

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
BEFORE THE STATE ENGINEER AND
CHIEF OF THE DIVISION OF WATER RESOURCES

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In the Matter of Application 15686 by San Lorenzo Valley Unified
School District to appropriate water from Ashley Creek, Tributary
via Fall Creek to San Lorenzo River, in Santa Cruz County, for
Domestic, Irrigation and Recreational Purposes.

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Decision A 15686 D _____ 799 _____

Decided _____ September 7, 1954 _____

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In Attendance at Investigation Conducted by the Division of Water
Resources at the Site of the Proposed Appropriation on April 21,
1954:

Eugene Haskell, Superintendent)) Representing the applicant
Vincent Locatelli, Chairman)	
Harold Wood, Engineer)	
Weston L. Webber, Water Superintendent	Representing the protestants
K. L. Woodward	Associate Hydraulic Engineer Division of Water Resources Department of Public Works Representing the State Engineer

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OPINION

General Description of the Project

The applicant seeks to appropriate 0.30 cubic foot per second, year-round, also 6.14 acre-feet per annum collected between November 1 and May 31, from Ashley Creek, tributary via Fall Creek to San Lorenzo River in Santa Cruz County, for domestic, irrigation and recreational purposes. Diversion is to be effected by pumping at a point within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 16, T10S R2W, MDB&M. Storage is to be provided by means of an earth dam 15 feet high by 192 feet long, across the creek channel, the dam creating a reservoir 0.46 acre in surface area and 6.14 acre-feet in capacity. The water is to be used on school grounds, some 54 acres (scaled from application map) in extent. Water is wanted for domestic purposes incidental to school activities. For these purposes the applicant estimates 0.0186 cubic foot per second is needed now, 0.081 cubic foot per second in 1994. Water is also wanted for the irrigation of a total of about 16 acres of scattered lawns, flowers and ornamental shrubs and for the maintenance of a 20,000 cubic foot swimming pool. The applicant reports that it now receives water from the City of Felton at a rate of some 7,500 gallons per day.

Protest

The City of Santa Cruz protests that:

" ... the proposed appropriation will ... reduce the amount of water available ... will also increase entitlement

to water in the watershed when insufficient water is available from May to November."

The protestant bases its claim of a right to use water from the source under discussion upon "License 1553 - Permit 2738". It describes its point of diversion as being located within the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12, T11S R2W, MDB&M. As to its present and past use it states:

"Supply of domestic, commercial, industrial and irrigation water to inhabitants of Santa Cruz and environs. At present a maximum of 7,000,000 gallons per day is diverted from San Lorenzo River. Diversion is made in all months of the year."

It states that its protest may be disregarded only in the event of the withdrawal of the application.

Answer

Passages from the applicant's answer (by letter dated March 23, 1954) to the protest are as follows:

"Our application recognizes the vested rights of the City of Santa Cruz to the water of the San Lorenzo River including all tributaries above the City's point of diversion. It is our contention, however, that the granting of the proposed permit ... will not result in any injury to the protestant or subrogation to the rights of the protestant.

"We are therefore ... requesting an informal hearing at which time the water needs of the school district may be presented"

Field Investigation

The applicant and the protestant with the approval of the Department having stipulated to the submittal of the application and protest upon the official records of the Department, a field investigation was conducted on April 21, 1954, by an engineer of the Division. The applicant and the protestant were both represented during the investigation.

Records Relied Upon

Applications 4017, 5215, 5298, 8843, 8844, 8845, 8999, 9604, 10409, 15686 and all information on file therewith; Santa Cruz quadrangle, U. S. Geological Survey; Water Supply Papers, U. S. Geological Survey, relating to Pacific Slope Basins in California since 1938 incl; Bulletin No. 5, State Water Resources Board - "Santa Cruz-Monterey Counties Investigation", August, 1953.

Information Secured by Field Investigation

The report of the field investigation contains among other statements the following:

"The parties met at the school on the site and after a brief conference investigated the area in question."

"Ashley Creek heads on the southeastern slopes of Ben Lomond Mountains... flows in a southeasterly direction to a confluence with Fall Creek immediately west of State Highway 9 thence approximately 500 feet to the San Lorenzo River. Ashley Creek is only about one mile in length with a watershed area above the point of diversion from 1/4 to 1/2 square mile. The watershed is steep, heavily wooded and ... enjoys a mean seasonal precipitation of about 44 inches"

"According to Mr. Locatelli the stream was gaged upon two different occasions during the latter part of July and the first part of August 1953 ... and at that time the flow was in the neighborhood of 50 gallons per minute. At the time of the investigation the flow was an estimated 100 gallons per minute."

"Application 15686 is to serve the San Lorenzo Grade School and the San Lorenzo High School which are in the advanced stage of construction by the recently organized ... School District. The facilities are presently being used with water furnished on a more or less temporary basis by Felton Water Company. Construction ... under the subject application has not yet commenced."

"Mr. Wood indicated that plans call for a low storage or regulatory dam ... on the stream with offstream storage in tanks of possibly 80,000 gallons. Diversion will be from a filter gallery Water will be pumped from the gallery to the tanks and allowed to flow by gravity from the tanks to the place of use. Mr. Wood was emphatic ... that the system would be diverting underflow ... claiming that interference with the surface flow would be unnoticeable."

"The City of Santa Cruz normally depends on San Lorenzo River water only during the period of from March through November and exports its water during the remainder of the year from Laguna Creek and other sources on the coast. According to Mr. Webber the City's filtration plant is inadequate to handle water from San Lorenzo River during the high flow period due to its muddied condition.

"During the period of operation the City maintains two pumps on the river with a combined capacity of 4,500 gallons per minute. It also has two wells near the river with a total capacity of 1,600 gallons per minute. These wells are maintained for an emergency supply in the event the storage tanks of 45 million gallons capacity plus the two river pumps may not be adequate to meet peak demand, which at times ... has equalled 9,000,000 gallons per day. These additional pumps have normally been operated only three or four days per year, however, Mr. Weber ... stated that to his knowledge (since 1946) water has always passed the City's point of diversion, except during late August of 1947. With the exception of that shortage he estimated that flow past the point of diversion has never been less than 2 cfs. The City normally pumps

two eight-hour shifts per day at a maximum rate of 4,500 gallons per minute. No diversion is made during the other eight-hour period.

"According to Mr. Webber the City began its seasonal pumping from San Lorenzo River about the middle of April. He stated that at present it is necessary to divert only 2 or 3 days a week but that use would increase as the season progresses."

"Mr. Webber stated that the City was not vigorously opposing the District's application, that the protest was filed as a matter of form He indicated that the City was cognizant of the needs of the district and ... he would recommend to the City Council ... that the protest be withdrawn."

"According to Dr. Haskell the district attempted in 1953 to drill a well but after reaching a depth of 400 feet with no success the project was abandoned.

"The San Lorenzo River ... flows through one of the most important recreational areas on the Pacific Coast. The river rises near the crest of the Coast Range Mountains and flows in a southerly direction for some 25 miles into Monterey Bay at the City of Santa Cruz. Along its course are popular vacation resorts such as Boulder, Ben Lomond, Felton, Big Trees, Brookdale and Santa Cruz in addition to many lesser known and many private summer places. This is strictly a recreational area"

Withdrawal of Protest

By letter dated May 26, 1954 the protest was withdrawn, that letter reading in part:

"The City Council at its regular meeting on May 25, 1954, authorized the withdrawal of our protest against the subject application. The City Council took this action ... solely upon the fact that the applicant is a public institution. The City of Santa Cruz will continue to protest all other applications to appropriate water from the San Lorenzo River or its tributaries."

Information from Other Sources

The protestant City of Santa Cruz has filings before this office as follows:

Application 4017 Permit 2372 License 1553 to divert 6.2 cubic feet per second year-round from surface and subsurface flow of San Lorenzo River at a dam within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of projected Section 12, T11S R2W, MDB&M and from four nearby wells, for municipal and domestic purposes within Santa Cruz and its environs.

Application 5215 Permit 2738 to divert an additional 25 cubic feet per second, year-round, at the same points and for the same purposes as set forth in Application 4017. Application 5215 provides for considerable increase in the City's requirements. According to Permittee's most recent progress report total diversion by the City during July, 1953, the month of maximum use, averaged about 7.2 cubic feet per second.

Among other filings to appropriate from San Lorenzo River or from its tributaries are the following:

Application 8999 Permit 5299, Riverside Grove Water Company, for 0.10 cubic foot per second from about November 1st to about June 1st, at a point within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 1, T9S R3W, MDB&M, for domestic purposes. As originally filed Application 8999 contemplated diversion year-round. It was protested by numerous parties, including the City of Santa Cruz. Grounds for objection expressed in one or another of the protests included fear of interference with some present use, fear

of infringement of some riparian right, fear that the proposed diversion would impair or destroy recreational values, fear of increase of the mosquito nuisance, fear of loss of available water supply for fire protection, fear that unsanitary conditions would result. The application was heard and after due consideration of available information, including the hearing testimony, it was approved subject to the condition that diversions thereunder be limited to periods extending from about November 1st to about June 1st. The decision in the matter of Application 8999 includes the following passage:

" ... the flow in this stretch of the river during the period from about June 1st to about October 31st doubtless falls frequently as low as $1\frac{1}{2}$ to $2\frac{1}{2}$ second feet, seldom averages more than 4 second feet and on occasion entirely ceases. Any further depletion of this flow will seriously interfere with the extensive use which is made in swimming pools; will increase the number and duration of periods when there is no flow thereby creating a health menace through stagnant pools and increase in the annoyance by mosquitos: and above all will grievously impair the healthful enjoyment which abutting land owners and all visitors to this area share as a result of the natural summer flowage in San Lorenzo River.

"We are of the opinion that such a diversion as that proposed by the applicant would, during the period from about November 1st to about June 1st have no appreciable effect upon the flow below. Consumptive use will then be at a minimum and stream flow much increased. . . . It is in order to approve said application allowing diversion from about November 1st to about June 1st only, denying the right to divert during other months, and without other special limitations or conditions."

Applications 9604, 9629, 10346, 10409, 10517 proposing comprehensive development by San Lorenzo Valley County Water District of San Lorenzo River and certain of its tributaries, the development to involve both

direct diversion and storage for recreational, domestic and fire protection purposes within the District boundaries. The applications were protested and, in due course, heard collectively. Extracts from the decision rendered in the matter of these 5 applications are as follows:

"The main issue between the applicant and the protestants involves the proposed diversion by the applicant during the summer months."

"... for some time past it had been the policy of this office to refuse to approve applications for the appropriation of water during the summer months in recreational areas such as the San Lorenzo Valley because ... the flow of water through these areas during the summer months was very small and further depletion would seriously detract from the desirability of the area for recreation."

"If the applicant were ready to proceed ... it would be our conclusion that Applications 9604 and 10409 which involve storage only should be approved ... and that Applications 9629 and 10346 should be approved without the emergency clause proposing diversion ... from June 1st to October 31st."

"... in view of the uncertainty of the District's plans it is the opinion of the Division that Application 10517 should be canceled and that action in connection with (the other applications) be withheld"

Subsequent to the hearing Application 10517 was canceled, Applications 9629 and 10346 are in process of cancellation, currently, at the applicant's request and Applications 9604 and 10409 remain active. The two last named applications contemplate appropriations, respectively, of 5,000 acre-feet per annum from Newell Creek at a point within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 3, T10S R2W and 1,596 acre-feet per annum

from San Lorenzo River at a point within the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 25, T8S R3W, MDB&M, the water to be accumulated between November 1 and May 31 in each instance.

The flow of San Lorenzo River at Big Trees has been recorded by the U. S. Geological Survey since 1937. The Big Trees gaging station is approximately 2.5 miles downstream from the point where Fall Creek (to which Ashley Creek is tributary) enters San Lorenzo River; it scales approximately 3.5 miles upstream from the intake of the City of Santa Cruz. Flow during the period of record is reported to have ranged from a maximum of 24,000 cubic feet per second to a minimum of 0.8 cubic foot per second, and to have averaged 141 cubic feet per second. Accompanying tabulations, based upon data taken from water supply papers of the United States Geological Survey, show monthly mean flows during the period of published record, number of days when daily mean flow was less than 10 cubic feet per second and number of days daily mean flow was less than 15 cubic feet per second. The data indicate no important diversion from or accretion to San Lorenzo River in the reach between the gaging station at Big Trees and the City of Santa Cruz intake.

TABLE I

Discharge of San Lorenzo River at Big Trees in Cubic Feet per Second

Water year	Monthly means												Yearly means
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1937-38	17.8	28.8	262	235	1232	848	246	111	60.9	36.8	25.1	21.3	254
38-39	24.3	25.2	28.0	43.8	79.9	83.3	32.1	22.9	14.2	10.5	9.58	10.5	31.8
39-40	11.6	12.8	15.3	474	1202	656	310	92.2	54.2	33.1	22.2	21.7	238
40-41	21.1	23.8	281	745	1333	715	942	186	93.7	57.2	41.8	34.4	366
41-42	31.4	37.1	241	695	637	266	367	159	90.0	54.7	38.6	33.4	218
42-43	31.2	67.4	84.2	613	282	488	165	88.5	58.7	39.4	27.8	23.4	164
43-44	26.2	28.5	33.5	57.7	215	232	69.0	51.5	34.8	24.2	18.9	17.5	67.0
44-45	21.1	59.5	74.6	57.8	721	247	133	71.6	44.6	27.9	20.5	18.1	121
45-46	28.0	39.4	365	171	102	93.7	107	53.1	34.3	23.1	17.3	16.0	87.7
46-47	16.1	66.7	42.1	31.8	86.0	97.4	59.1	29.0	22.6	15.3	11.7	10.3	40.3
47-48	28.4	22.6	33.5	28.2	31.8	65.8	153	80.4	34.7	21.1	15.2	12.6	43.9
48-49	14.7	15.2	55.6	44.0	104	553	96.7	48.1	27.8	19.4	16.4	14.7	84.5
49-50	15.0	23.4	32.2	205	416	80.2	65.5	41.2	28.0	18.2	14.4	14.1	77.2
1950-51	21.8	461	674	281	196	259	95.7	81.8	43.3	29.6	22.4	19.0	182.0

TABLE II

Number of Days when Surface Flow of San Lorenzo River at Big Trees
Averaged Less than 10.0 Cubic Feet per Second

Water year:	Oct. :	Nov. :	Dec. :	Jan. :	Feb. :	Mar. :	Apr. :	May :	June :	July :	Aug. :	Sept. :	Total :
1937-38													0
38-39									1	6	14	11	32
39-40													0
40-41													0
41-42													0
42-43													0
43-44													0
44-45													0
45-46													0
46-47												11	11
47-48													0
48-49													0
49-50													0
1950-51													3
TOTALS	0	3	0	0	0	0	0	0	1	6	14	22	46

TABLE III

Number of Days when Surface Flow of San Lorenzo River at Big Trees
Averaged Less than 15.0 Cubic Feet per Second

Water year:	Oct. :	Nov. :	Dec. :	Jan. :	Feb. :	Mar. :	Apr. :	May :	June :	July :	Aug. :	Sept. :	Total :
1937-38	0												0
38-39							1	20	31	31	28		111
39-40	31	27	23										81
40-41													0
41-42													0
42-43													0
43-44													0
44-45													0
45-46													0
46-47									17	31	30	78	
47-48	7								10	30	47		
48-49	16	9								10	35		
49-50	14	6								17	25	62	
1950-51	15	14											29
TOTALS	83	56	23				1	20	48	89	123	443	

Information bearing upon the water supply of the protestant City, upon the Felton Water Company, temporary supplier of the applicant school district and upon San Lorenzo Valley County Water District which filed Application 9604 and the other applications related thereto and mentioned in an earlier paragraph, is contained in Bulletin No. 5, State Water Resources Board, "Santa Cruz - Monterey Counties Investigation", August, 1953. Extracts from page 45 of that bulletin are:

"The largest service water agency in the San Lorenzo Unit is the Water Department of the City of Santa Cruz which diverts surface water from ... creeks in the North Coastal Unit, and from the San Lorenzo River . . . These ... creeks furnish most of the water required by Santa Cruz during the winter, but only a minor portion during the summer. The summer flow available from these sources in the drier years is only about one-half of the 3,000,000 gallons per day capacity of the pipe lines. The summer deficiency in water supply is made up by pumping surface and subsurface flow of the San Lorenzo River The capacity of the system diverting from the San Lorenzo River is about 9,000,000 gallons per day . . ."

* * *

"The portion of the San Lorenzo Unit lying north of Felton is served with domestic water by two public utilities and by 22 small private or municipal water companies. Their principal sources of water supply are direct surface diversions from the San Lorenzo River or its tributaries . . . The San Lorenzo Valley County Water District, organized in 1941, includes most of the area served from the San Lorenzo River north of Felton. The district has purchased two dam and reservoir sites and plans additional water developments but does not serve water at this time."

Water rights held by Felton Water Company include rights issued under the following filings before this office:

Application 5297 Permit 3603, 0.232 cubic foot per second, year-round, from Bennett Creek and Shingle Mill Creek, tributaries of Fall Creek, at points within Section 21, T10S R2W, MDB&M, for domestic use within that Section 21 and the adjoining Section 22.

Application 5298 Permit 3604, and Application 5299 Permit 3605, practically the same as Application 5297 Permit 3603 except as to proposed use -- these two filings specify irrigation of 283.4 acres within Sections 15, 21 and 22 of the same T10S R2W and municipal supply of the unincorporated town of Felton, respectively.

Application 8843 Permit 5136, 0.50 cubic foot per second, year-round, from Bennett Creek at a point within Section 21, T10S R2W for domestic use within Sections 15, 16, 21, 22, 23, 26, 27 and 28, T10S R2W, MDB&M.

Application 8844 Permit 5137, 1 cubic foot per second, year-round, from Bulls Creek at a point within Section 21, T10S R2W, for domestic use within the same section as designated in Application 8843 and for irrigation from mid-April through October of a certain 5 acres.

Application 8845 Permit 5138, 0.75 cubic foot per second, year-round, from Fall Creek at a point within Section 16, T10S R2W, MDB&M for domestic use within the same sections as designated in Application 8843.

Progress has been reported under the Felton Water Company filings but development is not yet complete, the permittee answering the question in Progress Report for 1953 as to when use will be full and complete by stating "as the demand from new customers increases". In an earlier

progress report the same question was answered, "1975". The Felton Water Company filings are under current extension to December 1, 1955.

Extracts from Bulletin No. 5, State Water Resources Board - "Santa Cruz - Monterey Counties Investigation", of collateral interest, in addition to those quoted in an earlier paragraph, are as follows:

"Objectives of the Santa Cruz-Monterey Counties Investigation included investigation and study of the nature, occurrence, and amount of water resources, both surface and underground; survey of the location, type and extent of water utilization under present development; estimation of future water requirements for all beneficial uses; evaluation of present and future water problems; development of preliminary plans for securing supplemental water supplies to meet immediate and ultimate needs; and estimates of cost." (Pages 15 and 16).

"In order to facilitate reference to its several parts, the Santa Cruz-Monterey Area was divided into four principal hydrographic units These were designated 'North Coastal Unit', 'San Lorenzo Unit', 'Soquel Unit', and 'Pajaro Unit' The San Lorenzo Unit includes the watershed of the San Lorenzo River and the coastal drainage " (Page 17).

"Boulder, Bear and Zayante Creeks are the principal tributaries of the San Lorenzo River." (Page 18).

"The 1950 federal census showed that the population of Santa Cruz County was 66,534, a substantial increase over the 1940 population of 45,057 The 1950 census enumerated 21,970 persons in Santa Cruz" (Page 19).

"The San Lorenzo River and its tributaries constitute the second largest stream system in the ... area, draining almost the entire San Lorenzo Unit, and discharging into the Pacific Ocean at Santa Cruz." (Page 24).

"Runoff originating within the Santa Cruz-Monterey Area closely approaches natural flow There are no importations or exports." (Page 25).

"A considerable area along the San Lorenzo River was classified as urban and suburban rather than recreational, due to its permanent year-round habitation and commercial enterprise, even though it is supported largely by recreational development." (Page 47).

"Water requirement in the North Coastal, San Lorenzo, and Soquel Units is primarily by urban areas." (Page 54).

"The average seasonal urban demand for water in the Santa Cruz-Monterey Area, which is largely obtained from surface diversion, is considerably less than the total seasonal water supply presently available. However, in many of the water systems supplying urban and recreational service the peak demand rates roughly coincided with and may exceed minimum flows in the streams. As an example, if the draft by the City of Santa Cruz on the San Lorenzo River during 1947 had followed the average pattern into September, the city would have been required to ration water. In design of works to meet urban water demand it is common practice to provide for a full water supply without deficiency at any time. However, it has been the experience of many communities in California that substantial deficiencies may be endured for extended periods of time by rationing the limited water supplies on hand." (Page 55).

"At the present time significant requirements for supplemental water in the North Coastal, San Lorenzo, and Soquel Units are limited to Santa Cruz and neighboring suburbs served by the City of Santa Cruz Water Department. The present water problem is not due to a shortage of total seasonal supply, but rather to lack of facilities for regulating that supply. Peak demands occur at times of minimum stream flow, although a large amount of run-off wastes to the ocean at other times . . . The derivation of the present seasonal deficiency, or supplemental water requirement, of the City of Santa Cruz Water Department, estimated to be about 600 acre-feet, is presented" (Page 57).

"Surveys and studies in connection with the Santa Cruz-Monterey Counties Investigation indicate that it would be feasible from the engineering standpoint to so regulate and conserve the flow of streams of the Santa Cruz-Monterey Area as to yield firm new water supplies in excess of the probable ultimate supplemental requirements of the North Coastal, San Lorenzo, Soquel, and Pajaro Units." (Page 60).

"... the 'Zayante Project', could provide supplemental water to the service area in the San Lorenzo River basin north of Santa Cruz, while ... the 'Doyle Gulch' project could provide supplemental water to the service area in and adjacent to the City of Santa Cruz." (Page 57).

" ... the 'Zayante Project', and consisted of conservation of run-off of Zayante Creek by construction of a dam and reservoir on the creek at the Zayante site, about five miles northeast of Felton. Studies indicated that this plan would provide new water in the amount of the desired initial yield for the service area in the San Lorenzo River basin north of Santa Cruz." (Page 65).

"It is recommended that:

1. Public districts endowed with appropriate powers be created as required for the purposes of proceeding with further study of the local water problems of the Santa Cruz-Monterey Area, and with financing, construction, and operation of projects if found financially feasible.

2. Local development of water resources be accomplished by an orderly progression of phases of development and in accordance with the California Water Plan." (Pages 83 and 84).

Discussion

The reports that surface flow in Ashley Creek (the source from which the applicant seeks to appropriate) amounted to 50 gallons per minute (about 0.11 cubic foot per second) in late July and early August, 1953 and about twice that much on April 21, 1954 indicate that that source probably yields some surface flow at most if not all times of year, a flow however that is substantially less at times than the 0.3 cubic foot per second sought by direct diversion under Application 15686. Whether the deficiency of surface flow may be offset by the development of sub-surface flow, appears to be a matter of conjecture, unsupported by any data at hand.

Of the purposes for which a water supply is sought -- domestic, irrigation and recreational -- the one of most vital importance is domestic. The applicant considers 0.0186 cubic foot per second enough for domestic requirements now, 0.081 cubic foot per second enough fifty years hence. The need of a firm supply for the watering of ornamentals and for the maintenance of swimming facilities is less insistent; occasional interruptions of supply for those purposes are probably not intolerable.

Table II indicates that in a 14-year period such as that between water-year 1937-38 and water-year 1950-51, 0.3 cubic foot per second might have been diverted (if it in fact existed) at the applicant's proposed point of diversion, without interfering with the diversion by the City of Santa Cruz of up to 10 cubic feet per second for more than a total of 46 days, equivalent to less than 1% of the 14-year period. Table III indicates that in a like period 0.3 cubic foot per second might have been diverted (if in fact it existed) at the applicant's proposed point of diversion without interference with a diversion by the City of up to 15.0 cubic feet per second for more than a total of 443 days, equivalent to $443/(14 \times 365)$ or 8.65% of the total elapsed time.

The rates of diversion by the City of Santa Cruz, assumed as 10 cubic feet per second in Table II and 15 cubic feet per second in Table III are, respectively, somewhat more than the City's maximum sustained rate of diversion so far and the City's probable sustained rate of diversion after it has attained, roughly, half again its present growth.

On the supposition that flow just above the City's intake is about the same as the flow at Big Trees it is apparent that the possibility of encroachment upon the City's rights by diversion by the applicant of up to 0.3 cubic foot per second cannot exist more than about 1% of the time (on average) at the City's present stage of growth or more than 8 or 9% of the time when the City's requirements have grown to half again, roughly, of what they are at present.

The protest by the City of Santa Cruz, now withdrawn, was not in the premises a bar to the approval of Application 15686. It is evident that unappropriated water usually exists. The applicant recognizes that the City's rights are prior to any that may be acquired through Application 15686 and may be presumed to respect those prior rights. Should Application 15686 be approved the City will be legally protected during the infrequent periods when encroachment is physically possible, by the provision always included in a permit to the effect that diversions under the permit are limited to amounts that are not required for the satisfaction of prior rights.

The situation presented by Application 15686 is different from the situation presented in the matter of Application 8999 and the position taken by the Division in limiting diversions under Application 8999 to periods from November 1 to June 1 need not influence action in the situation now under discussion. Application 8999 contemplated diversion from San Lorenzo River at a point some 9 miles upstream from the junction of Fall Creek with that stream. The protestants against that

application (except the City of Santa Cruz) objected to diminution of flow in the reach along which their interests were located. It does not appear possible that diversions from Ashley Creek could affect those protestants and none of them protested against Application 15686. The City of Santa Cruz which protested both applications has withdrawn its protest against Application 15686.

Neither approval or denial of Application 15686 can have any apparent effect upon the water supply of the City of Santa Cruz. The project under Application 15686 is now being served by Felton Water Company, holder of applications the earliest of which is Application 5297, to which the City's applications are prior. Water used by the applicant whether supplied under Application 15686 or supplied by Felton Water Company thus originates and will continue to originate in a source or sources tributary to the City's intake and the City has the advantage of priority in either case.

Summary and Conclusions

The applicant seeks to appropriate 0.30 cubic foot per second year-round, also 6.14 acre-feet per annum, collected between November 1 and May 31, from Ashley Creek, tributary via Fall Creek to San Lorenzo River in Santa Cruz County, for domestic, irrigation and recreational purposes on school grounds some 54 acres in extent. The applicant estimates that for domestic purposes 0.0186 cubic foot per second is

necessary now and 0.081 cubic foot per second will be necessary by 1994. The rest of the water is to be used for the irrigation of some 16 acres of lawns, flowers and shrubs and for the maintenance of a swimming pool. The project includes the construction of a small on-stream reservoir.

The application was protested by the City of Santa Cruz but the protest has since been withdrawn. The City's objection was that the appropriation sought by the applicant would increase the upstream demands upon San Lorenzo River, the flow of which at times is less than the City's entitlement to divert therefrom.

The parties stipulated to the submittal of the application and protest upon the official records of the Department and a field investigation was conducted by an engineer of the Division.

According to the report of field investigation the source (Ashley Creek) is a small tributary of Fall Creek, is about one mile long, drains between $\frac{1}{4}$ and $\frac{1}{2}$ square mile of steep, heavily wooded watershed, was discharging about 100 gallons per minute at the time of the investigation (April 21, 1954) and was said to have discharged about 50 gallons per minute in late July and early August of 1953; the purpose of the application is to serve San Lorenzo Grade School and San Lorenzo High School which are now in an advanced stage of construction and receive a temporary water supply from Felton Water Company; the applicant proposes to divert from a filter gallery, the water to be pumped from gallery to tanks of a capacity of possibly 80,000 gallons, thence to flow by gravity to the place of use; the City of Santa Cruz depends upon San Lorenzo River

from March 1 to November 1 and secures its supply at other times from other streams, San Lorenzo River being too muddy at high stages for the City's filtration plant to handle; the City maintains two pumps on the river with a combined capacity of 4,500 gallons per minute, also two wells near the river capable of producing 1,600 gallons per minute; the City's wells are maintained to provide an emergency supply at times when its storage tanks of 45,000,000 gallons capacity plus the two river pumps may not be sufficient to meet peak demand which at times has reached 9,000,000 gallons per day (about 13.9 cubic feet per second); Water Superintendent Webber stated that flow past the City's intake has never been less than about 2 cubic feet per second, so far as he knows, except in late August of 1947, that the City normally pumps two 8-hour shifts per day at a maximum rate of 4,500 gallons per minute; the San Lorenzo River flows through an important recreational area.

The City of Santa Cruz holds Application 4017 Permit 2372 License 1553 for 6.2 cubic feet per second, year-round, and Application 5213 Permit 2738 for 25 cubic feet per second, year-round, from the San Lorenzo River, at points near the City's northerly boundary, for municipal and domestic purposes within Santa Cruz and its environs.

Riverside Grove Water Company holds Application 8999 Permit 5299 for 0.10 cubic foot per second from November 1 to June 1 at a point on the San Lorenzo River (approximately 9 miles above the mouth of Fall Creek) for domestic purposes. After the hearing on Application 8999

which contemplated diversion year-round and was vigorously protested the Division took the position that any further depletion of the flow of the reach of San Lorenzo River involved in the controversy from about June 1 to about October 1 would so interfere with the maintenance of swimming pools, endanger health, increase the mosquito nuisance and impair the enjoyment by abutting owners and by visitors of the attractiveness due to the natural summer flow of the stream that diversions under Application 8999 should be restricted to periods extending from November 1 to June 1 only.

San Lorenzo Valley County Water District filed Applications 9604, 9629, 10346, 10409 and 10517 proposing comprehensive development of San Lorenzo River and certain of its tributaries, the development to include both direct diversion and diversion to storage for recreational, domestic and fire protection purposes within the District, the latter including the bulk of San Lorenzo River watershed lying north of the north line of the section in which the applicant School District's project is located. Application 9604 and its companion applications were protested by the City of Santa Cruz on apprehension of interference with the City's water supply, by Felton Water Company on apprehension of interference with diversion by that Company under prior rights and by Henry Cowell Lime and Cement Company on apprehension that interference would result with its operation within Fall Creek watershed; but by no one else. No apprehension was expressed by any protestant that the proposed appropriation would interfere with the maintenance of swimming pools, endanger

health, increase the mosquito nuisance or otherwise militate against the attractiveness of San Lorenzo River valley. Subsequent to a hearing on the Water District applications, one of the applications was denied and action upon the others deferred. Two of the applications are still pending; two are in process of cancellation at the applicant's request.

The flow of San Lorenzo River at Big Trees has been measured by the United States Geological Survey since 1937. The gaging station scales about 2.5 miles downstream from the mouth of Fall Creek, 3.5 miles upstream from the intake of the City of Santa Cruz. Discharge over the period of record has averaged 141 cubic feet per second but has fallen to a minimum of 0.8 cubic foot per second. There appear to be no diversions or accretions of consequence between the gaging station and the City's intake.

According to information published in Bulletin No. 5, State Water Resources Board - "Santa Cruz-Monterey Counties Investigation", August 1953, Santa Cruz obtains water both from San Lorenzo River and from coastal streams to the north, the latter streams furnishing most of the water supply but only a minor portion during the summer; the capacity of the system diverting from San Lorenzo River is about 9,000,000 gallons per day (13.9 cubic feet per second); San Lorenzo River Valley north of Felton is served by water companies which for the most part obtain water by direct surface diversions from the river or its tributaries; the San Lorenzo Valley County Water District,

organized in 1941, includes most of the area served from the San Lorenzo River north of Felton; the District owns two reservoir sites and plans water developments but does not yet serve water; the San Lorenzo River discharges into the Pacific Ocean at Santa Cruz; the population of Santa Cruz County was 45,057 in 1940 and 66,534 in 1950, the population of Santa Cruz 21,970 in 1950; the two counties discussed in Bulletin No. 5 were divided for convenience of reference into 4 principal hydrographic units, i.e. "North Coastal", San Lorenzo", "Soquel" and "Pajaro"; water requirements in the San Lorenzo unit are presently by urban areas; average seasonal urban demand is considerably less than total seasonal water supply but peak demand rates roughly coincide with minimum flows; experience indicates that substantial deficiencies may be endured for extended periods by rationing limited water supplies; the present water problem springs from lack of facilities for regulating total seasonal supply, peak demands occurring at times of minimum stream flow, runoff at other times wasting into the ocean. The Bulletin states further that studies in connection therewith indicate it to be feasible from an engineering standpoint to so regulate and conserve stream flow as to yield firm new water supplies in excess of probable ultimate supplemental requirements; that the "Zayante Project" based upon constructing a dam 5 miles northeast of Felton to conserve the runoff from Zayante Creek watershed would provide new water for the desired initial yield for San Lorenzo River basin north of Santa Cruz and another development, the "Doyle Gulch Project", could provide for the City of Santa Cruz and its environs. The Bulletin

recommends further study of the local problems of the area by public districts endowed with appropriate powers and the financing of construction and operation of projects by such districts insofar as financially feasible. It also recommends that development be accomplished by an orderly progression of phases of development in accordance with the California Water Plan.

From the information summarized it is concluded that some surface flow exists in the source from which the applicant seeks to appropriate, that underflow may also exist although its existence has not been proven, that such water as may exist or be developed in that source up to the 0.3 cubic foot per second sought by the applicant may be taken and used beneficially in the manner proposed, at such times as the flow of San Lorenzo River exceeds the requirements of the City of Santa Cruz, that the City of Santa Cruz has required the full flow of San Lorenzo River, on average, approximately 1% of the time covered by published stream-flow records. In view of these circumstances it is the opinion of this office that while the supply of unappropriated water at the proposed point of diversion is neither firm nor demonstrably sufficient for the applicant's stated purposes no sufficient reason exists for the denial of the application which, therefore, should be approved and permit issued, subject to the usual terms and conditions.

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ORDER

Application 15686 having been filed with the Division of Water Resources as above stated, a protest having been filed, a field investigation having been conducted and the State Engineer now being fully informed in the premises:

IT IS HEREBY ORDERED that Application 15686 be approved and that a permit be issued to the applicant subject to such of the usual terms and conditions as may be appropriate.

WITNESS my hand and the seal of the Department of Public Works of the State of California this 7th day of September, 1954.



A. D. Edmonston
A. D. Edmonston
State Engineer