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California Environmental Protection Agency WATER RESOURCES CONTROL BOARD

TYPE OR PRINT IN BLACK INK (For instructions, see booklet: "How to File an Application to Appropriate Water in California")

State Water Resources Control Board Division of Water Rights P.O. Box 2000, Sacramento, CA 95812-2000 Tel: (916) 341-5300 Fax: (916) 341-5400 www.waterboards.ca.gov/waterrights

2012 MAR -5 AM 10:12

DIV OF WATER RIGHTS SACRAMENTO

APPLICATION NO. _____

APPLICATION TO APPROPRIATE WATER

1. APPLICANT/AGENT

Table with 3 columns: Name, Mailing Address, City, State & Zip, Telephone, Fax, E-mail. Rows include Jack and Patricia Boydston and Wagner & Bonsignore, CCE.

2. OWNERSHIP INFORMATION (Please check type of ownership.)

- Ownership options: Sole Owner, Limited Partnership*, Corporation, Limited Liability Company (LLC), Business Trust, Joint Venture, General Partnership*, Husband/Wife Co-Ownership, Other.

*Please identify the names, addresses and phone numbers of all partners.

3. PROJECT DESCRIPTION (Provide a detailed description of your project, including, but not limited to, type of construction activity, area to be graded or excavated, and how the water will be used.) Add additional pages if needed and check box below and label as an attachment.

Multiple horizontal lines for project description text entry.

For continuation, see Attachment No. 1

4. PURPOSE OF USE, DIVERSION/STORAGE AMOUNT AND SEASON

removed per 1/27/12 email

a. PURPOSE OF USE (irrigation, domestic, etc.)	DIRECT DIVERSION				STORAGE		
	AMOUNT		SEASON OF DIVERSION		AMOUNT	SEASON OF COLLECTION	
	Rate (cfs or gpd)*	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)
Irrigation					28.1	11-1	5-14
Frost Protection							
Heat Control							
Stockwatering							
Total afa			Total afa		28.1		

See Attachment No. ____ * If rate is less than 0.025 cubic feet per second (cfs), use gallons per day (gpd).

b. Total combined amount taken by direct diversion and storage during any one year will be 28.1 acre-feet.

c. Reservoir storage is: onstream offstream underground (If underground storage, attach Underground Storage Form.)

d. County in which diversion is located: Napa County in which water will be used: Napa

5. SOURCES AND POINTS OF DIVERSION/REDIVERSION

a. Sources and Points of Diversion (POD)/Points of Rediversion (PORD):

- POD / PORD # 1 Unnamed Stream tributary to Sage Creek thence Lake Hennessey thence Conn Creek thence Napa River
- POD / PORD # _____ tributary to _____ thence _____
- POD / PORD # _____ tributary to _____ thence _____
- POD / PORD # _____ tributary to _____ thence _____

If needed, attach additional pages, check box below and label attachment

See Attachment No. ____

b. State Planar and Public Land Survey Coordinate Description:

POD/PORD #	CALIFORNIA COORDINATES (NAD 83)	ZONE	POINT IS WITHIN (40-acre subdivision)	SECTION	TOWNSHIP	RANGE	BASE AND MERIDIAN
1	N. 1,951,467 E. 6,474,670	2	NE ¼ of NE ¼	28P	8N	4W	M.D.
			¼ of ¼				
			¼ of ¼				
			¼ of ¼				

If needed, attach additional pages, check box below and label attachment

See Attachment No. ____

c. Name of the post office most often used by those living near the proposed point(s) of diversion: St. Helena (94574)

6. WATER AVAILABILITY

- a. Have you attached a water availability analysis for this project? YES NO
 If NO, provide sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation: If needed, attach additional pages, check box below and label attachment.

See Attachment No. 2

- b. Is your project located on a stream system declared to be fully appropriated by the State Water Resources Control Board (State Water Board) during your proposed season of diversion?
 YES NO
- c. In an average year, does the stream dry up at any point downstream of your project? YES NO
 If YES, during which months? Jan Feb Mar Apr May Jun Jul Aug Sep Oct
 Nov Dec
- d. What alternate sources of water are available if a portion of your requested diversion season must be excluded because water is not available for appropriation? (e.g., percolating groundwater, purchased water, etc.) If needed, attach additional pages, check box below and label attachment
 N/A

See Attachment No.

7. PLACE OF USE

a.

USE IS WITHIN (40-acre subdivision)	SECTION*	TOWNSHIP	RANGE	BASE & MERIDIAN	IF IRRIGATED	
					Acres	Presently cultivated?
NE 1/4 of NE 1/4	28P	8N	4W	M.D.	1	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
NW 1/4 of NE 1/4	28P	8N	4W	M.D.	1	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
SW 1/4 of NE 1/4	28P	8N	4W	M.D.	14	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
SE 1/4 of NE 1/4	28P	8N	4W	M.D.	1	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
NW 1/4 of SE 1/4	28P	8N	4W	M.D.	5	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
NE 1/4 of SE 1/4	28P	8N	4W	M.D.	6	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
NE 1/4 of NE 1/4	28P	8N	4W	M.D.	Reservoir	<input type="checkbox"/> YES <input type="checkbox"/> NO
1/4 of 1/4						<input type="checkbox"/> YES <input type="checkbox"/> NO
Total Acres:					28	

*Please indicate if section is projected with a "(P)" following the section number.

See Attachment No. Please provide the Assessor's Parcel Number(s) for the place of use:
 025-260-029

8. PROJECT SCHEDULE

Project is: proposed, partially complete or complete (Year completed - 1960s).

Extent of completion: project complete

Estimated amount of time in years it will take for construction to be completed: project complete

Estimated amount of time in years it will take for water to be put to full beneficial use: 10 years

9. JUSTIFICATION OF AMOUNTS REQUESTED

a. IRRIGATION: Maximum area to be irrigated in any one year: 28 acres.

CROP	ACRES	METHOD OF IRRIGATION (sprinklers, flooding, etc.)	WATER USE (Acre-foot/Yr.)	SEASON OF WATER USE	
				Beginning date (month & day)	Ending date (month & day)
Irrigated Pasture	28	sprinkler	28.1	1/1	12/31

See Attachment No.

b. DOMESTIC: Number of residences to be served: Separately owned?
 YES NO Number of people to be served: Estimated daily use per person is:
 gallons per day Area of domestic lawns and gardens: square feet
 Incidental domestic uses:

(dust control area, number and kind of domestic animals, etc.)

a. STOCKWATERING: Kind of stock: cattle Maximum number: +/- 50
 Describe type of operation:
 (feedlot, dairy, range, etc.)

d. RECREATIONAL: Type of recreation: Fishing Swimming Boating Other

e. MUNICIPAL:

POPULATION List for 5-year periods until use is completed		MAXIMUM MONTH		ANNUAL USE		
Period	Population	Average daily use (gallons per capita)	Rate of diversion (cfs)	Average daily use (gallons per capita)	Acre-foot (per capita)	Total (acre-feet)
Present						

See Attachment No.

Month of maximum use during year:

Month of minimum use during year:

f. HEAT CONTROL: Area to be heat controlled: 28 net acres
 Type of crops protected: potential future vineyard
 Rate at which water is applied to use: 35 gpm per acre
 Heat protection season will begin May 1 and end October 1
 (month and day) (month and day)

g. FROST PROTECTION: Area to be frost protected: 28 net acres
 Type of crops protected: potential future vineyard
 Rate at which water is applied to use: 55 gpm per acre
 The frost protection season will begin March 1 and end May 15
 (month & day) (month & day)

h. INDUSTRIAL: Type of industry:

removed res 2/27/12 email JB

Basis for determination of amount of water needed: _____

- i. MINING: Name of the claim: _____ Patented Unpatented
 Nature of the mine: _____ Mineral(s) to be mined: _____
 Type of milling or processing: _____
 After use, the water will be discharged into _____ (watercourse)
 in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B. & M.
- j. POWER: Total head to be utilized: _____ feet
 Maximum flow through the penstock: _____ cfs Maximum theoretical horsepower capable of
 being generated by the works (cfs x fall ÷ 8.8): _____
 Electrical capacity (hp x 0.746 x efficiency): _____ kilowatts at: _____% efficiency
 After use, the water will be discharged into _____ (watercourse)
 in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B&M. FERC No.: _____
- k. FISH AND WILDLIFE PRESERVATION AND/OR ENHANCEMENT: List specific species and
 habitat type that will be preserved or enhanced: _____
- l. OTHER: Describe use: _____
 Basis for determination of amount of water needed: _____

10. DIVERSION AND DISTRIBUTION METHOD

- a. Diversion will be by gravity by means of: #1: Dam _____
 (dam, pipe in unobstructed channel, pipe through dam, siphon, weir, gate, etc.)
- b. Diversion will be by pumping from: _____
 (sump, offset well, channel, reservoir, etc)
 Pump discharge rate: _____ cfs or gpd Horsepower: _____
 Pump Efficiency: _____

c. Conduit from diversion point to first lateral or to offstream storage reservoir:

CONDUIT (pipe or channel)	MATERIAL (type of pipe or channel lining; indicate if pipe is buried or not)	CROSS-SECTION (pipe diameter, or ditch depth and top and bottom width) (inches or feet)	LENGTH (feet)	TOTAL LIFT OR FALL		CAPACITY (cfs, gpd or gpm)
				feet	+ or -	

See Attachment No. _____

d. Storage reservoirs: (For underground storage, complete and attach underground storage form)

RESERVOIR NAME OR NUMBER	DAM				RESERVOIR		
	Vertical height from downstream toe of slope to spillway level (feet)	Construction material	Length (feet)	Freeboard: dam height above spillway crest (feet)	Surface area when full (acres)	Capacity (acre-feet)	Maximum water depth (feet)
1	24.9	Earth	220	2	2.5	28.1	22.5

See Attachment No. _____

e. Outlet pipe: Complete for storage reservoirs having a capacity of 10 acre-feet or more.

RESERVOIR NAME OR NUMBER	OUTLET PIPE				
	Diameter in inches	Length in feet	Fall: Vertical distance between entrance and exit of outlet pipe in feet	Head: Vertical distance from spillway to entrance of outlet pipe in feet	Dead Storage: Storage below entrance of outlet pipe in acre-feet

See Attachment No. 3

e. If water will be stored and the reservoir is not at the point of diversion, the maximum rate of diversion to off-stream storage will be _____ cfs. Diversion to offstream storage will be made by:
 Pumping Gravity

11. CONSERVATION AND MONITORING

a. What methods will you use to conserve water? Explain.

b. How will you monitor your diversion to be sure you are within the limits of your water right and you are not wasting water? Weir Meter Periodic sampling Other (describe)
 Staff gage(s) to be installed.

12. RIGHT OF ACCESS

a. Does the applicant own all the land where the water will be diverted, transported and used?
 YES NO
 If NO, I do do not have a recorded easement or written authorization allowing me access.

b. List the names and mailing addresses of all affected landowners and state what steps are being taken to obtain access:

See Attachment No.

13. EXISTING WATER RIGHTS AND RELATED FILINGS

a. Do you claim an existing right for the use of all or part of the water sought by this application?
 YES NO
 If YES, please specify: Riparian Pre-1914 Registration Permit License
 Percolating groundwater Adjudicated Other (specify) _____

b. For each existing right claimed, state the source, year of first use, purpose, season and location of the point of diversion (to within quarter-quarter section). Include number of registration, permit, license, or statement of water diversion and use, if applicable.

See Attachment No.

c. List any related applications, registrations, permits, or licenses located in the proposed place of use or that utilize the same point(s) of diversion.

The Statement of Water Diversion and Use filed September 16, 2011 utilizes the point of diversion proposed in this application.

See Attachment No. _____

14. OTHER SOURCES OF WATER

Are you presently using, or do you intend to use, purchased water or water supplied by contract in connection with this project? Yes No If yes, please explain: _____

15. MAP REQUIREMENTS

The Division cannot process your application without accurate information showing the source of water and location of water use. You must include a map with this application form that clearly indicates the quarter/quarter, section, township, range, and meridian of (1) the proposed points of diversion and (2) the place of use. A copy of a U.S.G.S. quadrangle/topographic map of your project area is preferred, and can be obtained from sporting goods stores or through the Internet at <http://topomaps.usgs.gov>. A certified engineering map is required when (1) appropriating more than three cubic feet per second by direct diversion, (2) constructing a dam which will be under the jurisdiction of the Division of Safety of Dams, (3) creating a reservoir with a surface area in excess of ten acres or (4) appropriating more than 1,000 acre-feet per annum by underground storage.

See the instruction booklet for more information.

See Attachment No. 4

ENVIRONMENTAL INFORMATION

Note: Before a water right permit may be issued for your project, the State Water Board must consider the information contained in an environmental document prepared in compliance with the California Environmental Quality Act (CEQA). This form is not a CEQA document. If a CEQA document has not yet been prepared for your project, a determination must be made of who is responsible for its preparation. If the State Water Board is determined to be responsible for preparing the CEQA document, the applicant will be required to pay all costs associated with the environmental evaluation and preparation of the required documents. Please answer the following questions to the best of your ability and submit with this application any studies that have been conducted regarding the environmental evaluation of your project.

16. COUNTY PERMITS

a. Contact your county planning or public works department and provide the following information:

Person contacted: <http://www.countyofnapa.org/CDP/> Date of contact: February 10, 2012
 Department: Conservation, Development and Planning Telephone: (707) 253-4417

County Zoning Designation:
AW - Agricultural Watershed

Are any county permits required for your project? YES NO If YES, check appropriate box below:

- Grading permit Use permit Watercourse Obstruction permit Change of zoning
 General plan change Other (explain): _____

b. Have you obtained any of the required permits described above? YES NO
 If YES, provide a complete copy of each permit obtained.

See Attachment No. _____

17. STATE/FEDERAL PERMITS AND REQUIREMENTS

- a. Check any additional state or federal permits required for your project:
 Federal Energy Regulatory Commission U.S. Forest Service U.S. Bureau of Land Management U.S. Corps of Engineers U.S. Natural Res. Conservation Service Calif. Dept. of Fish and Game State Lands Commission Calif. Dept. of Water Resources (Div. of Safety of Dams) Calif. Coastal Commission State Reclamation Board Other (specify)

b. For each agency from which a permit is required, provide the following information:

AGENCY	PERMIT TYPE	PERSON(S) CONTACTED	CONTACT DATE	TELEPHONE NO.
DFG	LSAA	Fish and Game Code 1600		

See Attachment No. ____

- c. Does your proposed project involve any construction or grading-related activity that has significantly altered or would significantly alter the bed, bank, or riparian habitat of any stream or lake? YES NO

If YES, explain:

Existing Reservoir #1 is on-stream; however, significance has not been established.

See Attachment No. ____

- b. Have you contacted the California Department of Fish and Game concerning your project?
 YES NO If YES, name, telephone number and date of contact:

18. ENVIRONMENTAL DOCUMENT

- a. Has any California public agency prepared an environmental document for your project?
 YES NO
- b. If YES, submit a copy of the latest environmental document(s) prepared, including a copy of the notice of determination adopted by the California public agency. Public agency:

c. If NO, check the appropriate box and explain below, if necessary:

- The applicant is a California public agency and will be preparing the environmental document.*
 I expect that the State Water Board will be preparing the environmental document.**
 I expect that a California public agency other than the State Water Board will be preparing the environmental document.* Public agency: _____
 See Attachment No. 1

* Note: When completed, submit a copy of the final environmental document (including notice of determination) or notice of exemption to the State Water Board, Division of Water Rights and proof of payment of the State Clearinghouse filing fee. Processing of your application cannot be completed until these documents are submitted.

** Note: CEQA requires that the State Water Board, as Lead Agency, prepare the environmental document. The information contained in the environmental document must be developed by the applicant and at the applicant's expense under the direction of the State Water Board, Division of Water Rights.

19. WASTE/WASTEWATER

- a. Will your project, during construction or operation, (1) generate waste or wastewater containing such things as sewage, industrial chemicals, metals, or agricultural chemicals, or (2) cause erosion, turbidity or sedimentation? YES NO

If YES, or you are unsure of your answer, explain below and contact your local Regional Water Quality Control Board for the following information (See instruction booklet for address and telephone no.):

See Attachment No. ____

- b. Will a waste discharge permit be required for your project? YES NO
 Person contacted: _____ Date of contact: _____

c. What method of treatment and disposal will be used? _____

See Attachment No. ____

20. ARCHEOLOGY

- a. Have any archeological reports been prepared on this project? YES NO
 b. Will you be preparing an archeological report to satisfy another public agency? YES NO
 c. Do you know of any archeological or historic sites located within the general project area?
 YES NO If YES, explain:

See Attachment No. ____

21. ENVIRONMENTAL SETTING

Attach **two complete sets of color photographs**, clearly dated and labeled, showing the vegetation that exists at the following three locations:

- Along the stream channel immediately downstream from the proposed point(s) of diversion.
 Along the stream channel immediately upstream from the proposed point(s) of diversion.
 At the place(s) where the water is to be used.
 See Attachment No. 5

SUBMITTAL FEES

Calculate your application filing fee using the "Water Right Fee Schedule Summary" that was enclosed in the application packet. The "Water Right Fee Schedule Summary" can also be viewed at the Division of Water Rights' website (www.waterrights.ca.gov).

A check for the application filing fee, payable to the "Division of Water Rights" and an \$850 check for the Streamflow Protection Standards review fee [Pub. Resources Code § 10005(a)], payable to the "California Department of Fish and Game," must accompany this application. All applicable fees are required at the time of filing. If the application fees are not received, your application will not be accepted and will be returned to you. Please check the fee schedule for any fee changes prior to submitting the application.

DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief. I authorize my agent, if I have designated one above, to act on my behalf regarding this water right application.

Jack L. Boydston *Owner (husband)* *2/29/12*
 Signature of Applicant Title or Relationship Date

Patricia A. Boydston *Co Owner (wife)* *2/29/12*
 Signature of Co-Applicant (if any) Title or Relationship Date

Applications that are not completely filled out and/or do not have the appropriate fees will not be accepted. In the event that the Division has to return the application because it is incomplete, a portion of the application submittal fee will be charged for the initial review.

"APPLICATION TO APPROPRIATE WATER" CHECKLIST

Before you submit your application, be sure to:

- Answer each question completely.
- Number, label and include all necessary attachments.
- Include a legible map that meets the requirements discussed in the instruction booklet.
- Include the Water Availability Analysis or sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation.
- Include two complete sets of color photographs of the project site.
- Enclose a check for the required fee, payable to the Division of Water Rights.
- Enclose an \$850 check for the Streamflow Protection Standards review fee, payable to the Department of Fish and Game.
- Sign and date the application.

Send the original and one copy of the entire application to:

State Water Resources Control Board
 Division of Water Rights
 P.O. Box 2000
 Sacramento, CA 95812-2000

Attachments to Accompany
Water Right Application
Jack and Patricia Boydston

STATE WATER RESOURCES
CONTROL BOARD

2012 MAR -5 AM 10:13

DIV OF WATER RIGHTS
SACRAMENTO

Attachment #1

3. Project Description

This project consists of the collection and storage of water in an existing onstream reservoir. The reservoir at Point of Diversion #1 was originally built in the 1960s and has a capacity of approximately 28.1 acre-feet. The attached reservoir survey indicates a top of spillway elevation of 290.76' using 21" of flashboards; however, the Applicant will only install 6" of flashboards to ensure the reservoir will not be under the jurisdiction of the Division of Safety of Dams. Water has been used for sprinkler irrigation of approximately 28 acres of existing pasture. ~~Frost protection and heat control of the existing place of use are proposed potential future uses for vineyard, which will potentially replace the existing pasture.~~ The reservoir will also be used for stockwatering of approximately 50 cattle. The amount of water used for irrigation, ~~frost protection and heat control of vineyards~~ is estimated to be equal to the amount used for irrigation of pasture. The reservoir and place of use are fully developed. No further development is proposed.

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per
4/27/12
email
JB

The project proposed under this Application involves no changes to the existing reservoir and no changes to the requested place of use or water diversion relative to historical conditions for this project. Accordingly, this Application qualifies for a Categorical Exemption under Title 14, California Code of Regulations, Section 15301, Existing Facilities, which states the following:

"Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination."

Based on the foregoing, we are requesting that the State Water Board grant a Categorical Exemption to this Application and proceed with further processing as necessary for permit issuance.

Attachment #2

6. Water Availability
See separate attachment.

Attachment #3

- 10e. Outlet Pipe
The reservoir is existing. Dewatering will be accomplished by pumping.

Attachment #4

15. Map
See separate attachment.

Attachments to Accompany
Water Right Application
Jack and Patricia Boydston

Attachment #5

21. Environmental Setting (Photographs)
See separate attachment.

ATTACHMENT 2

Estimate of Water Availability to Accompany Water Right Application of Jack and Patricia Boydston

California Water Code Section 1260(k) requires that every application for a permit to appropriate water shall include “sufficient information to demonstrate a reasonable likelihood that unappropriated water is available for the proposed appropriation.” This narrative and accompanying calculations provide the required information.

The subject Application includes a point of diversion (POD #1) on an Unnamed Stream tributary to Sage Creek thence Conn Creek thence the Napa River in Napa County (see attached map). Diversion of up to 28.1 acre-feet is proposed for storage at an existing reservoir at POD #1. The proposed season of diversion is November 1 to May 14. According to State Water Resources Control Board Order WR 98-08, the Napa River watershed is fully appropriated from May 15 to October 31. The diversion season proposed by this Application conforms to Order WR 98-08. The following describes the methodology used to demonstrate a reasonable likelihood that water is physically available for the proposed appropriation.

The attached map shows the proposed point of diversion and the watershed area tributary thereto. The map also shows lines of equal mean annual runoff as shown on the map included with the document entitled *Mean Annual Runoff in the San Francisco Bay Region, California, 1931-70, by S.E. Rantz*.¹ An excerpt of this map is attached (Rantz map).

The weighted mean annual runoff for the watershed tributary to POD #1 was computed based on the Rantz map. Mean *seasonal* runoff for the subject watershed was estimated by adjusting the mean annual runoff assuming that the ratio of seasonal to annual runoff is identical to the ratio of seasonal to annual mean precipitation. The Angwin Pacific Union College precipitation station was used for this purpose (record attached). The resulting seasonal runoff value was adjusted by deducting the face value of any senior water rights in the watershed above the proposed point of diversion.

Calculations for the foregoing methodology are attached. These calculations show that in an average water year approximately 45.3 acre-feet would accrue to POD #1. This amount would be ample to fill the 28.1 acre-foot reservoir at POD #1, leaving about 17.2 acre-feet of runoff remaining. Accordingly, it is reasonable to conclude that water is available for the subject Application.

¹ Miscellaneous Field Studies Map MF-613, prepared in cooperation with the California Department of Water Resources.

**Water Right Application
by Jack and Patricia Boydston
Estimate of Water Availability**

Monthly Precipitation⁽¹⁾

ANGWIN PAC UNION COL, CALIFORNIA

<u>Month</u>	<u>Mean Precipitation (in)</u>
October	2.31
November	5.06
December	7.72
January	8.44
February	7.13
March	5.11
April	2.50
May	1.07
June	0.32
July	0.04
August	0.11
September	<u>0.43</u>
Annual	40.24

Point of Diversion #1

Mean Precipitation for requested diversion season (11/1 - 5/14) ⁽²⁾ :	36.50 in
Precipitation during requested diversion season as a percentage of total precipitation:	90.71%
Mean Annual Runoff: ⁽³⁾	9.1 in
Estimated Mean Seasonal Runoff: ⁽⁴⁾	8.2 in
Watershed Area for POD #1:	66.3 ac
Total Estimated Mean Seasonal Runoff at POD #1:	45.3 ac-ft
Senior Diverters of Record within POD #1 watershed (face value):	0.0 ac-ft
Total water available at POD #1:	45.3 ac-ft
Requested diversion amount:	28.1 ac-ft
Total Seasonal Amount Remaining in Stream After Diversion:	17.2 ac-ft

Notes:

⁽¹⁾ Source: Western Regional Climate Center website, <http://www.wrcc.dri.edu/summary/climsmnca.html>

⁽²⁾ Seasonal precipitation assumes May at one-half the monthly total.

⁽³⁾ *Mean Annual Runoff in the San Francisco Bay Region, California, 1931-70 (Miscellaneous Field Studies Map MF-613)*, by S.E. Rantz, 1974.

⁽⁴⁾ Estimated mean seasonal runoff is computed by multiplying mean annual runoff by percent seasonal precipitation.

Jack and Patricia Boydston
Calculation of Weighted Mean Annual Runoff in POD Watersheds

Runoff Based on *Mean Annual Runoff in the San Francisco Bay Region, California, 1931-70*, by S.E. Rantz

Watershed	Area (ac)	Mean Annual Runoff¹ (in)	Volume (ac-in)	Volume (ac-ft)
POD #1	66	9.078	602	50

Notes:

1. Weighted mean annual runoff from automatic calculation using AutoCAD.

ANGWIN PAC UNION COL, CALIFORNIA

Monthly Total Precipitation (inches)

File last updated on Feb 9, 2012

*** Note *** Provisional Data *** After Year/Month 201112

a = 1 day missing, b = 2 days missing, c = 3 days, ..etc.,

z = 26 or more days missing, A = Accumulations present

Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.

MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5

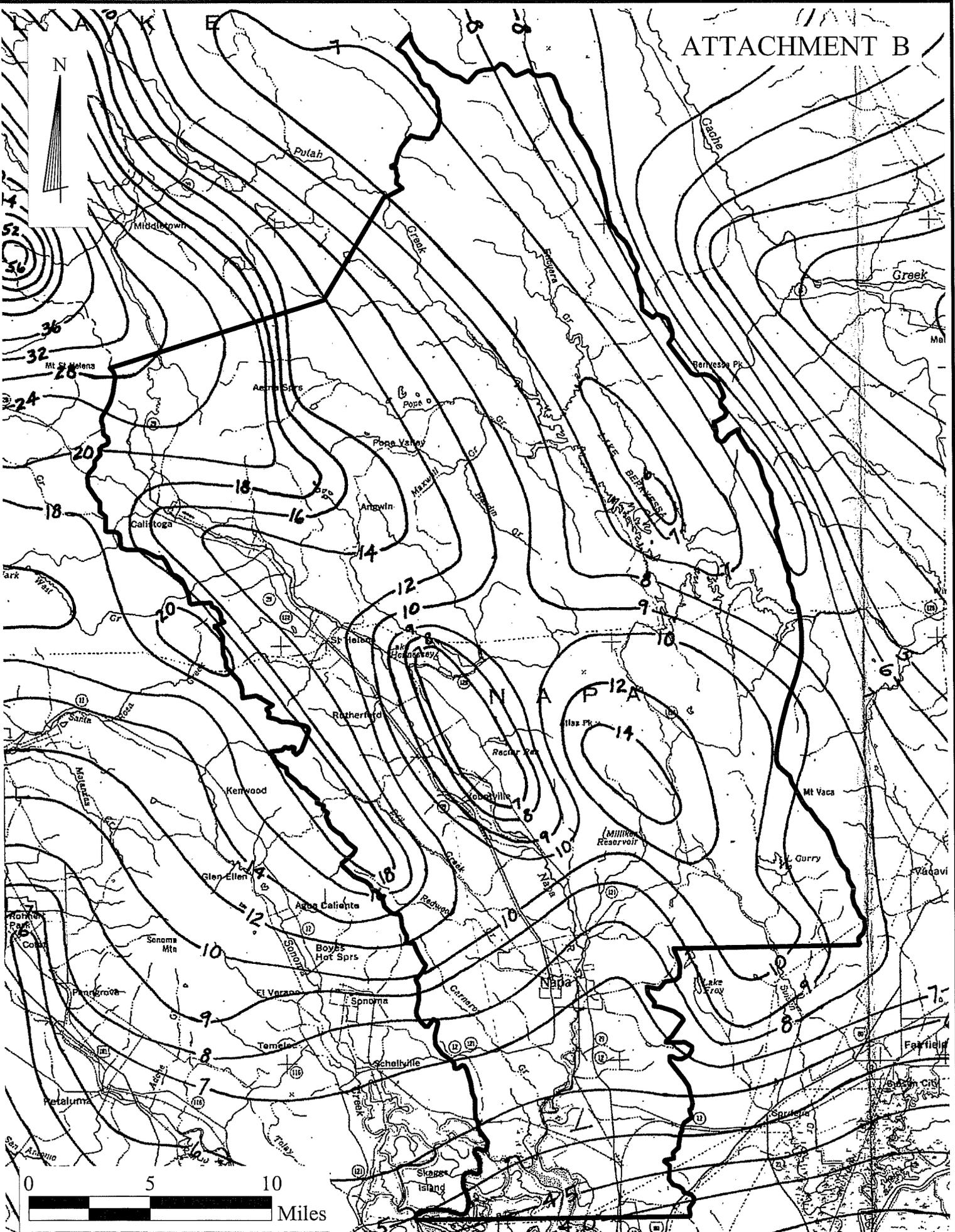
Individual Months not used for annual or monthly statistics if more than 5 days are missing.

Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR(S)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANN
1941	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	-
1942	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0 z	-
1943	0 z	0 z	0 z	0 z	0 z	0 z	0 z	0.67	0 z	0 z	0 z	0 z	-
1944	0.88	2.22	3.57	6.16	9.35 a	2.97	3.32	1.62	0.66	0	0	0	30.75
1945	2.64	6.93 k	2.51	3.19	6.54	6.82 u	0.54	2.53	0	0	0	0	-
1946	5.26	4.74 s	12.57 q	1.8 z	2.95	1.94	0.63	0.71	0 z	0.35	0 z	0.14	-
1947	0.57	4.71	3.87 x	1.6	4.37	5.12	0.83	0.46	1.99	0 z	0 z	0 z	-
1948	5.38	1.46	1.19	0 z	0 z	0 z	0 z	0 z	0 z	0	0	0.14	-
1949	1.24	2	7.12	1.94	3.48	0.77 z	0.01	0.44	0	0	0.07	0	-
1950	0	2.83	2.81	9.83	6.11	3.99	2.04	1.02	0.05	0	0	0.03	28.71
1951	6.31	10.8	10.85	8.19 b	3.57	2.57	1.58	1.48	0	0	0	0.04	45.39
1952	3.36	7.05	12.17	13.34	5.51	5.78	1.37	0.28	1.3	0	0	0	50.16
1953	0.02	3.6	19.53	10.02	0.03	5.19	4.16	0.63	0.56	0	0.3	0	44.04
1954	1.48	6.05	1.59	11.73	6.92	6.86	4.05	0.22	0.31	0.02	1.24	0.05	40.52
1955	0.5	6.64 a	6.5	3.55	1.81	0.86	4.08	0	0.1	0	0	0.6	24.64
1956	0.37	3.14	30.44	13.18	10.59	0.58	2.44	0.06	0.05	0	0	0.17	61.02
1957	3.95	0.13	0.68	5.21	9.55	4.31	2.36	4.91	0.23	0	0	2.95	34.28
1958	7.38	2.1	5.97	10.06	20.09	9.23	6.19	0.87	0.97	0.22	0	0.02	63.1
1959	0.2	0.48	2.76	10.17	8.33	1.92	0.47	0.25	0	0	0	3.99	28.57
1960	0.09	0.01	2.56	8.88	11.72	6.93	1.94	1.26	0	0	0	0	33.39
1961	1.23	5.77	5.03	6.36	3.23	5.5	1.83	0.22	0.15	0	0.05	0.46	29.83
1962	0.6	5.03	6.66	3.53	14.83	5.72	0.6	0.32	0	0	0.09	0.33	37.71
1963	14.47	1.76	6.55	10.54	4.61	7.12	8.62	1.12	0	0	0	0	54.79
1964	2.87	10.16	0.81	7.09	0.22	3.03	0.09	0.55	0.89	0	0	0	25.71
1965	1.69	8.06	17.82	10.44	1.46	1.5	5.5	0.06	0	0.04	0.8	0	47.37
1966	0.08	8.53	5.1	9.81	4.75	1.28	2.71	0.14	0.03	0.05	0.37	0.03	32.88
1967	0	11.92	8.72	17.4	0.42	8.03	6.83	0.34	3.06	0	0	0.13	56.85
1968	1.16	2.77	4.85	10.46	5.5	3.91	0.63	0.72	0	0	0.97	0.02	30.99
1969	3.74	4	12.24	21.27	11.13	2.08	3.53	0.09	0.09	0	0	0	58.17
1970	3.05	1.56	15.15	24	3.54	3.78	0.41	0	0.49	0	0	0	51.98
1971	2.63	12.8	13.38	4.33	0.29	6.54	1.16	0.53	0.02	0	0	0.16	41.84
1972	0.37	3.15	8.77	3.91	4.37	1	2.59	0.08	0.38	0	0.01	1.29	25.92
1973	4.35	8.43	4.79	18.04	9.99	4.58	0.26	0.07	0	0	0	0.95	51.46
1974	3.41	17.33	7.6	9.96	3.07	13.1	3.59	0	0	1.12	0.05	0	59.23
1975	1.8	1.52	5.77	3.24	12.91	12	3.07	0.22	0.04	0.2	0 z	0 z	-
1976	0 z	0 z	0 z	0.48	3.07	1.48	2.3	0.05	0.09	0	1.42	0.87	-
1977	0.25	1.53	0 z	2.7	2.74	3.59	0 z	1.92	0	0	0	2.01	-
1978	0.83	7.13	10.24	16.28	8.89	7.19	4.34	0.27	0.03	0	0	1.87	57.07
1979	0	0 z	0.96	12.64	9.72	4.42	3.19	1.32	0	0	0	0.06	-
1980	5.94	3.83	7.43 b	11.41	14.69	2.59	3.09	0.46	0.17	0.12	0	0.06	49.79
1981	0.42	0.68	8.88	9.84	3.34	4.51	0.72	0.42	0	0.01	0	0.59	29.41
1982	4.51	14.34	13.18	9.52	7.44	8.5 a	7.43	0	0.3	0.05	0.06	3.08	68.41
1983	5.07	11.11	7.12	13.22	16.06	19.12	4.42	0.97	0.25	0	0.36	0.56	78.26
1984	1.44	16.32	16.17	0.83	2.98	3.31 a	1.6	0.36	0.52	0	0.35	0.16	44.04
1985	2.37	12.81	2.53	1.29	4.88	5.38	0.26	0.01	0.04	0.04	0	1.45	31.06
1986	0 z	5.21	5.15	9.42	28.49	9.16	0.91	1.55	0	0	0	0 z	-
1987	0.44	0.24	2.54	4.95	6.31	5.87	0.17	0.06	0	0	0	0 z	-
1988	0 z	4.58 b	0 z	0 z	0 z	0.05	2.21	1.3	0.48	0	0	0	-
1989	0.13	6.42	4.08	1.49	0.76	11.46	1.11	0	0.14	0	0.03	2.12	27.74
1990	4.29	1.3	0	6.71	3.29	1.55	0.39	4.37	0	0	0	0.5	22.4
1991	0.67	0.6	0.92	0.61	5.18	16.57	0.57	0.39	0.66	0	0.22	0	26.39
1992	2.28	1.8	3.21	2.31	11.07	6.22	1.7	0	1.39	0	0	0	29.98

YEAR(S)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANN
1993	4.45	0.4	12.09	15.59	8.52	3.23	1.72	3.05	1.66	0	0	0	50.71
1994	1.23	3.13	5.18	3.26	5.98	0.35	1.94	1.17	0.05	0	0	0	22.29
1995	1.53	7.38	4.88	28.29	1.17 e	16.61	3.29	2.8	0.72	0	0	0	66.67
1996	0	0.24	11.15	9.52	11.36	3.94	4.37	4.7	0	0	0	0.14	45.42
1997	1.55	5.28	17.95	15.91	0.59	1.67	1.03	0.77	0.27	0	0.45	0.34	45.81
1998	1.95	8.72	4.13	0 z	21.45	3.57	5.2	5.09	0	0	0	0.27	-
1999	1.01	9.27	2.1	4.35	11.5	4.35	2.83	0.25	0.4	0	0	0.04	36.1
2000	1.38	5.36	0.65	8	11.98	4.26	2.6	2	0.28	0	0	0.51	37.02
2001	4.78	1.61	1.32	7.1	9.32	3.7	1.89	0	0.32	0	0	0.52	30.56
2002	1.44	9.16	15.12	5.7	2.48	3.69	0.44	1.4	0	0	0	0	39.43
2003	0.03	4.85	22.18	4.02	2.56	3.52	6.19	1.16	0	0	0.31	0.03	44.85
2004	0.09	5.07	15.56	4.17	11.14	2.14	0 z	0	0.19	0	0	0 a	-
2005	5.38	2.99	12.69	0 z	4.69	7.93	1.54	6.4	0.98	0	0	0	-
2006	0.95	3.33	23.33	6.96	6.58	10.73	6.87	1.14	0 z	0	0	0	-
2007	0.29	3.21	6.16	0.48	9.82	0.39	1.76	0.63	0	0.17	0	0.16	23.07
2008	2.42	0.7	4.56	14.76	4.47	0.27	0.25	0.24	0	0	0	0	27.67
2009	1.39	3.99	4.2	0.81 c	13.18	4.35	0.85	3.18	0	0	0	0.03	31.98
2010	5.25	1.68	3.41	13.07	6.71	4.11	5.65	2.45	0	0	0	0.16	42.49
2011	5.26	3.69	11.31	2.34 w	7.18 t	4.56 t	0.97 x	2.78 w	2.66 w	0	0	0.03 z	-
2012	2.86 w	2.74 r	0	-	-	-	-	-	-	-	-	-	-
Period of Record Statistics													
MEAN	2.31	5.06	7.72	8.44	7.13	5.11	2.50	1.07	0.32	0.04	0.11	0.43	41.14
MAX	14.47	17.33	30.44	28.29	28.49	19.12	8.62	6.40	3.06	1.12	1.42	3.99	78.26
MIN	0.00	0.01	0.00	0.48	0.03	0.05	0.01	0.00	0.00	0.00	0.00	0.00	22.29
NO YRS	65.00	64.00	64.00	62.00	65.00	64.00	64.00	67.00	64.00	68.00	66.00	62.00	51.00

ATTACHMENT B



Mean Annual Runoff in the San Francisco Bay Region, California, 1931-70