



# Heisman Area SWD Injection Forecast and AOR Determination Model Pilot Water Solutions

January 2026

## Key Model Inputs and Setup

- Area of Review (AOR) is determined using a single injection forecast model developed to represent forecasted operational conditions for the Heisman Project Area.
- Layer cake model was selected to represent laterally continuous San Andres stratigraphy consistent with regional geologic conditions in the Hobbs Channel.
  - Proportional layering implemented in the model with an average cell thickness of 6.5' at site location
  - Petrophysical data from nearby wells are used to populate the rock properties in each layer
- Historical injection rates and pressure behavior from offset San Andres SWDs were incorporated.
  - Help to calibrate injection forecast inputs and operational constraints.
  - Simulate potential pressure influence on injectate AOR.

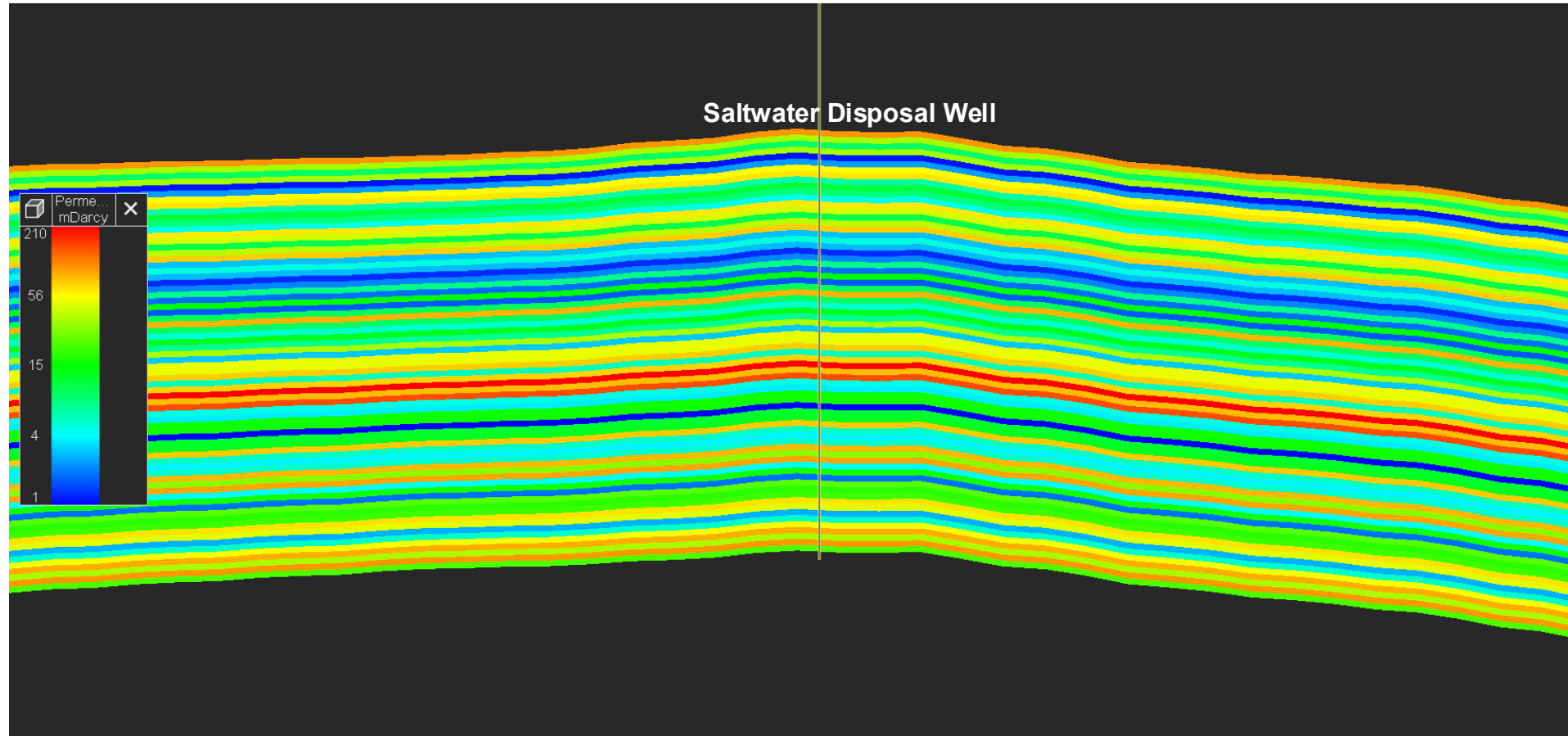
Inputs	Values
Average Porosity (%)	8.8
Average Permeability (mD)*	36.2
Initial Pressure Gradient (psi/ft)	0.36
Fracture Gradient (psi/ft)	0.70
Temperature Gradient (°F / 100')	1.2
Brine Salinity (ppm)	200,000 ppm

\*Injectivity derived permeability



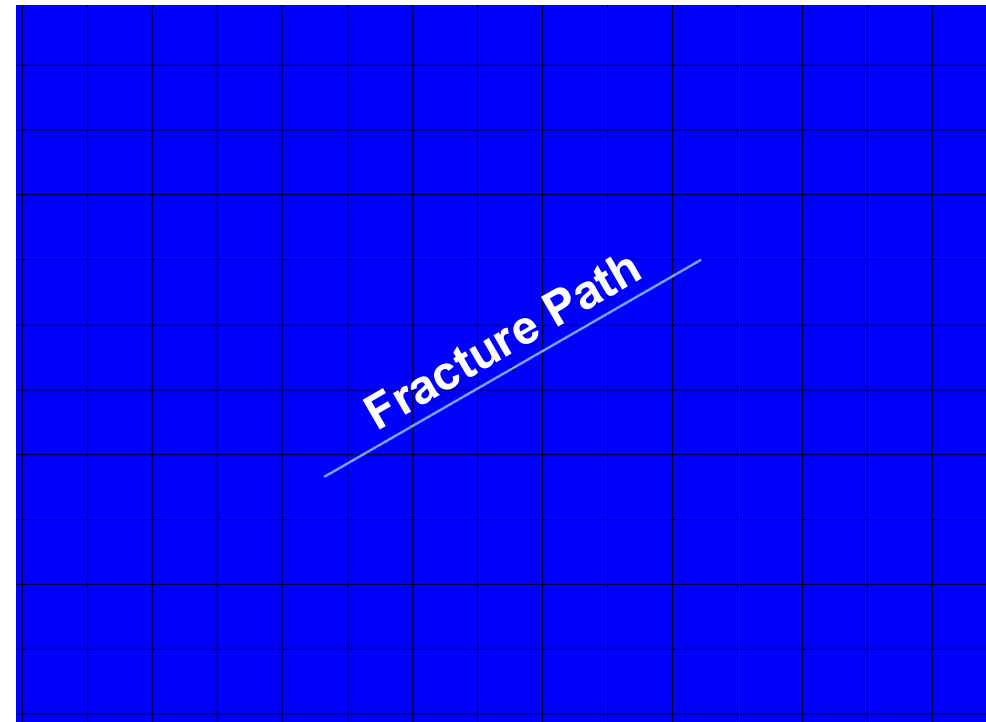
# Permeability Cross-Sectional View

- Representative cross-section through modeled San Andres interval
  - Permeability ranges from 1 mD (blue) to 210 mD (red)



## Model Parameters – Numerical Fractures

- Numerical fractures were included to represent near-wellbore flow behavior and do not represent fracture propagation beyond the injection interval.
- Biwing fractures used to simulate flow around wellbore.
- Fracture Parameters
  - Fracture Half-Length = 1,000 ft
  - Fracture Height = ~450 ft
  - Fracture Permeability = 1,000 mD
  - Orientation = 30°





# Model Results

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## FORECASTED SWD OPERATIONS

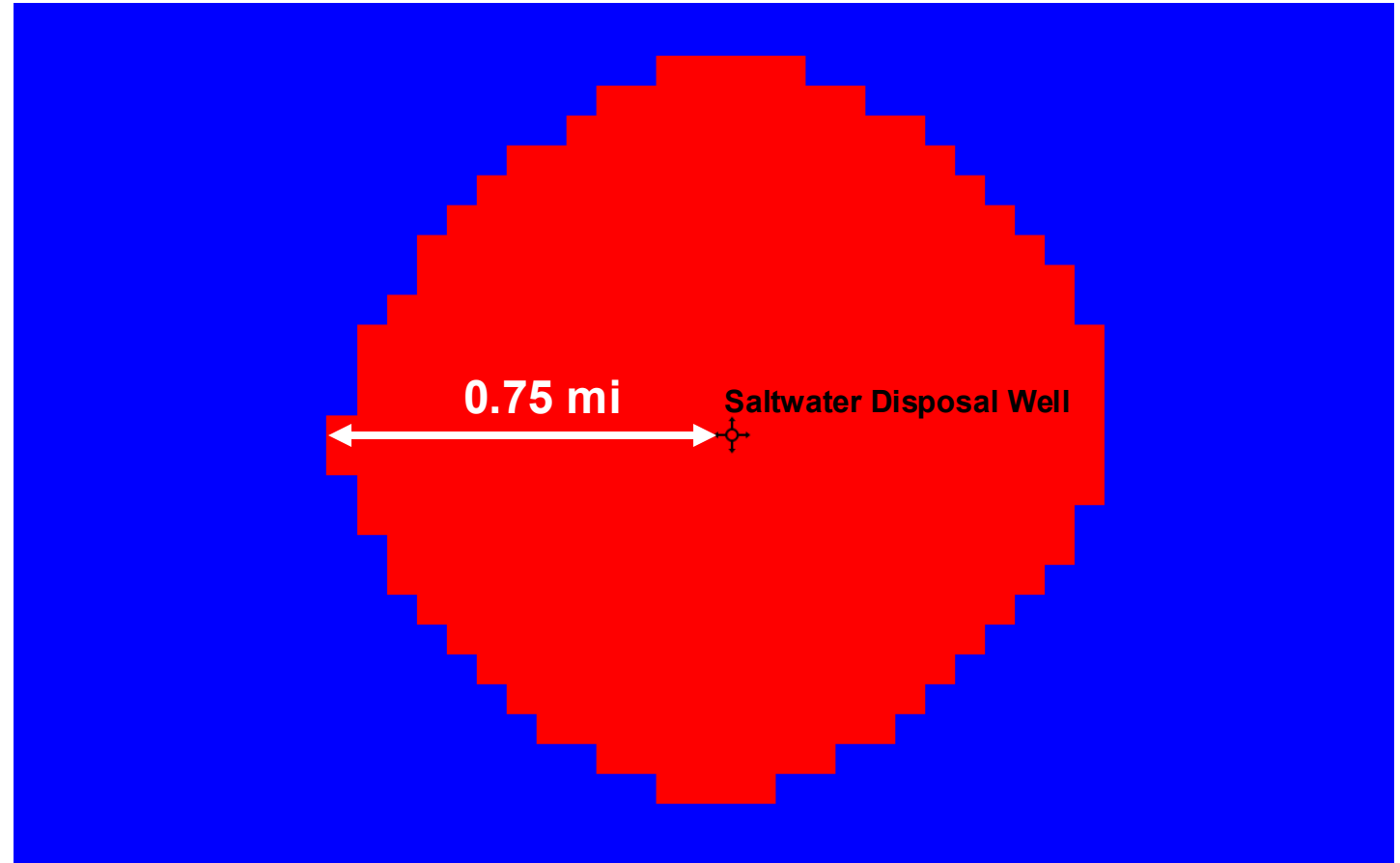
## Model Results Summary

- Primary Goal: Determine the permit AOR from a 20-year injection forecast.
  - Injection forecast was developed to represent current operating conditions of San Andres SWDs permitted at up to 25,000 bwpd.
  - Forecasted injection volumes and rates were used to determine the future estimated Area of Review (AOR).
  - Results are derived from a Layer Cake reservoir model representing laterally continuous San Andres stratigraphy.
  - The model simulates approximately 53 MMbbl of cumulative injection into a single disposal well over the modeled life.
    - Total injection volume is based on observed operational demand from 43 active San Andres SWDs.
    - Injection forecast representative of current operating conditions for existing San Andres saltwater disposal wells permitted at up to 25,000 bwpd and use this forecast to determine the appropriate Area of Review (AOR).



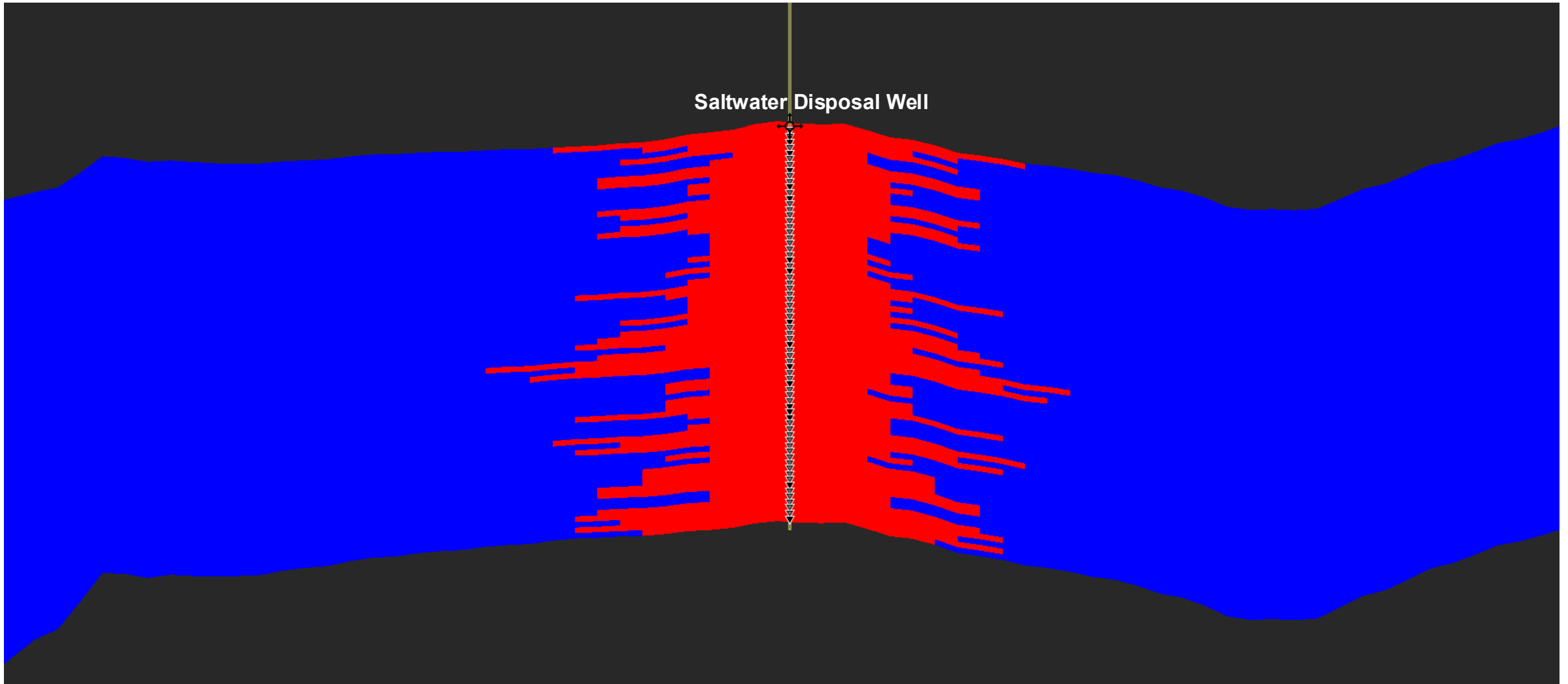
## Modeled Maximum Injectate Plume Extent

- Modeled injection scenario represents a single disposal well operating under forecasted conditions.
- Radius = ~0.75 mi
  - Furthest distance from injecting well.
- The modeled maximum injectate plume extent under forecasted operational conditions is approximately 0.75 miles from the injection well.
  - Encompasses ~940 acres





# Injectate Plume Cross-Sectional View



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**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 578932

**CONDITIONS**

Operator: NEW MEXICO ENERGY MINERALS & NATURAL RESOURCE 1220 S St Francis Dr Santa Fe , NM 87504	OGRID: 264235
	Action Number: 578932
	Action Type: [IM-SD] Admin Order Support Doc (ENG) (IM-AAO)

**CONDITIONS**

Created By	Condition	Condition Date
pgoetze	None	4/24/2026