

**September 20, 2016**

**Regular Meeting**

**Board of Supervisors**

**Public Comment –**

**Response to**

**Correspondence**

**Item #8a**

**Mike Curti**

The Opinion Pages      LETTER

# Wildlife Management: The View From Washington

SEPT. 29, 2016

## To the Editor:

Re “America’s Wildlife Body Count,” by Richard Conniff (Sunday Review, Sept. 18):

To put management action in perspective, in 2015 Wildlife Services removed 3.2 million wild animals, of which 1.5 million were invasive species, like feral swine and European starlings. Nonlethal actions constituted the majority of management, with more than 21 million animals dispersed.

Mr. Conniff asks for transparency. Wildlife Services has had program data reports online for two decades that include the number of animals dispersed and removed in each state, the methods used and the resources being protected.

In 2015 the Agriculture Department’s inspector general completed an audit of the Wildlife Services program and found it to be in compliance with applicable federal and state laws, and did not identify problems with our wildlife damage management activities.

Wildlife management uses a variety of methods. The Wildlife Society, whose nearly 10,000 members include wildlife management professionals, in its Standing Position Statement on Wildlife Damage Management, states that “prevention or control of wildlife damage, which often includes removal of the animals responsible for the damage, is an essential and responsible part of wildlife management.”

Wildlife Services welcomes open, complete and contextual discussions of best management practices in its efforts to provide responsible wildlife damage management.

KEVIN SHEA

Administrator, Animal and Plant

Health Inspection Service

Department of Agriculture

Washington

A version of this letter appears in print on September 30, 2016, on page A26 of the New York edition with the headline: Wildlife Management: The View From Washington.

---

© 2016 The New York Times Company

*Mike Cinti*

**September 20, 2016**

**Regular Meeting**

**Board of Supervisors**

**Item #9a –**

**ORMAT Presentation**

**Regarding Local**

**Geothermal**

**Development**

**ORMAT**

# CD-IV – Project Update

October 4, 2016



*Green energy you can rely on*

# Disclaimer

Information provided during this presentation may contain statements relating to current expectations, estimates, forecasts and projections about future events that are forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995.

These forward-looking statements generally relate to the company's plans, objectives and expectations for future operations, and are based on management's current estimates and projections of future results or trends. Actual future results may differ materially from those projected as a result of certain risks and uncertainties.

For a discussion of such risks and uncertainties, please see risk factors as described in the Annual Report on Form 10-K filed with the securities and exchange commission on February 26, 2016.

In addition, during this presentation, statements may be made that include a financial measure defined as non-GAAP financial measures by the Securities and Exchange Commission, such as EBITDA and adjusted EBITDA. These measures may be different from non-GAAP financial measures used by other companies. The presentation of this financial information is not intended to be considered in isolation or as a substitute for the financial information prepared and presented in accordance with GAAP.

Management of Ormat Technologies believes that EBITDA and adjusted EBITDA may provide meaningful supplemental information regarding liquidity measurement that both management and investors benefit from referring to this non-GAAP financial measures in assessing Ormat Technologies' liquidity, and when planning and forecasting future periods. This non-GAAP financial measures may also facilitate management's internal comparison to the company's historical liquidity.

EBITDA and Adjusted EBITDA are not a measurement of financial performance or liquidity under accounting principles generally accepted in the United States of America and should not be considered as an alternative to cash flow from operating activities or as a measure of liquidity or an alternative to net earnings as indicators of our operating performance or any other measures of performance derived in accordance with accounting principles generally accepted in the United States of America. EBITDA and Adjusted EBITDA are presented because we believe they are frequently used by securities analysts, investors and other interested parties in the evaluation of a company's ability to service and/or incur debt. However, other companies in our industry may calculate EBITDA and Adjusted EBITDA differently than we do.

Copyright © 2016 Ormat Technologies, Inc. All Rights Reserved. This document contains information proprietary to Ormat Technologies, Inc. Reproduction in any form without prior written permission is strictly prohibited

# Ormat: 50 Years in Geothermal

Market leader with proven track record in the geothermal sector

Our mission is to become a leading global renewable energy provider



50  
Years of  
experience



595  
\$million Revenue  
in 2015

Own & Operate

707<sub>MW</sub>



1,060  
Employees



# Mammoth Geothermal Complex

Plant/Project	On-line Date	Net Capacity	Land
Mammoth G1 (aka MP-I)	1984	29 MW	Private
Mammoth G2 (aka MP-II)	1990		Private
Mammoth G3 (aka PLES 1)	1990		Federal
Basalt Canyon wells and pipeline (supplying additional fluid to G1, G2 and G3)	2006		Federal
Mammoth CD-IV	Projected 2018-2020	~ 18 MW (Phase I)	Federal

# Economic Benefits of Mammoth Geothermal Complex

- Green jobs:
  - Today: 25 full-time equivalent employees
  - With CD-IV: Expect 182 construction jobs and 6 additional permanent jobs
- Tax revenue:
  - Today: \$1.8 million / year in property and payroll taxes
  - With CD-IV: 1.5x
- Royalties to BLM:
  - Today: Approx. \$300k/year; of which 40% go to Mono County
  - With CD-IV: additional \$250k annually

# Economic Benefits of Mammoth Geothermal Complex

- Direct local purchases:
  - Today: approx. \$1 million / year
  - With CD-IV: 1.5x
- Purchase of local services: operation and maintenance contractors, lodging, food, fuel, etc.
- Participation in and contribution to local educational and cultural programs



# Mammoth CD-IV Project Overview

- 4<sup>th</sup> geothermal power plant to be developed in the Mammoth Lakes area
- Phase I will produce approximately 18 MW of clean renewable energy bringing the total of the Mammoth Complex to 47 MW. Potential to build a second phase in the future.
- Well field development will entail the drilling of 3 new production wells from 16 permitted locations in the Basalt Canyon
  - Basalt Canyon has been in production since 2006 with no adverse effects: Over 5,000 gpm of geothermal fluid is pumped from two wells.
  - CD-IV will be a closed loop geothermal plant. All of the geothermal fluid that is pumped out of the ground will be injected back in.

# Environmentally Benign Development and Operations

- Emissions free
  - Geothermal power is crucial for California to achieve its renewable energy and emission reduction goals
- No water consumption
  - All plants are air-cooled, consuming no water for cooling
  - All geothermal fluids are reinjected back into the reservoir
- 30 years of monitoring prove no impact to other resources
  - No interference with ground water resources
  - No impact to hydrothermal features, e.g.:
    - Hot Creek fish hatchery springs
    - Hot Creek Gorge springs
- Minimal surface impact (a fraction of comparable wind / solar development)

# CD-IV Development: Flow Test on Production Well 14-25

- 30-day flow test will be done to evaluate the geothermal wells' permeability and pressure drawdown
  - Data gathered during the testing will be used to further calibrate the reservoir model
- The test has been coordinated with the BLM, USGS and MCWD for data gathering at numerous wells

# Next Steps in CD-IV Development

- Monitoring and Response Plan approval by the BLM
  - The MRP is designed to detect indications of potential changes in the hydrologic system and facilitate an informed and reasonable mitigation measures
    - Mitigation measures range from drilling new monitoring wells to shutting down the plant
- Drilling additional production and injection wells
  - Estimate 3 additional production wells and 2 injection wells are needed for CD-IV
- Construction of the CD-IV power plant

# Environmental Development and Operations Accepted by Multiple Agencies

The CD-IV project has undergone an exhaustive environmental review through both the NEPA and the CEQA process, and was found to pose no threat to the environment. The experts which performed the review include:

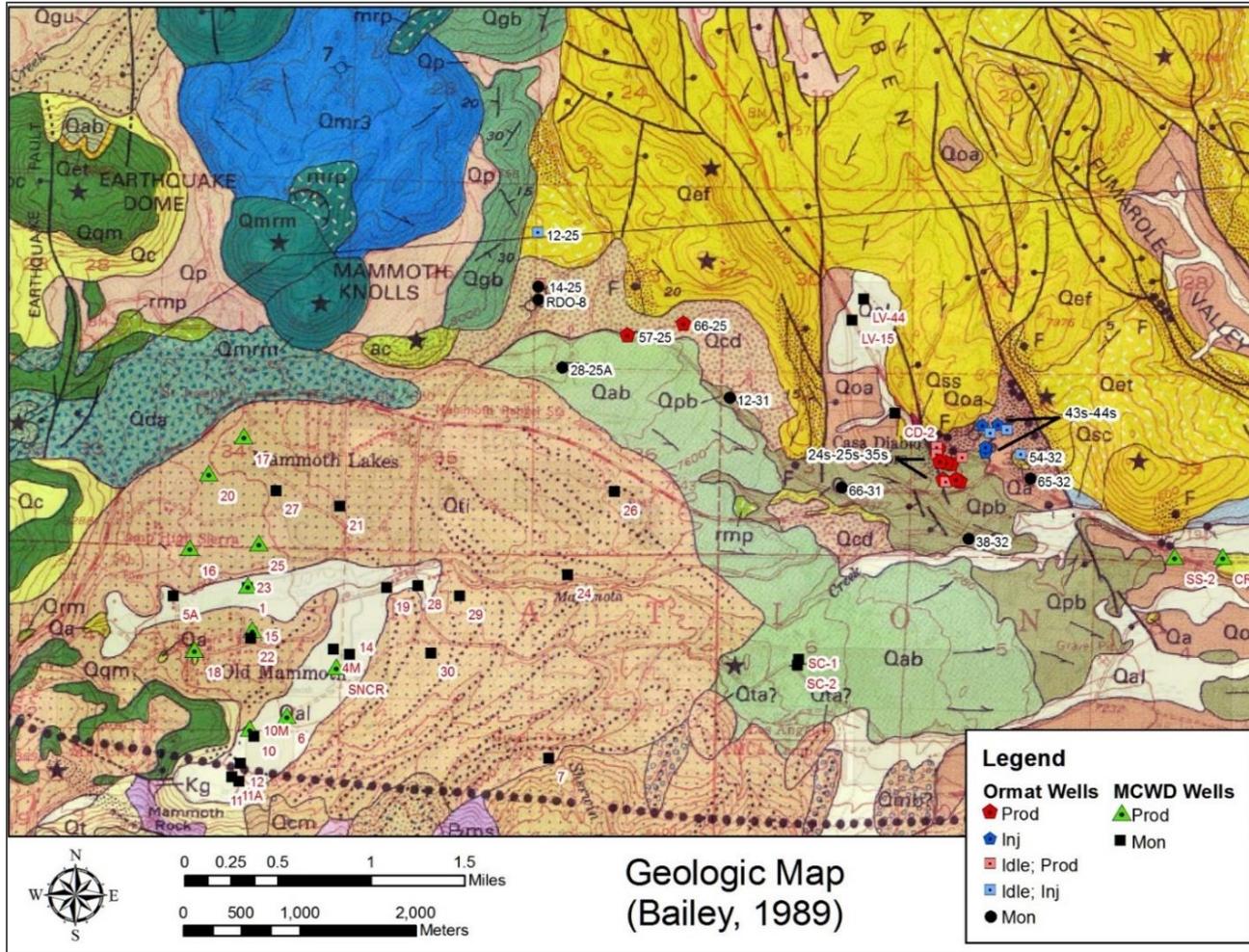
- Great Basin Air Pollution Control District
- Bureau of Land Management
- United States Forest Service
- United States Fish and Wildlife Service
- California Department of Fish and Wildlife
- Consultants who prepared the EIS/EIR

# Environmental Development and Operations Accepted by Multiple Agencies

The work of the experts has been challenged by multiple parties and has prevailed each time through the judicial process in the below venues:

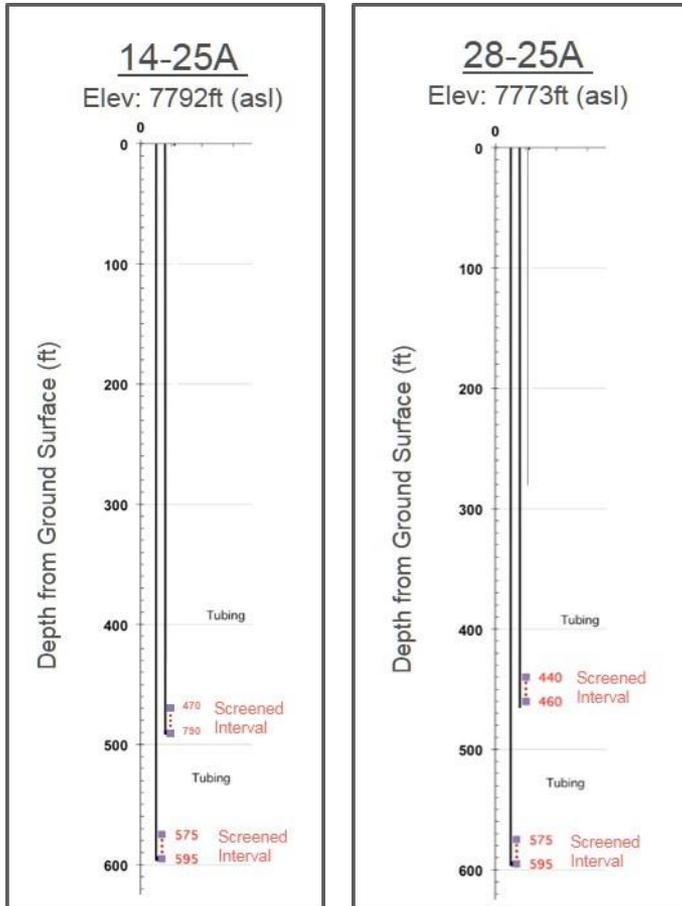
- Mono County Superior Court
- Interior Board of Land Management Appeals

# Mammoth Geologic Map



# CD-IV Groundwater Monitoring Wells

## Simplified Well Schematics

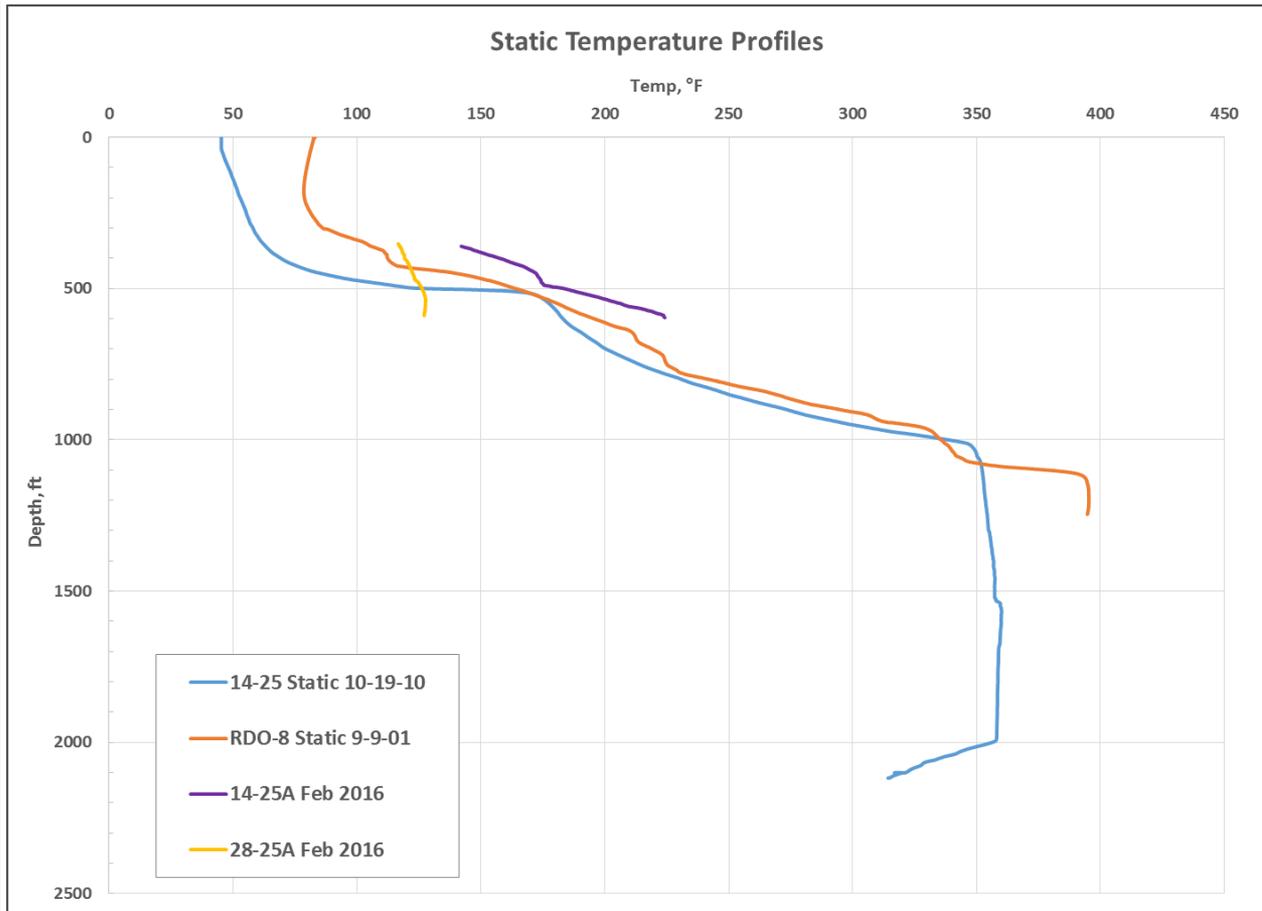


- Monitoring wells were drilled by the USGS in the fall of 2015 to approximate depths of 600ft.
- Wells were drilled to allow monitoring of CD-IV development in the Basalt Canyon area
- Wells were funded by Ormat with ~50% reimbursement from the CEC through a geothermal grant program
- Both wells are completed with two 20ft screened intervals.
- 14-25A site chosen to monitor changes within the geothermal system-adjacent to existing geothermal well.
- 28-25A site chosen to monitor changes occurring between MCWD wells and the geothermal wells.

# Main Findings from Monitoring Wells

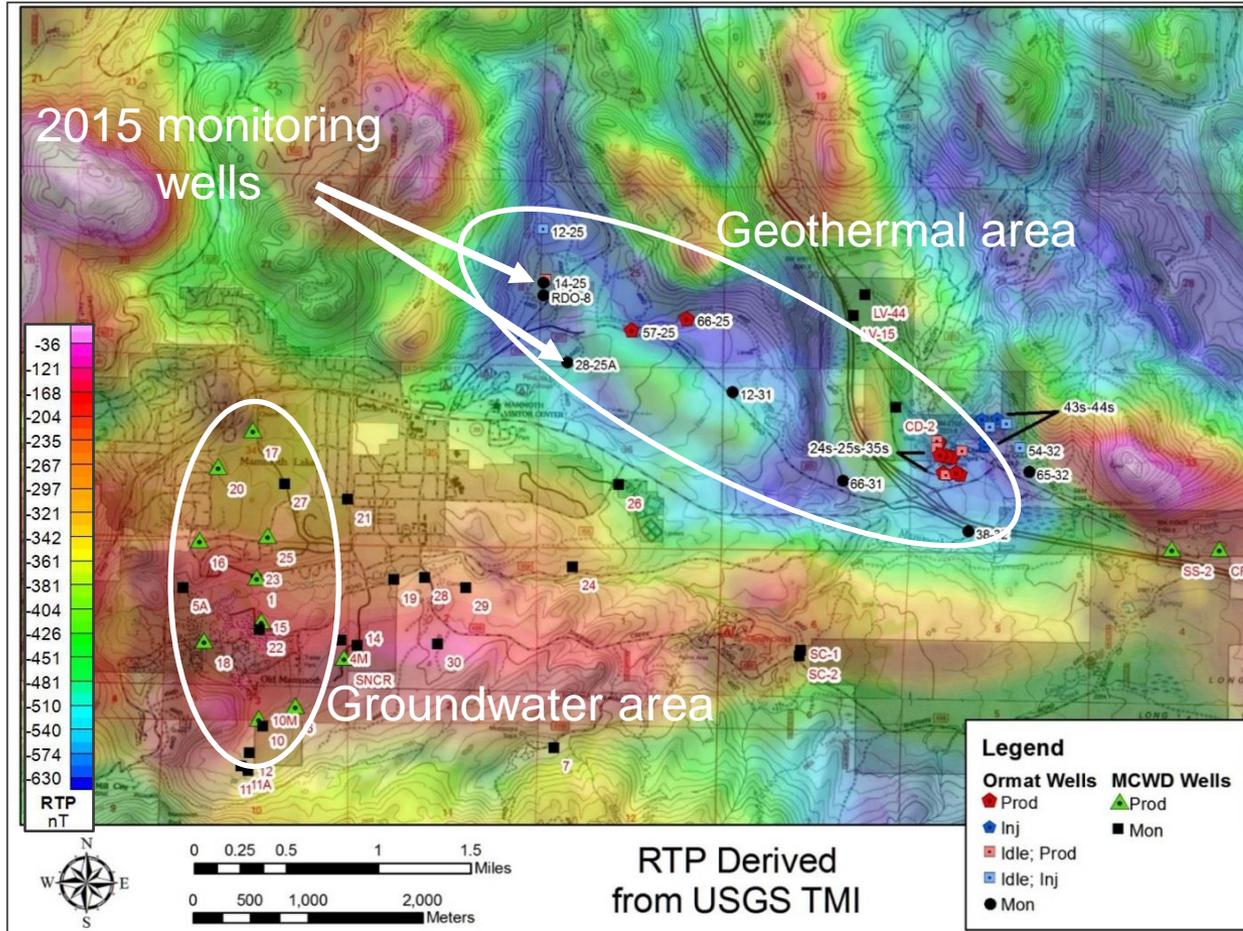
- 14-25A:
  - Maximum downhole temperature of 212°F at 600ft depth.
  - The downhole temperature profile correlates with temperatures of nearby geothermal wells, RDO-8 and 14-25, at similar depths.
  - Temperatures reflect those that are expected directly above a very hot geothermal system.
- 28-25A:
  - Maximum downhole temperature of 127°F at 540ft depth.
  - Lower downhole temperatures are expected at greater lateral distance from the geothermal system.
  - Mostly conductive heating expected in this region.

# Mammoth Static Temperature Profiles



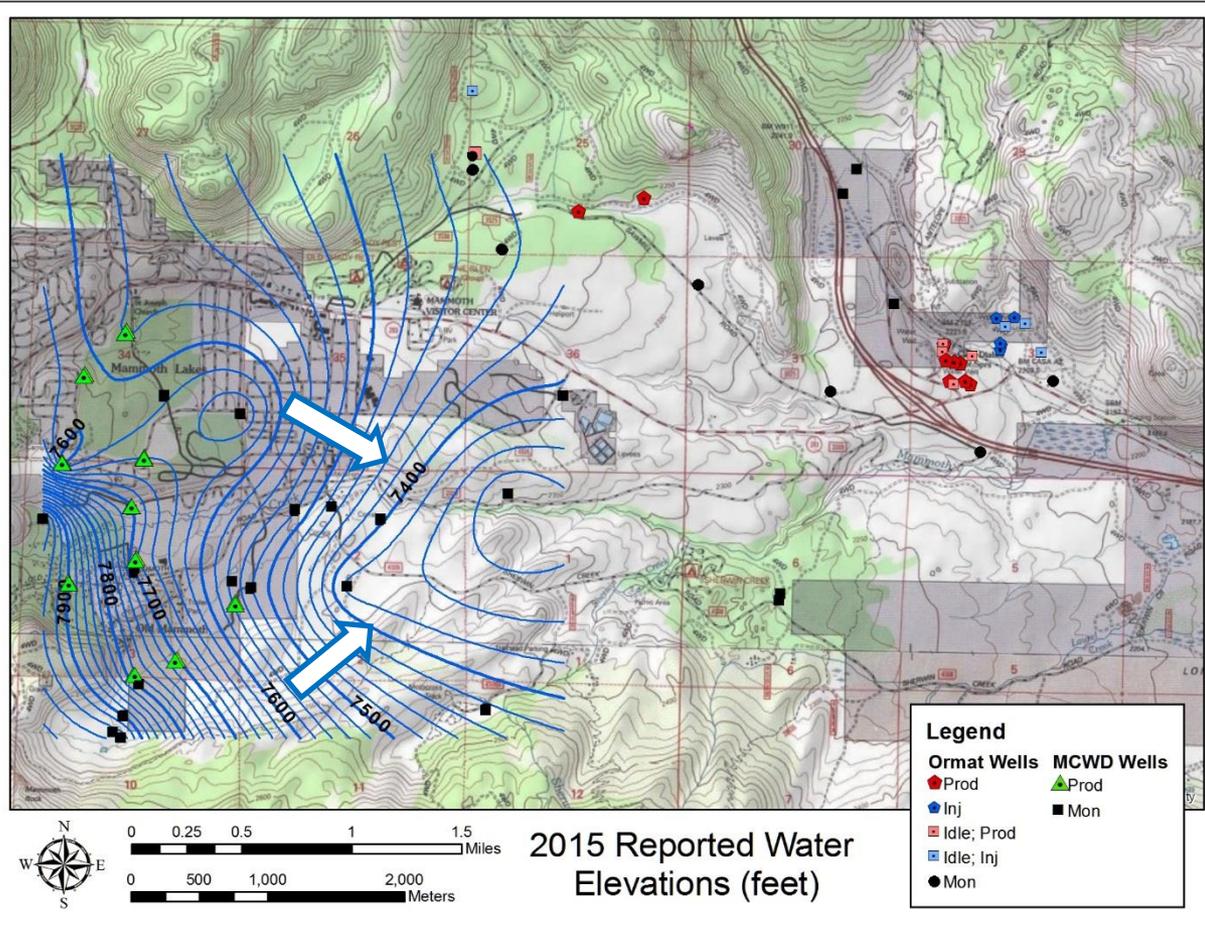
- The 14-25A downhole temperature profile correlates with temperatures of nearby geothermal wells, RDO-8 and 14-25, at similar depths.
- Largely conductive heating illustrated in both monitoring wells as expected.

# Mammoth Geophysics: High-resolution Aeromagnetic Survey (USGS)



- Dark blue areas correlate with demagnetized, hydrothermally altered rock.
- Further indication that geothermal system is isolated from MCWD wells

# Mammoth Hydrology: Water Levels

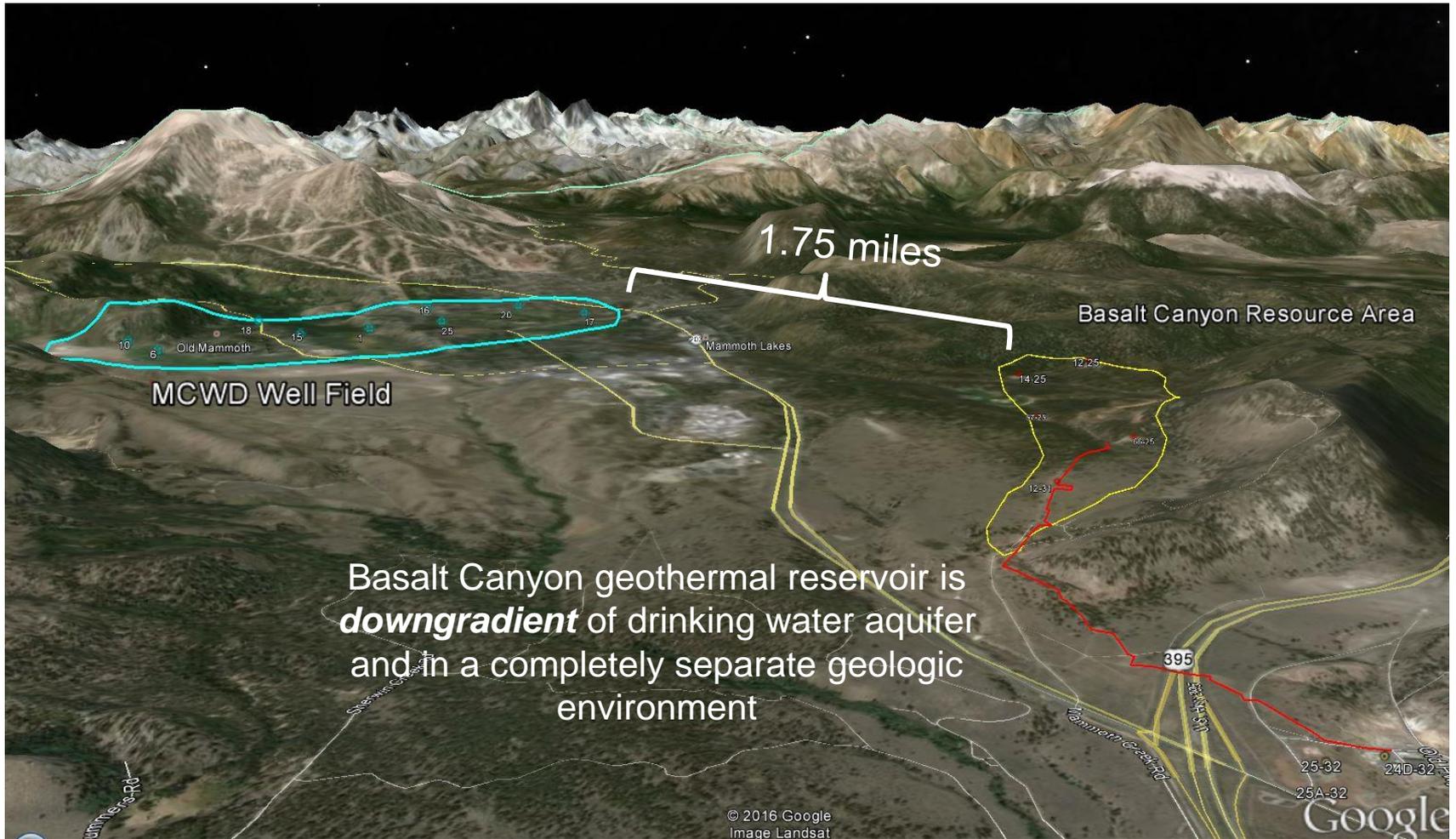


- Water elevations contoured based on reported levels in 2015
- Basalt Canyon geothermal wells are down-gradient of all MCWD production wells and in separate geologic units.

# Bottom Line

- Data collected from 14-25A and 28-25A is consistent with the previously available data
- There is no “new evidence” showing any intermingling between the Basalt Canyon geothermal resource and the MCWD drinking water aquifer.

# Geothermal and Drinking Water Resources Are Separate





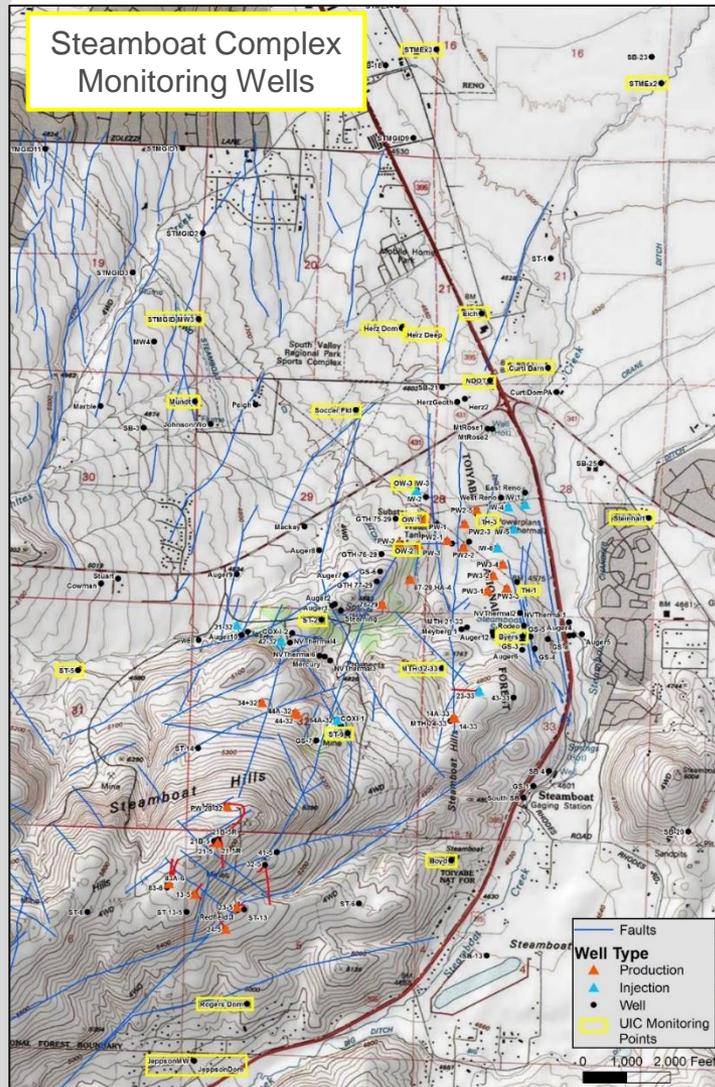
# Geothermal and Drinking Water Resources Coexisting: Case Study #1: Puna, Hawai'i

- The USGS studied the groundwater chemistry around the Puna Geothermal Power Plant, which had been in operation for 20 years, and did not find any impact to the drinking water aquifer in the area.
  - “Our data are consistent with the long-held view that heat moves by conduction from the geothermal reservoir into shallow groundwaters through a zone of low permeability rock that blocks the passage of geothermal water”. - W.C Evans, et al., 2015
  - “the similarity between our results, the results from mandated monitoring over the previous 20 years, and results from samples from the 1970s-1990s imply that geothermal production has not had a significant impact on groundwater chemistry”. - W.C Evans, et al., 2015

# Geothermal and Drinking Water Resources Coexisting: Case Study #2: Reno, NV



# Geothermal and Drinking Water Resources Coexisting: Case Study #2: Reno, NV (cont'd)



- A 73 MW geothermal complex in close proximity to numerous private and municipal water wells.
- Successfully monitor geothermal developments adjacent to south Reno water supply wellfield
- Continuous monitoring of surrounding groundwater and demonstrated lack of impact over 26 years of generation
  - Water level
  - Geochemistry
  - Tracer studies (2007 & 2016)

# Summary

- Environmental prudent development
  - Work with federal, state, and local agencies to ensure proper monitoring of resources
  - No water consumption and no impact on water resources.
- Creates green jobs
- Increases Mono County's tax revenues
- Helps California meet green energy goals

# Thank You



**September 20, 2016**

**Regular Meeting**

**Board of Supervisors**

**Item #13a -**

**Letter to the Board**

**re: TROD proposal**

**Lynda Biederman**

To the Board of Supervisors:

We are in support of the alternative approach proposal by Supervisor Larry Johnston regarding transient rentals. Actually putting Mono County residents above tourists is refreshing. We wish thank Supervisor Johnston for being the only Supervisor to put residents needs first and working for the preservation of single-family residential neighborhoods.

Item D sums it up well. "The reported demand for single-family homes as transient rentals does NOT supersede the inherent rights of current single-family zoning.

Also, Item H. "Supplemental homeowner income is not a sufficient reason, absent other considerations, to rezone single-family homes to allow nightly rentals.

We appreciate the logic of the proposal and the consideration of the full time residents of Mono County that Supervisor Johnston's approach includes.

Thank you,  
Ross and Lynda Biederman  
140 Wyoming Street  
June Lake, CA  
(760) 914-0950