



February 22nd, 2011



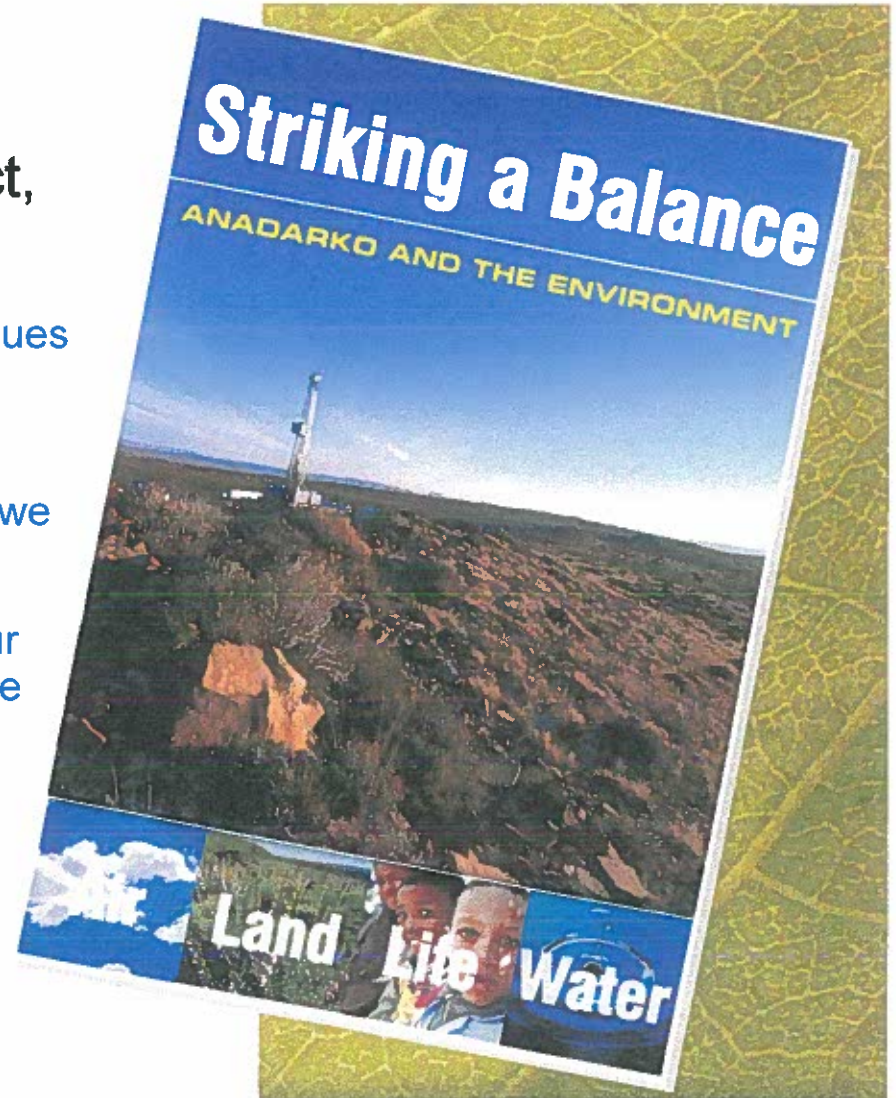
**COGCC Presentation**  
***Anadarko Seismic Operations***  
***Greater DJ Basin, Colorado***

**Anadarko Petroleum Corporation**

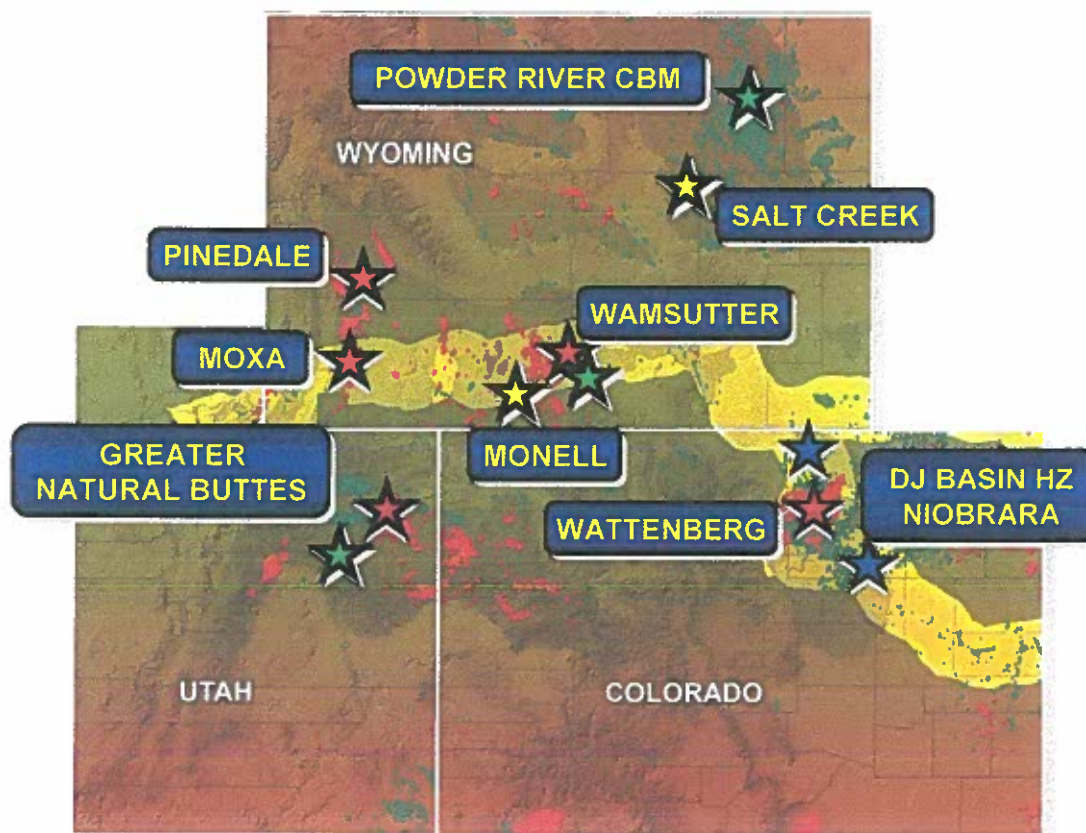


# Committed to Safety & Environment

- A Safety-First Culture is a Way of Life at Anadarko
- When Undertaking a New Project, We:
  - Work to understand the environmental issues and cultural considerations of an area
  - Create a balanced plan to protect and minimize the footprint on locations where we operate
  - Adhere to the stricter of two standards: our own policies and principles or county, state and federal regulations



# Anadarko in the Rockies



- Top 5 largest producers in Rockies
  - 60,000 BOE/d net production in Colorado from 9,500 wells
- 1,700 employees and over 2,000 contractors
  - 900 employees in Colorado
- Invested \$4B (2007 – 2009)
  - Invested an estimated \$500 MM in Colorado for 2010
- Paid \$2B taxes, royalties, salaries (2007 – 2009)
  - \$350 MM in Colorado
- Involved in the communities of the Rocky Mountains

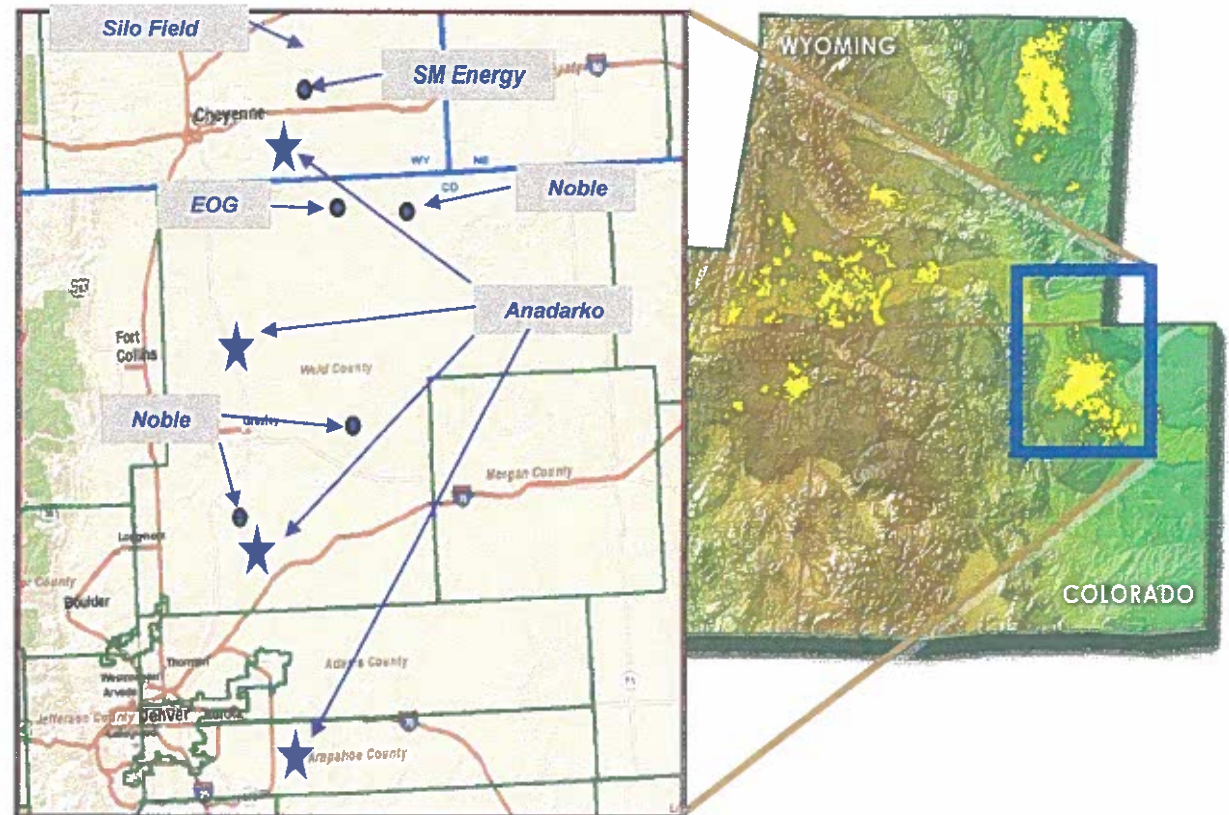
★ TIGHT GAS   
 ★ CBM   
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 ■ APC LAND GRANT



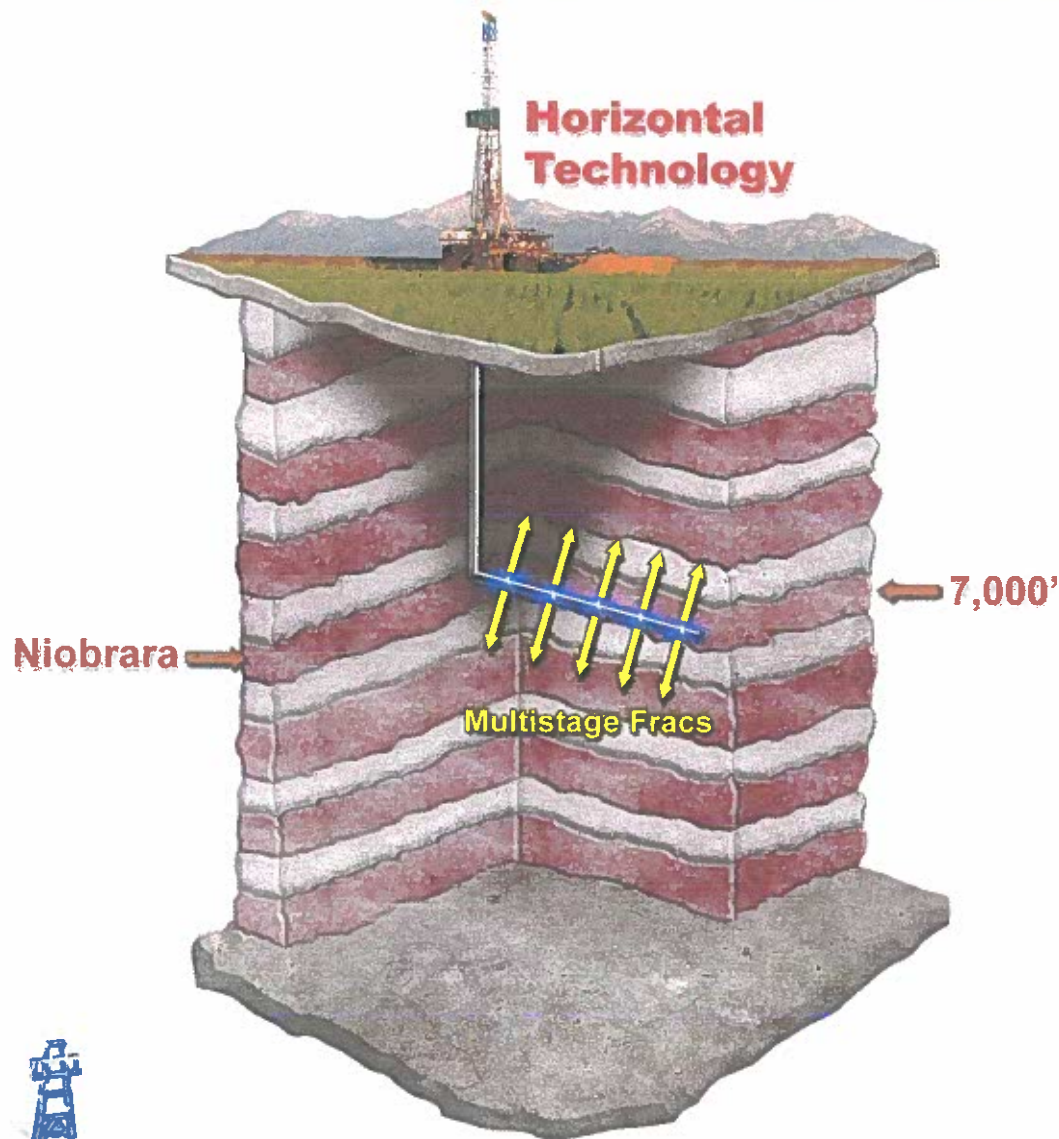


## DJ Basin Horizontal Niobrara – Continuous Resource Play

- Set off by EOG discovery well in 2009 near state line
- Still in exploration phase
- Multiple operators
- 363 approved or pending horizontal permits in Colorado, 74 drilled
- Anadarko controls 900,000 acres



# DJ Basin Horizontal Niobrara Play

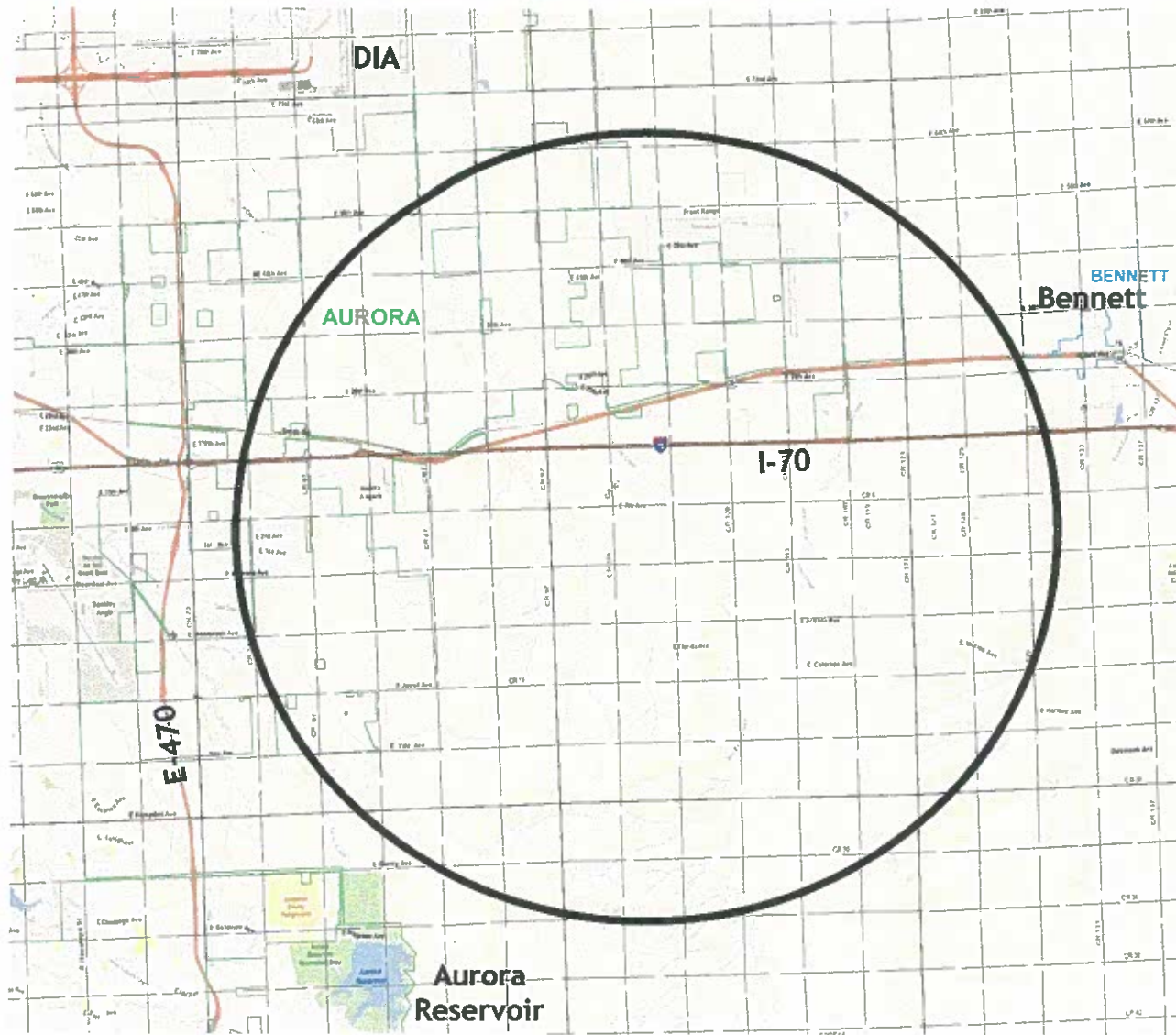


- Niobrara chalk reservoir at 7,000-8,500'
- Continuous resource play
- Hydrocarbon self sourcing
- Similar characteristics to other successful shale plays in the US
- Horizontal drilling with ~5,000' lateral lengths
- Multi-stage hydraulic fracture stimulation critical to completions





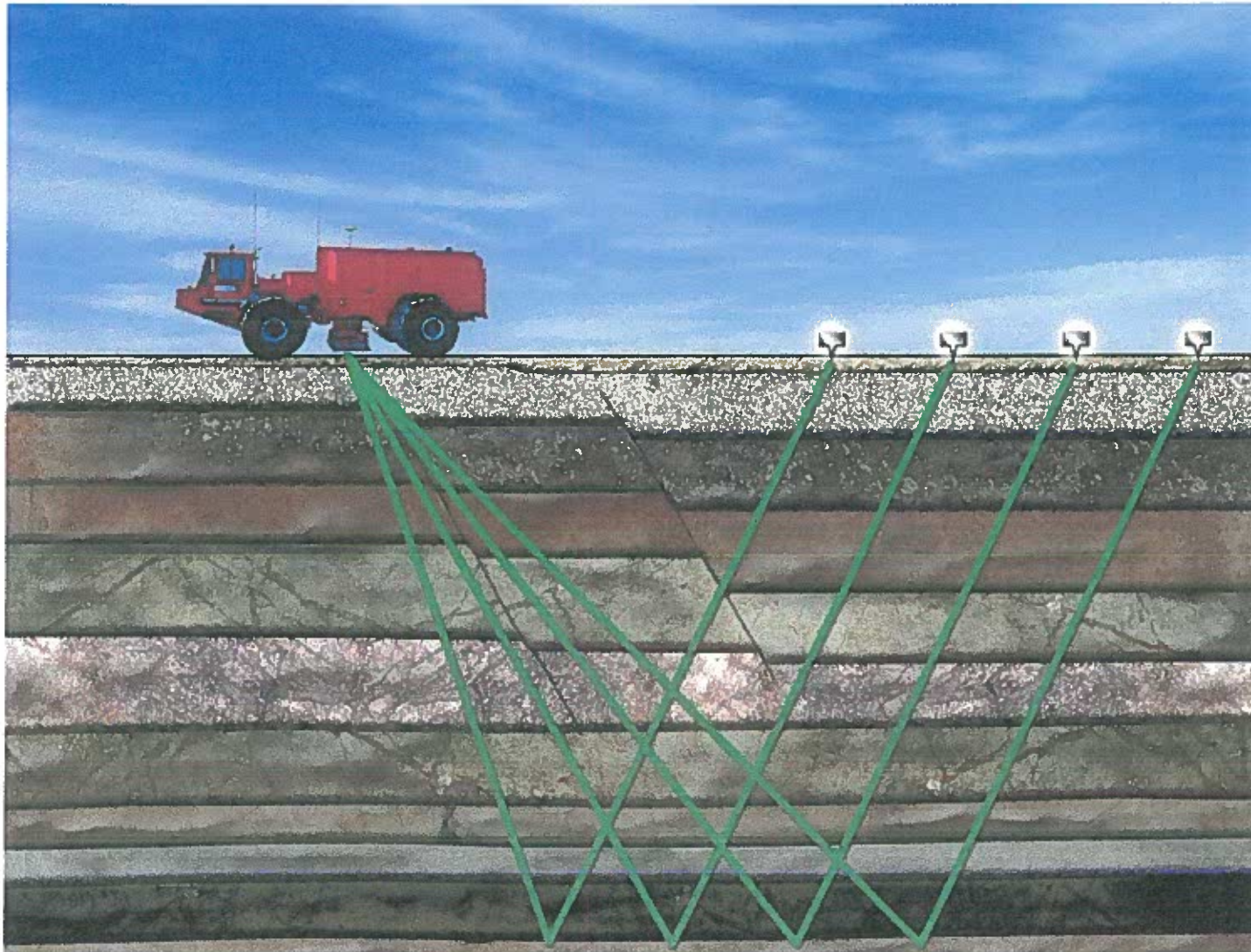
# Approximate Area of 3-D Survey



- Survey size is 144 square miles, subject to adjustments
- Surface is more than 90% rural
- Will stay on public roads or work around high density subdivisions on west side of survey



## 3-D Seismic Operations



- The vibrator truck sends sound energy into the earth
- The reflected energy is recorded by the geophone array
- Computers process the recordings for use to model the subsurface





# Low-Impact Vibrator Trucks



- Move in tandems of three along rows  $\frac{1}{4}$  mile apart
- Have soft, low impact tires
- Surface owners compensated for disturbance
- Wildlife surveys completed to ensure no impact to habitat

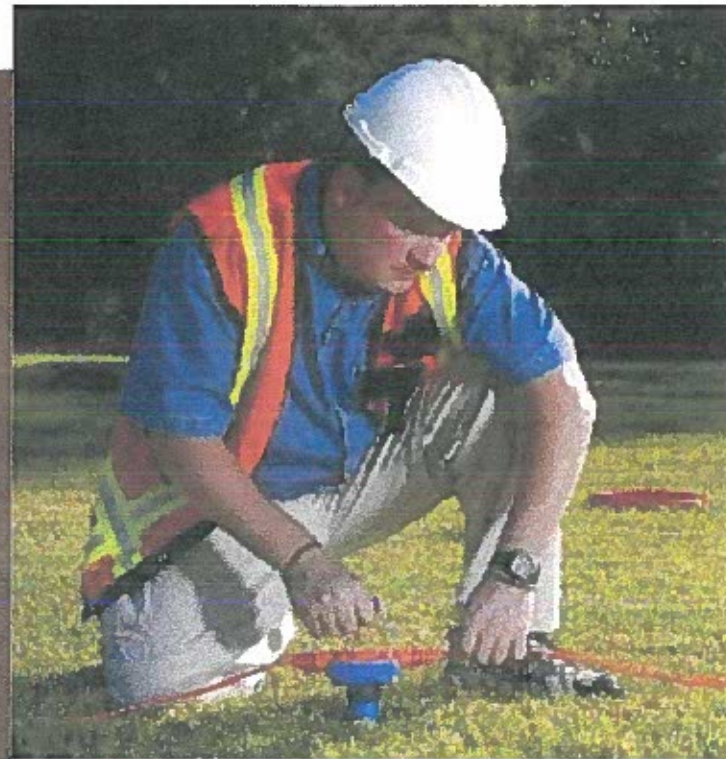




# Geophones



- Listening devices temporarily set in lines spaced quarter mile apart to record seismic reflections
- Inches across, inserted into the ground making a hole about the size of a lawn aeration hole
- Non-electrified, safe for humans and animals
- In place ahead of the vibrator trucks and removed after they pass



# Key Points Regarding Seismic Operations

- **No activity will occur before all necessary permits are secured**
- **Surface owners are compensated**
  - Approximately \$7 per acre for ranch land; approximately \$40 per home in residential areas
- **Wildlife surveys will be completed to ensure no impact**
- **Operations consist of three low-impact vibroseis vehicles**
  - Vibration is similar to the sound of a school bus
  - Soft, low-impact tires to protect surface and vegetation
- **Non-electrical geophones record sound-wave information**
  - Safe for humans and animals
- **300-foot setbacks from structures in non-residential areas**
  - Public rights-of-way used in subdivisions, and vibrating strength reduced 70%
  - Technicians will monitor vibration strength to ensure structures are protected

## Key Dates\*

- **March 1, 2011:** Surveyors begin to stake geophone locations and vehicle paths
- **Mid-March:** Seismic operations to begin on east side
- **Late-April:** Seismic operations complete



\* Dates are approximates, depending on weather and other considerations.