles.

4. Clearing of timber for the surge-tank and penstock shall be the minimum found necessary and if practicable, the penstock shall be buried.

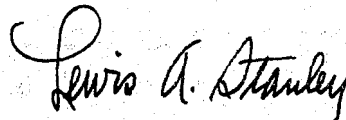
5. The Beaver Marsh re-regulating pond shall be equipped with automatically controlled outlet gates, capable of releasing water from the pond at a reasonably uniform rate in no case exceeding a change of stage immediately downstream from the outlet of four inches in any one hour, except in case of flood or emergency.

6. The Beaver Marsh Dam will be so constructed that a fish ladder over the dam may be added in the future if need for one is justified. If such need is shown, the ladder will be installed at the expense of the permittee and to the satisfaction of the Oregon State Game Commission.

7. The permittee shall install and maintain three water stage recorders at sites to be selected by the State Engineer. (One to be located on Clear Lake, one between Clear Lake and the Upper Falls and the third to be located within one-quarter mile below the Beaver Marsh Pond.) Recorder graphs from these stations shall be furnished the State Engineer for his permanent files.

8. The permittee shall re-study the transmission line location between Belknap Springs and Leaburg with a view to locating the line back from the river in cut-over areas and avoiding so far as practicable the river and highway crossings. The revised location shall be approved by the State Engineer before beginning of construction of the line.

Dated at Salem, Oregon this 7th day of September 1955.



LEWIS A. STANLEY  
State Engineer