

July 19, 2016

**Regular Meeting
Board of Supervisors**

Board Reports

**Supervisor Timothy
E. Fesko**



DATE: July 11, 2016

TO: All North County Residents

FROM: Gary Myers, CEO
Southern Mono Healthcare District

RE: Bridgeport Medical Clinic

I want to express my personal apology for the lapse in service at the Bridgeport Medical Clinic. With the unexpected resignation of one of our physician assistants we have been unable to staff the clinic on a full time basis with an experienced professional to attend to the medical needs of all patients. I understand that the limited hours of operation is an inconvenience to all residents and visitors served by the Bridgeport Clinic and we are working to replace this position as quickly as possible.

Throughout the summer, we intend to have the clinic open one to two days per week. The days and hours will vary according to provider availability and I encourage everyone to call ahead to the clinic (760-932-7011) to schedule and confirm appointment times.

While understandably not as convenient for north county residents and visitors, Mammoth Hospital's Family Medicine Clinic in Mammoth Lakes accepts same-day appointments. Please call 760-934-2551 if you wish to be seen there. The Mammoth Hospital Emergency Department is also available 24/7 for more urgent medical needs.

Thank you for your patience as we work to restore full service at the Bridgeport Clinic.

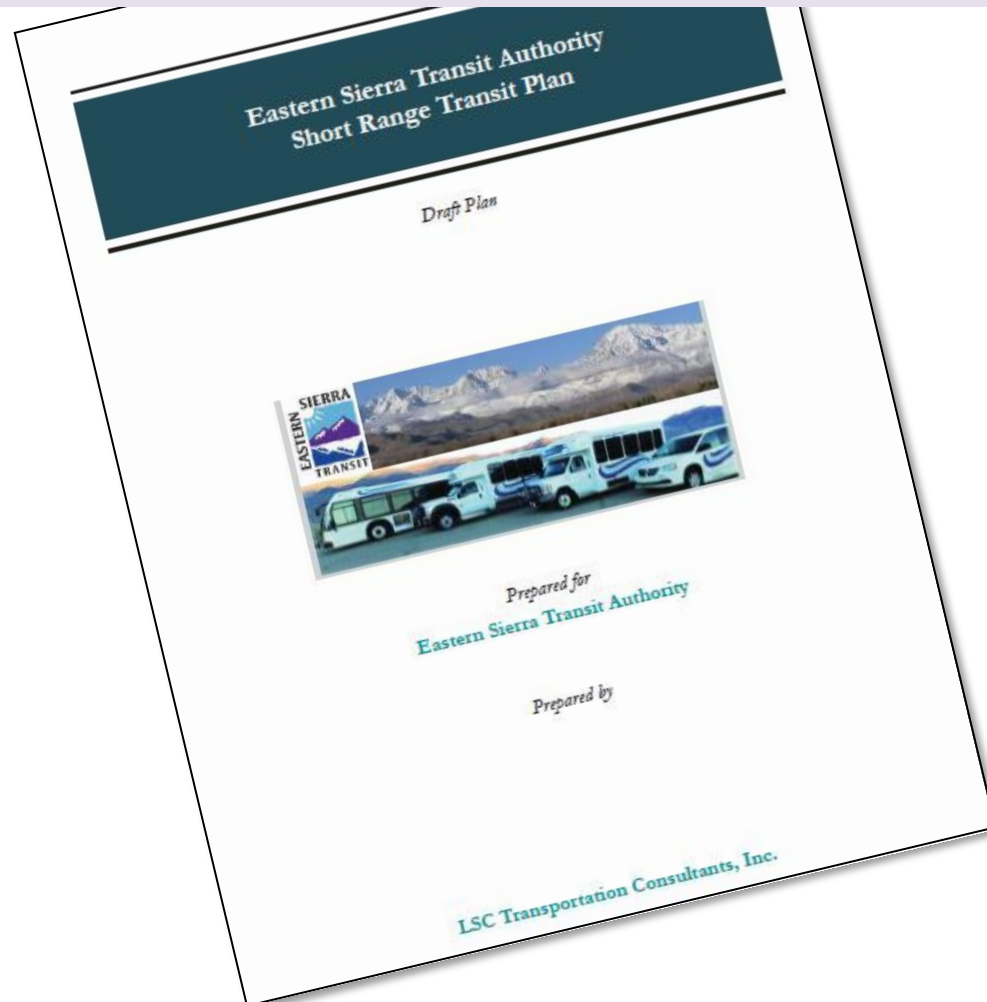
July 19, 2016
Regular Meeting
Board of Supervisors

Item #9a - Short
Range Transit Plan
Update

John Helm



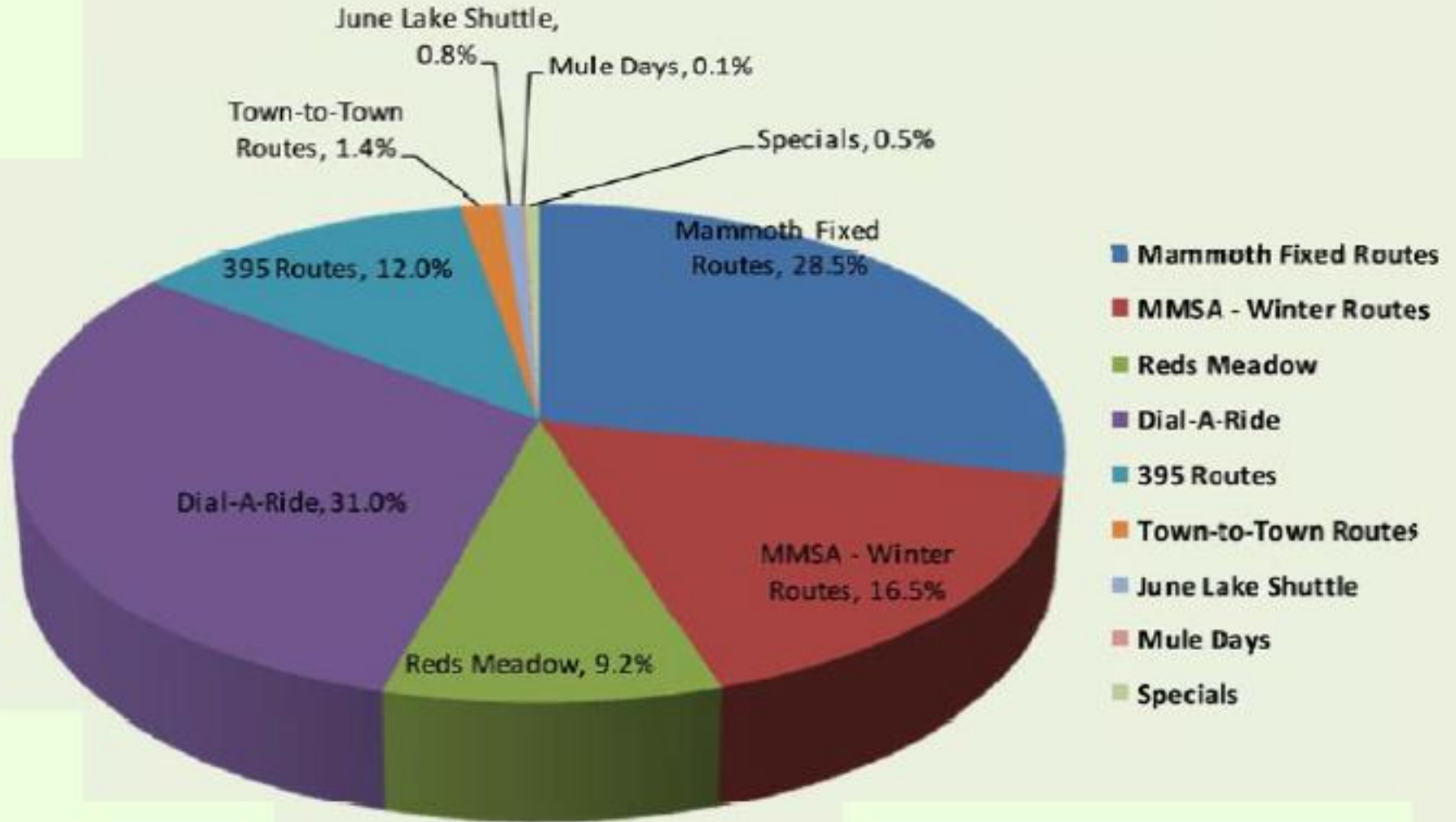
SHORT RANGE TRANSIT PLAN



Existing Service Review



Figure 15: ESTA Vehicle Service Hours Proportion by Service



Ridership/Service Hour Proportions

TABLE 12: FY 2013-14 ESTA Proportional Ridership and Service Levels by Route

Routes/Services	2013-14 Ridership Proportion	2013-14 Vehicle Service Hours Proportion
US 395 North	0.5%	4.9%
US 395 South	0.5%	3.1%
Mammoth Fixed Routes	38.0%	28.5%
MMSA	38.2%	16.5%
Mammoth Express	0.3%	1.5%
Lone Pine Express	0.5%	
Benton - Bishop	0.1%	
Bridgeport - Carson	0.1%	
Specials	1.1%	
Tecopa - Pahrump	0.0%	
Reds Meadow	15.3%	
June Lake Shuttle	0.3%	
Mule Days	0.1%	
Nite Rider	0.4%	
Lone Pine DAR	0.4%	
Bishop DAR	3.8%	
Mammoth DAR	0.4%	
Walker DAR	0.2%	
Total Systemwide	100.0%	

Source: ESTA Monthly & Annual Operation Reports

CATEGORY	% OF TOTAL
Mammoth Area Fixed Route	54%
Dial-a-Ride	31%
395 Routes	12%
All Other	3%

Figure 22: ESTA FY 2013-14 Productivity

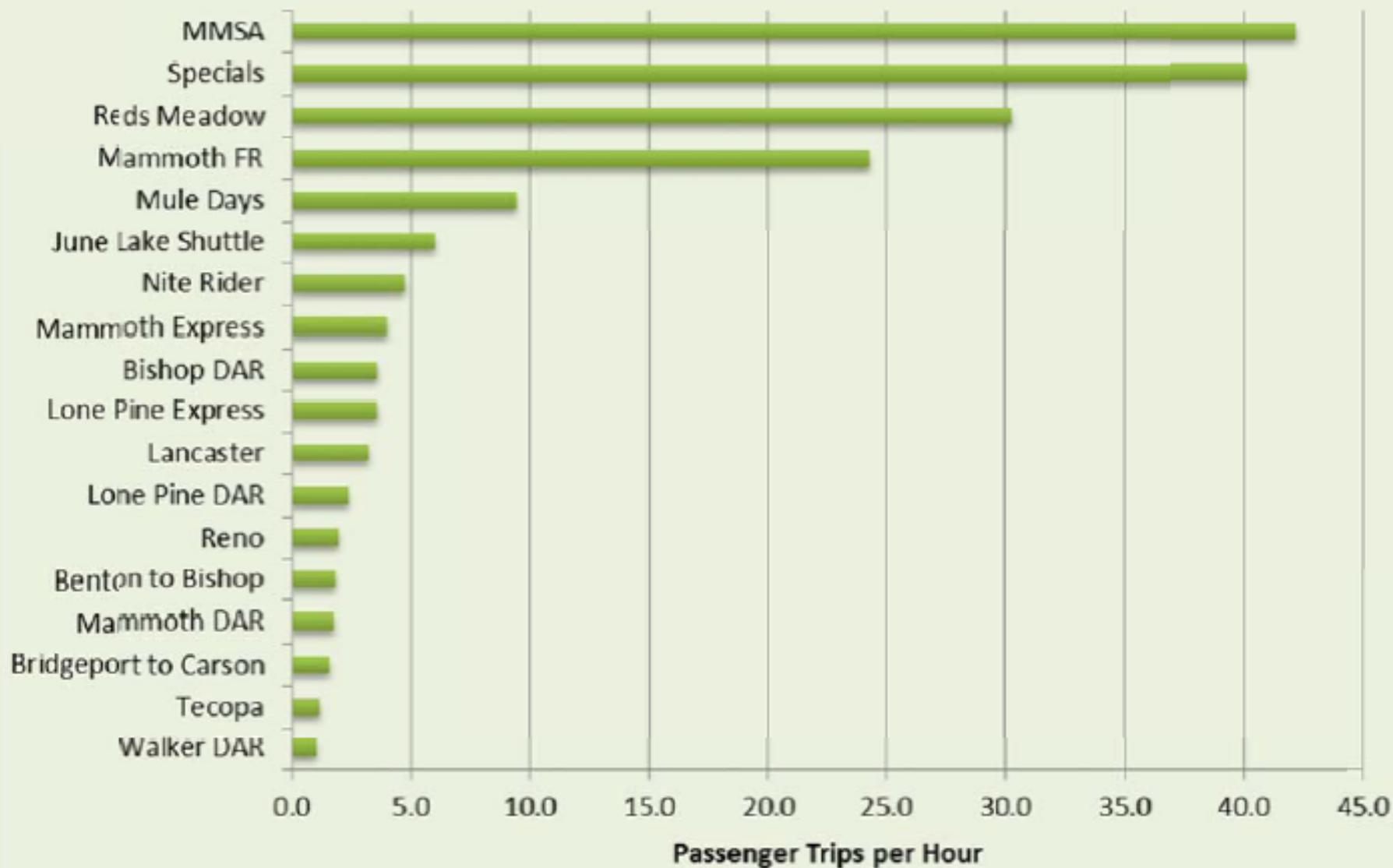


TABLE 23: ESTA Peer Review

	Operating Data			Performance Indicator				
	Ridership	Vehicle Service Hours	Vehicle Service Miles	Passenger-trips per Vehicle Hour	Passenger-trips per Vehicle Mile	Farebox Ratio	Cost per Vehicle Revenue Hour	Operating Subsidy per Pax Trip
Regional Routes								
Redwood Coast Transit	41,605	8,732	256,664	4.76	0.16	34%	\$31.85	\$4.42
Sage Stage	2,632	2,512	96,541	1.05	0.03	–	–	–
South Tahoe Transit	50,146	10,785	265,406	4.65	0.19	–	–	–
<i>Peer Average</i>	<i>31,461</i>	<i>7,343</i>	<i>206,204</i>	<i>3.49</i>	<i>0.13</i>	<i>34%</i>	<i>\$31.85</i>	<i>\$4.42</i>
ESTA	19,780	7,134	297,469	2.77	0.07	30%	\$102.81	\$25.96
Local Routes								
Park City Transit	1,096,924	42,087	536,469	26.10	2.00	0%	\$71.47	\$2.74
Mountain Rides	520,236	28,528	471,122	18.20	1.10	9%	\$73.41	\$3.68
South Tahoe Transit	680,569	34,907	417,520	19.50	1.60	–	–	–
Vail Transit	3,141,676	70,076	587,015	44.80	5.40	0%	\$54.23	\$1.21
South Teton Area	973,702	41,009	811,645	23.70	1.20	18%	\$74.62	\$2.58
<i>Peer Average</i>	<i>1,282,621</i>	<i>43,321</i>	<i>564,754</i>	<i>26.46</i>	<i>2.26</i>	<i>7%</i>	<i>\$68.43</i>	<i>\$2.55</i>
ESTA	892,118	29,361	401,216	30.40	2.20	24%	\$65.77	\$1.64
DAR								
Lassen Rural Bus	14,172	2,697	8,169	5.25	1.73	–	\$44.98	–
South Tahoe Transit	17,640	6,845	88,943	2.58	0.20	–	–	–
Amador Regional Transit	13,332	2,151	12,532	6.20	1.06	6.66%	\$94.21	\$14.19
<i>Peer Average</i>	<i>15,048</i>	<i>3,898</i>	<i>36,548</i>	<i>4.68</i>	<i>1.00</i>	<i>6.66%</i>	<i>\$69.60</i>	<i>\$14.19</i>
ESTA	46,530	15,789	138,846	2.95	0.34	12.2%	\$58.28	\$17.37

Source: Peer transit agencies, ESTA, National Transit Database

	Ridership	Service Hours
Regional Routes		
Redwood Coast Transit	41,605	8,732
Sage Stage	2,632	2,512
South Tahoe Transit	50,146	10,785
<i>Peer Average</i>	<i>31,461</i>	<i>7,343</i>
ESTA	19,780	7,134

- Trips per hour below average
- Miles per service hour 48% higher than average
- Farebox ratio = 30% vx. 34% for average

Local Routes

Park City Transit	1,096,924	42,087
Mountain Rides	520,236	28,528
South Tahoe Transit	680,569	34,907
Vail Transit	3,141,676	70,076
South Teton Area	973,702	41,009
<i>Peer Average</i>	<i>1,282,621</i>	<i>43,321</i>
ESTA	892,118	29,361

- Trips per hour 15% higher than average
- Cost per service hour 4% lower than average
- Operating subsidy per passenger 36% below average

DAR

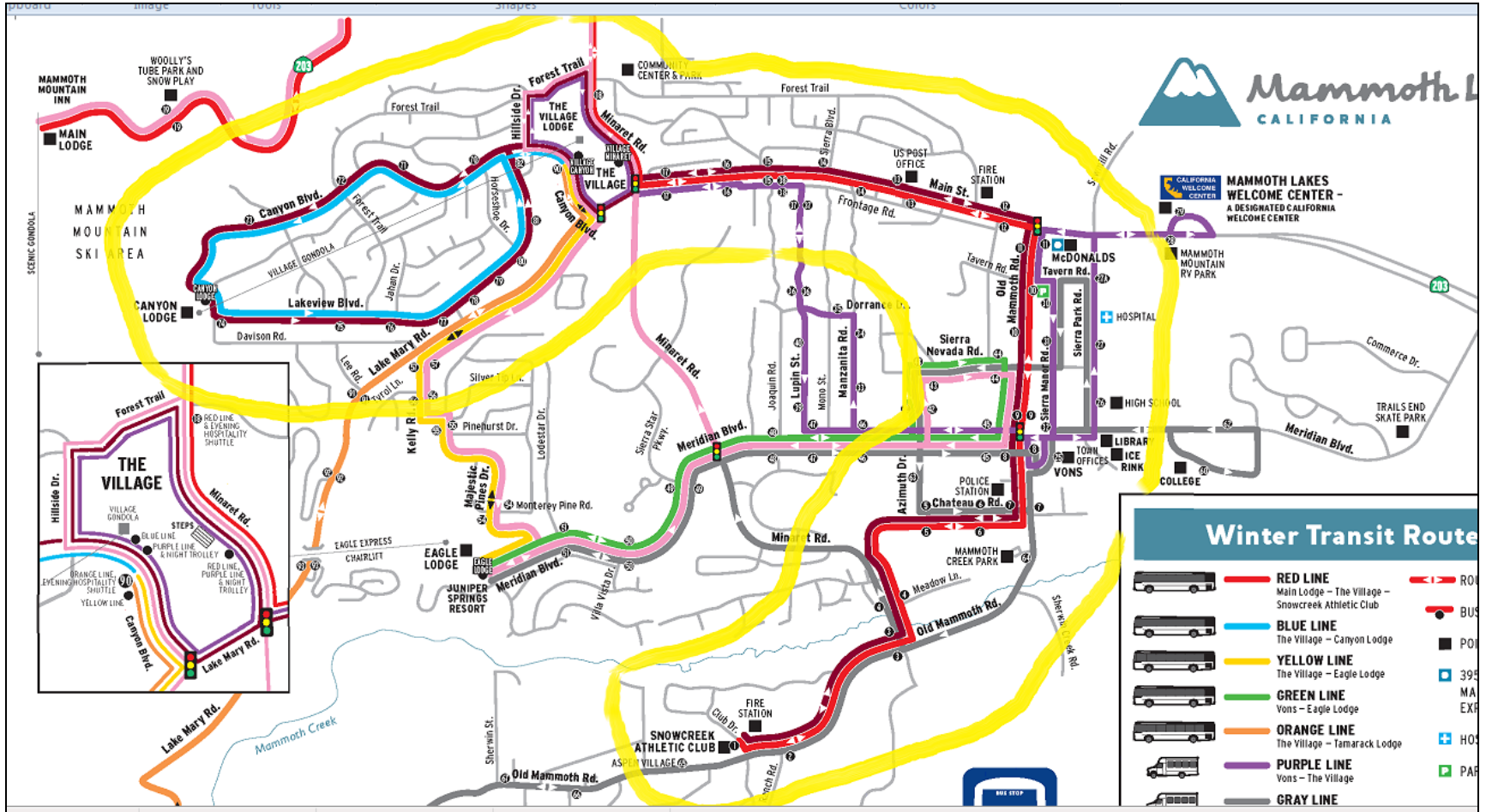
Lassen Rural Bus	14,172	2,697
South Tahoe Transit	17,640	6,845
Amador Regional Transit	13,332	2,151
<i>Peer Average</i>	<i>15,048</i>	<i>3,898</i>
ESTA	46,530	15,789

- Trips per hour 37% below peer average **
- Cost per service hour 16% below average
- Subsidy per passenger 22% above average **

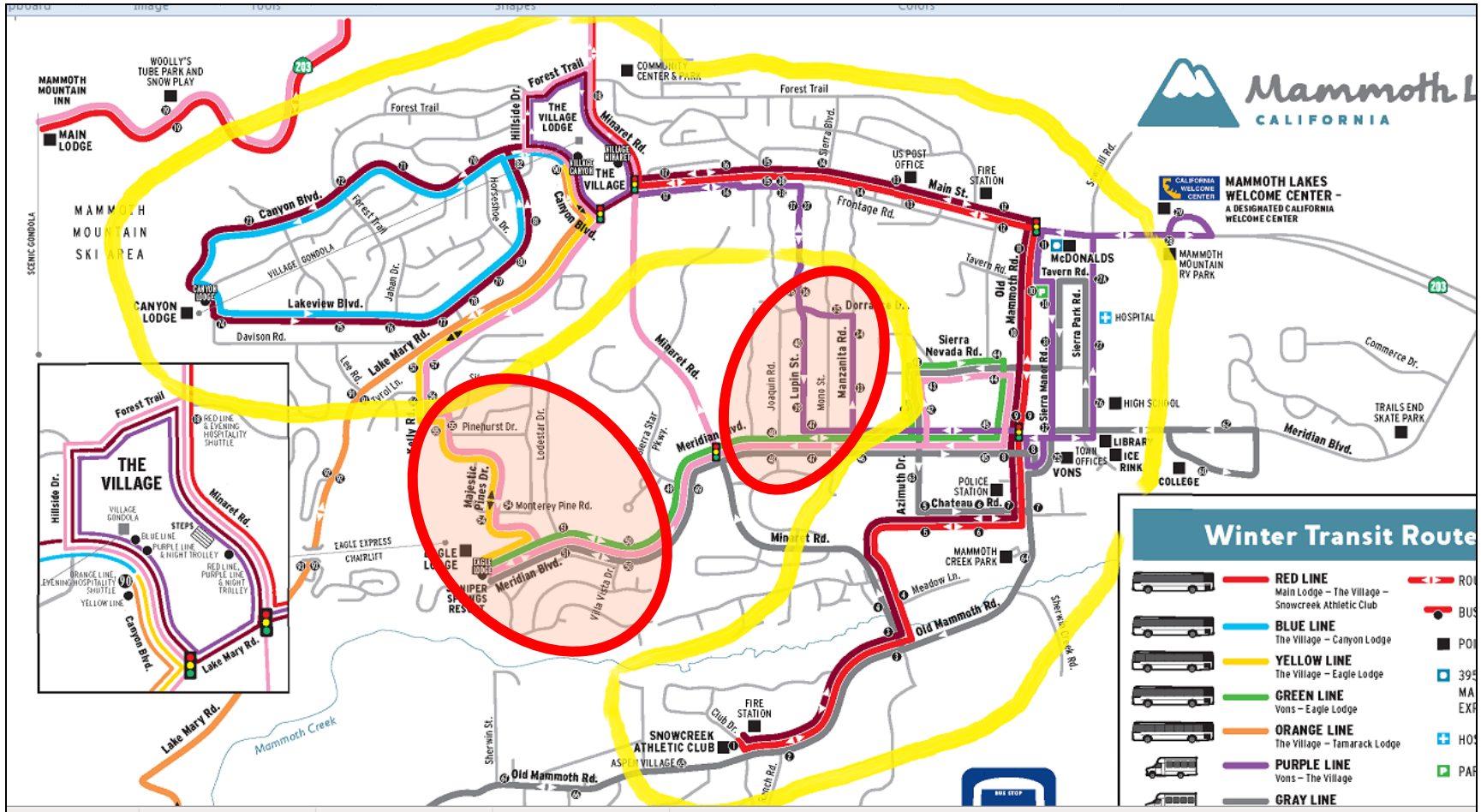
Service Alternatives Analysis

- 395 Routes
 - Monday through Friday service
 - Summer Saturday Service
- Dial-a-Ride
 - Extend Service Hours
 - Outdoor Recreation Shuttle
- Mammoth Fixed Routes
 - Modify Evening Service to serve Meridian Corridor
 - Extend Purple/Gray service hours
- Special Events
 - Mule Days

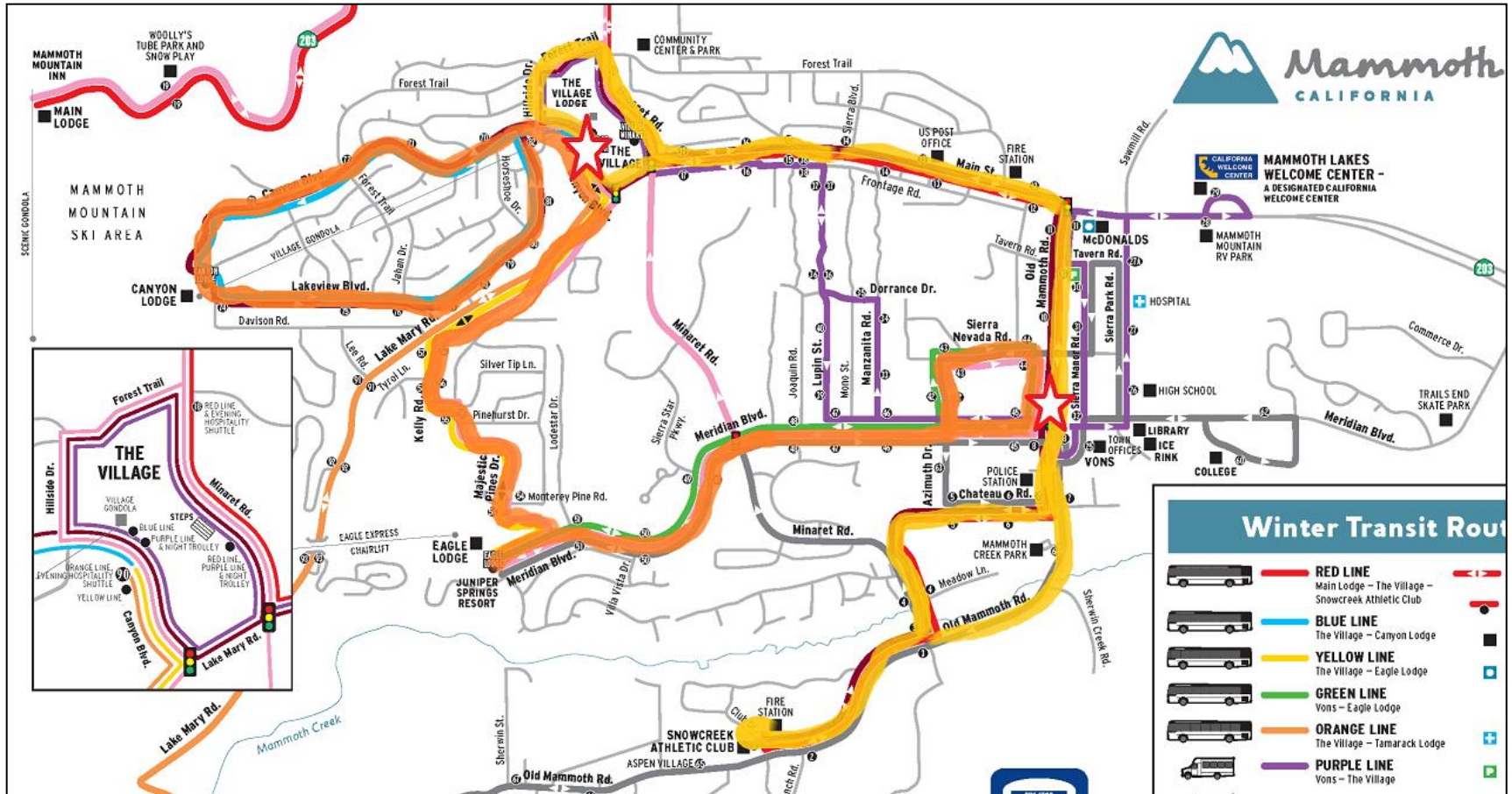
Current ¼ mile service



Key Service Gaps



Possible Evening Service Modification



Performance Analysis

TABLE 22: Review of ESTA Performance Against Current Standards

Service				Minimum Standard	Target Standard	Current Status
SAFE AND ACCESSIBLE GOAL						
				Accessibility		
Mammoth Lakes	Fixed Route	Summer	7:00AM - 10:00PM	6:30AM - 1:00AM	7:00AM - 2:00AM	
		Winter	7:00 AM - 1:00 AM	7:00 AM - 1:00 AM	7:00AM - 2:00AM	
		Shoulder	7:00 AM - 6:00 PM	--	7:00AM - 10:00PM	
	Dial-A-Ride	All	Match Fixed Route hours	--	8:00AM - 5:00 PM ADA available during fixed route	
Bishop	Dial-A-Ride		Fixed Route Hours, 9:00 AM - 3:00 PM Sat and Sun	Only provide DAR to residents unable to use fixed route	DAR: M - Th 7:00AM - 6:00P F - 7:00 AM - 2:00 AM Sat - 8:30 AM - 2:00 AM Sun - 8:00 AM - 1:00 PM	
Town-to-Town			1 Round Trip, 2 days per week, Minimum Layover of 3 hours	6 days per week, 2 runs per day in each direction	Bridgeport - Gardnerville 1 RT, 1 day/week pl 4 weekdays/week	
					Tecopa: 1 RT, 2 times per m	
					Benton - Bishop - 1 RT, 2 days p	

Shading Indicates Does Not Meet Minimum Standard

Shading Indicates Meets Minimum Standard But Not Target Objective

Shading Indicates Meets Target Objective

Capital Alternatives

- Vehicle Replacement
- Additional 395 route bus stop in Bishop
- Upgrade bus stop at The Village on Minaret
- Improve other bus stops in Mammoth
- Enhance AVL Technology
- Mammoth Lakes central Transit Hub
- Transition Gray Line to Trolley



- Facilitate transfers between local buses and from regional services (ESTA, YARTS)
- Permanent and highly visible transit “presence” within the community
- Serve as hub for transportation alternatives
 - Regional hiking/biking trails
 - Bicycle storage/service (air compressor, tools?)

Management & Financial Alternatives



Performance Standard Modification

- Passenger miles per vehicle hour for 395 and town-to-town routes
- On-time standard for advanced reservation dial-a-ride trips (90%)
- Productivity standard for rural areas and Mammoth Lakes (2 pph)
- Passenger surveys – every 5 years and as specific service changes are considered

Peer Review

TABLE 32: Dial-A-Ride Fare Structure Peer Analysis

	Lowest Fare	Highest Fare	Rider Eligibility
B-Line	\$2.75	\$2.75	ADA and Riders 70+
Monterey Salinas Transit	\$3.00	\$7.00	ADA
Sage Stage	\$1.00	\$3.00	General Public
Yolobus	\$3.00	\$5.00	ADA
Merced The Bus	\$0.75	\$5.00	ADA
Gold Coast Transit	\$3.00	\$3.00	ADA and Riders 65+
San Luis Obispo RTA	\$3.00	\$6.00	ADA
<i>Peer Average</i>	<i>\$2.40</i>	<i>\$4.50</i>	
Bishop Dial-A-Ride	\$2.40	\$4.20	General Public
Mammoth Dial-A-Ride	\$2.40	\$4.20	General Public
Lone Pine Dial-A-Ride	\$2.40	\$4.20	General Public
Walker Dial-A-Ride	\$3.00	\$6.30	General Public
<i>Average ESTA DAR</i>	<i>\$2.55</i>	<i>\$4.75</i>	

Source: Websites of respective transit agencies

TABLE 31: Regional Route Fare Structure Peer Analysis

	Regular Fare	Discount Fare	Fare per Mile
B-Line	\$2.00	\$1.00	\$0.07
Monterey Salinas Transit	\$1.50 - \$12.00	\$0.75 - \$6.00	\$0.11
Sage Stage	\$18.00 - \$50.00	\$13.50 - \$38.00	\$0.35
Yolobus	\$2.00	\$1.00	\$0.09
Merced The Bus	\$3.00	\$1.50	\$0.08
Gold Coast Transit	\$1.50	\$0.75	\$0.06
San Luis Obispo RTA	\$3.00	\$1.50	\$0.09
<i>Average Peer Fare</i>	<i>\$4.45 - \$10.50</i>	<i>\$2.90 - \$7.10</i>	<i>\$0.12</i>
Mammoth Express	\$3.00 - \$7.00	\$1.75 - \$6.00	\$0.17
Lone Pine Express	\$3.50 - \$7.25	\$3.00 - \$6.50	\$0.13
US 395 to Reno	\$3.50 - \$59.00	\$3.00 - \$53.00	\$0.22
US 395 to Lancaster	\$2.00 - \$39.00	\$2.00 - \$36.00	\$0.16
<i>Average Regional Fare</i>	<i>\$3.00 - \$33.00</i>	<i>\$2.45 - \$30.00</i>	<i>\$0.17</i>

Source: Websites of respective transit agencies

Service Plan Recommendations

- 5 day/week service to Reno and Lancaster
- Summer Saturday service to Reno and Lancaster
- Mid-day Lone Pine to Bishop route
- Evening service to Meridian Corridor in Mammoth
- Expand Bishop DAR hours during academic year
- Outdoor recreation Pilot Program

Capital Plan Recommendations

- Bus stop improvements in Mammoth
- Transit Center Hub in Mammoth
- Bishop Operations Facility

<http://www.estransit.com/administration/reports-and-plan/>



July 19, 2016
Regular Meeting
Board of Supervisors

Long Valley HAC
Workshop

Nick Criss

Item #13a

LONG VALLEY HYDROLOGIC ADVISORY COMMITTEE

June 9, 2015

BYLAWS

1. BACKGROUND, CREATION, NAME

The need for systematic hydrologic monitoring was identified when geothermal development was proposed in the Long Valley Caldera. Seeking to address the need, the Director of Energy Management for Mono County created the Long Valley Technical Advisory Committee. The Mono County Board of Supervisors expressed support for the Long Valley Technical Advisory Committee in its Resolution 86-110, adopted in December 1986.

As expressed in Resolution 86-110, it is desirable to implement a monitoring program within the Long Valley Caldera focusing upon early detection of hydrologic changes in such features as Hot Creek Gorge springs, the Hot Creek Fish Hatchery springs, Mammoth Creek, Hot Creek, Mammoth Community Water District aquifer(s) and other thermal and non-thermal hydrologic features that potentially may be impacted by development activities within the Long Valley Caldera. It would also be desirable to have a group of experts make non-binding suggestions for monitoring programs and project conditions meant to protect these resources.

The purposes are best achieved by representatives of affected county, state, and federal agencies, and developers, working cooperatively as an advisory committee. The committee's role is to provide permitting agencies and developers with the information and data necessary to monitor new or existing activities that might affect the hydrology (hydrogeology and thermal resources) of the Long Valley Caldera. The committee reviews the acquired data for the affected agencies and developers.

An exploratory meeting of the county, state, and federal agencies and other interested parties was held in January 1987. The assembled group determined that an appropriately structured, informal and specialized subcommittee as needed, would provide useful information concerning hydrologic resources, and could suggest specific conditions and monitoring requirements meant to avoid or reduce to acceptable levels the environmental effects of geothermal development.

In July 1987, a second meeting of interested parties formed an operational subcommittee to establish the operating structure, organization, and bylaws of the advisory committee. In addition, by unanimous vote by the parties present, the committee's name was changed from the Long Valley Technical Advisory Committee to the Long Valley Hydrologic Advisory Committee ("LVHAC" or the "Committee").

2. OBJECT AND PURPOSE

A principle purpose of LVHAC is to develop and implement a comprehensive hydrologic monitoring program within the Long Valley Caldera. The monitoring program will be integrated with existing and past monitoring programs and will be designed to provide ongoing data on:

1. Baseline conditions in the hydrologic system(s);
2. Changes to the hydrologic system(s); and
3. Factors that may affect the hydrologic system(s).

In addition, LVHAC may suggest that certain conditions be imposed on specific

development projects, although it is understood that no such suggestion give rise to legal obligations of any kind or nature.

LVHAC will summarize the data for interested persons and agencies.

4. AREA INVOLVED

The Long Valley Caldera is located in the southwestern portion of Mono County. It is an elliptical depression about 10 miles from north to south and 19 miles from east to west. In the central part of the Caldera, a resurgent dome was formed of post-caldera rhyolite flows that have been uplifted and faulted. An annular moat is located between the caldera rim and the central resurgent dome. The LVHAC will review and monitor the hydrologic resources and activity within the Caldera.

4. NATURE OF COMMITTEE: POWERS

LVHAC is an informal and purely advisory committee established for the foregoing purposes. Its recommendations, if any, are not meant to and will not bind any person or entity in any manner whatsoever, including those represented by Committee members.

The LVHAC will consolidate and discuss information obtained through the monitoring program and will be available to suggest project-specific preventive or remedial action. Summaries of the data collected by the LVHAC will be maintained by Mono County as public records.

Committee meetings shall be conducted in accordance with Robert's Rules of Order, unless impracticable to do so. Failure to adhere to such Rules shall not invalidate any action of the Committee. Each official member of the Committee shall have one vote.

5. ORGANIZATION

A. OFFICE

The Mono County Community Development Department (MCCDD) shall act as office of the Committee.

Notifications and correspondence concerning the Committee shall be sent to:

Long Valley Hydrologic Advisory Committee
c/o Director of Community Development Department
PO Box 347
Mammoth Lakes, CA 93546

The office for the Committee may be changed from time to time as authorized by the Committee or upon notice from the MCCDD.

6. MEMBERSHIP

Membership in the Committee is open to all governmental agencies that have geothermal or hydrology-related permitting, regulatory, or operational activities within the Long Valley Caldera. Members representing governmental agencies shall serve at the will and pleasure of each such governmental agency.

Membership of non-governmental interests is limited to those persons or entities owning an equity interest in an enterprise that owns or controls hydrologic or geothermal resources

(including owning land or holding leases). Any such persons or entities shall be admitted to membership without a vote of the members upon satisfactory proof of the required interest. Minor cold-water users that utilize less than 500 acre-feet of water per year are excluded from membership. Parties wishing to become members must be approved by a two-thirds vote of existing members.

Only one person or entity shall be eligible for membership by virtue of ownership or control of any particular hydrologic or geothermal resource. In the event of divided estates, the party owning or controlling the working interest shall qualify for membership.

Additional members may be admitted to the Committee from time to time. A member will cease to be a member upon written notification to the Committee given by such member or automatically upon cessation of activities within Long Valley Caldera.

Any party may withdraw from the Committee at any time. Any member who does not either attend or communicate with the Committee for a period of one year will be designated as an inactive member.

Upon demonstration of qualifications or membership as specified in these bylaws, a person or entity shall be admitted without a vote of the members.

When a person or entity loses qualification for membership, that person or entity shall be disqualified without a vote of the members.

7. VOTING RIGHTS: VOTE IN PERSON OR BY PROXY

LVHAC shall attempt to reach decisions by consensus. Every member, except the U.S. Geological Survey, shall have one vote. The U.S. Geological Survey shall be a non-voting member. At any meeting of the Committee, one member of each organization shall be authorized to vote on behalf of that organization. Members may vote in person, by mail, or by a person/member duly appointed as a proxy.

Voting by the members may occur from time to time, as required to determine any proposition or resolution presented at any meeting. Any change in these Bylaws shall be determined by a two-thirds vote of all members who have been notified of the proposition, resolution, or change in the Bylaws in writing prior to such vote. A member may vote by mailing in its vote prior to a scheduled meeting of the Committee, in person, or through a proxy as noted above. In the event that consensus is not reached, a minority opinion will be submitted to the permitting agency. The delegation of proxy votes shall be specific to agenda items.

An issue on which a vote is requested by a member shall be presented to the Chair in writing in the form of an appropriate motion along with supporting rationale. Prior to the vote on an agenda item, discussion and consideration of alternate motions shall be conducted.

Except as specified otherwise in Paragraph 13, copies of the written motion and supporting rationale shall be distributed to the membership by the Chair at least 30 days prior to the meeting at which the motion will be considered as an agenda item.

If the agenda item involves proprietary information, it will be referred to the Technical Subcommittee for recommendation.

8. MEETINGS, NOTIFICATIONS, RECORDS

Meetings of the LVHAC may be held at such times and places as may be decided by any two members provided that all membership is given two weeks written notice prior to any such meeting. There must be at least two meetings per year of the LVHAC or the Committee shall be considered inactive. Meetings of the general membership LVHAC shall be open to the public.

Special or emergency meetings of the Committee may be scheduled without written notification provided all members are informed 48 hours prior to any such meetings. A special emergency meeting shall be held only to address a specific subject, and general business shall not be conducted at such a meeting.

The Committee shall keep current books containing the name and address of each member of the Committee. A summary record shall be kept of all proceedings at all meetings by an appointed secretary. A tape recording may also be made of all meetings. All meeting records shall be kept at the Committee office. A copy of the minutes shall be sent to all members of the Committee. All nonproprietary documents produced by LVHAC shall be made available at cost to anyone requesting them. The minutes of the previous meeting shall be discussed at each regular meeting of the Committee. No Committee member shall incur any obligation, financial or otherwise, as a result of his or participation in the Committee.

9. QUORUM: MAJORITY VOTE

A quorum of the LVHAC shall require the presence of one-third of the active members.

All actions that require a vote shall be approved by a simple majority vote of active members, either in person or by written communication.

No item shall be considered for action unless the proposed action is on the agenda and circulated to the active members one month prior to the vote.

Voting on any changes in the Bylaws must be presented to the entire membership in writing and two-thirds vote of the active membership shall determine any proposition or resolution presented.

If a majority report is deemed by the Committee to be necessary, the Chair shall assign responsibility for compiling that report to a member of the Committee.

Any member wishing to express a minority opinion shall submit such opinion in writing to the Chair for distribution with the majority opinion.

10. DIRECTOR OF THE COMMITTEE, CONDUCT OF MEETING, AGENDA

Any meeting of the Committee shall be conducted by the Chair or in the absence of the Chair by the Vice-Chair or in the absence of either of these, by a member designated by a majority of members present. Meetings shall be conducted in an open manner utilizing an agenda which shall be made available reasonably in advance of meetings.

11. SUBCOMMITTEES

There is a need from time to time for specialized subcommittees that shall be formed to address specific matters for the Committee. Such subcommittees shall present their recommendations, findings, and conclusions to the general membership at regular meetings of the Committee.

Subcommittees may be formed for any purpose at regular, special, or emergency meetings

by majority vote of the membership.

Subcommittees may be formed and dissolved from time to time by a two-thirds vote of the members present and voting on the appropriate agenda item. Subcommittees shall be subject to the confidentiality requirements of these bylaws unless expressly provided otherwise as a part of the motion creating a subcommittee, provided also that the motion is recorded in the minutes of the meeting.

12. THERMAL HYDROLOGIC MONITORING SUBCOMMITTEE

In addition to any other subcommittees there shall be a permanent Thermal Hydrologic Monitoring Subcommittee comprised of the following members:

- Community Development Department of Mono County
- USDI / Bureau of Land Management (BLM)
- California Division of Oil, Gas, and Geothermal Resources
- U.S. Geological Survey (USGS)
- USDA / Forest Service

The primary purposes of the Subcommittee are to review technical issues requiring analyses of confidential data, report on a summary of the discussions, and make recommendations to the LVHAC. Members are not bound to decisions or opinions of the Subcommittee in the course of their everyday responsibilities.

The representative of the Community Development Department of Mono County or his/her designee shall serve as the Chair at meetings of the Subcommittee.

A quorum of the Subcommittee shall require the presence of three permanent members. Other persons may attend a Subcommittee meeting if invited by three permanent members of the Subcommittee. LVHAC members who have control of confidential data being discussed shall be notified in advance of such invitations, and may exclude invitees from meetings where discussion of their confidential data occurs.

Topics for discussion may: 1) originate from within the Subcommittee and are restricted to discussion of issues requiring the review of confidential data; or 2) be referred to the Subcommittee by the LVHAC. Issues referred to the Subcommittee by the LVHAC may include discussions of confidential and/or non-confidential data.

The four permanent members may vote and report to the LVHAC on an issue according to the rules of voting and reporting described in Section 9. QUORUM: MAJORITY VOTE.

The Chair of a meeting or his/her designee shall present a summary of the meeting at the next LVHAC meeting. The reporter shall take care to safeguard confidential data.

Monitoring information provided to the subcommittee may be designated as either confidential or public information. If a LVHAC member who has control of confidential data provides such information on a confidential basis, it shall remain confidential until released by that LVHAC member, unless otherwise required by law. Any breach of confidentiality identified by the Subcommittee may be grounds for dismissal from the Subcommittee of those responsible for such breach. Nothing in these Bylaws shall be construed to limit or abridge legal or contractual obligations of any party to maintain the confidentiality of confidential data.

13. MONITORING PROGRAM, TERM, CHANGES IN MONITORING

LVHAC shall devise a suggested monitoring program for implementation by appropriate

persons and entities. LVHAC shall modify the program from time to time as data, operational experience and other circumstances warrant.

Recommendations by members for changes in approved monitoring programs shall be presented to the Chair in writing at least 15 days prior to the meeting at which they will be considered. The recommendations shall include a written report supporting the suggested changes. The Chair shall distribute the recommendations and report to the members at least 10 days prior to the meeting, along with any written opposition or suggested changes from members that have been received by the Chair.

Provided that the recommendations are within the scope of matters set forth on the agenda for the meeting, the 30-day voting requirements of paragraph seven shall not apply.

EXHIBIT A

The following are members of LVHAC:

- Bureau of Land Management (BLM)
- California Department of Fish and Wildlife
- California Division of Oil, Gas and Geothermal Resources
- California Energy Commission
- Lahontan Regional Water Quality Control Board
- Mammoth County Community Water District
- Mammoth Lakes, Town of
- Mono County Community Development Department
- Ormat Nevada Inc.
- U.S. Forest Service (USFS)

A member of the Committee without voting rights is:

- U.S. Geological Survey (USGS)

Interested parties include:

- Great Basin Unified Air Pollution Control District (GBUAPCD)
- Hot Creek Ranch Inc.
- Los Angeles Department of Water and Power (LADWP)
- Sierra Club

July 19, 2016

**Regular Meeting
Board of Supervisors**

**Item #13a - Long
Valley Hydrologic
Advisory Committee
Workshop**

Jim Howle



**Hydrologic Monitoring of Geothermal
Development in the Long Valley Caldera,
near Mammoth Lakes, California.**

**Long Valley Hydrologic Advisory Committee
(LVHAC)**

Purpose of USGS Involvement in the LVHAC

- Unbiased monitoring of the multi-layer aquifer system to detect potential changes caused by Geothermal Development
- Provide monitoring data, interpretations, and technical suggestions to the LVHAC (BLM, USFS, CDFG, MCWD, and Ormat)

Data Storage and Dissemination

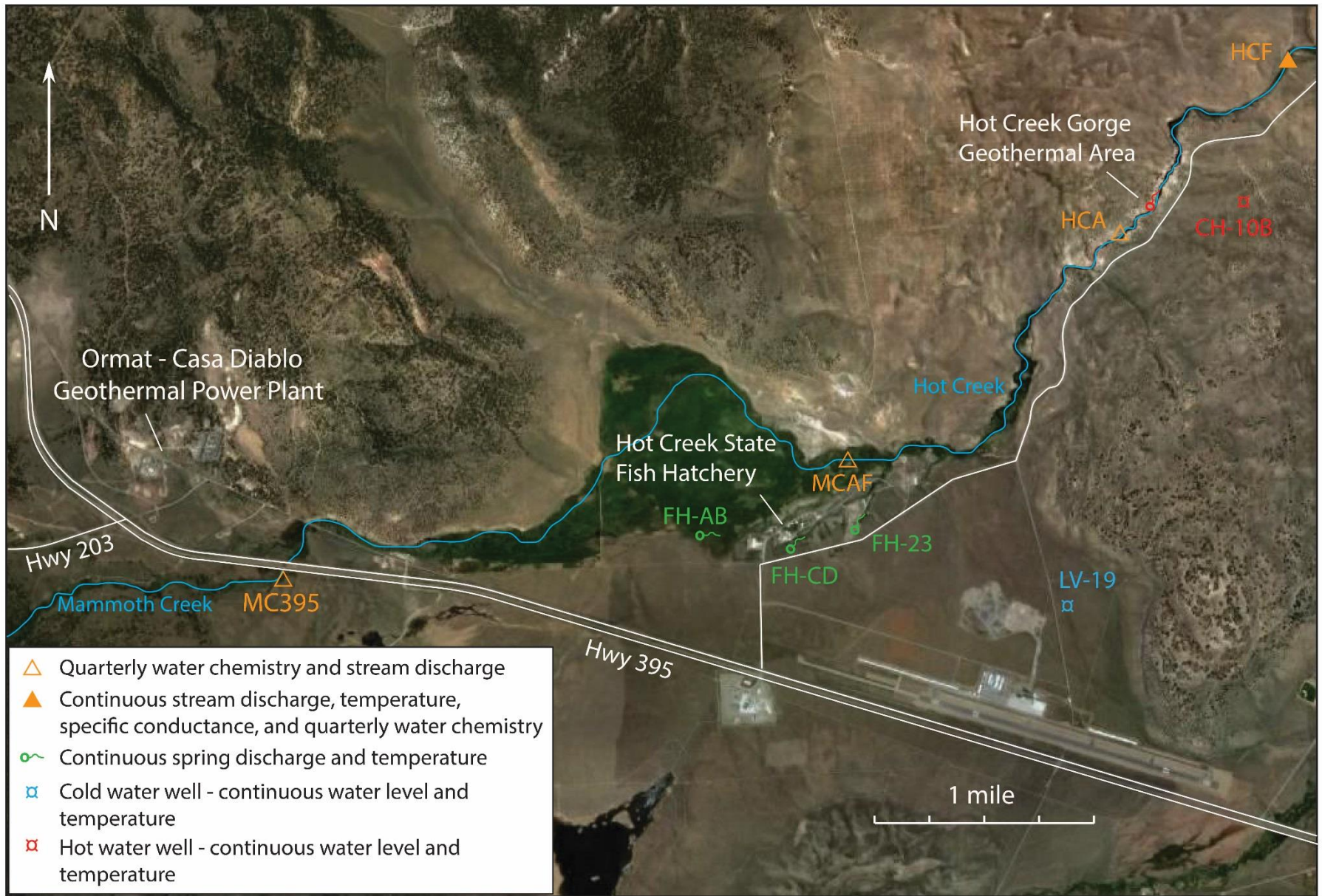
- All data are entered into the USGS National Water Information System (NWIS) and are publicly available online.
- Data are presented graphically to the LVHAC at bi-annual meetings.

Ormat - Casa Diablo Geothermal Power Plant



Pictured is Ormat's Casa Diablo geothermal power plant. The plant is capable of producing a year round average of 30 Megawatts of electricity. Most of the electricity is used throughout Mono County and the remainder is sent out of the area on the SCE electric grid.

LVHAC monitoring sites operated by the USGS





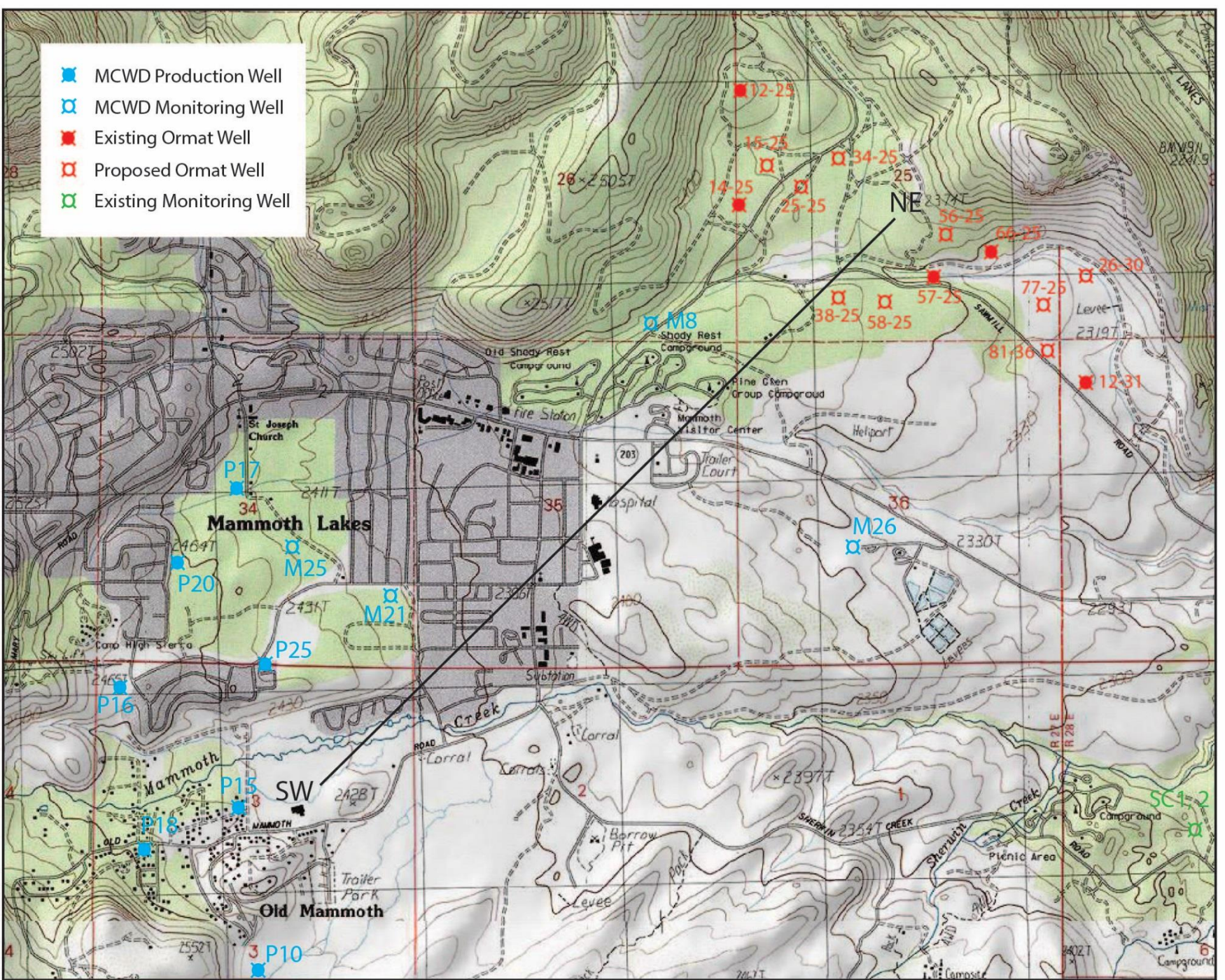
Proposed CD-4 Wellfield

Mammoth Lakes, CA

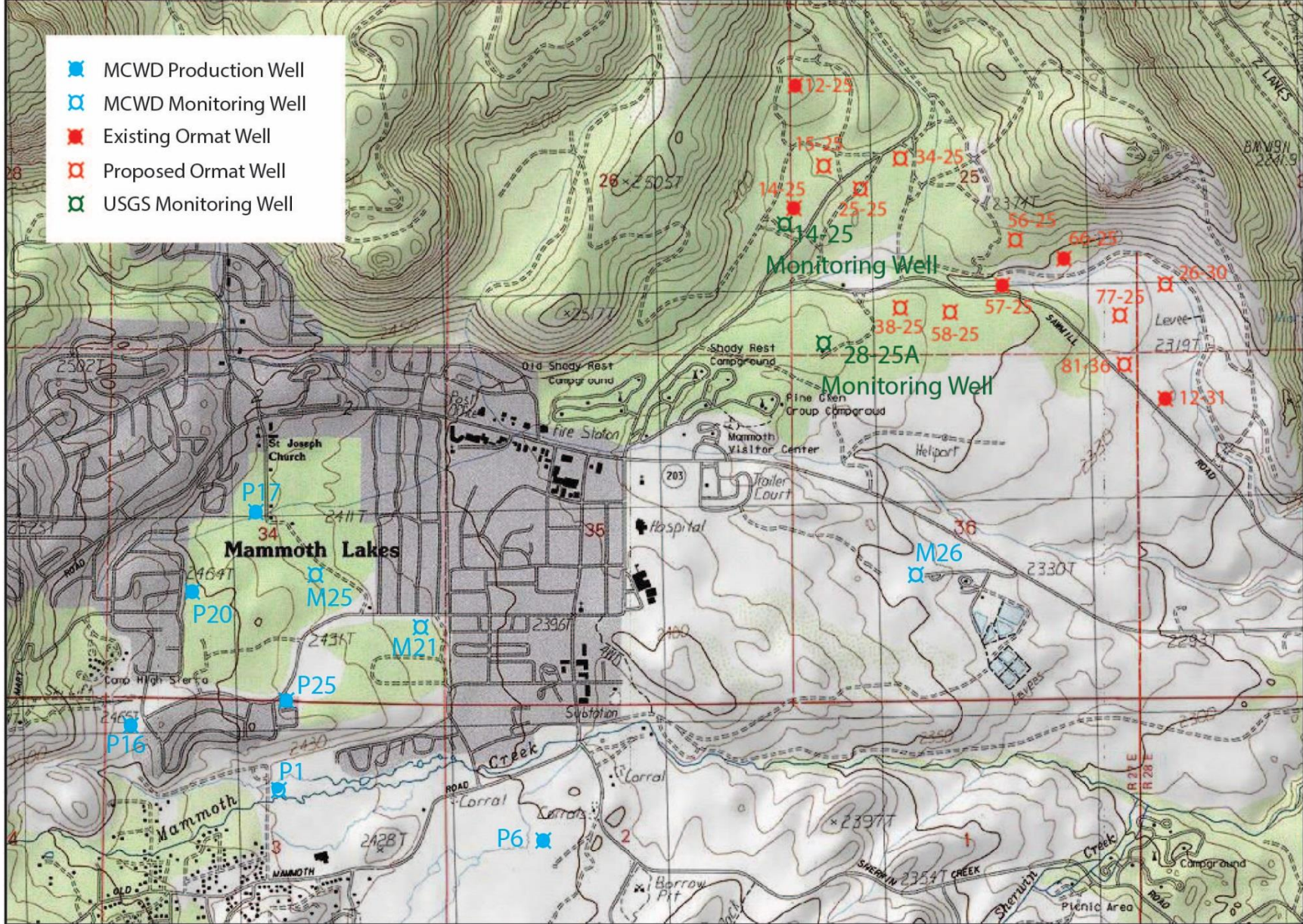
203

395

- MCWD Production Well
- MCWD Monitoring Well
- Existing Ormat Well
- Proposed Ormat Well
- Existing Monitoring Well



- MCWD Production Well
- MCWD Monitoring Well
- Existing Ormat Well
- Proposed Ormat Well
- USGS Monitoring Well







LINE PURGE

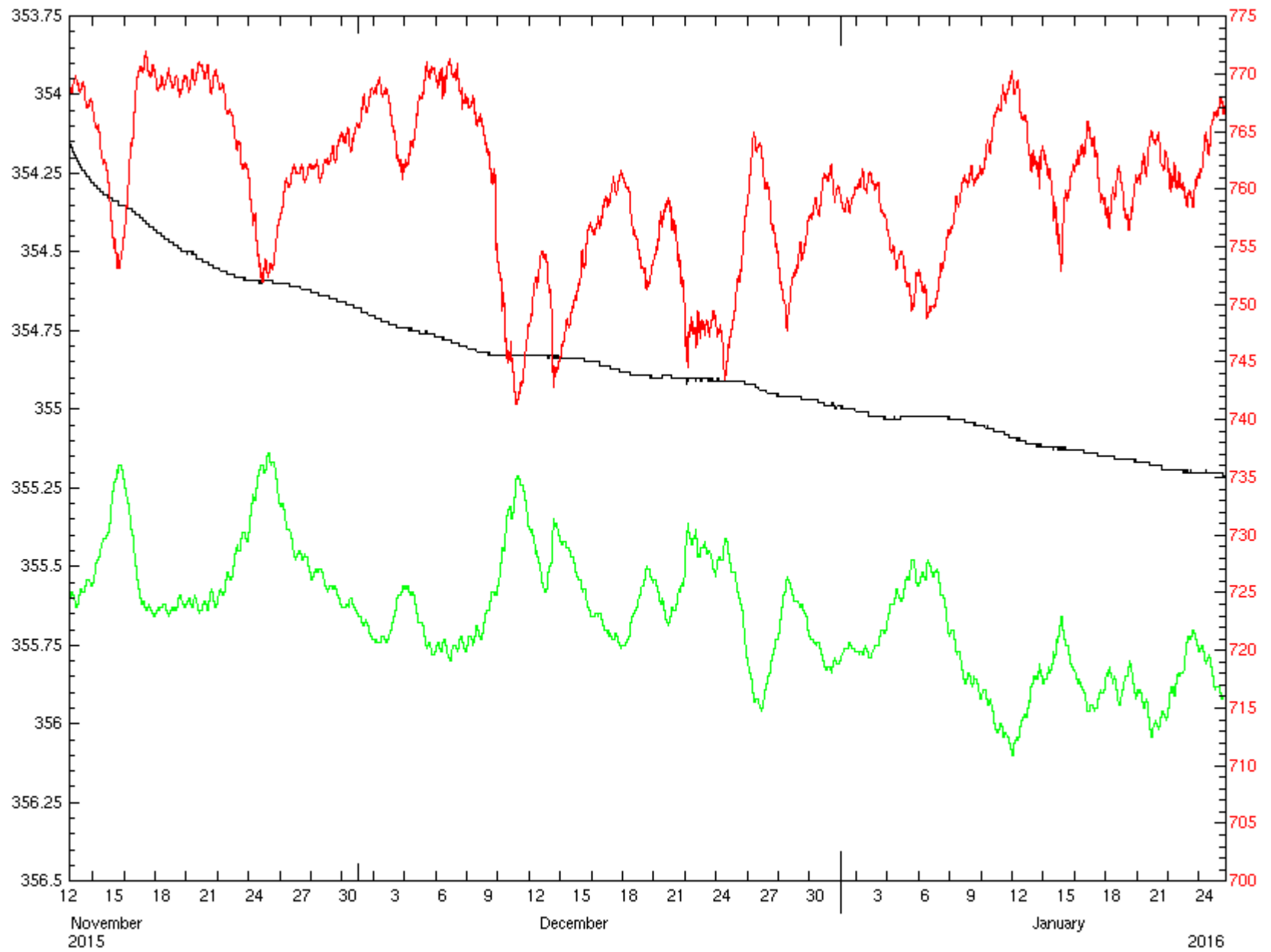
1. Sample the entire line.
2. Change flow rate to 2 L/min.
3. Check flow rate at the end of the line.
4. Check flow rate at the end of the line.
5. Check flow rate at the end of the line.
6. Check flow rate at the end of the line.
7. Check flow rate at the end of the line.
8. Check flow rate at the end of the line.
9. Check flow rate at the end of the line.
10. Check flow rate at the end of the line.

SYSTEM PRESSURE

PURITY REGULATED

12V 7Ah

PTD-100

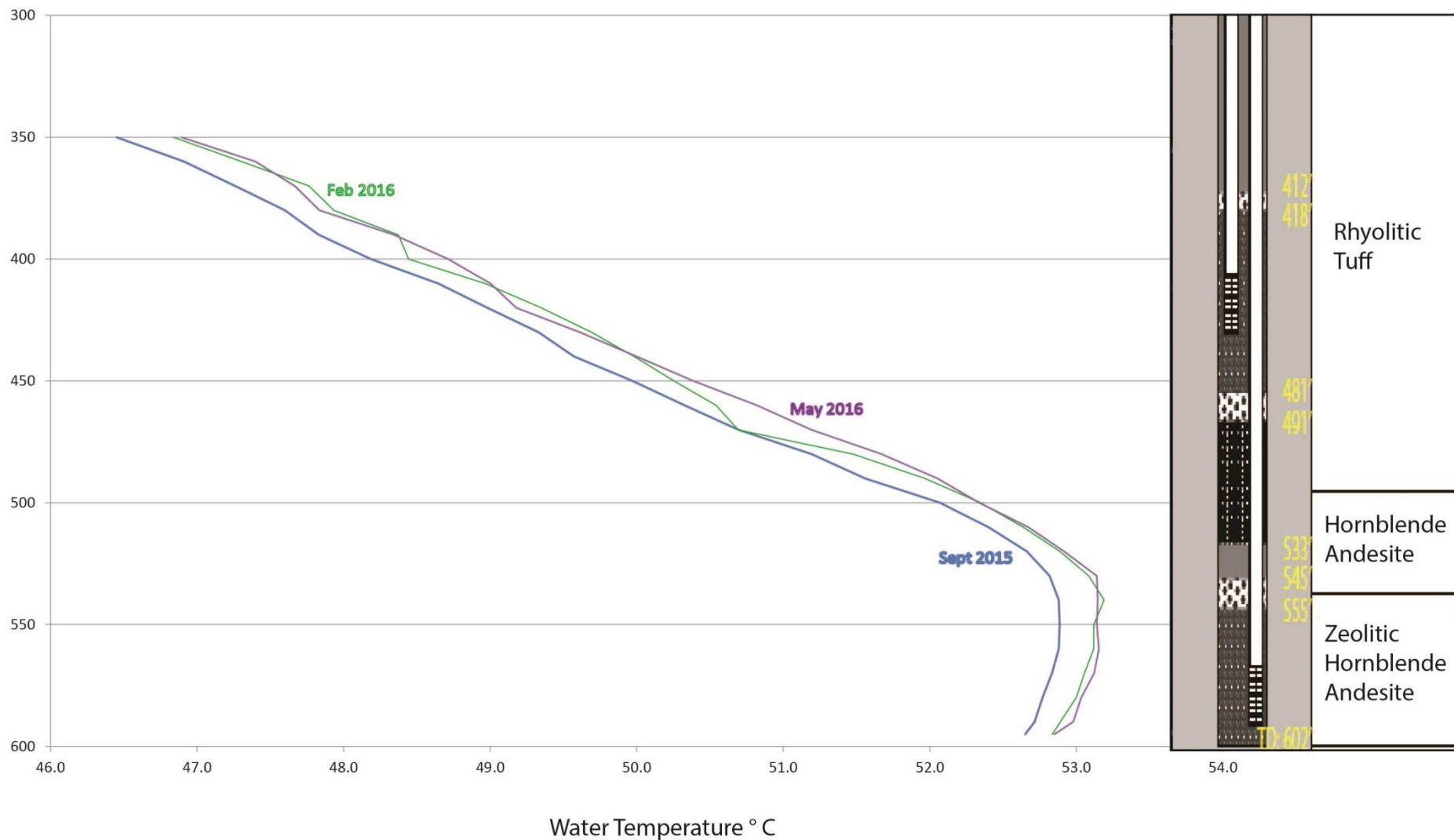


— 373927118571702 003s027E25M003M (Water level, depth 1 (ft), COMPUTED) * 1
 — 373927118571701 003s027E25M002M (BarometricPressUncor (mbar), COMPUTED) * 1
 — 373927118571701 003s027E25M002M (Water level, depth 1 (ft), COMPUTED) * 1

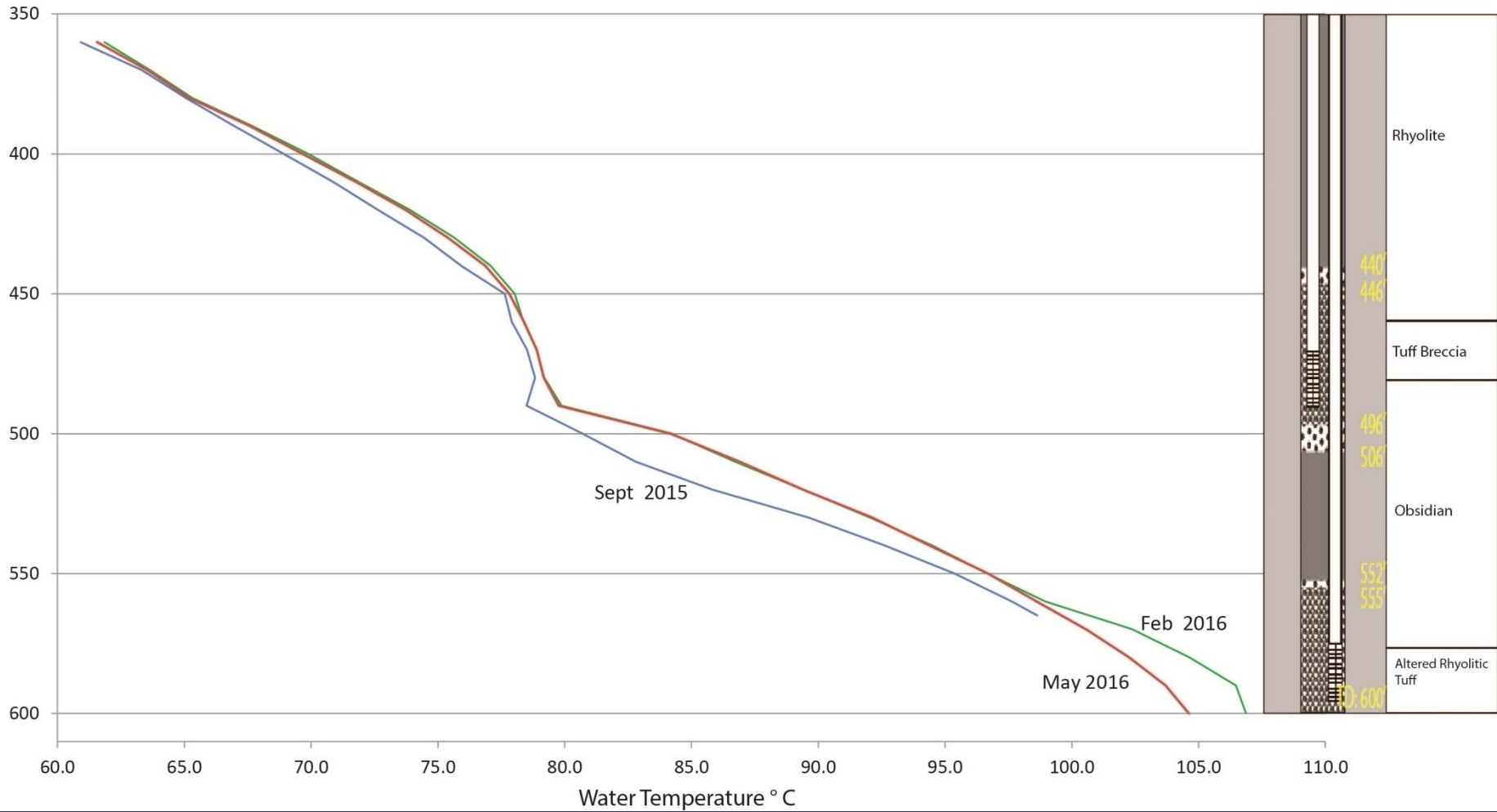


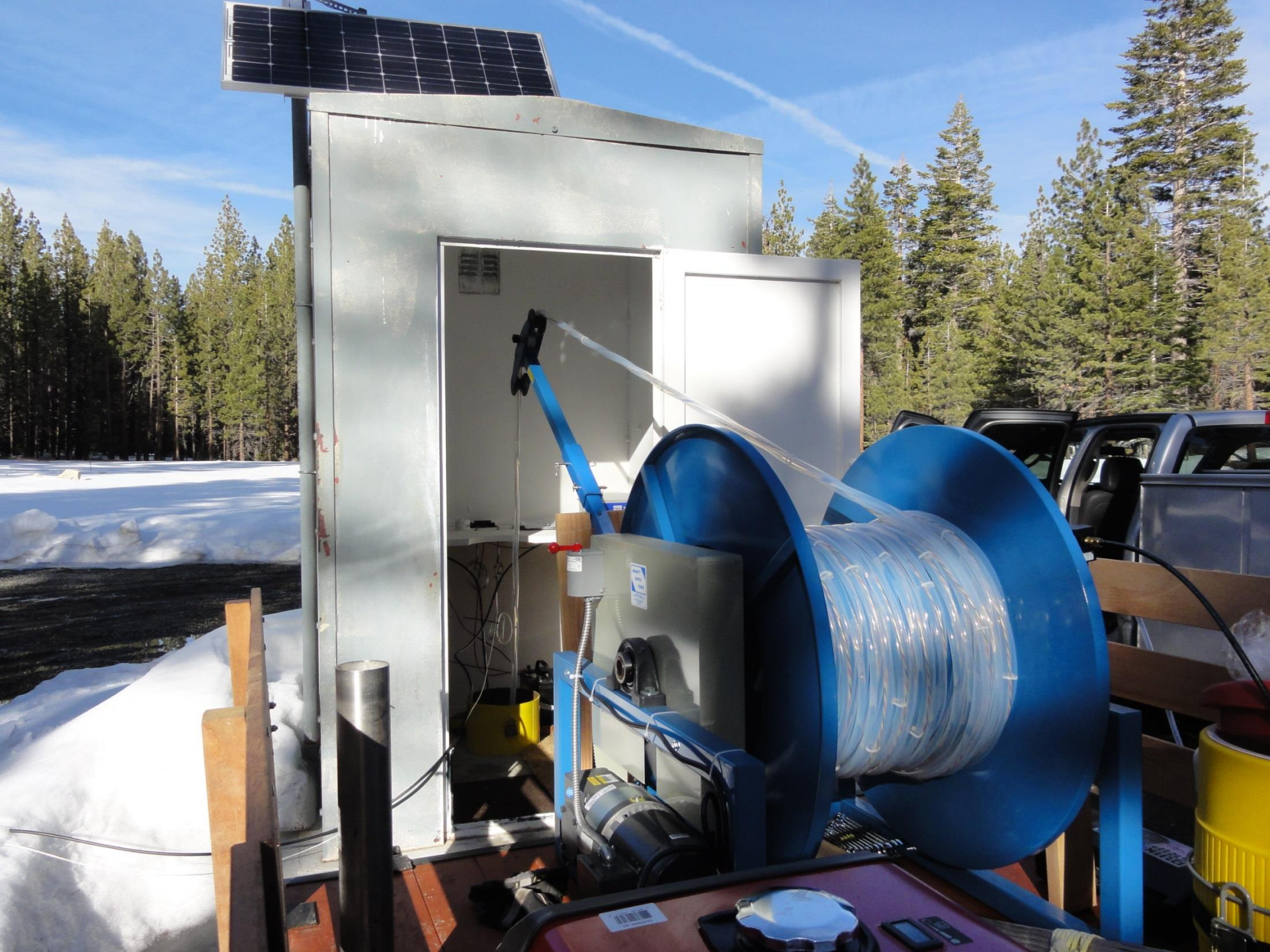


28-25A_1 Temperature Profile



14-25A_1 Temperature Profile







NO. 8077 LOANED 10/08

DATE	TIME	TEMP	PH	COND	DO	ORP	CHLOR	AMMONIA	NITRATE	NITRITES	PHOSPHATE	SILICA	FLUORIDE	CHLORIDE	SULFATE	COD	BOD	TSS	TURBIDITY
10/08	10:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	11:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	12:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	13:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	14:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	15:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	16:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	17:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	18:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	19:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	20:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	21:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	22:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/08	23:00	15.0	7.0	150	8.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

E-C METER MODEL 2000
POWER ON
A.T.C.
ON/OFF
FUNCTION
RANGE
STANDARDIZE
CELL CONSTANT
VWR
INTERNATIONAL
AMBIER 5000 MF



EXIT

END

28-2

A

3739041807

005820720000

Date: 2018-11-20

Time: 11:00

NWGL SCH...

2500ml FLU...

3 RWGL NAT...

TOP FILL...

3739041807

005820720000

Date: 2018-11-20

Time: 11:00

NWGL SCH...

2500ml FLU...

3 RWGL NAT...

TOP FILL...

3739041807

005820720000

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3739041807

005820720000

Date: 2018-11-20

Time: 11:00

NWGL SCH...

2500ml FLU...

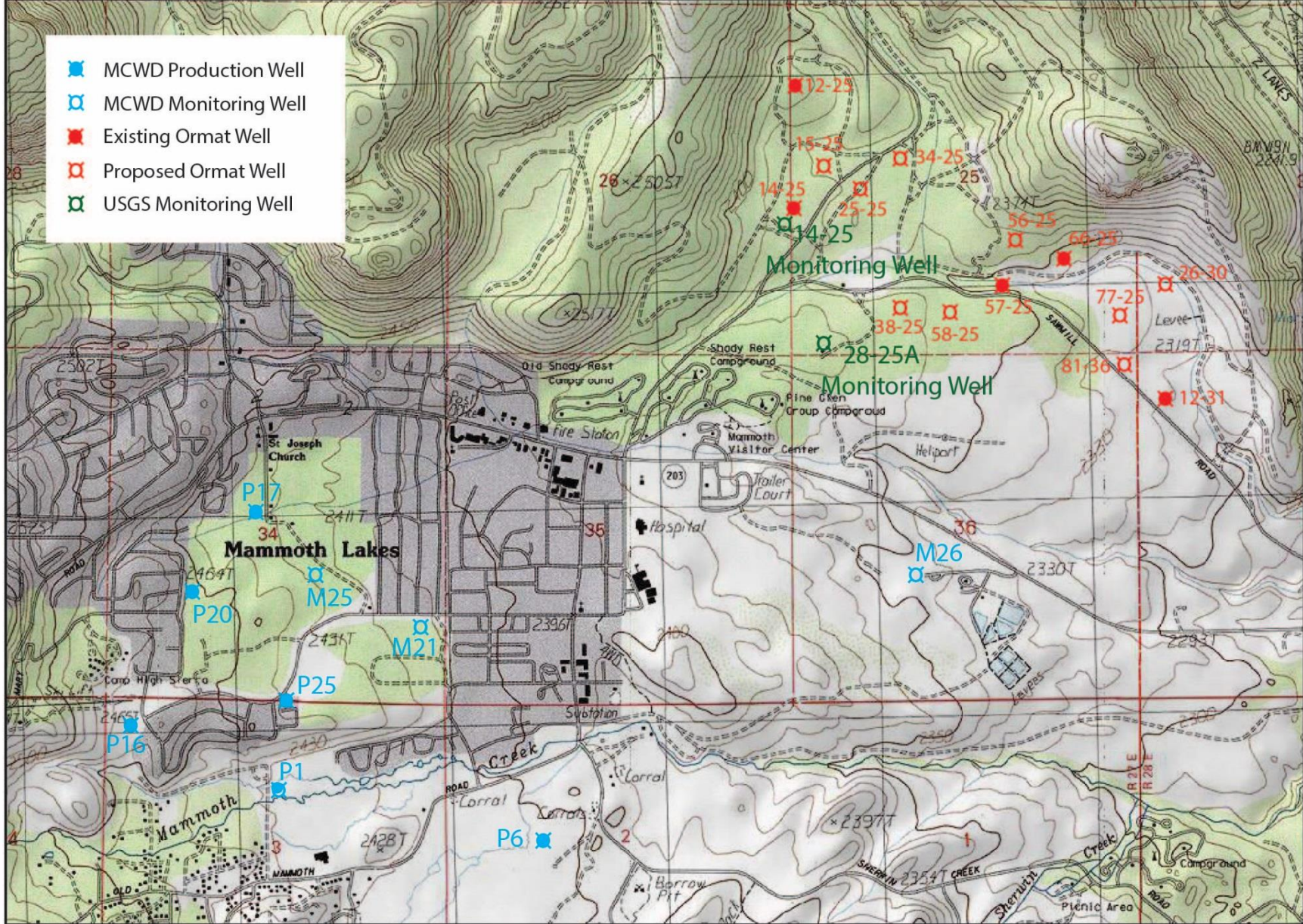
3 RWGL NAT...

TOP FILL...

RCC

1843-300-55

- MCWD Production Well
- MCWD Monitoring Well
- Existing Ormat Well
- Proposed Ormat Well
- USGS Monitoring Well



Preliminary USGS Data – Subject to Revision

QW Comparison of Basalt Canyon Wells and MCWD Wells					
P17	M26	28-25_01	14-25_01		
544	519	504	889	uS/cm	sp. conductance lab
7.4	7.5	7.3	6.7	pH	ph (laboratory)
265	271	225	330	mg/L	acid neutralizing capacity, as caco3, unf, lab
<0.01	<0.01	<0.01	0.729	mg/L	ammonia, kone
<0.001	<0.001	<0.001	<0.001	mg/L	nitrite, kone
0.088	0.041	<0.04	<0.04	mg/L	no2 + no3, as n, kone
0.253	0.214	0.415	0.368	mg/L	ortho-po4, kone
16.6	11.5	13.4	43.5	mg/L	calcium, water, filtered, icp
17.5	24.6	13.5	2.75	mg/L	magnesium, water, filtered, icp
72.7	60.7	78.8	80.6	mg/L	sodium, water, filtered, icp
10.2	9.93	12.6	123	mg/L	potassium, water, filtered, icp
12.2	7.14	11.9	26.5	mg/L	chloride diss ic
15.8	8.37	31	77.6	mg/L	sulfate diss ic
0.65	0.663	0.664	0.291	mg/L	fluoride diss ic
110	127	136	245	mg/L	silica, water, filtered, icp
123	157	188	97	ug/L	arsenic, water, filtered, cicp-ms
513	380	621	3080	ug/L	boron, water, filtered, icp
56.7	70	8.97	5.42	ug/L	iron, water, filtered, icp
29.3	170	70.9	157	ug/L	manganese, water, filtered, icp
192	183	228	117	ug/L	lithium, water, filtered, icp-ms
18	9.09	25.9	274	ug/L	rubidium,fil,icpms
401	386	400	817	mg/L	roe, diss. at 180 c (tds)