66.0

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REPORT ON FIRE PROTECTION OF

MARIN MUNICIPAL WATER DISTRICT WATERSHED

HISTORICAL

The Marin Municipal Water District acquired 9,955 acres of watershed land through condemnation in 1915 and 1916. This included the southeast side of Mt. Tamalpais from Mill Valley to the top of the mountain, all of the northeast side of Mt. Tamalpais extending to Kentfield, Ross, San Anselmo and Fairfax to a point just below Alpine Dam. Through condemnation proceedings the District acquired 6,000 additional acres in the lower Lagunitas watershed in May of 1946. 300 acres were acquired from Carson Realty Company and Lagunitas Development Company in 1957 in the Big Carson Creek area. This was for the flooding of Kent Lake. The District later acquired 1,522 acres for the Nicasio Reservoir in 1961. The total District watershed is 17,777 acres. Lake surface areas include 1,566 acres of the total watershed lands.

PAST HISTORY OF MAJOR FIRES ON MARIN MUNICIPAL WATER DISTRICT WATERSHED

Since formation of the Marin Municipal Water District, there have been four major fires on the watershed. These are listed as follows:

1. September 1923 a fire burned from Lucas Valley to Bolinas. The lower Lagunitas Canyon was burned in this fire although the fire did not reach Alpine Dam.
2. July 1929 a fire burned approximately 1,000 acres on the south side of Mt. Tamalpais and destroyed numerous homes in Mill Valley.
3. October 1945 a fire started near the lumber mill in Lagunitas Canyon and burned into the Alpine area. 3,900 acres of District lands were burned by this fire. The District had not yet acquired the lower Lagunitas Canyon below Alpine when this fire occurred. This is the third time that most of the land north of Alpine Dam had been burnt over, though it was about 75 years since the northeast side of the mountain above Alpine was burnt.
4. October 1945 a fire started in the vicinity of Rock Springs when two airplanes collided and exploded at 10,000 feet. The flaming parts started a fire that consumed approximately 500 acres.

MINOR FIRES ON WATERSHED

No exact record on minor fires within District lands is kept but there have been about 30 fires within this past 20 years. These have all been kept to a minimum. Most of the fires were in the lower, more frequently used areas, with a large percentage occurring in the general vicinity of the Meadow Club.

HISTORY OF AGENCIES HAVING JURISDICTION OVER FIRES ON WATERSHED

The Tamalpais Forest Fire District was created by an act of the State Legislature in May, 1917, and operated from 1917 until July 1941. A governing Board of Trustees was appointed, consisting of one Trustee appointed from the District at large by the Board of Supervisors of Marin County, and one Trustee from each municipality within the District appointed by the governing board of the municipality.

The funds necessary for the operation of the District were derived from County tax and from State and Federal appropriations. The area protected included all the southern end of the County to a line running on the north from roughly St. Vincent Hill to Olema, Inverness, and Pt. Reyes.

Since 1941, the Marin County Fire Department has taken over the duties of fire protection for the unincorporated areas of Marin County. This is also a tax supported organization.

CONTRACT BETWEEN COUNTY OF MARIN AND STATE OF CALIFORNIA REGARDING FIRE PROTECTION AND PREVENTION

Five counties in the State of California have contracts with the State Division of Forestry whereby the counties provide fire protection for the unincorporated areas and are reimbursed by the State. These counties are Los Angeles, Ventura, Santa Barbara, Kern and Marin.

The latest contract that Marin County has with the State for fire protection states that the contract is for the purpose of protecting from fire the timber and vegetation of general watershed value of lands in said county. The basis for the contract is set forth in sections 4102, 4103, 4111, 4125, 4126, 4127 and 4128 of the Public Resources Code.

The most recent contract between the State of California and the County of Marin provides for a payment of $195,369 to the County for fire protection and prevention of the timber, watershed and grass lands. This amount is determined from the fire plan submitted to the State by the County. This would be salaries for fire wardens, fire fighters, equipment, etc. and varies as the degree of protection and men and equipment involved.

In accordance with the fire plan, the County is reimbursed for fire protection on the watershed, timber and grass lands not within the ownership of the Federal Government. The County pays for protection of the built-up unincorporated areas.

The State is reimbursed to a certain degree by the Federal Government under section 4185 of the Clarke-McNary Act.

The Federal Government enters into a special contract with the County of Marin for fire protection on federal lands such as Muir Woods National Monument.

REPORTING AND ARRANGEMENTS BETWEEN COUNTY FIRE DEPARTMENT AND MARIN MUNICIPAL WATER DISTRICT REGARDING FIRES

Fires are reported by various methods, (fire lookouts on Mt. Tamalpais or Mt. Barnabe, Marin Municipal patrolmen, passing motorists, etc.). The fires are reported to the fire department headquarters in Woodacre. The County alerts the nearest County fire units by radio or telephone and also contacts Marin Municipal Water District's Yard which in turn contacts District patrol units by radio.

CONSTRUCTION OF FIRE ROADS AND TRAILS

As a general rule the District constructs and maintains major access roads to the lakes, dams, pumps, etc., and the County Fire Department constructs and maintains fire roads with cats or graders but does not supply material such as culverts. The District has a road grader which it uses to maintain its access roads.

Some of the roads and fire trails were constructed prior to the inception of the County Fire Department in 1941 by the Civilian Conservation Corps., Marin Municipal Water District, and the Tamalpais Forest Fire District.

The 100 foot wide fire breaks or fire trails were in most part originally constructed by the Civilian Conservation Corps, and/or the Tamalpais Forest Fire District. As a rule these are no longer maintained except as mutually determined by the County Fire Chief

and the Water District's Board around major residential areas (for example the Indian Fire Trail above Kent Woodlands).

PATROLLING BY DISTRICT FORCES

The patrolling of District lands is done throughout the year by three radio equipped trucks. The lakekeeper at Lagunitas handles roughly the lower elevations of the Northerly portion of the watershed and areas including Phoenix, Lagunitas, Bon Tempe, Alpine, and the Little Carson Canyon area. The mountain patrolman handles the upper elevations of Mt. Tamalpais including all camp grounds in the area, and all of the south side of the mountain lands.

The third truck is a general all purpose, all areas patrol.

In addition there are two non radio patrol trucks. These are primarily on fish patrol during fishing season and general maintenance during remainder of year. The County Fire Department also patrols the Kent Lake area during the fire season.

DISTRICT EQUIPMENT

The Marin Municipal Water District owns and operates a four wheel drive Dodge power wagon fire truck with water tank, fire hoses and other fire fighting tools. This truck is presently kept at the lakekeeper's residence at Lake Lagunitas. The fire truck has one radio telephone for the District communications and one radio telephone for County fire calls.

The District also owns a caterpiller D-7 tractor which is generally parked in the Phoenix Lake - Lagunitas Lake area. The District patrolman residing at Phoenix Lake, as well as other employees of the District, can operate this equipment.

The District also has a 1,000 gallon tank truck with an auxillary gas engine for pumping water. This truck is fitted with a fire hose connection. The unit is parked at the Corte Madera Corporation Yard and is available for emergency use on the watershed. Several gasoline chain saws are also available for help in fire suppression.

OTHER ASPECTS IN FIRE PREVENTION

The Board of Directors of the District early recognized the potential fire hazard in the Lower Lagunitas Creek area below Alpine. In line with this, a lease was executed in 1948 for the hunting privileges in this area. The major purpose of this lease was to accomplish fire protection and preservation of the area and to have a minimum number of persons in this area. A condition of the lease was that a residence be provided on the premises and at least one patrolman reside on the premises throughout the year to patrol the area and protect the area against fire and other hazards and to exclude unauthorized persons from the area. The lease is still in effect at this time.

SURVEY OF FIRE PROTECTION IN OTHER DISTRICTS

A survey was made of other districts and public water agencies regarding their practices of fire protection in their watersheds.

Their replies indicate that the larger districts and public water agencies operate much the same as Marin Municipal Water District. That is, they provide patrolmen and give assistance in fire suppression to the County Fire Departments or State Forest Service. The smaller districts rely mostly or entirely on County or State suppression.

The following pages list a tabulation of some of the aspects of this survey as well as copies of the replies received by the District.

COMPARISON OF WATERSHED FIRE PROTECTION PRACTICES

NAME OF AGENCY	WATERSHED									FIRE PROTECTION								
	EXTENT OF WATERSHED AREA	TYPE WATERSHED		USES			SURROUNDING AREAS			OPERATING FIRE PLAN		DEPENDENCY FOR FIRE PROTECTION			WATER AGENCY OWNED FIRE EQUIPMENT		PATROLLING AN FIRE REPORTING	
		TIMBER	BRUSH & GRASS	WATERSHED ONLY	OPEN TO PUBLIC	RECREATION	PRIVATE	NATIONAL FOREST	COUNTY AND STATE	YES	NO	STATE FORESTRY	COUNTY AND LOCAL AGENCIES	WATER AGENCY	NONE	SOME	WATER AGENCY PATROLLMAN	COUNTY LOCAL AGENCIE
MARIN MUNICIPAL WATER DISTRICT	17,700 ACRES ±	X	X		X	LIMITED	X		X		X		X	X		X	X	X
SAN DIEGO COUNTY WATER AUTHORITY	NONE																	
NORTH MARIN COUNTY WATER DISTRICT	MINIMAL		X		X	LIMITED	X		X		X		X		X			X
HUMBOLDT BAY MUNICIPAL WATER DISTRICT	MODERATE	X			X	LIMITED		X	X		X	X	X		X		X	X
EAST BAY MUNICIPAL UTILITY DISTRICT	LARGE	X	X		X	LIMITED	X		X	X			X	X		X	X	X
SAN FRANCISCO WATER DEPARTMENT	LARGE	X	X		X	LIMITED	X		X		X	X	X	X	X		X	X
CITY OF SANTA CRUZ	2700 ACRES ±	X			X	LIMITED			X		X	X				X	X	X
DEPARTMENT OF WATER AND POWER CITY OF LOS ANGELES	LARGE	X	X		X	LIMITED	X	X	X	X		X	X		X		X	X
CITY OF SEATTLE WATER DEPARTMENT	90,000 ACRES ±	X			X	LIMITED	X	X	X	X		X	X	X		X EXTENSIVE	X	X

MARIN MUNICIPAL WATER DISTRICT

July 1, 1966

220 Nellen Avenue
CORTE MADERA, CALIFORNIA
94925

File 237.1.2

DIRECTORS

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W. C. HERUP
2nd Division
G. W. THIERBACH
3rd Division
WM. A. MARCUS
4th Division
R. G. ANDERSON
5th Division

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WM. R. SEEGER
General Manager
Chief Engineer
R. J. BRUSATORI
Secretary
Assistant Manager
R. W. ELLIOTT
Attorney
G. W. FRANZMAN
Auditor

Re: Request for Information - Fire Protection of Watersheds

Gentlemen:

We are attempting to prepare a report on fire protection and fire prevention of the watershed lands of the Marin Municipal Water District in Marin County. The watershed consists of approximately 17,700 acres, much of which is covered with brush, Douglas fir and redwood.

In connection with this report we would appreciate it if you could inform us as to the fire prevention or protection methods which you use on your watersheds, and whether you have a designated member of your staff responsible for the fire prevention methods of the watershed. Also if you have any fire plan or report which you could loan us or which we could review at your office.

Thank you for your consideration in this matter.

Very truly yours,

MARIN MUNICIPAL WATER DISTRICT

By_____
William R. Seeger
General Manager &
Chief Engineer

PBN:fg

SAN DIEGO COUNTY WATER AUTHORITY
2750 FOURTH AVENUE
SAN DIEGO, CALIFORNIA 92103
Telephone 297-3218 — Area Code 714

July 5, 1966

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WILLIAM H. JENNINGS
GENERAL COUNSEL

Mr. William R. Seeger
General Manager & Chief Engineer
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, California 94925

Reference: File 237.1.2

Dear Mr. Seeger:

In response to your letter of July 1, 1966, the San Diego County Water Authority does not operate the local watersheds but instead is the wholesale agency for imported Colorado River water.

Perhaps the two best local sources of information would be Roy Dodson at the City of San Diego Department of Utilities and John Collins, General Manager of the Vista Irrigation District. Mr. Dodson's department operates reservoirs on several of the local watersheds, including the San Diego River, San Dieguito River, and Cottonwood Creek. Mr. Collins operates Henshaw Reservoir on the San Luis Rey River.

Much of the watersheds above local reservoirs are public lands under the jurisdiction of either the U. S. Government for U. S. Forest lands and State Division of Forestry for state and private lands. Due to the extreme fire hazard in San Diego during the summer months, these agencies restrict access, open fires, and camping to reduce chances of a wild fire. In a like manner, the local water agencies restrict use of their limited ownership of the watershed by permits to fishermen for the area in the immediate vicinity of the lake and to lessees for cattle grazing or farming.

I trust that your other contacts will be in a position to be of more assistance to you.

Very truly yours,

L. R. Burzell
General Manager and Chief Engineer

LRB:ld

10.

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VALLEY CENTER
YUIMA

North Marin County Water District

999 Atherton Avenue • NOVATO, CALIFORNIA • Phone 892-6661

July 5, 1966

FILE REFERENCE

FRANK V. BACCAGLIO
FRANKLIN GUSTAFSON
WILLIAM M. JONAS
EMIL RENATI

OFFICERS
JEROME B. GILBERT
General Manager and Chief Engineer
FREDERICK BOLD, Jr.
Attorney
E. S. CHURCHILL
Auditor and Secretary

Mr. William R. Seeger
General Manager & Chief Engineer
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, California

Re: Request for Information
Fire Protection of Watersheds

Dear Bill:

The District owns only minimal watershed areas and has not experienced an appreciable fire hazard on them. The bulk of the watersheds are in grassland and are under rather continuous surveillance by the Novato Fire Protection District.

Very truly yours,

NORTH MARIN COUNTY WATER DISTRICT

Jerome B. Gilbert
General Manager and Chief Engineer

JBG:nk

RECEIVED
JUL 6 1966
M. M. W. D.

EAST BAY WATER

EAST BAY MUNICIPAL UTILITY DISTRICT 2130 ADELINE STREET, OAKLAND, CALIFORNIA 94623 • 835-3000

July 8, 1966

Mr. William R. Seeger
General Manager and Chief Engineer
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, California

Dear Mr. Seeger:

The East Bay Municipal Utility District formerly operated its own fire department since large areas of its ownership were not covered by any organized fire district. At the present time, however, all District property is encompassed by organized fire districts. On the portion of this property lying outside our service area boundaries we pay taxes to fire districts; the remainder is tax-free.

Recognizing some responsibility for these tax-free areas, we maintain close cooperation with surrounding fire districts, and maintain a small fleet of four-wheel drive patrol vehicles (Scouts, Broncos, Jeeps, etc.) which are equipped with tanks and pumps. These units report to all fires on property owned by East Bay Water and to fires on other watershed lands when requested on a mutual aid basis. Local fire chiefs have legal jurisdiction over any fire, and our fire fighting units report to them. The California Division of Forestry is also active on request, furnishing dozers, borate planes, etc., which local fire districts do not have.

As Land Maintenance Superintendent, I am directly responsible for fire protection of watershed lands. The actual supervision usually falls upon our Watershed Supervisor. We use the fire plan for mutual aid which had been developed by the local fire districts in the East Bay area. It is known as "Operation Tinder-box" and consists mainly of grid maps marked with fire trails. The chief purpose is for mutual aid equipment to orient itself in unfamiliar terrain. We do not have an extra copy of this plan, but you could review it at most East Bay Fire Departments.

W. D. McNEVIN, PRESIDENT, A. C. CARRINGTON, VICE PRESIDENT, C. HOWARD ROBINSON, DEW... KRUEGER, T. EARLE HIPP

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HUMBOLDT BAY MUNICIPAL WATER DISTRICT

P. O. BOX 95 EUREKA, CALIFORNIA 95501

Telephone 443-5019 Area Code 707

July 7, 1966

Marin Municipal Water District
220 Nellen Avenue
Corte Madera, Calif. 94925

Re: Fire Protection of Watersheds

Gentlemen:

Ruth Reservoir of the Humboldt Bay Municipal Water District in Trinity Co. is almost completely surrounded by National Forest lands, and they maintain fire camp and patrol during the fire season. The remainder of lands we have leased to Trinity County for recreation purposes, so we have no fire plan as such. However, our Dam tender makes a trip to the upper reaches of the Reservoir each day, and would report any fire to the Forestry people.

If we can be of any further help, please do not hesitate to write us.

Very truly yours,

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

Chester F. Peterson

Chester F. Peterson
Manager

CFP:kb

In fire prevention itself, our activity is chiefly confined to participation in the "Keep California Green" program and the "Keep California Green and Golden" program, to occasional bill inserts, and to the contact of persons by our patrolmen on watershed properties.

If there is any further information that we can furnish you, we will be most happy to do so.

Very truly yours,

W. T. HARTMAN, Land
Maintenance Superintendent

WTH/cd

RECEIVED
JUL 11 1956
M. M. W. D.

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION

SAN FRANCISCO WATER DEPARTMENT

425 MASON STREET, ZONE 1
TELEPHONE [redacted] 558-3616

OFFICE OF
GENERAL MANAGER & CHIEF ENGINEER

July 8, 1966

SUBJECT:

Mr. William R. Seeger
General Manager & Chief Engineer
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, California 94925

Dear Mr. Seeger:

The following information is offered in reply to your letter of July 1 relative to methods of fire prevention and protection which are in practice on watersheds of the San Francisco water supply in the Bay Area.

1. The maintenance of watershed areas in under the supervision of the division manager responsible for the area in which the watershed lands are located, that is, the Peninsula Division manager is responsible for the watershed areas in San Mateo County, and the Alameda Division manager is responsible for the watershed areas in the Alameda and Santa Clara counties.

2. The department does not have a formal, written fire prevention plan.

3. During the days of the Spring Valley Water Company and the early subsequent days of the department under city ownership, fire guarding and much of the fire prevention work, as well as fire fighting, was performed by department forces. As San Mateo County built up the county fire service they took over a portion of our fire guarding work and, in general, took responsible charge of suppression of fires. At the present time, San Mateo County pays the State to take over the fire protection services formerly provided by the county, and all prevention work and suppression of fires is now the responsibility of the State Forestry Service. However, the Forestry Service decides the location and extent of fire prevention work which will be performed and they take responsible charge of all fire suppression work. At the present time, there are differences of opinion as to the amount and location of fire prevention work and the department does some fire prevention work with their own forces.

The State has decided that their fire prevention work will be limited to peripheral areas and, in general, it has been along the westerly line of our watershed in San Mateo County, probably because the prevailing winds are from the west and fires outside the watershed would most likely enter from this direction. The response of Water Department forces to fires on our watershed or immediately adjacent is somewhat a matter of judgment unless we are specifically asked for aid, in which instance our forces would always respond. The Water Department does not have a fire truck, but we do have dozers, discs and a water wagon which can be made available either for fire prevention or fire suppression work.

4. In Alameda County there is a county fire station and a State Forestry station in or near Sunol. These organizations take responsibility for fire suppression work on our watersheds in this area, and they make certain inspections to determine whether or not necessary fire prevention work has been performed. These services seem to cooperate to get the most effective results, and our forces cooperate whenever called upon or if a hazard would warrant immediate response, our forces would be dispatched without request. Our fire guarding is limited to department buildings on the watershed.

In general, the same procedures are in effect in Santa Clara County, although I cannot give you the exact location of the county fire service station. The [illegible] station operates on a regional basis, and the Sunol station would respond to fires in the northern Santa Clara area around our Calaveras watershed. I am informed that all of the fires in Santa Clara County last year were suppressed before burned areas exceeded three acres. Our watershed keepers carry small pressure spray equipment and both report on and respond to fires within their particular areas.

I do not recall a serious fire on any of our local watersheds during the thirty years of my Water Department service.

I think the above information would indicate that our properties are pretty much in the same category as any other private land owner and we receive the same protection from either state or county that is accorded the private land owner.

I should add that the manager of our Peninsula Division is continually working with local authorities to get the best possible fire protection and I enclose a copy of a recent news-

paper article indicating the limitations under which the State Forestry Service operates in their fire prevention and protection program.

Very truly yours,

H. C. MEDBERY
Assistant General Manager
and Assistant Chief Engineer

Encl.

RECEIVED
JUL 11 1966
M. M. W. D.

'Inadequate Forest Fire Protection'

SF Examiner 7-6-66

Fire prevention services in the tinder-dry forest areas from San Mateo to Santa Barbara Counties are grossly inadequate, according to the State forestry official in charge of the six-county district.

Emory Sloat, deputy State forester, said yesterday the "level of prevention services obviously is not what it should be."

He made the statement after John O'Marie, district manager of the San Francisco Water Department's Crystal Springs reservoir told the San Mateo County Board of Supervisors the State division is "hamstrung and cannot do a good job."

CONFIRMED

Sloat confirmed O'Marie's charges, saying the forestry division is suffering from "no men, no equipment, no material and no budget."

He said the Stat's master plan envisioned a budget of $6 million for the current year. That was cut to $5 million before it was presented to the State Legislature, which cut the request to "something around $500,000."

The State division's budgetary woes were revealed when the supervisors refused last week to sign a $193,184 contract for fire protection in the county's unincorporated areas when O'Marie complained the State had not cleared a small fire trail near the reservoir.

CHANGE MINDS

The supervisors relented and approved the contract yesterday, however, when O'Marie said Sloat convinced him the State could not do an adequate job because of lack of funds.

The crisis was further pointed up by last week's 500 acre grass fire on San Bruno mountain.

The supervisors directed County Manager E. R. Stallings to further investigate the quality of fire prevention in the unincorporated areas.

City of Santa Cruz
CALIFORNIA 95060

City Hall
809 CENTER STREET
DIAL 426-5000
AREA CODE 408

Water Department
P. O. Box 919
95060

July 12, 1966

Mr. William R. Seeger
General Manager and Chief Engineer
Marin Municipal Water District
200 Nellen Avenue
Corte Madera, California 94925

Dear Mr. Seeger:

Fire Protection of Watersheds

The City of Santa Cruz owns about 2700 acres of watershed land surrounding its Loch Lomond Reservoir. We depend almost entirely upon the State Division of Forestry for fire prevention and protection on the watershed. We have no member of staff designated as responsible for fire prevention methods, nor any employees assigned entirely to this function, as we do not have sufficient employees for this purpose.

We do operate a recreation area on the reservoir, and the wardens have assigned to them a four-wheel drive vehicle equipped with a fire pump and a 300-gallon water tank. There are several fire trails in the area which can be negotiated by this truck as well as by any four-wheel drive State Forestry vehicle.

We do not have any fire plan or report for this particular area, though I know that the State Division of Forestry has studied the area thoroughly and is able to take action immediately upon the occurrence of any fire. The principal State Division of Forestry in Santa Cruz County is located within a few miles of the area.

Very truly yours,

Weston L. Webber
Director of Water Department

WLW:mm
cc: City Manager

RECEIVED
JUL 13 1966
M. M. W. D.

SAM YORTY
MAYOR

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DEPARTMENT
OF
WATER AND POWER
THE CITY OF LOS ANGELES

WATER AND POWER SQUARE
111 NORTH HOPE STREET • P. O. BOX 111
LOS ANGELES, CALIFORNIA 90054
TELEPHONE (213) 481-4211
CABLE ADDRESS: DEWAPOLA

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GENERAL MANAGER
AND CHIEF ENGINEER

E. L. KANOUSE
ASSISTANT GENERAL MANAGER
AND CHIEF ENGINEER

MAX K. SOCHA
CHIEF ENGINEER OF
WATER WORKS AND
ASSISTANT MANAGER

T. M. BLAKESLEE
CHIEF ELECTRICAL ENGINEER
AND ASSISTANT MANAGER

GEORGE C. SOPP
DIRECTOR OF GENERAL SERVICES
AND ASSISTANT MANAGER

WILLIAM D. BACHAU
CHIEF FINANCIAL OFFICER

July 13, 1966

Mr. William R. Seeger
General Manager & Chief Engineer
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, California 94925

Your File 237.1.2

Dear Bill:

Your letter addressed to Mr. Samuel B. Nelson regarding watershed fire protection has been referred to me for reply. We have two major areas involving fire protection problems: Our Owens Valley Aqueduct watershed consists of area owned in fee by the Water System and much larger holdings under the control of the Public Land Office and the National Forest. Responsibility for fire fighting in these areas is divided between Water System forces, County Fire Departments and State and Federal agency units. Our forces cooperate in every way in fire protection and mitigation with the other responsible government units. This includes clearing of fuel breaks by appropriate agencies on both City owned and Federal lands.

In our urban areas, large brush covered areas are subject to devastating fires under adverse climatic conditions. These areas are the primary responsibility of the Los Angeles Fire Department backed up by help from other fire agencies. The Water System has a very close working agreement with the Fire Department. We respond to all major fires with key operating personnel. Responsible supervisors are assigned to Fire Department command posts. Pumping plant operators and system operation personnel work closely with the Fire Department during the course of the fire. A mountain fire map has been published which shows areas where the Fire Department can pump from one water service zone to another in the event of power outages or pumping plant failure. In addition, the Water System maintains a heliport in one Water System property for fire fighting and communication work. Drills are encouraged in our watershed to train Fire Department personnel in mountain fire fighting techniques. A cooperative program of fire road construction is also encouraged for improving mountain fire fighting capabilities.

Our procedures in answering mountain fires are being revised now. A copy will be sent to you when the new orders are published. In event you require any additional information, please feel free to call on us.

Yours very truly,

MAX K. SOCHA
Chief Engineer of Water Works
and Assistant Manager

RECEIVED
JUL 15 ...
M. M. W. D.

MAYOR
J. D. BRAMAN

CITY OF SEATTLE
WATER DEPARTMENT
1015 THIRD AVENUE—8TH FLOOR
SEATTLE, WASHINGTON 98104

SUPERINTENDENT
J. RAY HEATH
MEMBER A.S.C.E.
MEMBER N.S.P.E.
MEMBER A.W.W.A.

July 19, 1966

Your File 237.1.2

Mr. William R. Seeger
General Manager & Chief Engineer
220 Nellen Avenue
Corte Madera, California 94925

Dear Mr. Seeger:

Please excuse the delay in replying to your letter of July 1st requesting information on fire protection on Seattle's municipal watersheds.

The Water Department of the City of Seattle has within its organization a Forestry Division whose responsibility is timber management and protection of the City owned watersheds from fire. The Cedar River watershed having an area of over 90,000 acres is owned 73% by the City of Seattle, 23.5% by the U.S. Forest Service, and the balance of 3.5% of the privately owned area is under contract to be deeded to the City when the timber standing thereon is cut.

The Forestry Division maintains the protection organization consisting of fire patrolmen, fire lookouts, fire fighting crews plus all equipment necessary for the controlling of forest fires.

The City is designated as an authorized forest protective agency by the State, and in this connection operates under a cooperative fire protection agreement between the City of Seattle and the State of Washington. Under this arrangement the City does not pay fire patrol assessments on its forest lands which would be the case if it did not furnish its own protection. A copy of the agreement with the State is enclosed for your information.

A portion of this watershed is within the boundary of the Snoqualmie National Forest and a similar cooperative fire protection agreement between the City and the U.S. Forest Service outlines and controls the activities of each with respect to forest protection on their respective ownerships. This ownership is in a checkerboard pattern.

We also have a Cedar River Watershed Cooperative Agreement between the City of Seattle, U.S. Forest Service, and the private timber owners which regulates and controls the cutting of timber, construction of logging roads, and other phases of forest management, and which also provides for fire regulations governing logging operations under this agreement. A copy of the current regulations is enclosed.

RECEIVED
JUL 22 1966
M. M. W. D.

Annually the cooperating parties meet and develop fire plans for the current year.

If you have further questions please feel free to call for further information.

Very truly yours,

J. Ray Heath,- Supt of Water

By Allen E. Thompson
Allen E. Thompson
Forester

AET:ed

enc.

REPORT BY STATE FORESTER ON FIRE PROTECTION OF WATERSHED

In June, 1966, the Marin Municipal Water District requested Marin County Fire Chief, Louis J. Bloom, to prepare a report dealing with fire protection of the District's watershed lands. The following fire protection report was prepared by the State Division of Forestry with the cooperation of Chief Bloom.

LOUIS J. BLOOM, FIRE CHIEF

TELEPHONE 453-8199

MARIN COUNTY FIRE DEPARTMENT

WOODACRE, CALIFORNIA

September 9, 1966

Office of Administrator
Civic Center
San Rafael, California

Attention: Mr. Allan Bruce
County Administrator

Re: Watershed Lands - Marin Municipal Water District

Dear Mr. Bruce:

Enclosed find report and recommendations for the Marin Municipal Water District as you requested. This report was by our department and the Division of Forestry at my request. This report was prepared on a priority basis as plotted on the enclosed map.

This fire prevention program will be carried on as a cooperative program between the Marin County Fire Department and the Marin Municipal Water District.

I feel these recommendations will provide a reasonable degree of fire protection for our valuable watershed lands.

Very truly yours,

Louis J. Bloom

Louis J. Bloom, Fire Chief
Marin County Fire Department

LJB/jr

cc Mr. P. Joske, Parks & Recreation Director
Mr. W. Seeger, Marin Municipal Water District
Mr. P. Behr, Supervisor 3rd. District
Mr. Stanley Rowan, Ass't. Fire Chief
Mr. Richard Pedroli, Ass't. Fire Chief

STATE OF CALIFORNIA—RESOURCES AGENCY
DEPARTMENT OF CONSERVATION
DIVISION OF FORESTRY

EDMUND G. BROWN, Governor

North Coast District

Post Office Box 670
Santa Rosa, California
September 6, 1966

Refer: FP-9-6

Louis J. Bloom, Chief
Marin County Fire Department
P.O. Box 518
Woodacre, California

Dear Chief Bloom:

We have studied the Marin Municipal Water District Watershed as you requested. To increase the fire protection measures for this area, we recommend that certain fuelbreaks be constructed.

The purpose of the fuelbreaks would be to separate the area into smaller blocks, convert the brush and other high hazardous fuels to grass and to provide access into the area for fire suppression. In completing these fire protection recommendations two important factors that must be considered were not studied in detail by the Division of Forestry. First, the long range recreation plans for this area have not been definitely established at this time. Adjustments of fuelbreak locations would have to be coordinated with recreational plans since the Division of Forestry is only suggesting the location of fuelbreaks as related to the most logical place for stopping a fire. Second, fire history records should be studied in detail. A first look at the fire history indicates that it is not too serious. This appears reasonable since this area does not suffer the long critical fire weather periods. However, during the fall when the high northerly winds and low humidities are occurring, this area can be subject to critical fire weather conditions. We know that this critical fire weather period is of the most concern to the Marin County Fire Department in controlling any fires in this area. We used these critical fire weather conditions as a guide while completing our recommendations. In addition to the proposed fuelbreaks, some consideration should be given to a fire prevention patrol plan in relation to long range recreational plans and past fire incidence. Of course, the primary objective of a fire prevention patrol would be to educate visitors on fire prevention principles and to enforce fire prevention regulations in this area.

We attempted to take a practical approach in locating the fuelbreaks. We know that an extensive fuelbreak system would take many years to complete. Therefore, we have suggested certain priorities in completing the fuelbreaks as indicated on the enclosed map.

As first priority it is recommended that an attempt be made to encircle the Kent Lake Watershed area. It appears that this fuelbreak should be constructed first since during the critical fire weather periods when the

HICKS VALLEY

PT. REYES STA.

N

Barnabe Mtn
Fire Lookout

LUCAS VALLEY

LAGUNITAS

COUNTY FIRE HEADQUATERS

WOODACRE

SANTA VENETIA

FAIRFAX

SAN ANSELMO

SAN RAFAEL

ROSS

KENTFIELD

LARKSPUR

CORTE MADERA

BOLINAS

Mt Tamalpais
Fire Lookout East Peak

MILL VALLEY

THROCKMORTON RIDGE

MARIN CITY

PACIFIC OCEAN

SAN FRANCISCO BAY

~LEGEND~

FUELBREAKS (PROPOSED)

FIRST PRIORITY

SECOND PRIORITY

THIRD PRIORITY

SNAGS X

M.M.W.D. BOUNDARY (DISTRICT OWNED LANDS)

FUEL BREAKS PROPOSED

MARIN MUNICIPAL WATER DISTRICT

LOCATION AND PRIORITY OF PROPOSED FUELBREAKS RECOMMENDED TO INCREASE THE FIRE PROTECTION OF THE M.M.W.D. WATERSHED LANDS ACCOMPANING STATE FORESTERS REPORT

Scale [illegible] August 1966

Scale in Feet

high north winds are blowing, a fire coming into the watershed from the adjacent areas on the north would be the most dangerous and the most difficult to control.

As a second priority, fuelbreaks are proposed (1) continuing along Bolinas Ridge through Potrero Meadows North along Rocky Ridge to Alpine Lake, (2) from the Pine Mountain truck road along Pine Mountain Ridge to Kent Lake, (3) Ridgecrest Blvd. to Southwest edge of Alpine Lake, (4) Bolinas-Fairfax Highway to Alpine Lake on the ridge between Liberty Gulch and Bon Tempe Creek. The Bolinas Ridge and Rocky Ridge fuelbreak is planned to further stop a fire from spreading in a southerly direction and also to prevent fires from entering the watershed from adjacent areas of high public use. The Pine Mountain fuelbreak is recommended to separate the Big Carson Drainage since the area that lies generally north of Pine Mountain Ridge is to a large extent private ownership. The two smaller second priority fuelbreaks as indicated in (3) and (4) above may be used to break the water district lands into two separate areas for fire protection purposes. One area would be lying North and West of Alpine Lake and the other to the South and East.

Third priority fuelbreaks are recommended to further separate the watershed into smaller blocks and to continue encircling the entire watershed area with one continuous fuelbreak. Two short fuelbreaks have been recommended to break up the watershed in the area West of Kent Lake since many snags are in this area. We suggest that a fuelbreak be constructed from the Pine Mountain truck road down the ridge above Liberty Gulch into Laguanitas Creek. This fuelbreak would contain the East side of the Kent Lake watershed. A fuelbreak has been proposed along Laguanitas Creek from Kent Lake to Alpine Lake since there are many snags in this drainage. We suggest that a fuelbreak be constructed Easterly along Ridgecrest Blvd. up to the East peak of Mt. Tamalpais and then North to Lake Laguanitas. With the completion of this fuelbreak the entire watershed would be encircled with the exception of the area Northeast of Bon Tempe Lake. A fuelbreak has not been proposed for this area since it is well traversed with roads.

In general, the fuelbreaks should be located as close to the ridge top as possible with the exception of the proposed fuelbreak along the existing road in Laguanitas Creek. Listed below are the suggested standards for this type of fuelbreak:

1. Firetruck trails - a minimum of 12' wide, cleared to mineral soil, should be established along the center of the fuelbreak where feasible. The gradient of the truck trail should average 10% or less with pitches up to a maximum of 20%. Where the fire truck trail must veer away from the fuelbreak due to topography, 4WD traffic should be able to traverse the fuelbreak areas with few exceptions. If an extensive portion of the fuelbreak is inaccessible to equipment, the firetruck trails should be constructed to various points of the inaccessible portion of the fuelbreak so that men and equipment can be placed along the line and used quickly and effectively.

2. Within 50' of the center line of the fuelbreak, all vegetation with the exception of large trees and grass, should be removed. Trees standing within this 50' should be pruned so that no portion of the limbs will be within 15' of the ground.

Removing the undergrowth and pruning the limbs will result

in a park-like appearance and should enhance certain areas for recreational purposes.

3. Within 100' of the center line of the fuelbreak all brush and hardwood trees, slash and any other dead inflammable material should be removed. Within this area the trees should be thinned to the extent that the crowns of adjacent trees are separated and the crown cover will not occupy more than 50% of the area. Again, the standing trees should be pruned so that the limbs will not be within 15' of the ground.

4. Trees with dead tops should be felled within 200' of the fuelbreak center line.

5. All snags should be felled within 300' of the center line of the fuelbreak.

It is reasonable to assume that the above standards are somewhat ideal and that a variety of cover, topography and other conditions will be found which will require a variance from the above standards. The standards may be decreased where practical on some of the second and third priority fuelbreaks. On the other hand in certain situations good judgment may dictate that clearance distances specified above may be increased to whatever is necessary.

We are returning one of the maps that you prepared of the Marin Municipal Water District lands. The proposed fuelbreak locations are indicated on this map.

Sincerely,

C. W. Fairbank,
Deputy State Forester

10
Enc.
cc: F. H. Raymond

RECOMMENDED PROGRAM

1. The Marin Municipal Water District's four wheel drive Dodge power wagon fire truck which is presently kept at Lagunitas is to be moved to the County Fire Department's headquarters in Woodacre. The County will maintain this vehicle and use it only for fire suppression in the watershed.

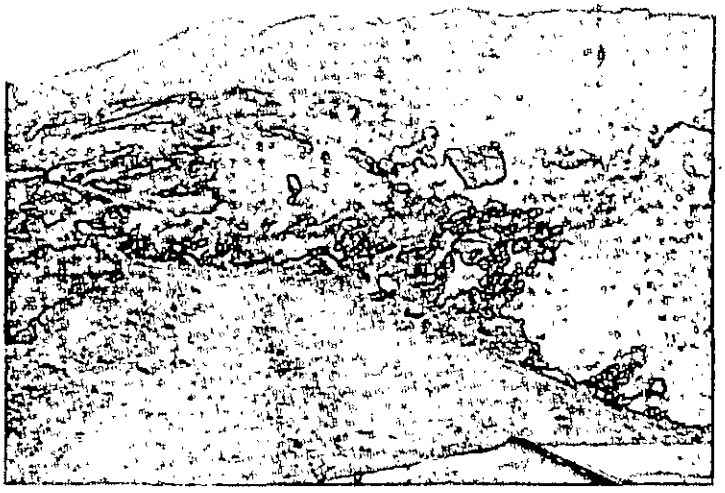
2. It is the intention of Chief Bloom to carry out the recommendations given in the State Forester's report. Work has commenced on a fuel break along Bolinas Ridge. This work will continue with the eventual encirclement of Kent Lake by a fire break. This is as outlined in the priority 1 project of the State Forester's report. Upon completion of the priority 1 project, priority 2 project will commence and finally priority 3 project. To prevent the regrowth of vegetation in the fuel break areas, Chief Bloom proposes to use approved soil sterilizers.

The Marin Municipal Water District crews are to help with clearing the fuel breaks during the winter months when construction activity is a minimum. The District crews are to work in those areas designated by Chief Bloom.

APPENDIX

August 12, 1966

Snags on lower side of flow line road between Alpine and Pine Mountain Tunnel. Snags are generally douglas fir which did not recover from the 1945 fire.



August 12, 1966

Pine Mountain truck road (fire trail) extends along ridge from County Road above Meadow Club to Kent Lake and connects to County Highway at Shafter Bridge near Lagunitas.

View of heavily burned area of Lower Lagunitas Canyon showing recovery of redwoods from 1945 fire.

View looking south from Middle Peak of Mt. Tamalpais.

View looking northwest from Middle Peak of Mt. Tamalpais.

HICKS VALLEY

PT. REYES STA.

N

Bornabe Mtn
Fire Lookout

LUCAS VALLEY

LAGUNITAS

COUNTY FIRE HEADQUATERS

WOODACRE

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Kent

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ROSS

Phoenix

Alpine

Bon Tempe

KENTFIELD

Lagunitas

LARKSPUR

CORTE MADERA

BOLINAS

Mt Tamalpais
Fire Lookout

East Peak

MILL VALLEY

THROCKMORTON RIDGE

MARIN CITY

PACIFIC OCEAN

SAN FRANCISCO BAY

LEGEND

- PAVED ROADS-COUNTY
- FIRE ROADS
- FIRE TRAILS AND FIRE BREAKS
- FIRE LOOKOUTS
- COUNTY FIRE STATIONS w/ No OF UNITS
- DISTRICT WATERSHED LANDS
- OLD TAMALPAIS SCENIC R R R/W
- FIRE ROADS OPEN AND MAINTAINED BY FIRE DEPT
- ROADS MAINTAINED BY M.M.W.D.
- FIRE ROADS - ACCESS TO WATERSHED

MARIN MUNICIPAL WATER DISTRICT

Location Map of Marin Municipal Water District Watershed Lands Showing Distribution of County Fire Units and Accessibility to the Watershed Areas

Scale 1" = 5250'

August 1966

Scale in Feet