



**Barton Springs  
Edwards Aquifer**  
CONSERVATION DISTRICT

# Information Session on Draft Permit for Electro Purification

June 18, 2018

Brian Smith & Vanessa Escobar



# Introduction of Staff

- **Alicia Reinmund-Martinez** – *General Manager BSEACD*
- **Dr. Brian Smith P.G.** - *Principal Hydrogeologist & Team Leader*
- **Vanessa Escobar** - *Regulatory Compliance Coordinator & Team Leader*
- **Brian Hunt P.G.** – *Senior Hydrogeologist*
- **Kendall Bell-Enders** – *Senior Regulatory Compliance Coordinator*
- **Robin Gary** – *Public Information & Education Team Leader*
- **Justin Camp** - *Hydrogeologist Technician*
- **Erin Swanson**- *Regulatory Compliance Specialist*
- **Tammy Raymond** – *Senior Administrative Specialist*
- **Shannon DeLong** – *Senior Accounting Specialist*

# Purpose of the Meeting

To get your questions answered – through presentations and through a Q&A session.

# Goal of the Meeting

To be well informed



By June 25, 2018  
Submit comments in writing to:  
[bseacd@bseacd.org](mailto:bseacd@bseacd.org) or  
1124 Regal Row, Austin TX 78748

# Agenda

- **Introductions & Background**
- **What does the science say?**
- **Draft Permit**
- **Next Steps**
- **15 Min Break**
- **Question & Answer Session**
- **Closing Comments**

# Meeting Guidelines - Presentations

- **Presentations are designed to answer your questions.**
- **Please don't interrupt the presentations.**
- **Write your questions on the Index Cards.**
  - **Turn your Index Cards at the start of the break.**
  - **One question per Index Card.**



*There is eastern water law,  
There is western water law,  
Then there is Texas water law*

- ❖ Rule of Capture adopted as Texas law on 1904
- ❖ aka “law of biggest pump”
- ❖ Landowners have right to capture & develop water
- ❖ Courts say groundwater is vested private property right

**Exceptions to Rule of Capture:**  
GCDs can regulate pumping

# GCDs charges & responsibilities:

**Science & Policy**

**Regulate production and spacing**

**Landowner's right to develop groundwater**



**Conserve & protect groundwater resources**

**Well Construction**

**Education**

**Enforcement**





# 2015 - H.B. 3405



**Barton Springs  
Edwards Aquifer**  
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# Where are we now?

## 2015 - Temporary Permits

BSEACD gains jurisdiction of "Shared Territory" and EP files temporary permit (later withdraws permit request)

## 2017/ 2018 – EP permit request for 2.5 MGD

Staff review of application materials, proposed avoidance, monitoring, mitigation plans. GM issues draft permit on 5/21/18

## Next Steps

Follow District notices and announcements for next steps on this permit



HB 3405

Aquifer Testing

Permit Review

Public Comment

Preliminary Hearing

## 2016 – Aquifer Test

EP files test well permit to conduct aquifer testing. BSEACD provides oversight and coordination of 3 month long aquifer test

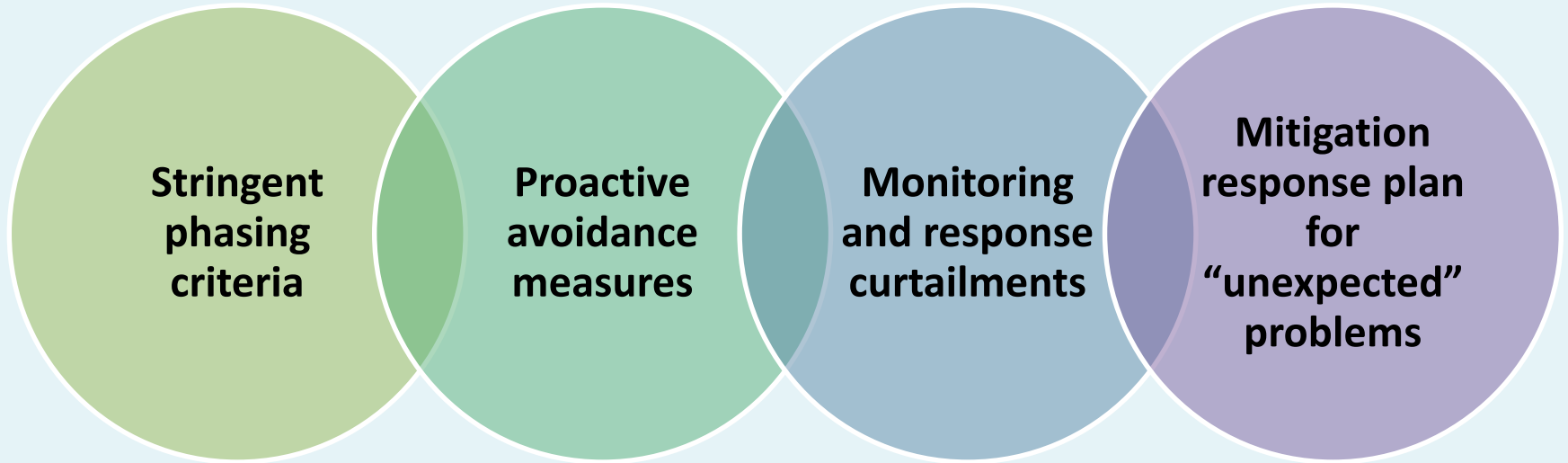
## 2018 - Comment Period 6/4 to 6/25

Written comments and contested case requests due by 6/25



WHAT  
YOU  
NEED  
TO  
KNOW

**EP requested 2.5 MGD but this draft permit only authorizes an initial phase of 0.5 MGD**



**Let's talk about what the science tells us.....**



# Aquifer Science Evaluation

- 15 years of Trinity Aquifer studies
- Description of Trinity Aquifers
- Well completion depths
- Drawdown estimate for 0.5 MGD of pumping
- Aquifer protection measures

# 15 Years of Trinity Aquifer Studies

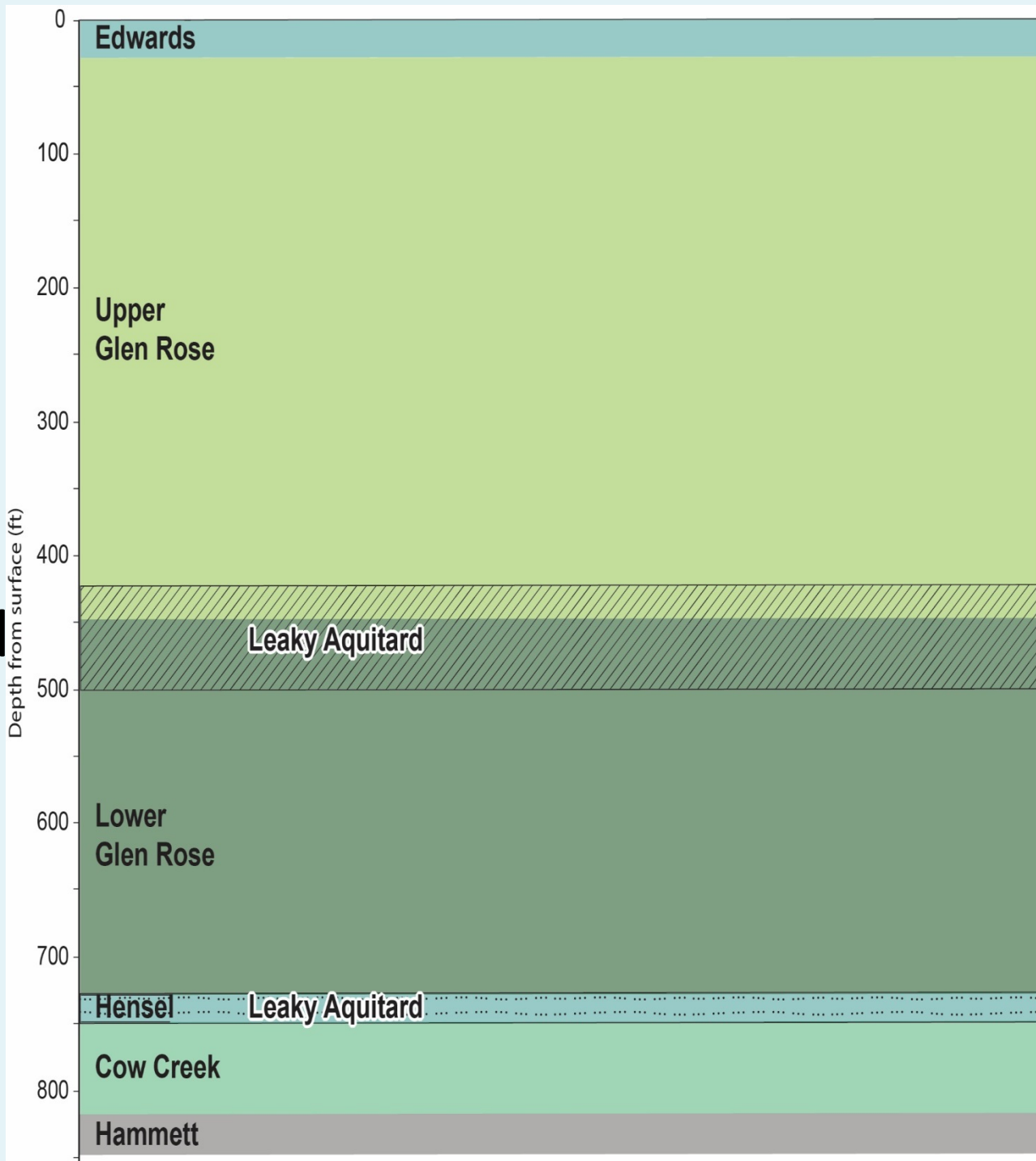
- 2003- Installation of Trinity/Edwards well pairs
- Installation of multiport monitor wells
  - 2008 Ruby Ranch
  - 2010 Antioch (Buda)
  - 2017 Rolling Oaks
- 2015- Focus on EP area
- Field mapping, groundwater sampling, water-level measurements, stream-flow measurements, dye tracing



Upper  
Trinity  
Aquifer

---  
Aquitard  
---

Middle  
Trinity  
Aquifer

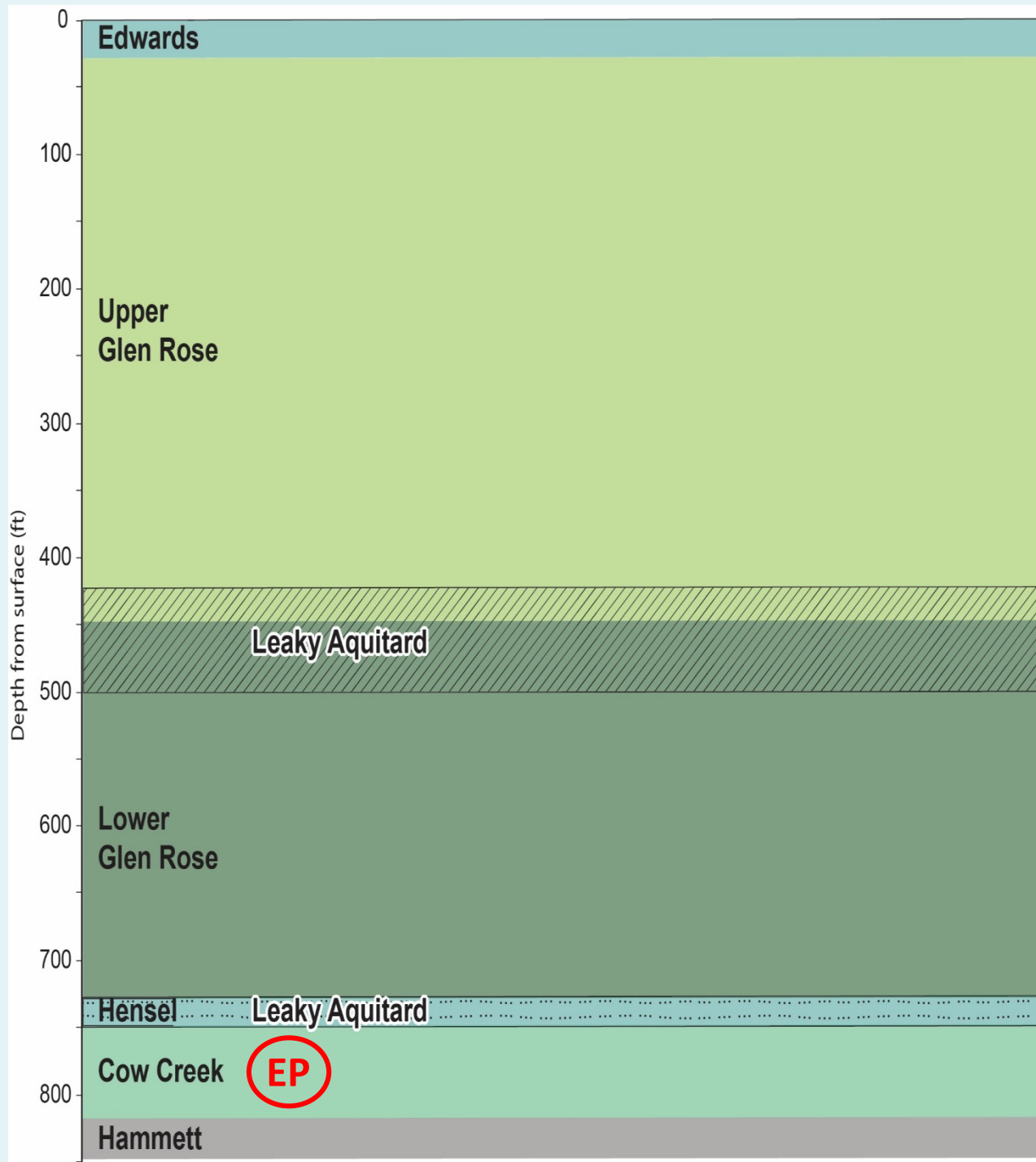


Upper  
Trinity  
Aquifer

-----  
Aquitard

Middle  
Trinity  
Aquifer

Proposed EP  
Pumping from  
the Cow Creek

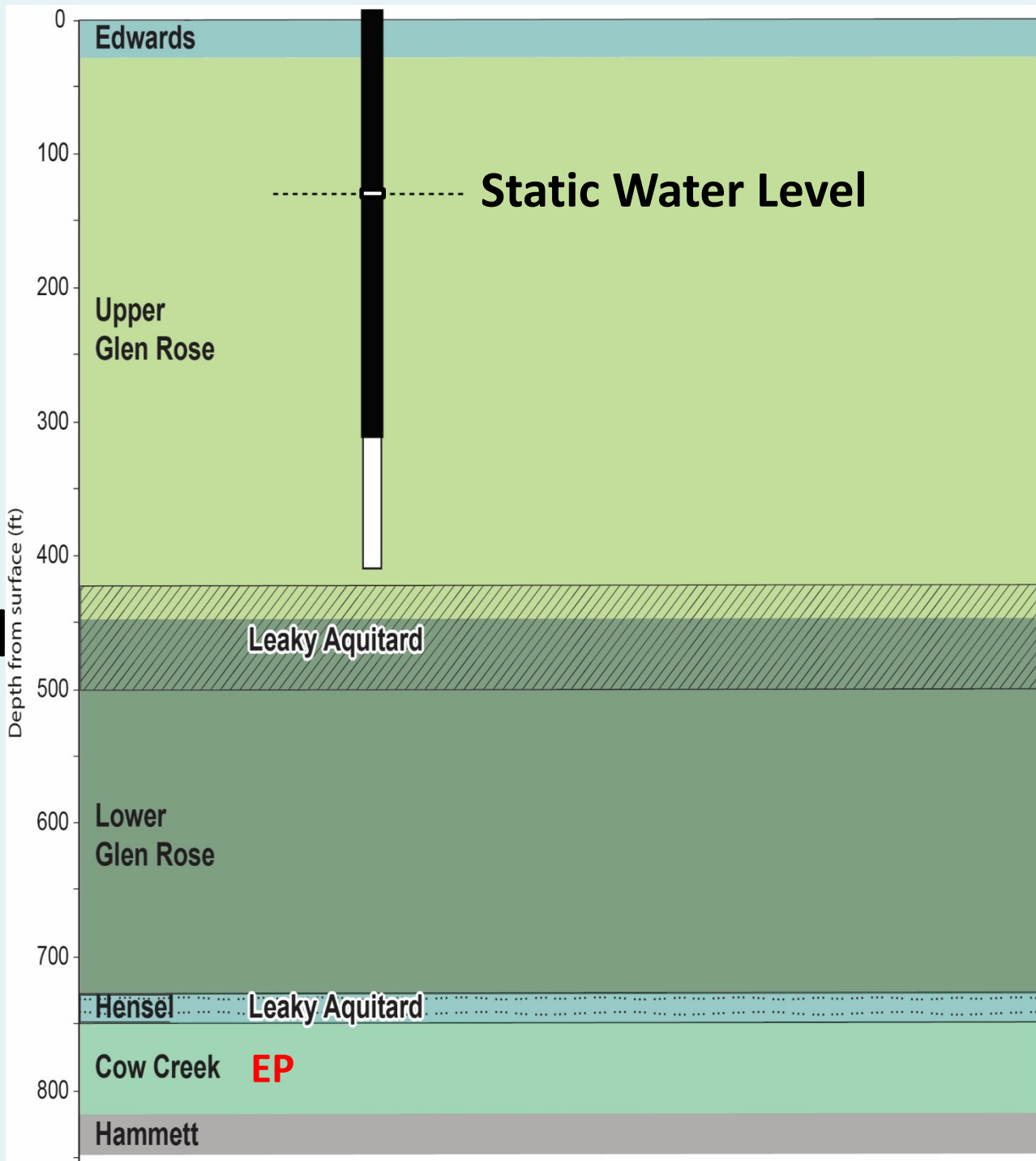




Upper  
Trinity  
Aquifer

Aquitard

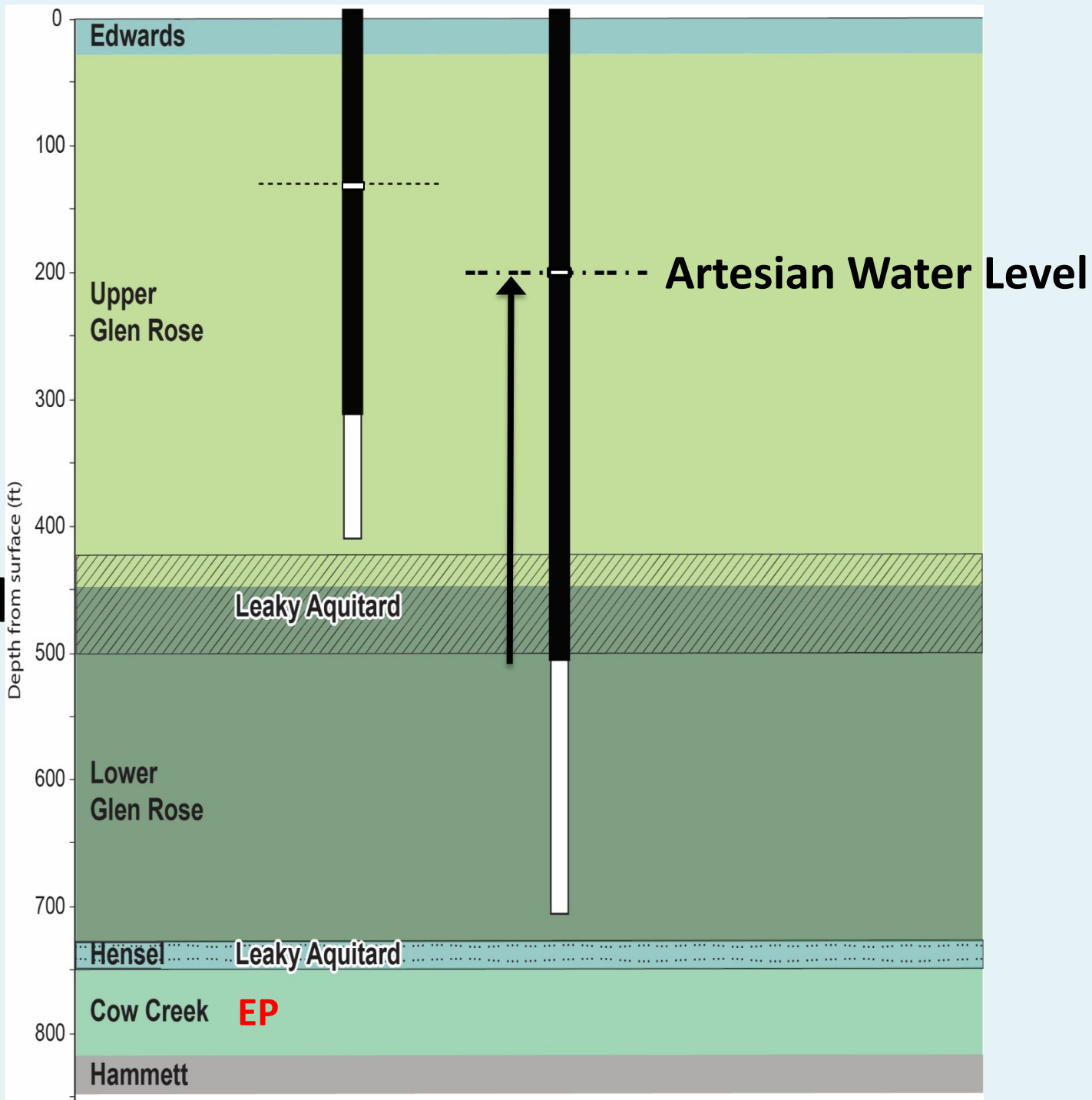
Middle  
Trinity  
Aquifer



Upper  
Trinity  
Aquifer

Aquitard

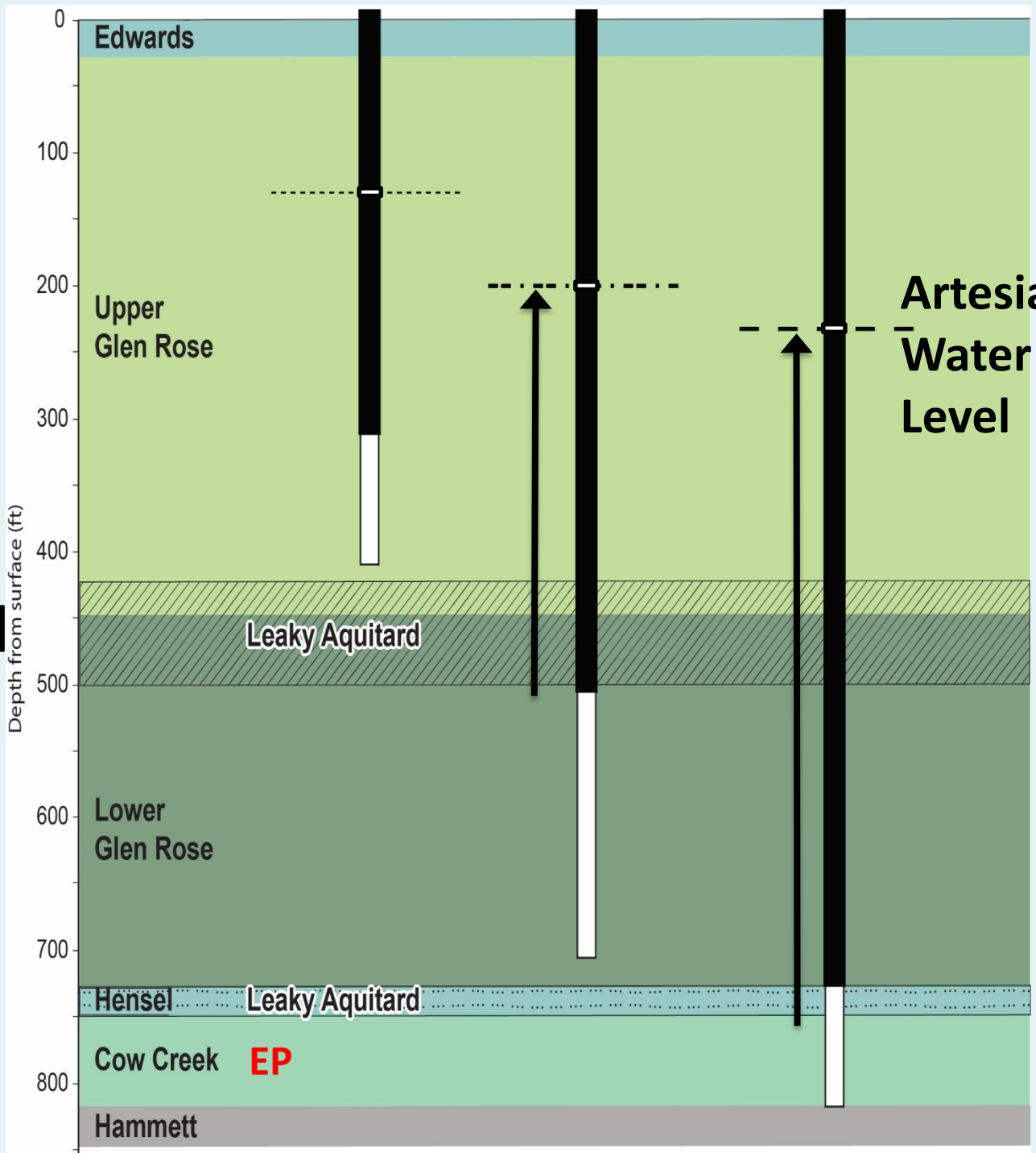
Middle  
Trinity  
Aquifer



Upper  
Trinity  
Aquifer

Aquitard

Middle  
Trinity  
Aquifer

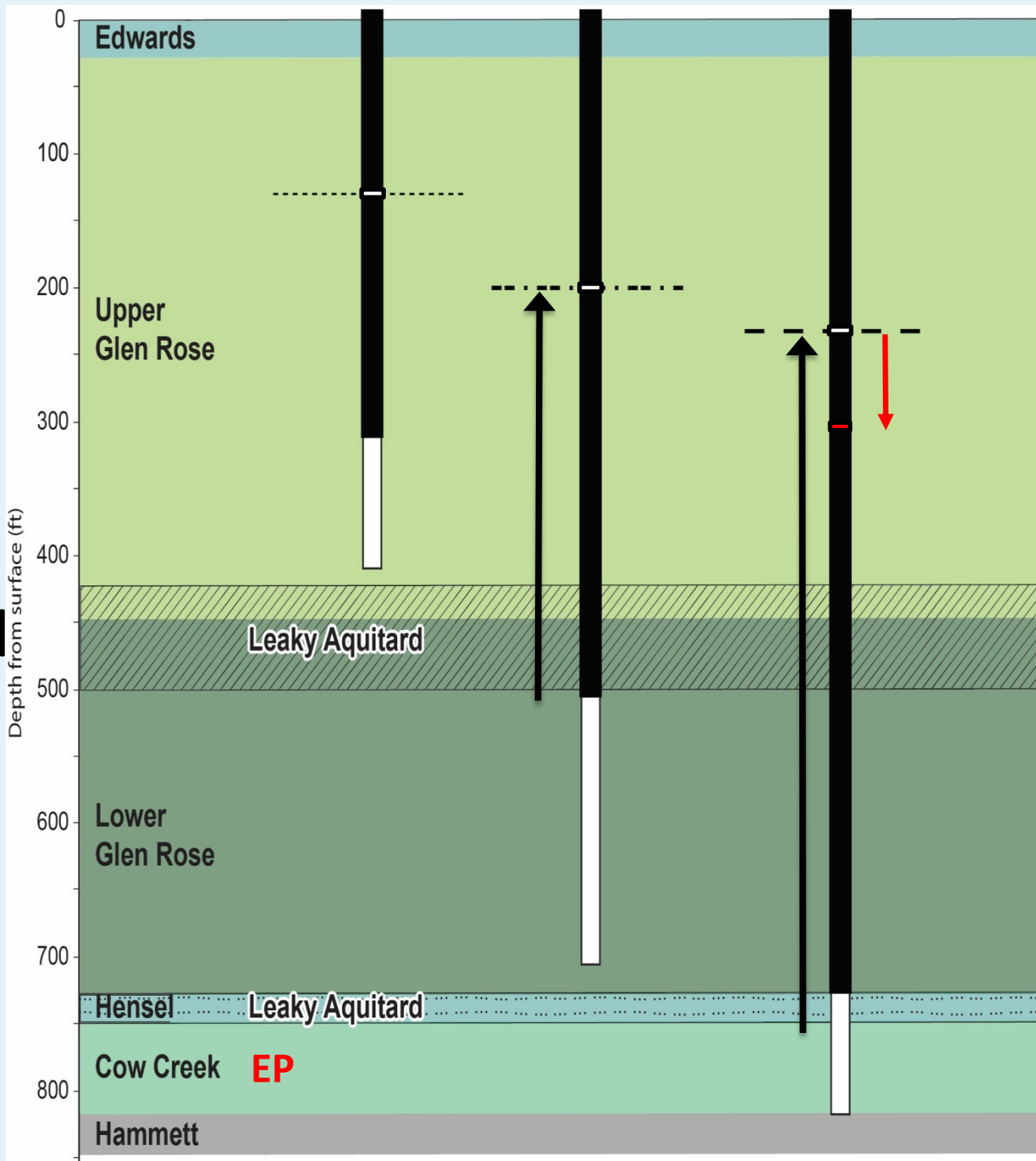


Artesian  
Water  
Level

Upper  
Trinity  
Aquifer

---  
Aquitard  
---

Middle  
Trinity  
Aquifer

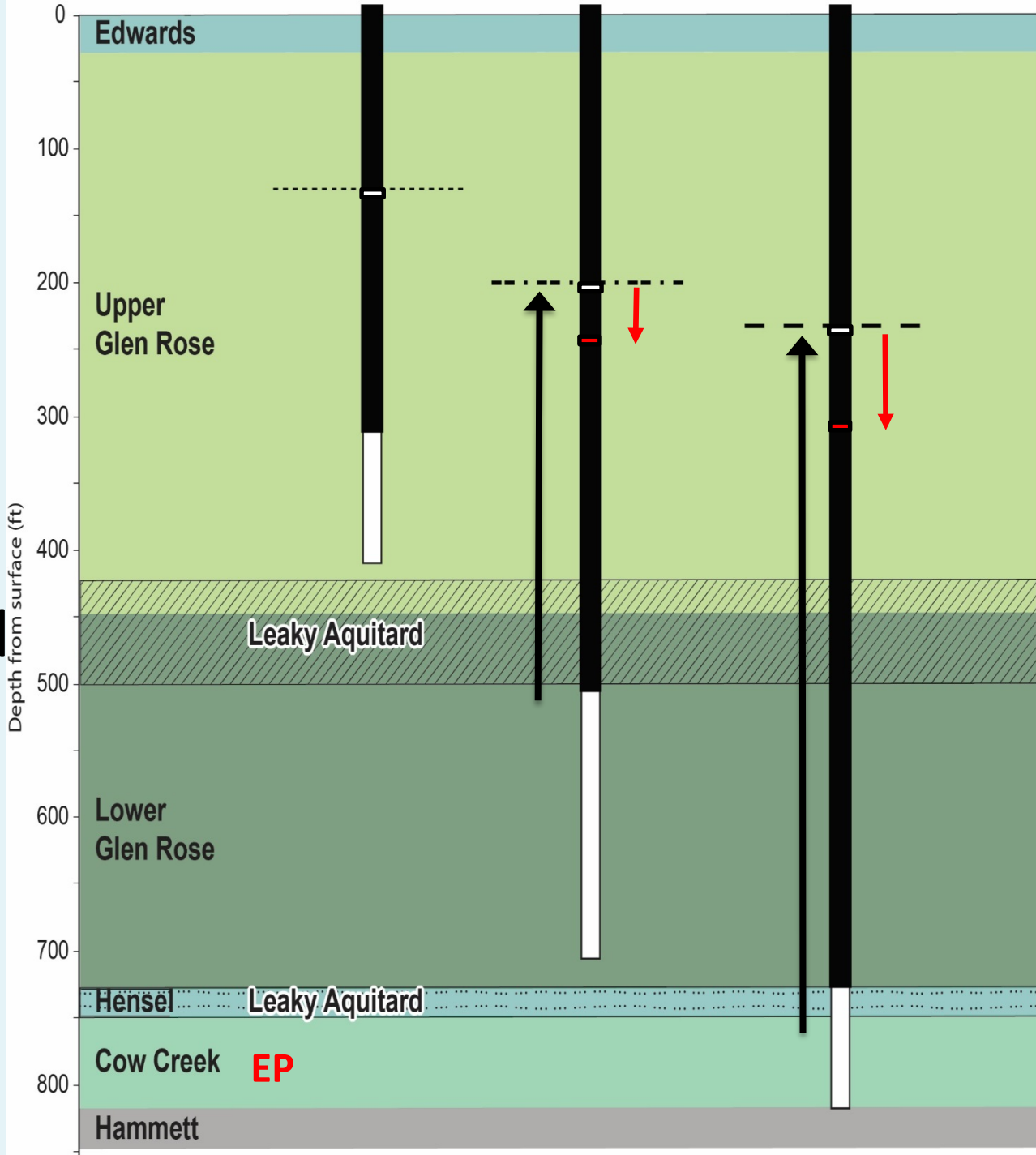


**Modeled drawdown from EP pumping at 0.5 MGD for 6 months 1/4 miles from pumping wells**

Upper  
Trinity  
Aquifer

---  
Aquitard  
---

Middle  
Trinity  
Aquifer

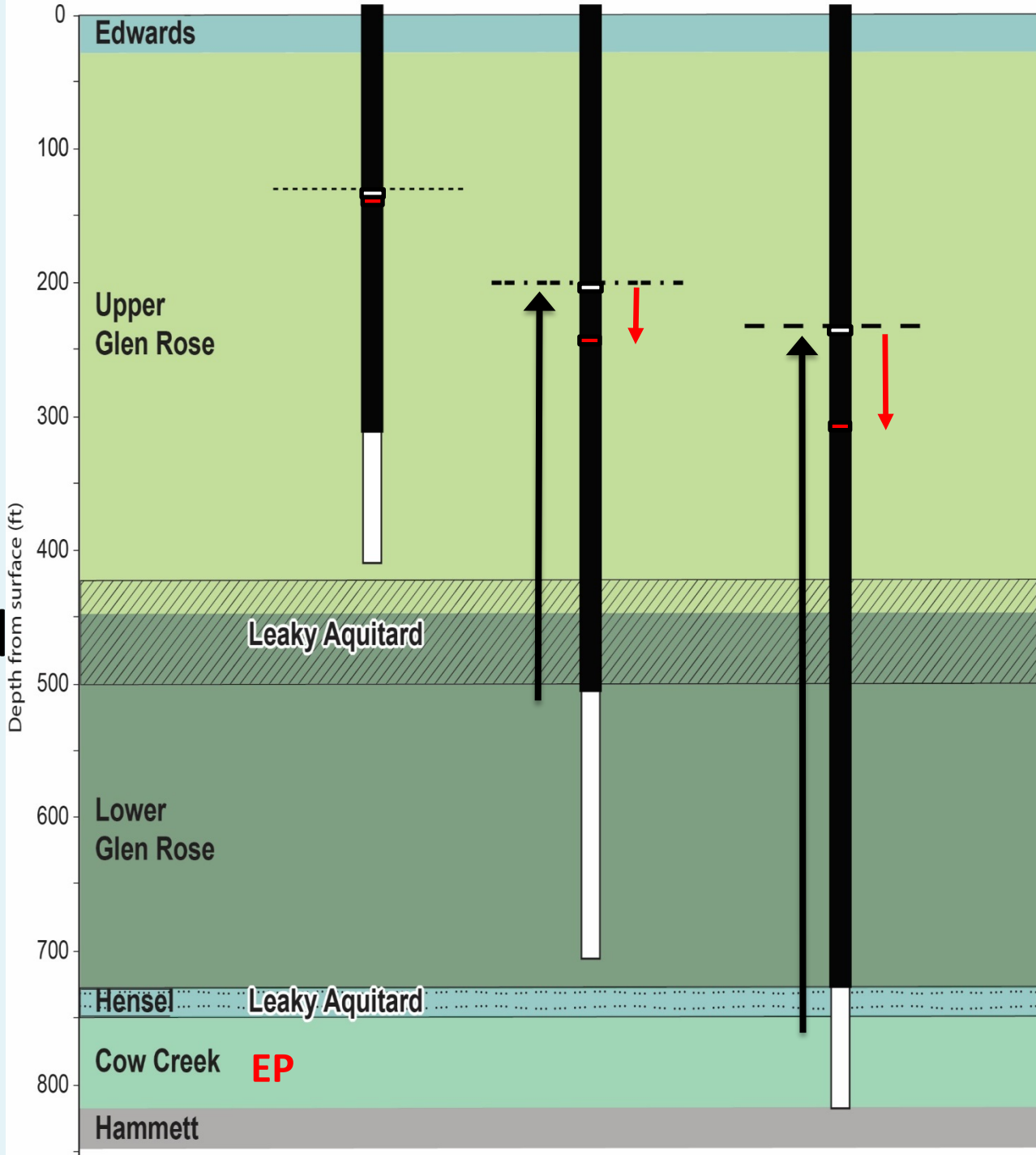


**Modeled  
drawdown  
from EP  
pumping  
at 0.5  
MGD for 6  
months ¼  
miles from  
pumping  
wells**

Upper  
Trinity  
Aquifer

---  
Aquitard  
---

Middle  
Trinity  
Aquifer



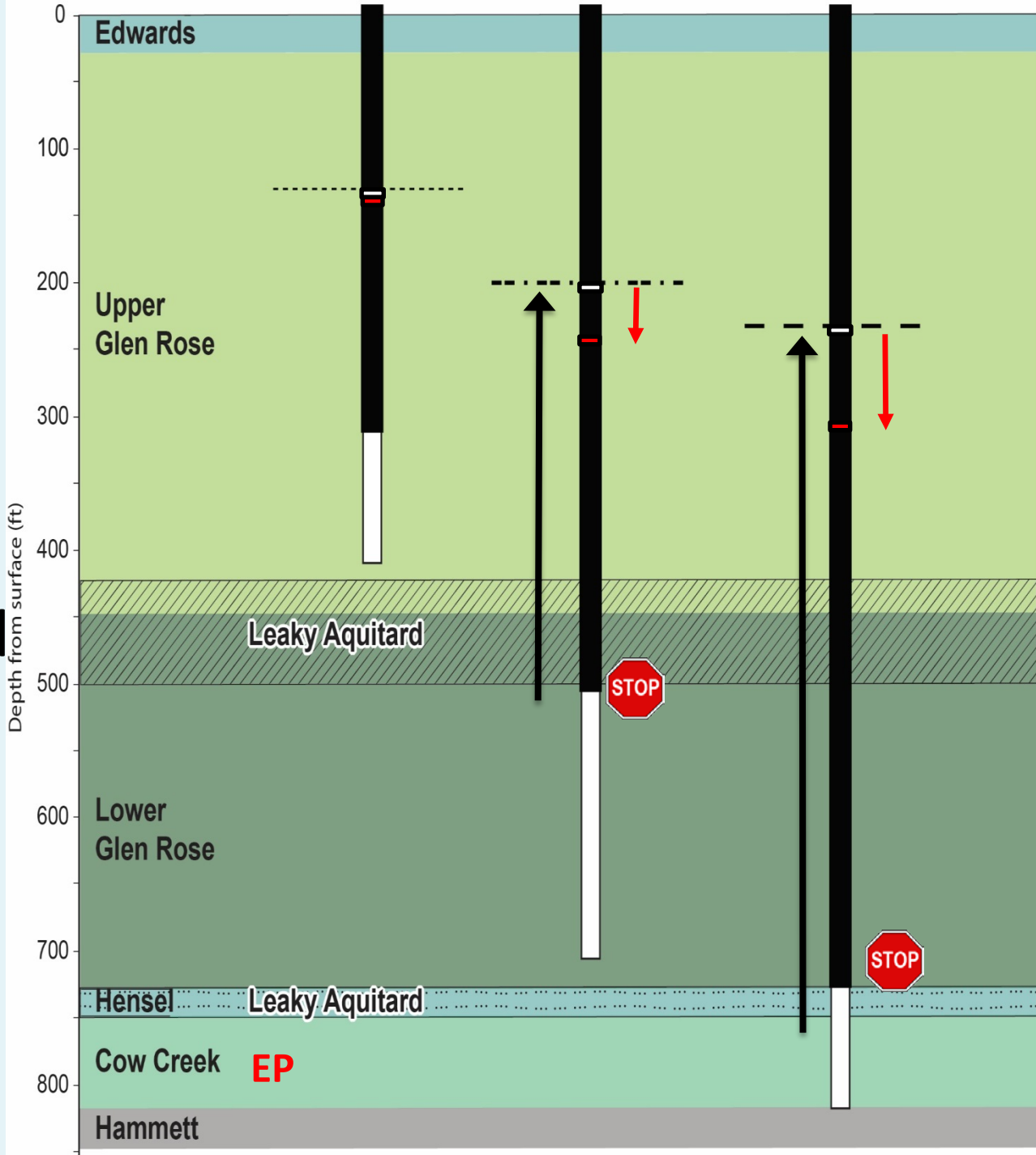
**Modeled  
drawdown  
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at 0.5  
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pumping  
wells**



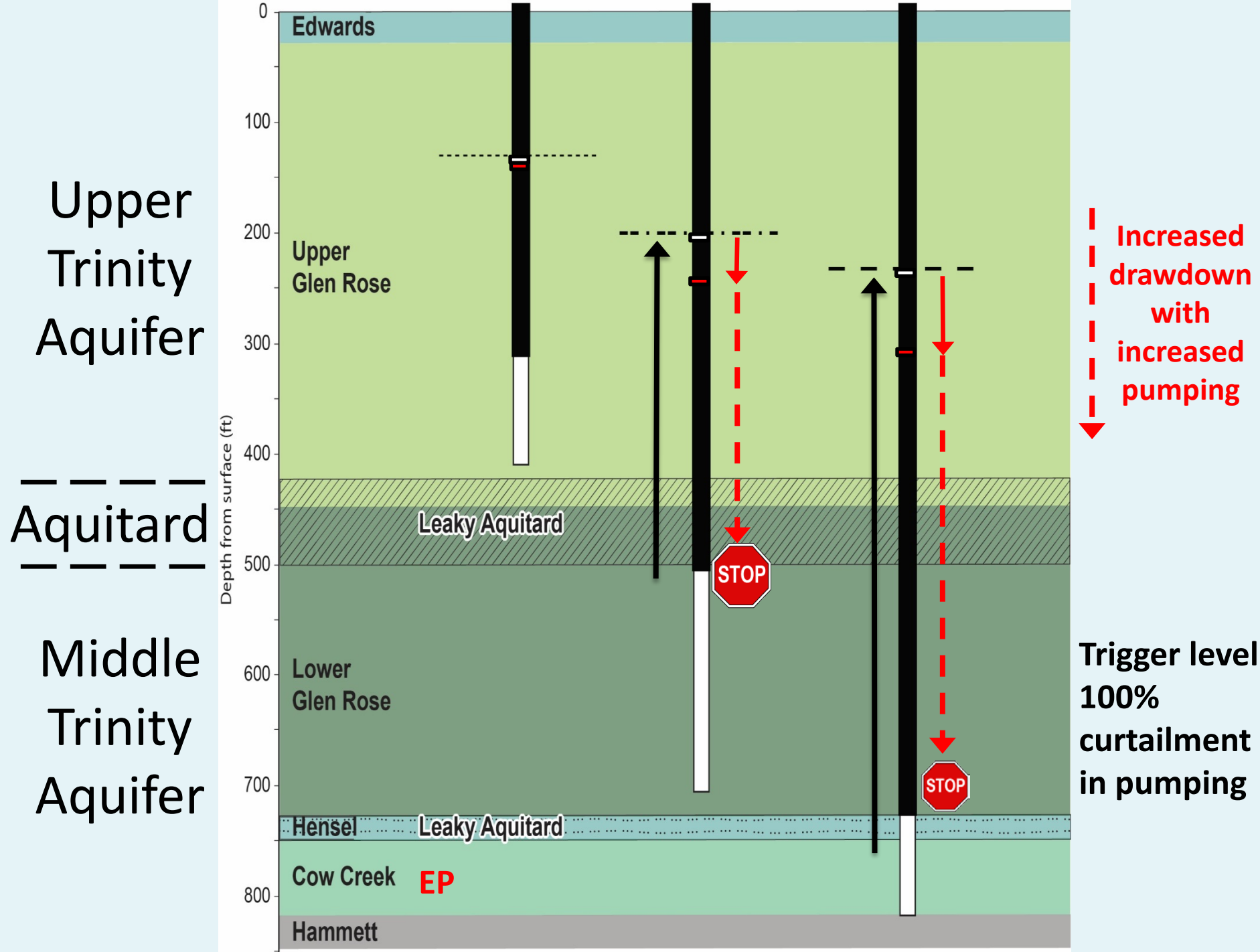
Upper  
Trinity  
Aquifer

Aquitard

Middle  
Trinity  
Aquifer



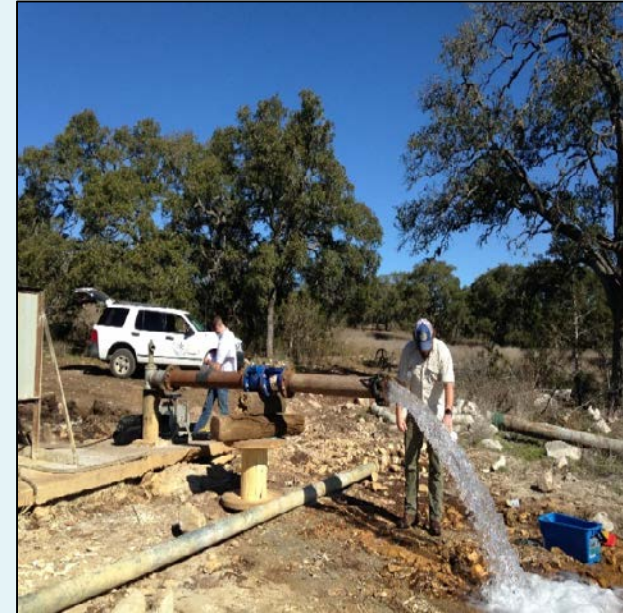
Trigger level  
100%  
curtailment  
in pumping



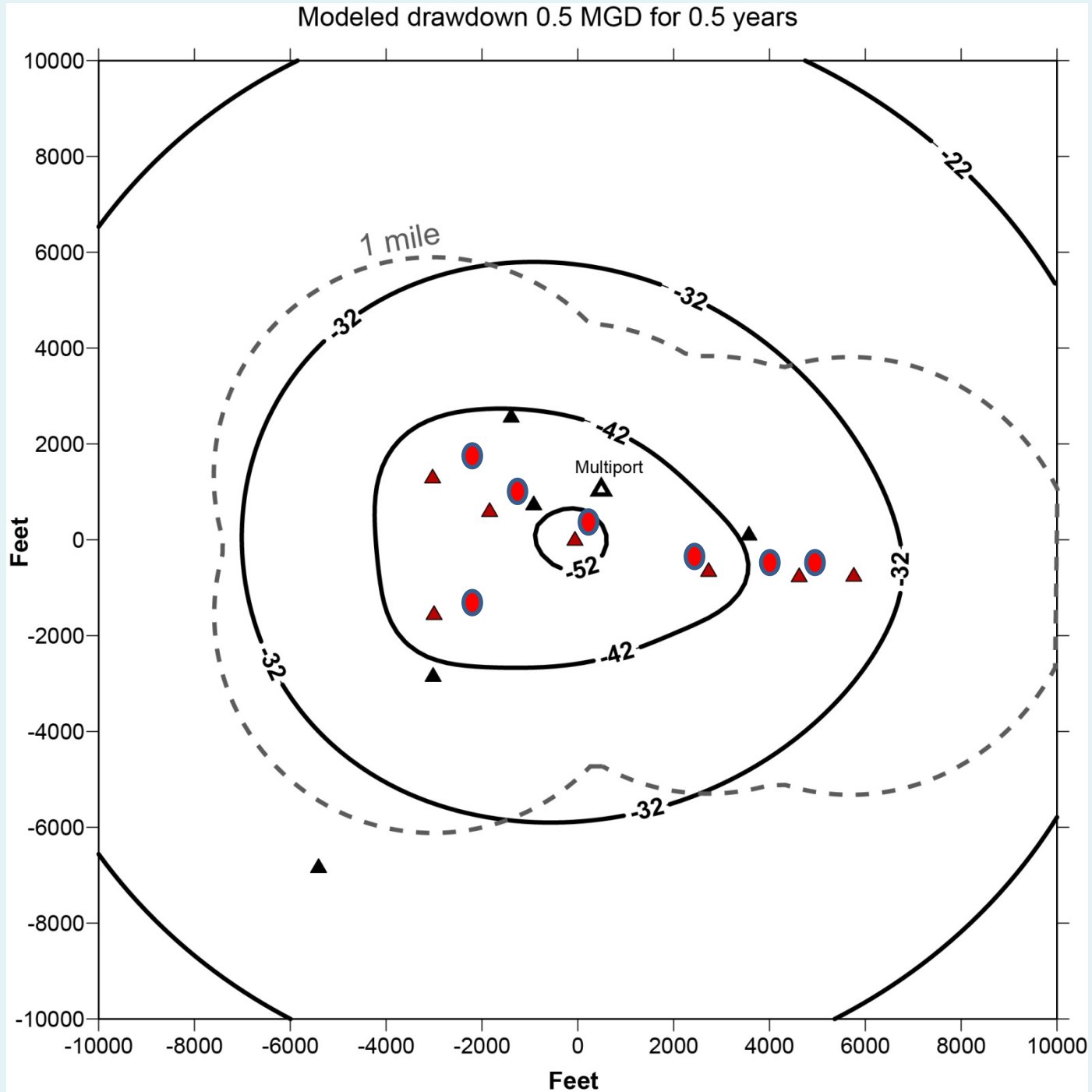


# EP Aquifer Testing 2016 - 2017

- Pumping of each well prior to BSEACD involvement
- Under BSEACD supervision, pumping of 3 wells for 5 days each with packer and extensive monitoring
- BSEACD evaluation of pump-test results
- BSEACD published 3 reports on results and interpretations
- Led to determination of potential for unreasonable impacts with 2.5 million gallons per day of pumping



# Predicted Drawdown at 0.5 MGD After 6 Months of Pumping



# Monitoring System

- During 2016-2017 aquifer test
  - 12 private wells within 2-mile radius of EP well field
    - 6 Cow Creek wells
    - 2 Lower Glen Rose wells
    - 5 Upper Glen Rose wells
- Multiport well on Limestone Lane with 14 monitoring zones
- EP converted one existing well into a Lower Glen Rose monitor well and will drill two new monitor wells
- 5 wells will be configured with telemetry systems with data posted continuously on internet

# Evaluation Process

Following 6 months of pumping at 0.5 MGD,  
then 3 months of evaluation

## Questions to be answered:

- Will the current rate of pumping likely lead to unreasonable impacts?
- Will the next phase of pumping likely lead to unreasonable impacts?
- Review of data from monitoring wells
  - Comparison of current data with previous data and model results
  - Running models with new data
- Publication of results of evaluation
- Make recommendation to General Manager

# ***The District's goal is to manage total production while avoiding unreasonable impacts***

## **Non Speculative Demand**

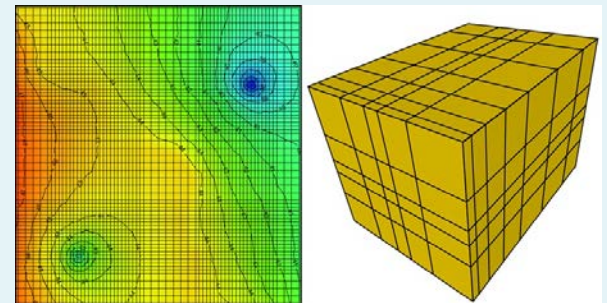
Beneficial Use  
Reasonable Use

## **Local Evaluations**

Aquifer Tests  
Well Monitoring  
Data Collection & Evaluation  
Analytical Models

## **Regional Evaluations**

Desired Future Condition  
Groundwater Availability Models  
Conceptual, Numerical, Analytical Models



# “unreasonable impact”

- Not all drawdown is “unreasonable”
- Depends on **certain factors**:
  - mainly the **use type** and **magnitude** of the intrusion
  - The practicality of **avoiding** negative effects
  - Aquifer **conditions** and **drought**
- **Some level of reasonable drawdown must be allowed.**

# We Considered Unreasonable Impacts

Yes we found a potential for unreasonable impacts (local well interference)



Undesired effects such as local well interference:

- decreased water levels
- pumping yields or rates,
- lowered water levels below pump intake zones

**Draft Permit** – will reassess new data and evaluate potential unreasonable impacts, aquifer responses, and monitoring data before advancing.



Undesired effects such as a changes in aquifer conditions over the long term related to:

- Water quality;
- springflow or baseflow
- the Desired Future Condition (DFC);
- depletion of groundwater supply over a long-term basis
- subsidence



## Why did we go with special conditions and phasing?

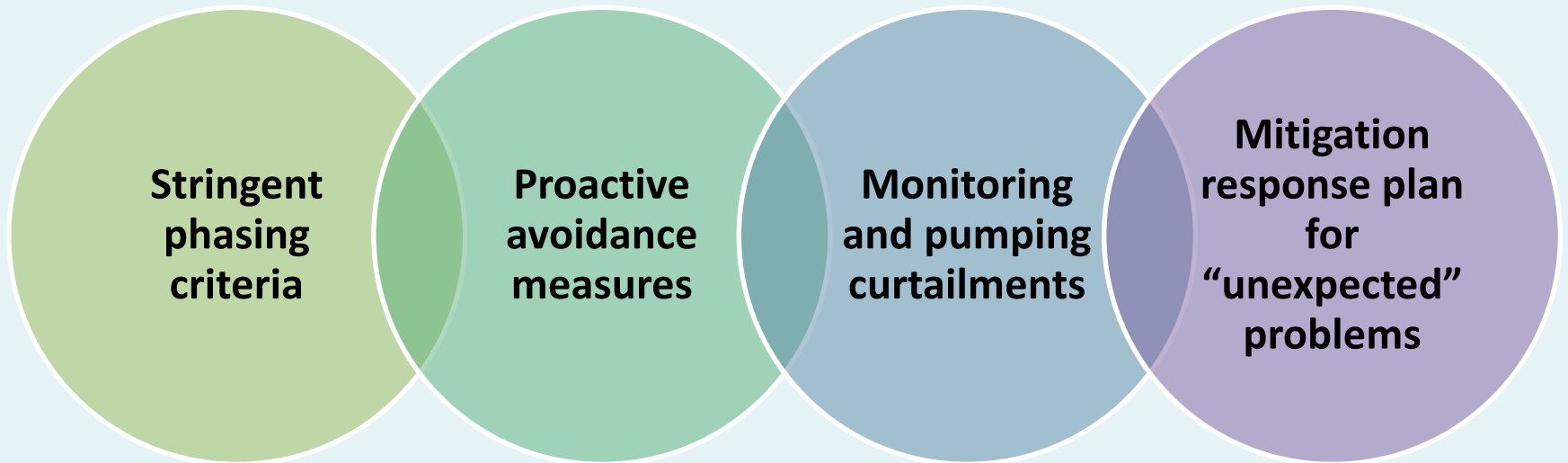
- Evaluations found potential for unreasonable impacts (wells). **Avoidance measures prevent those impacts.**
- **Inherent uncertainty** in models and complex hydrogeology.
- Preferred approach is to **rely on the actual data** and built in **adaptive management** .



# “How will I be protected?”

This permit is designed to be protective of all wells

BSEACD will not allow your well to go dry  
or your water quality to deteriorate



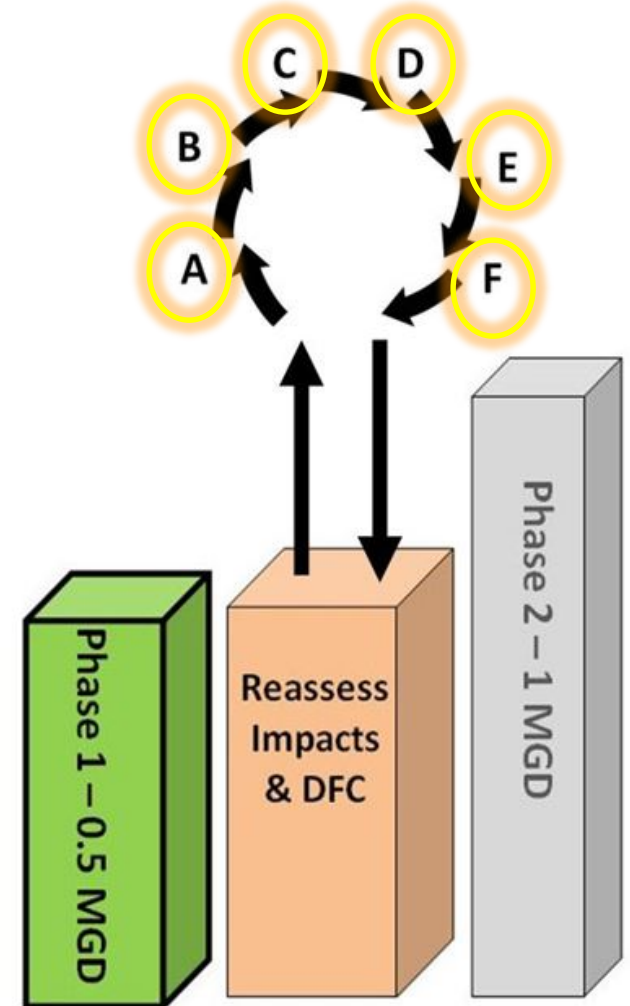
BSEACD will not allow the aquifer to be dewatered

This permit was designed with your well in mind

# Rely on Best Available Science to Reassess

F – General Manager may approve or deny authorization for next phase

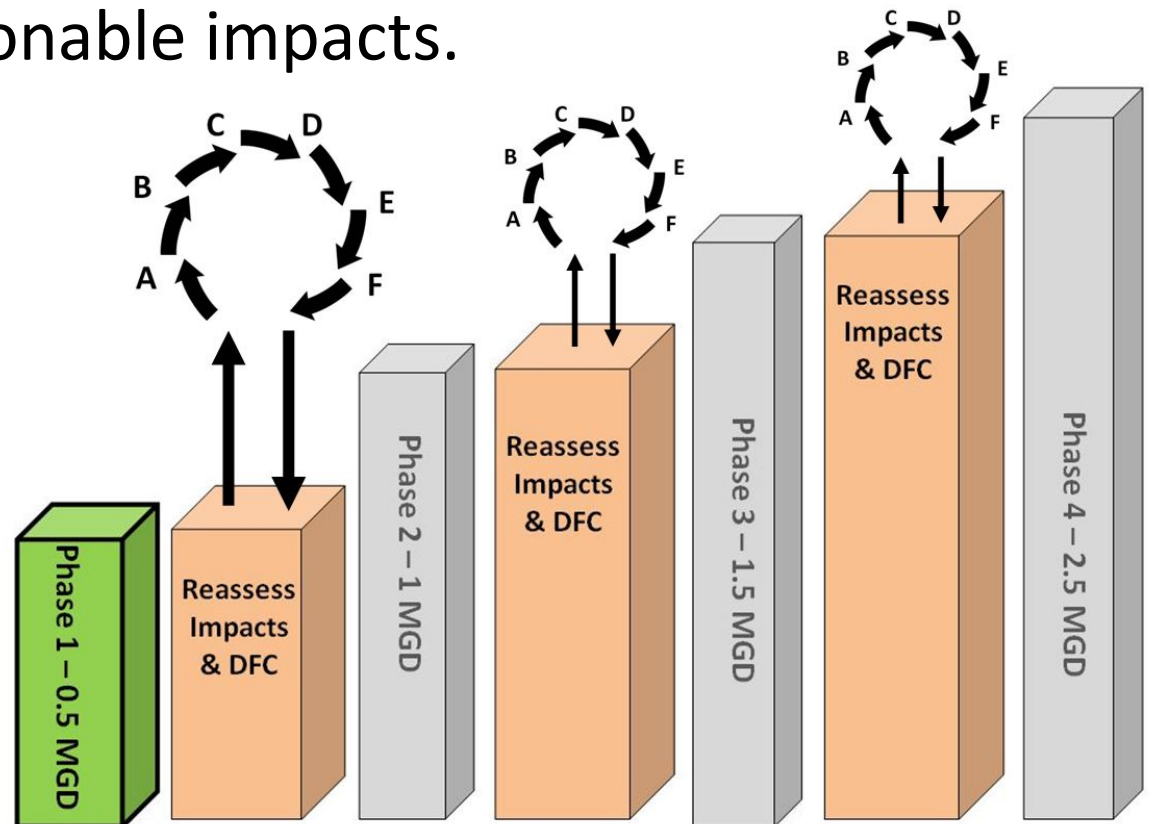
This is a conditionally phased permit that only authorizes an initial Phase 1 volume of 0.5 MGD. The permit allows for the GM to consider authorizing additional phases up to 2.5 MGD, conditioned on the applicant satisfying specified criteria.



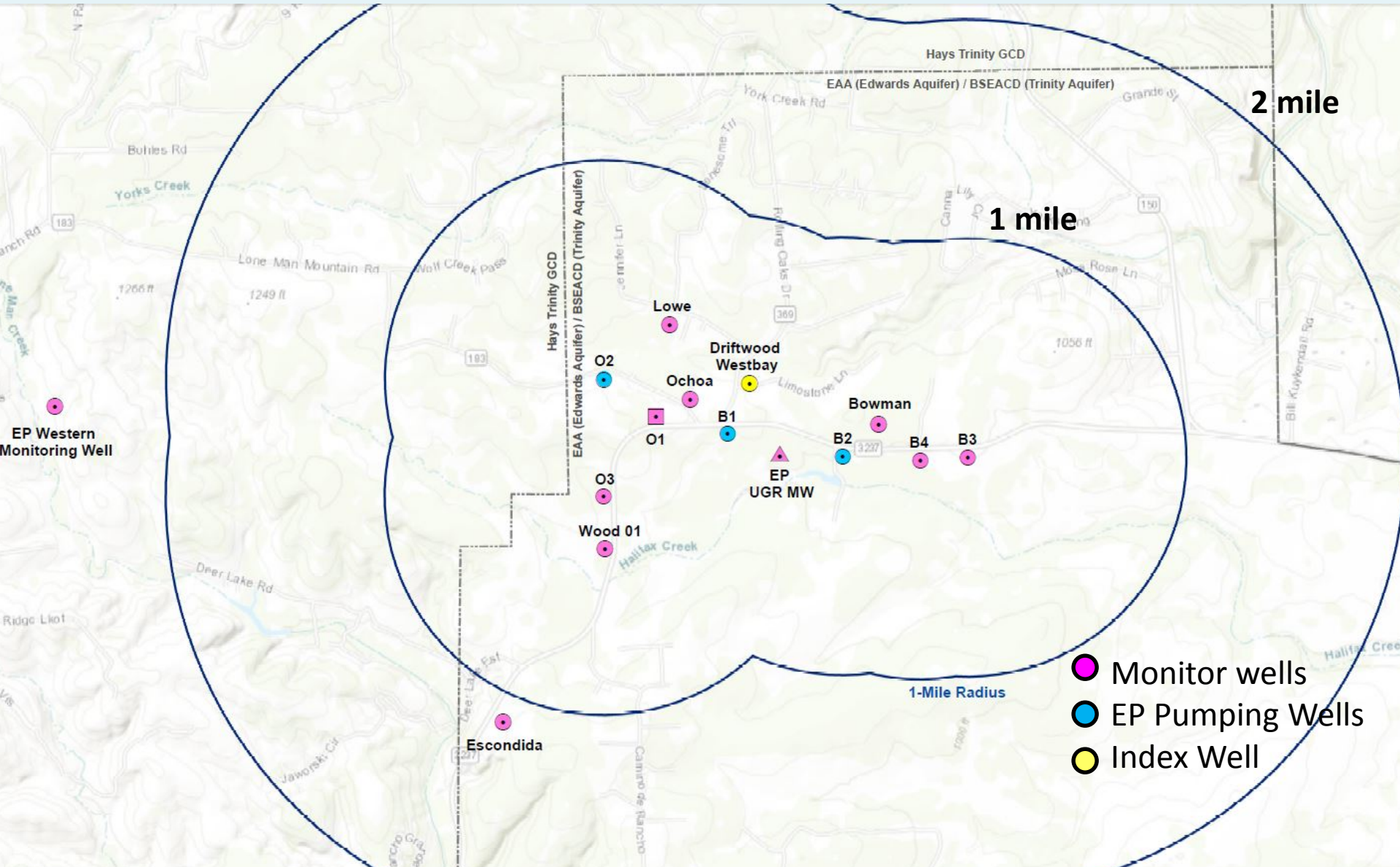
# Use Adaptive Management to Adjust this Permit

Additional volume increases are **not guaranteed or reserved**

The **GM will not authorize additional phases** if the best available **science indicates a high risk** for long-term unreasonable impacts.



# Monitor Network – monitoring water levels and water quality in your community



# Well Owner Protections

<b>Avoidance</b>	<b>Mitigation</b>
<b>Proactive actions:</b> pump lowering, replacement well	<b>Reactive actions:</b> pump lowering, replacement well
<b>Prior to the start of Phase 2 pumping (1.0 MGD)</b>	<b>Mitigation is available from day one. It is there for anytime a problem arises.</b>
<b>Inside the 2 mi radius</b> (2 mi -Cow Creek wells) (1 mi - Lower Glen Rose Wells)	<b>Anywhere a problem arises (inside or outside of District)</b>

# “Avoidance” - proactive, protective actions implemented before anticipated problems occur

- **Why** – impacts are not anticipated in Phase 1, therefore avoidance is not necessary until its time to go to Phase 2
- **When** – protective actions will take place before advancing to Phase 2 (1.0 MGD) pumping
- **Where** – inside the mapped impact areas (2mi, 1mi)
- **What/How** – lowering pumps below deepest trigger, replacement wells, deepening wells if that is feasible
- **Who** – a local reputable well contractor, approved by the District and paid for by EP, will perform the work

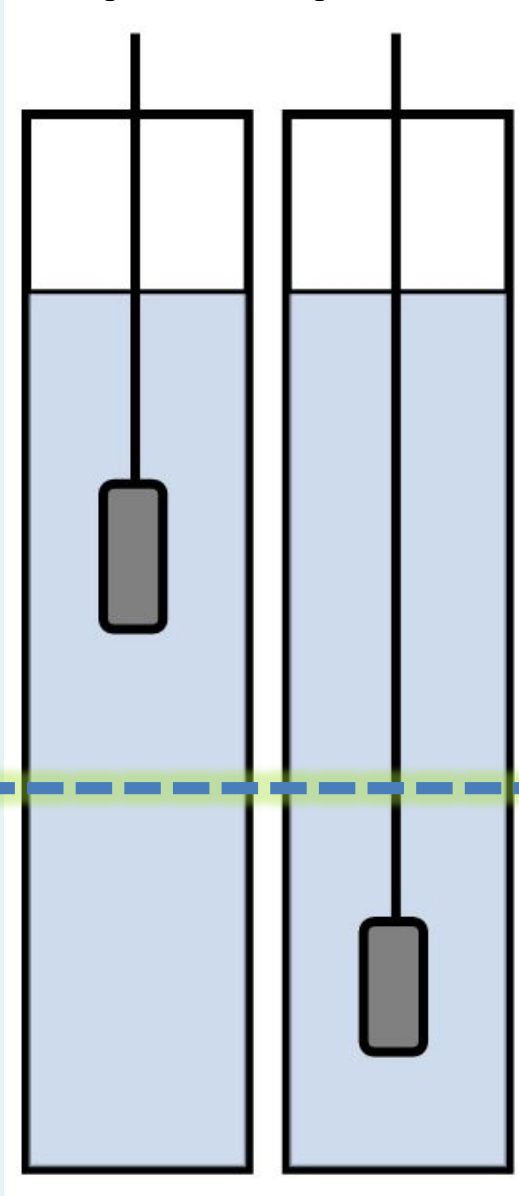
**“Avoidance”** - proactive, protective actions implemented before anticipated problems occurs

Your current pump setting

(Lower Glen Rose or Cow Creek)



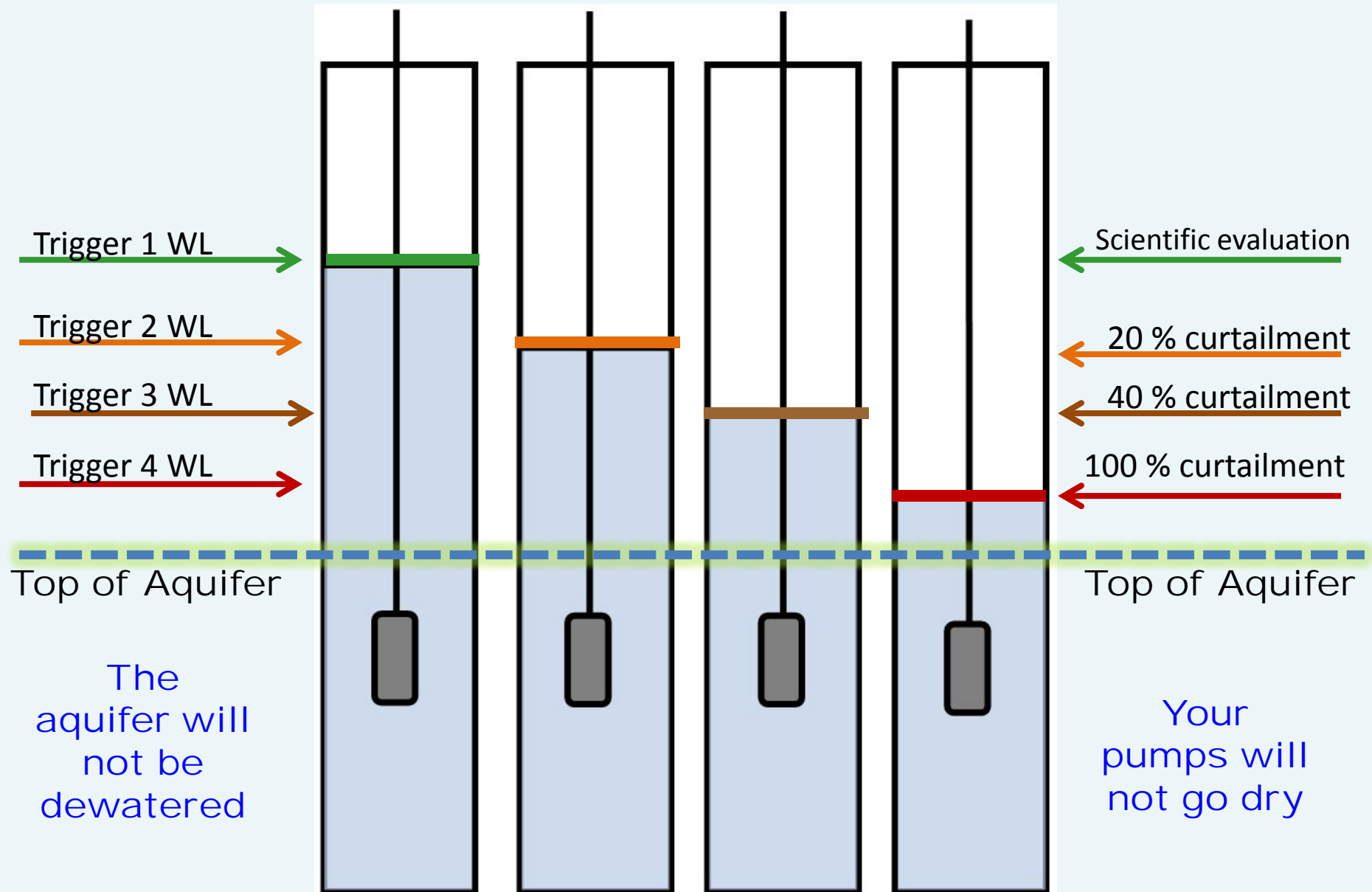
Top of Aquifer



Your pump setting proactively lowered, deepened, or new replacement well

**EP is required to cover the expense for this work in full**

# Protecting the Aquifer and Your Wells Through Curtailments

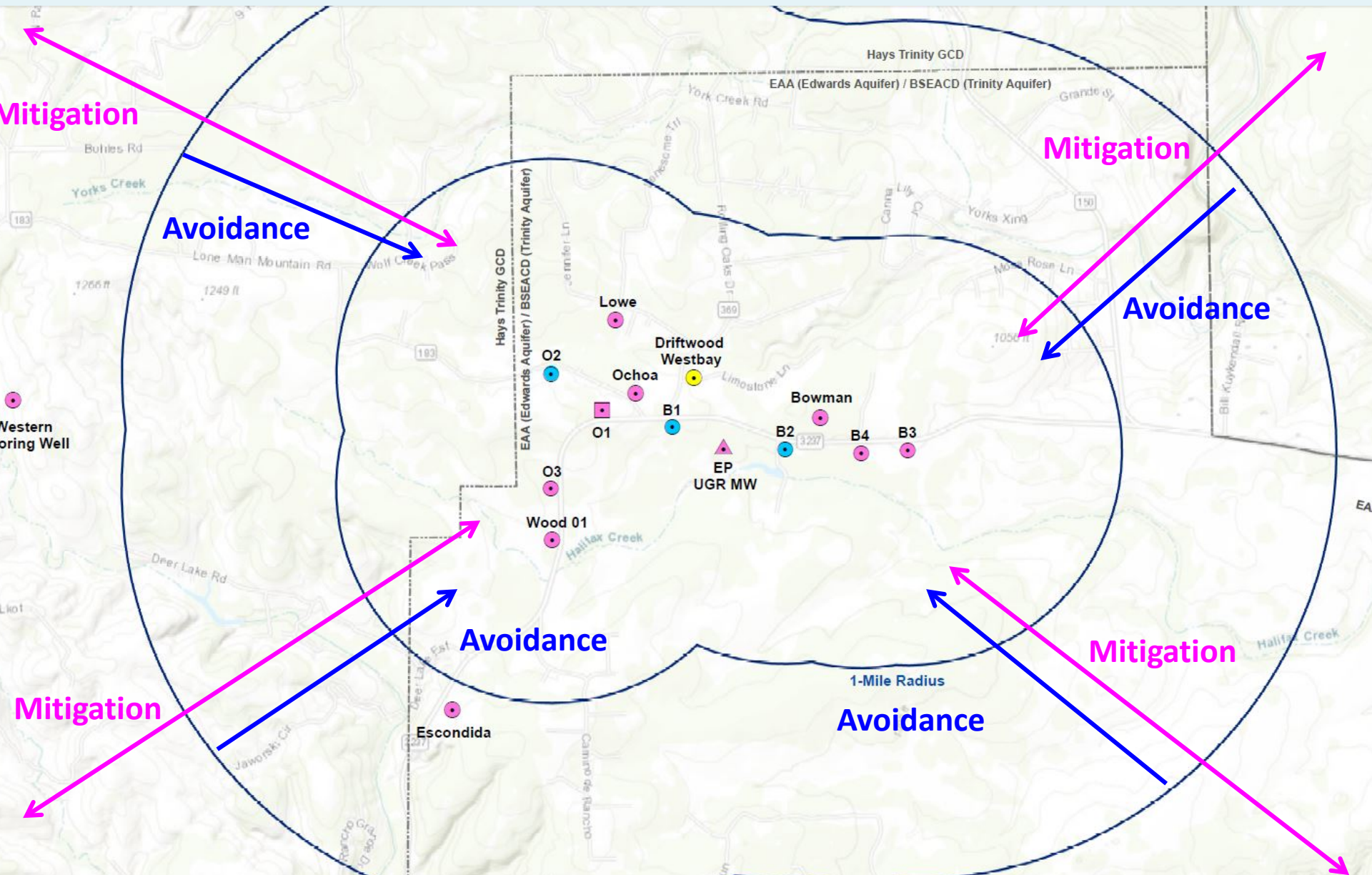




# “Mitigation” – **Reactive**, response actions implemented in case unanticipated problem arises

- **Why** – while impacts are not anticipated outside the impact area, or in shallow Upper Trinity Wells, we will have **a contingency plan in place for the unexpected & unanticipated**
- **When** – **at anytime during the life of the permit**, there will be reactive measures in response to unanticipated problems
- **Where** – **anywhere impacts can be attributed to EP**. That includes wells outside the mapped impact areas (beyond 2 mi)
- **What/How** – **lowering pumps, replacement wells**, deepening wells if that is feasible... also arrangements for **immediate temporary water supply will be considered**
- **Who** – a local reputable well contractor, approved by the District and **paid for reimbursed by EP**, will perform the work

# Whether you are inside or outside the “impact area” you will be protected



# *We can only help you, if we know about you*

Well Registration at [www.bseacd.org](http://www.bseacd.org)

<b>Myth</b>	<b>Fact</b>
<b>The District will try to meter and control my usage.</b>	<b>Exempt uses don't require meters or permits</b>
<b>The District will come onto my property any time.</b>	<b>Staff requests access days in advance and investigating conditions of pollution or waste.</b>
<b>The District will make me upgrade my well to current construction standards.</b>	<b>No upgrade is required unless well is deteriorated or substantial alterations to the well are made.</b>

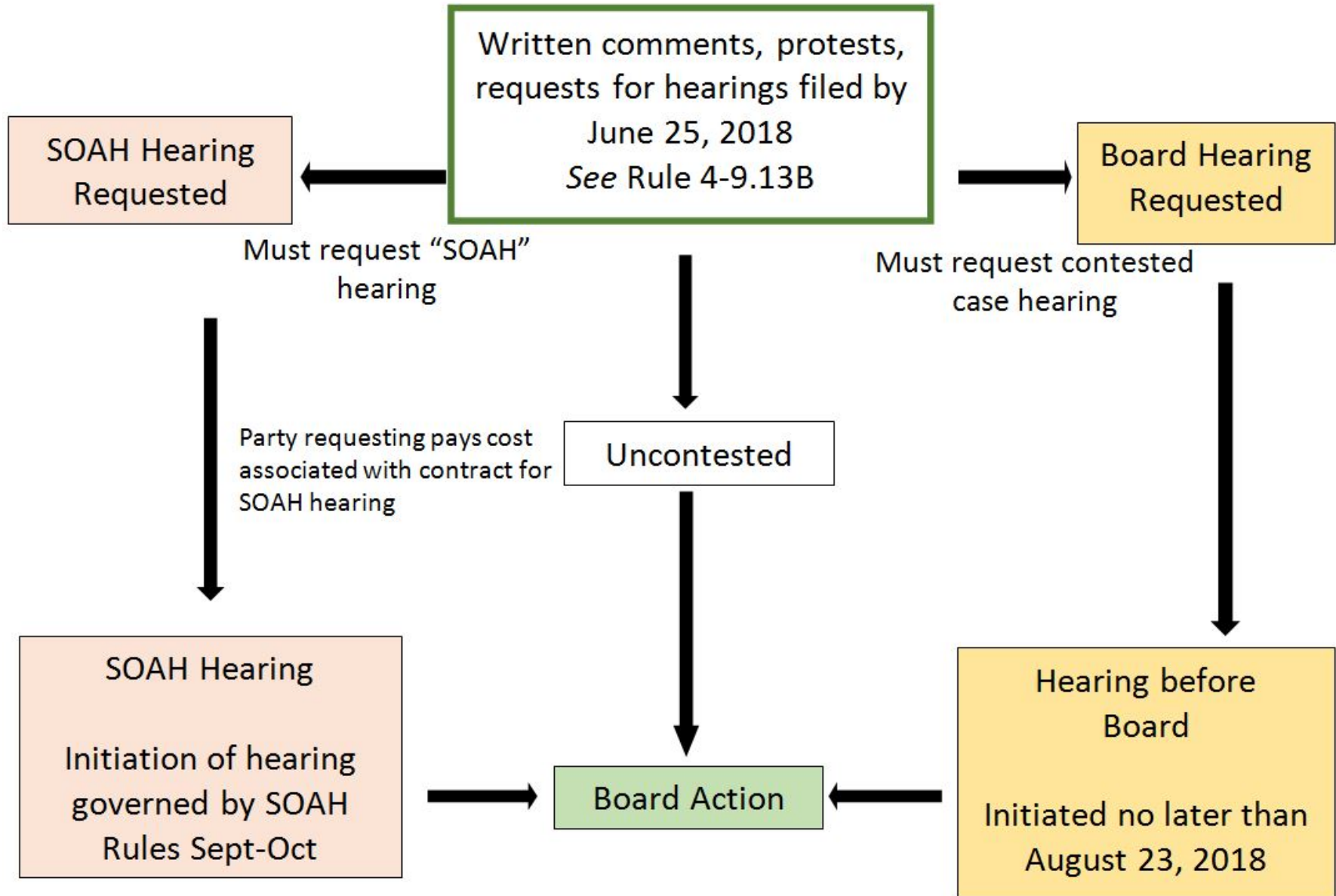
# Public Comment Period:

Get your written comments to BSEACD  
by **Monday June 25<sup>th</sup>**.



Submit comments in writing to:  
[bseacd@bseacd.org](mailto:bseacd@bseacd.org) or  
1124 Regal Row, Austin TX 78748

## Administrative Process – Next Steps



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**We are available to answer any of your questions, here is how you can contact us:**

**512-282-8441**

**Submit your questions on an  
index card now.**

**1 question per card.**

**\*\* 15 minute BREAK \*\***



# Meeting Guidelines – Q&A Session

- Questions will be grouped and answered by topic.
- Listen respectfully during the answers.
- Time at the end to ask questions not covered.

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