# Cedarville Rancheria Geothermal End Uses Challenge:
## Working with the Indigenous Communities on Sustainable Development Solutions

Kekahu Aluli[1] (kaluli@mines.edu), Becky Reeve[1] (rreeve@mines.edu), Travis Terrell Ramos[2] (tterrell@mines.edu) and Mason Haycock[2] (mhaycock@mines.edu)
[1] Mechanical Engineering Department, Colorado School of Mines, Golden, CO. [2] Environmental Engineering Department, Colorado School of Mines, Golden, CO.

### Overview:

The Northern Paiute Tribe located on the Cedarville Rancheria Reservation in Northern California, has a geothermal resource located on their reservation. In a mutual partnership with the Division of Energy and Minerals Extraction (DEMD), and Colorado School of Mines, our senior design team is working to assist the tribe in their efforts to further develop this renewable resource.
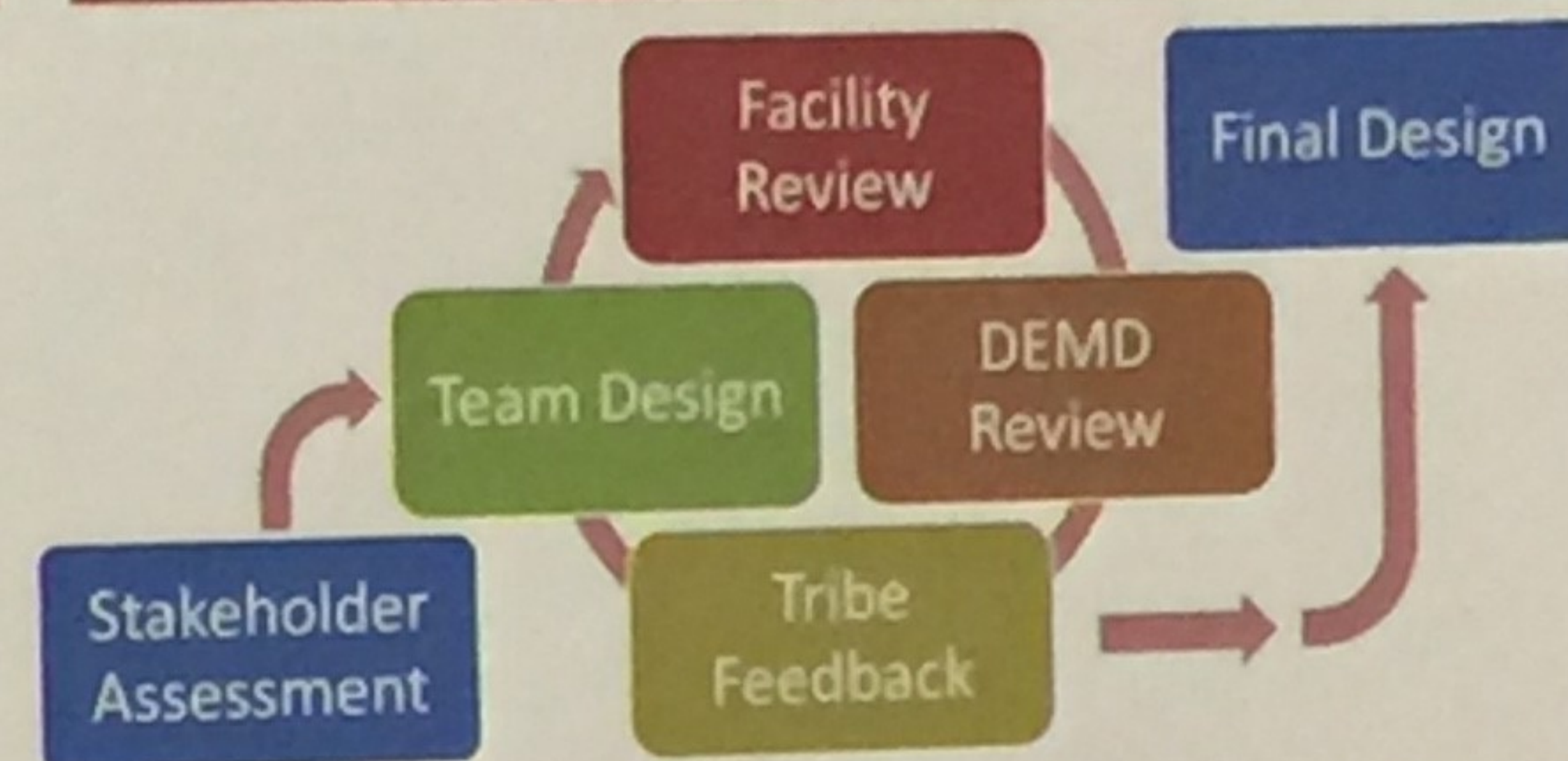
**GEOPamaka**


Project Location


Site Map


Becky, Mason, Kekahu, Travis, and tribal representative Melissa
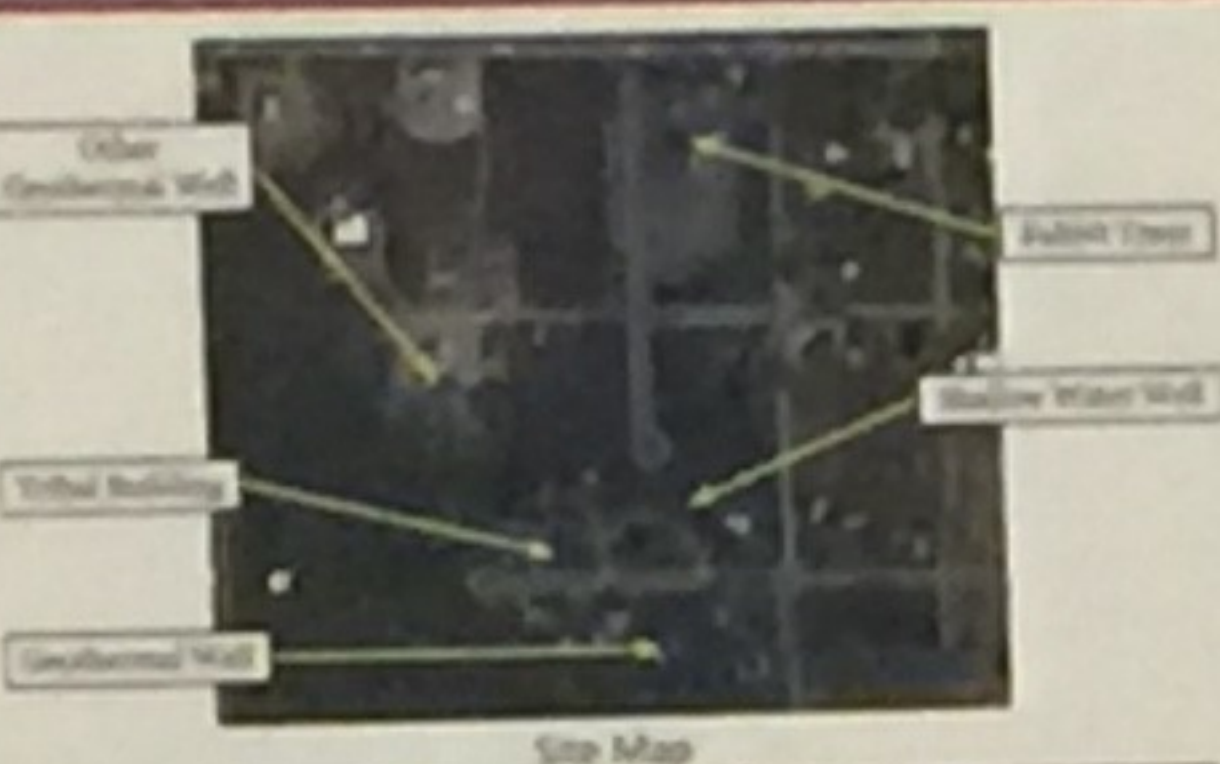
### Objectives:

**Goal:** Ensure that the end product will work to directly benefit the people of the Cedarville Rancheria.

**Obj1:** Develop four designs for tribe.

**Obj2:** Receive feedback and final selection from tribe.

**Obj3:** Further develop chosen plan and present final design to tribe.

### Methodology:


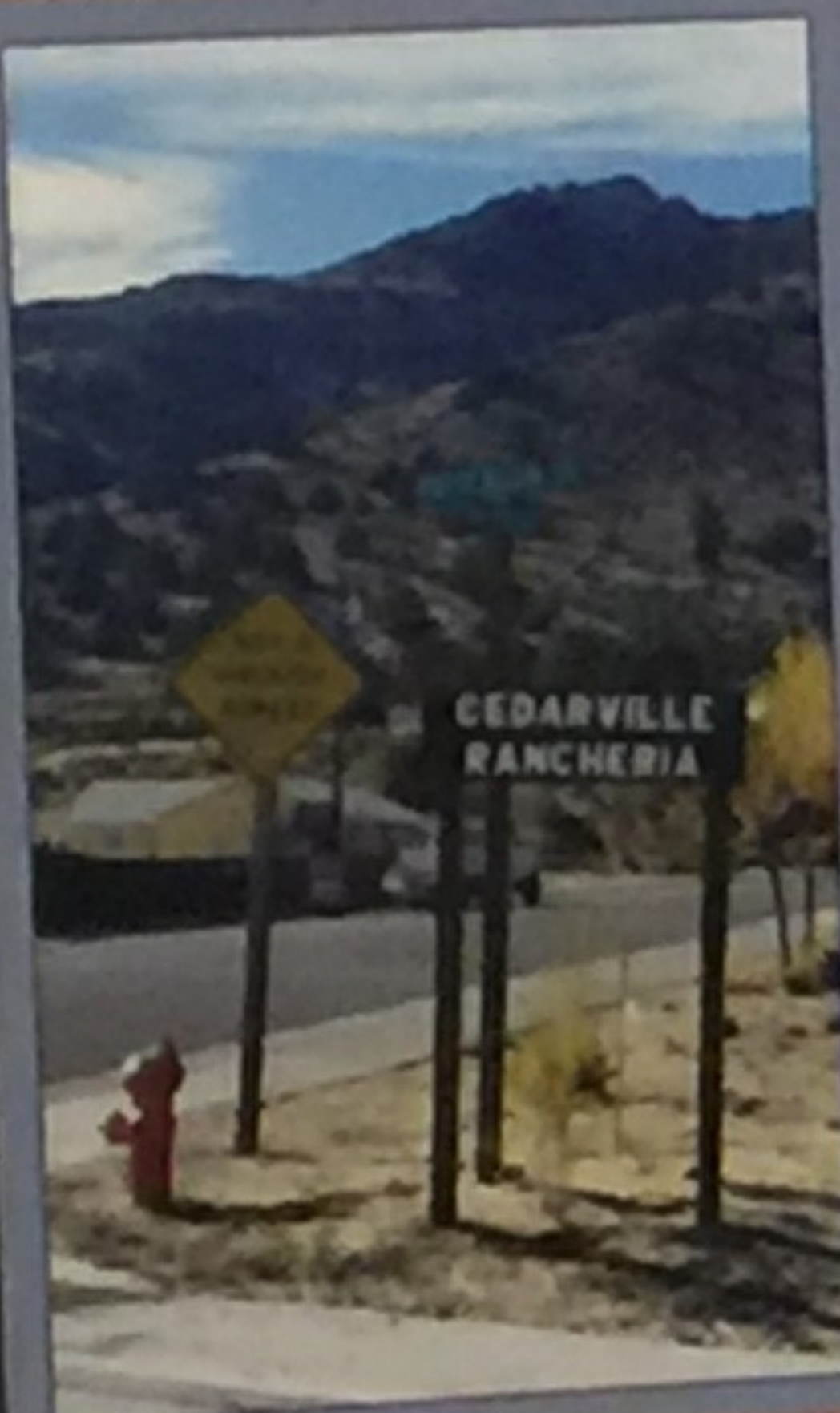Stakeholder Assessment → Team Design → Facility Review → DEMD Review → Tribe Feedback → Final Design

### Project Timeline

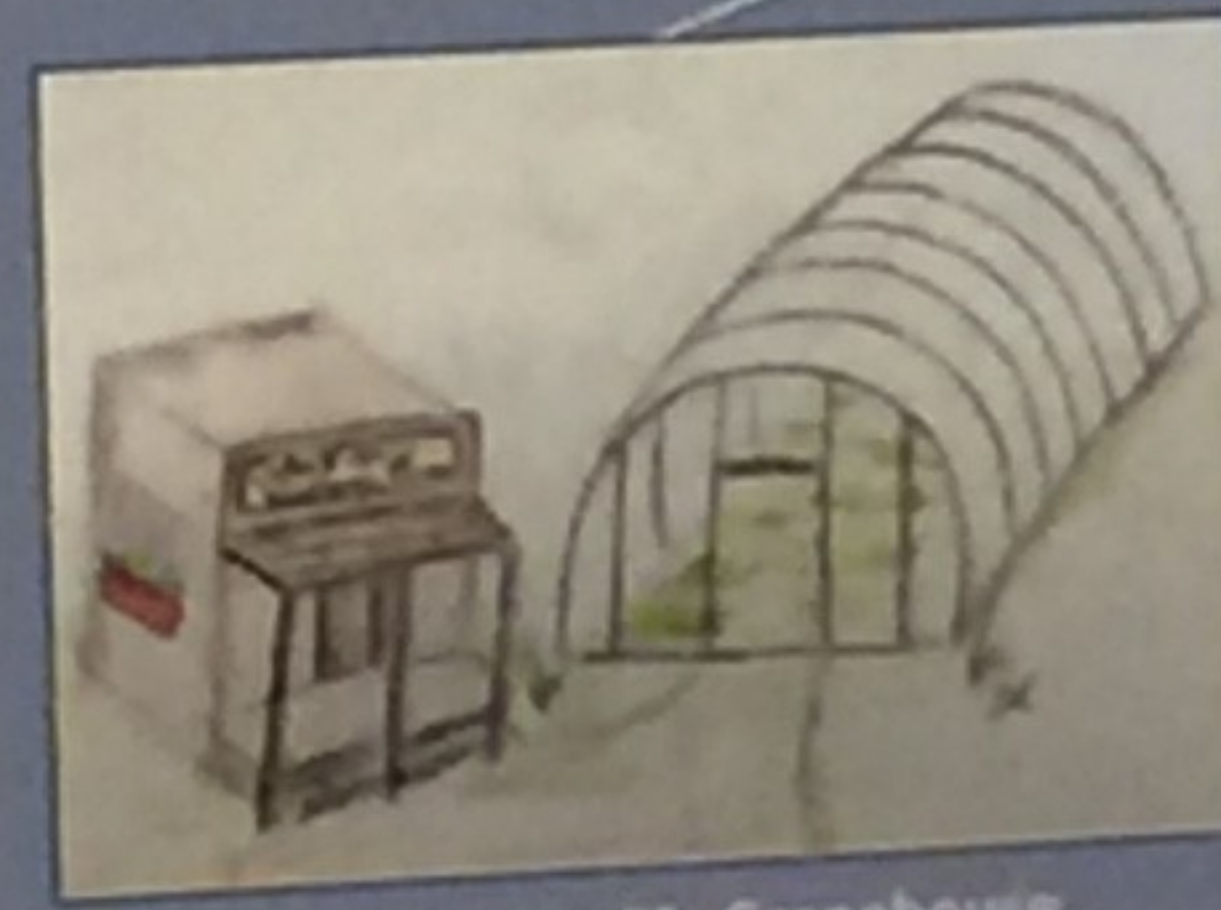Project Timeline → Initial Tribe Visit → Preliminary Design Review → Initial Tribe Decision → Second Design Iteration → Final Tribe Presentation


CEDARVILLE RANCHERIA


Well Head Location
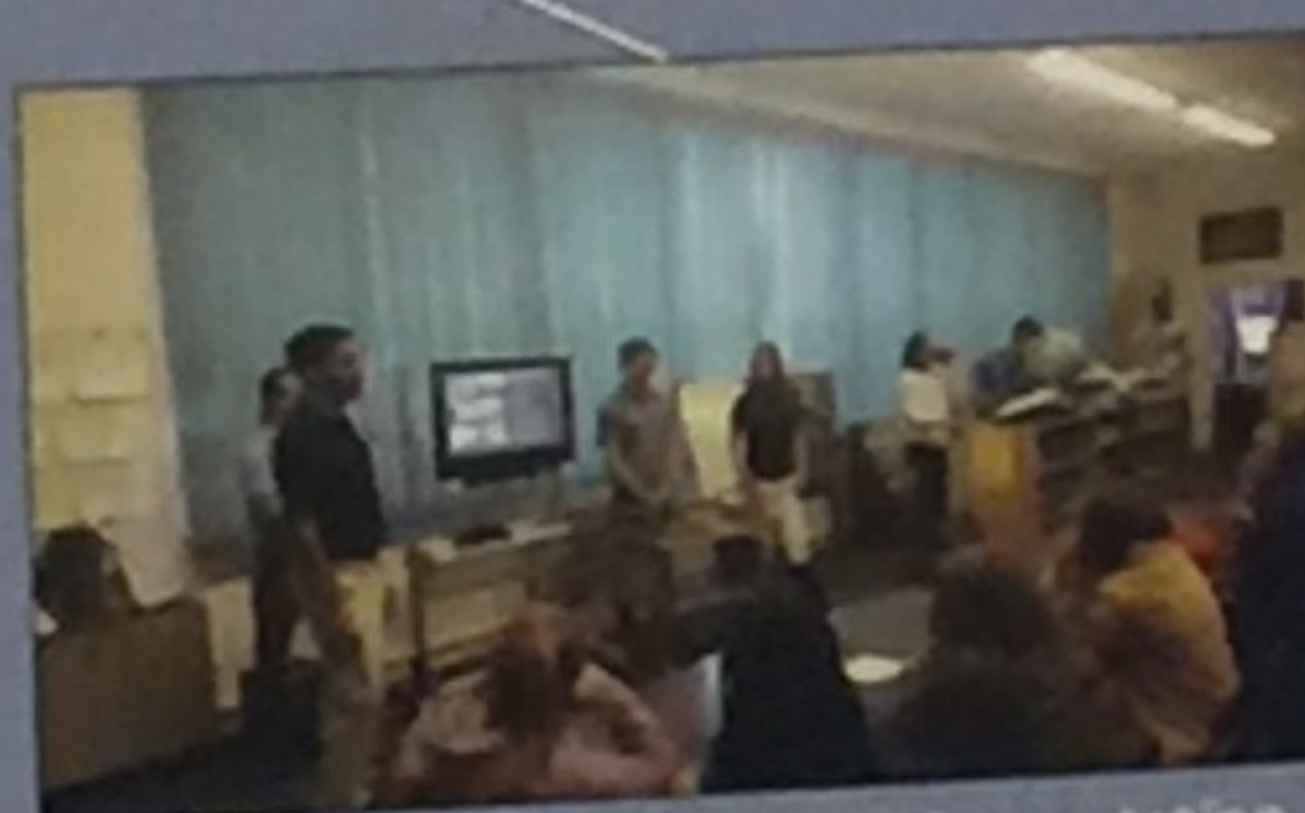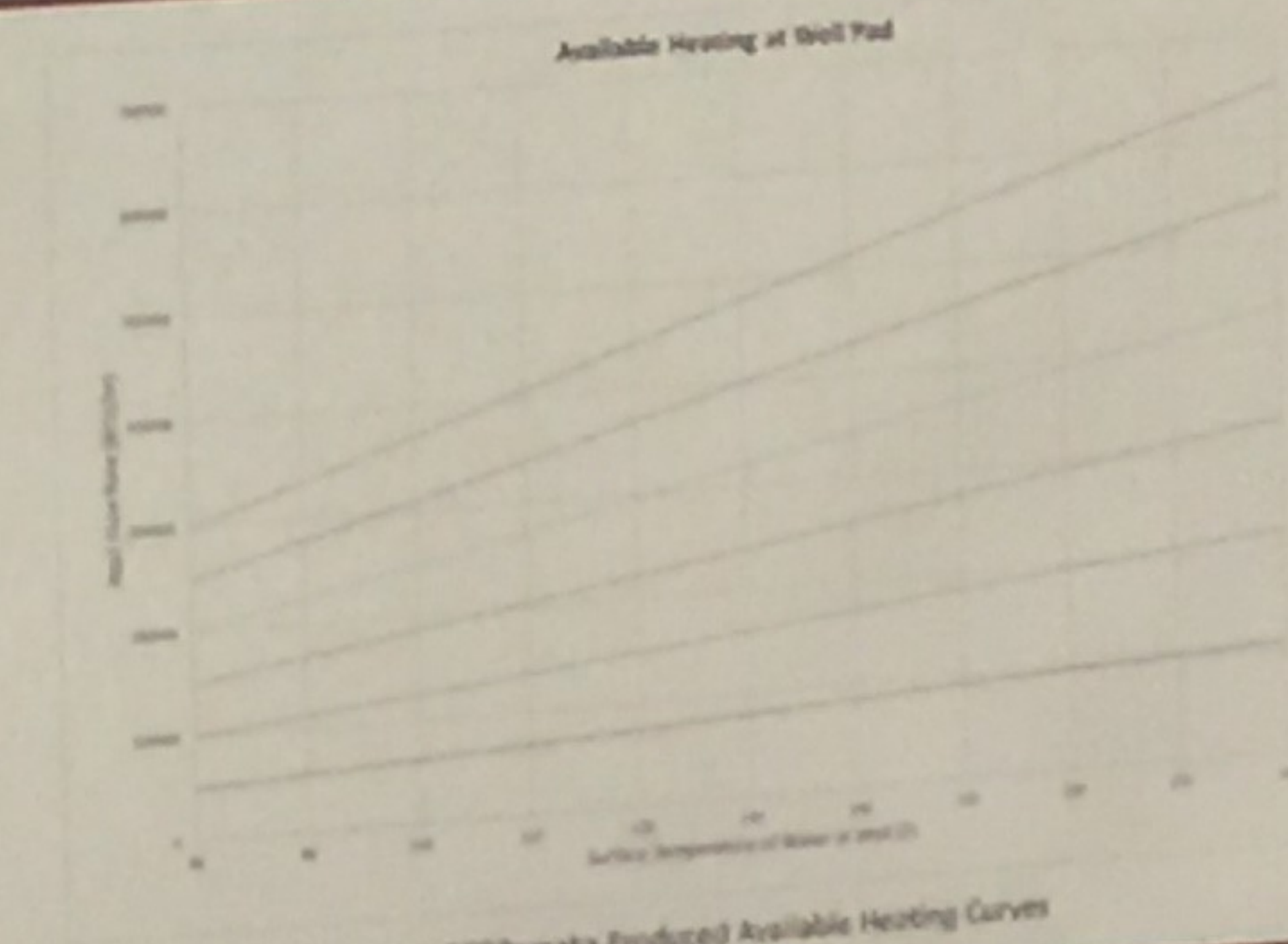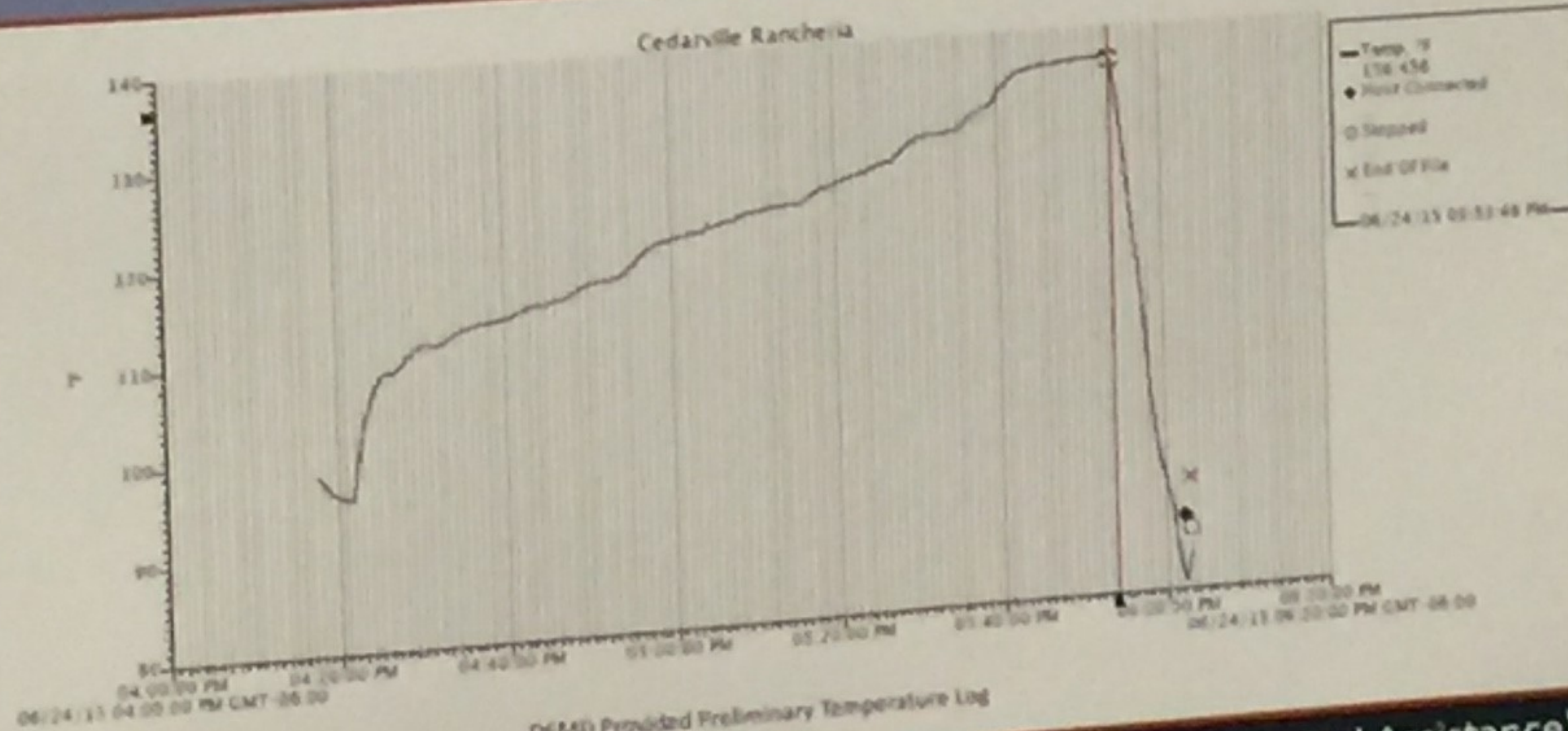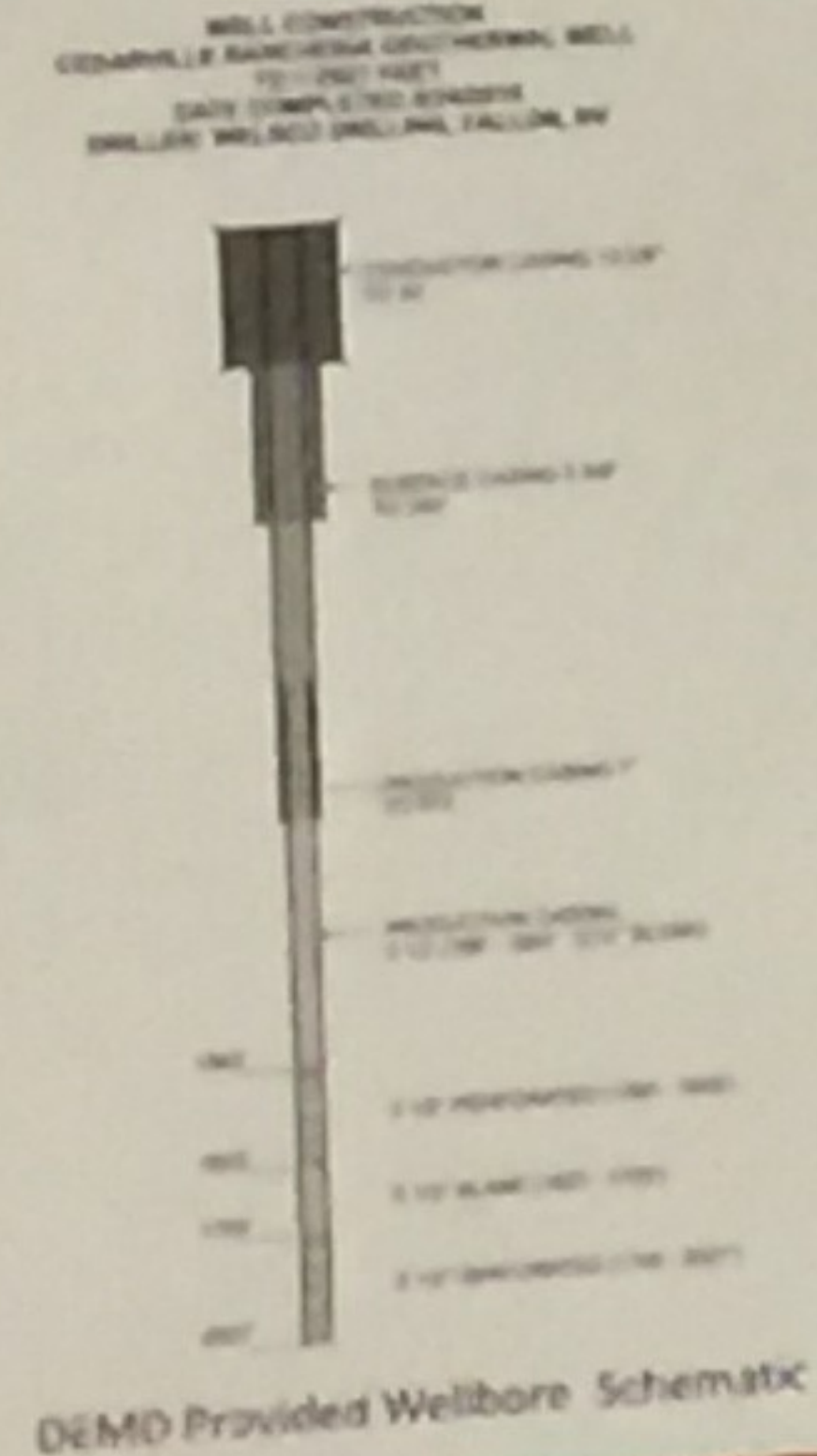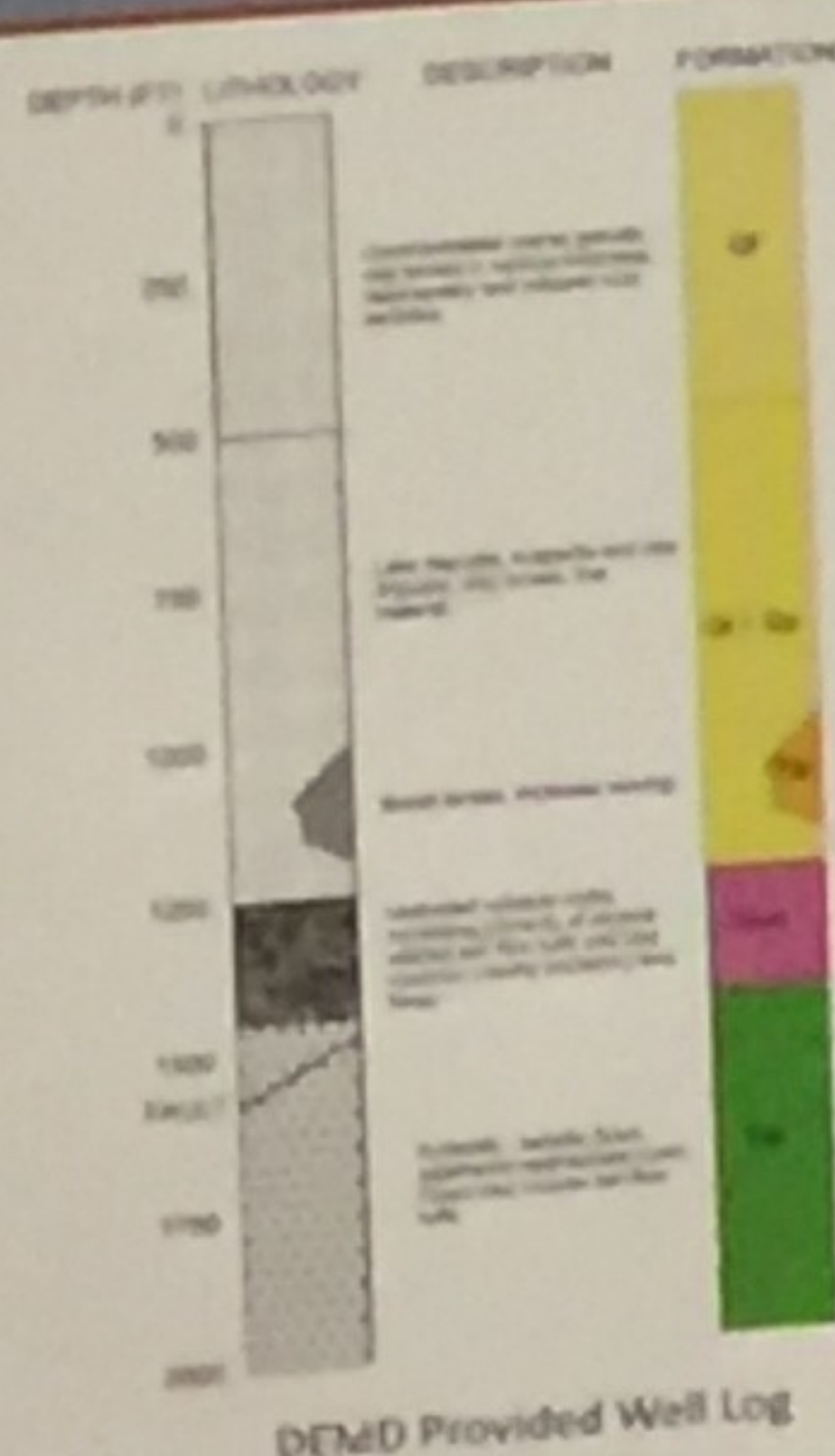

Surprise Valley High-School Presentation


Final Option #1 Greenhouse


Final Option #2 Rabbit Traxx Heating

### Final Design Iteration:

After an initial meeting with tribal leaders, our team designed four options for the geothermal well. After a second presentation, the tribe chose two options for us to pursue. Those two options, pictured left, are a greenhouse and space heating of their gas station, Rabbit Traxx. Our hope is that these sustainable heating projects will benefit the tribal members living on the reservation and members of the Cedarville community.


DEMD Provided Well Log


DEMD Provided Wellbore Schematic


DEMD Provided Preliminary Temperature Log


GEOPamaka Produced Available Heating Curves