PCOR ANNUAL MEETING - BELL CREEK UPDATE

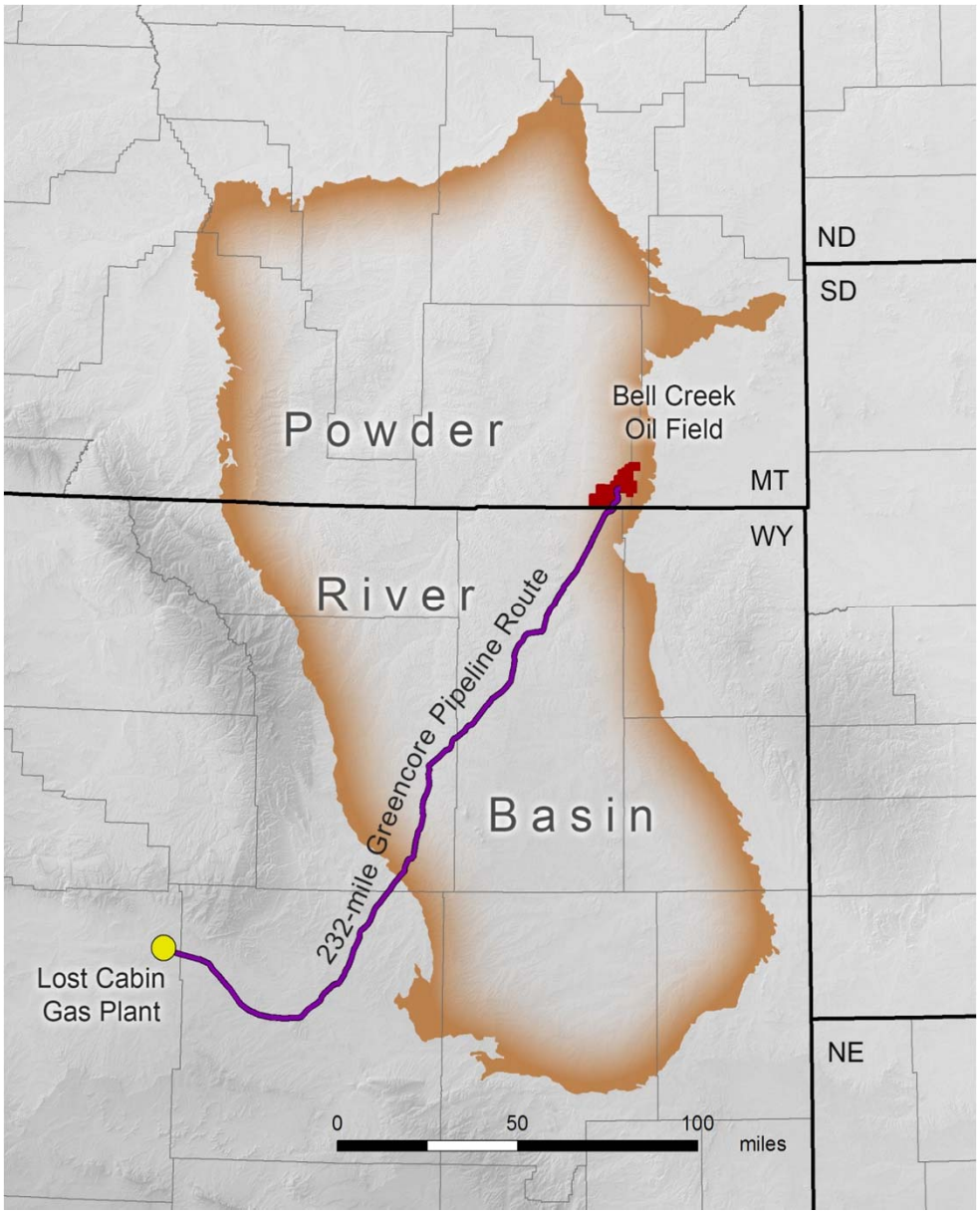
September 17th, 2014

OUTLINE

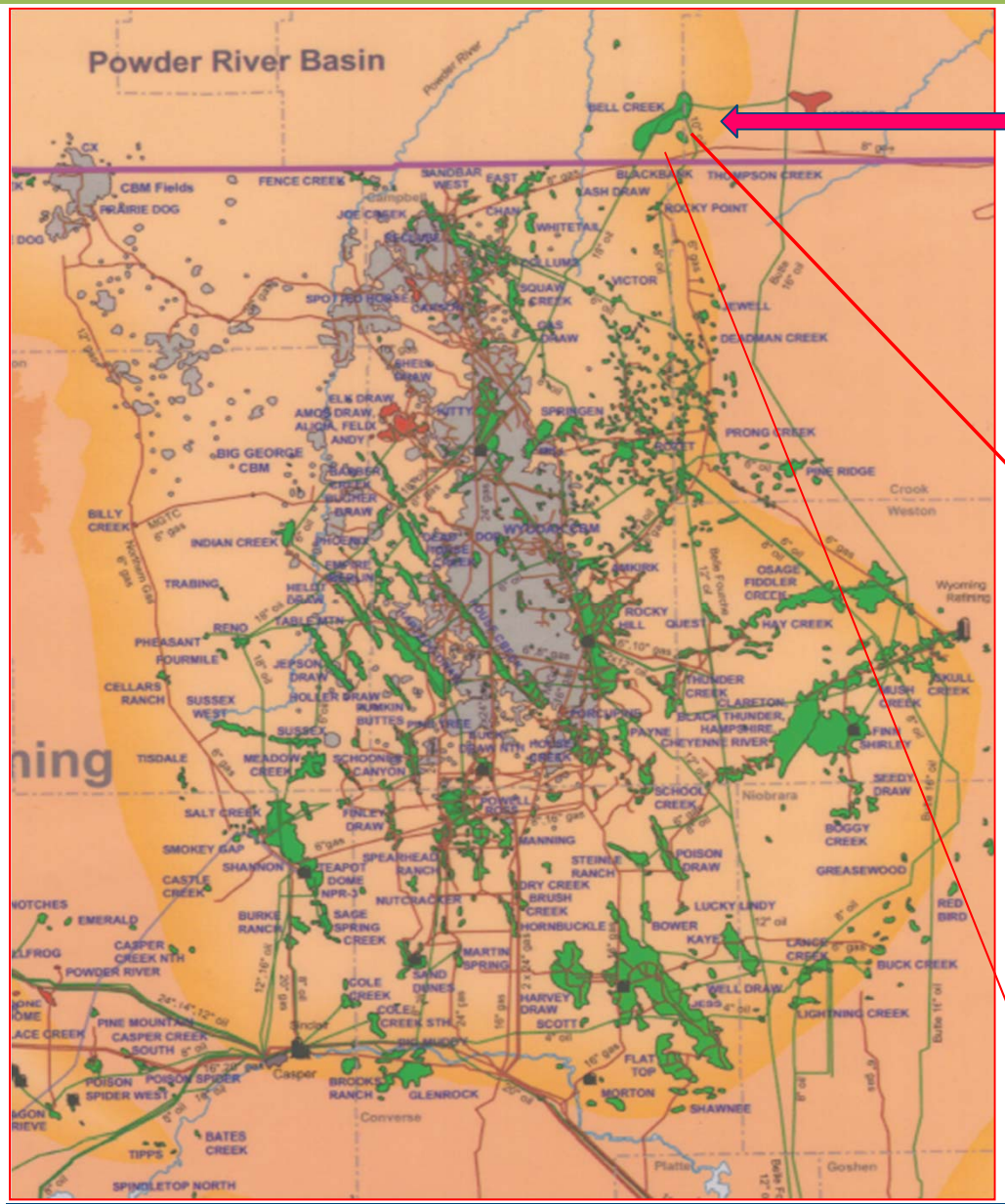
- GENERAL INFORMATION
- PHASE DEVELOPMENT
- GEOLOGY
- ACTIVITY
- PRODUCTION
- FACILITIES

Bell Creek Field - U.S. Location

Courtesy EERC



Bell Creek Field - U.S. Location



Bell Creek Field

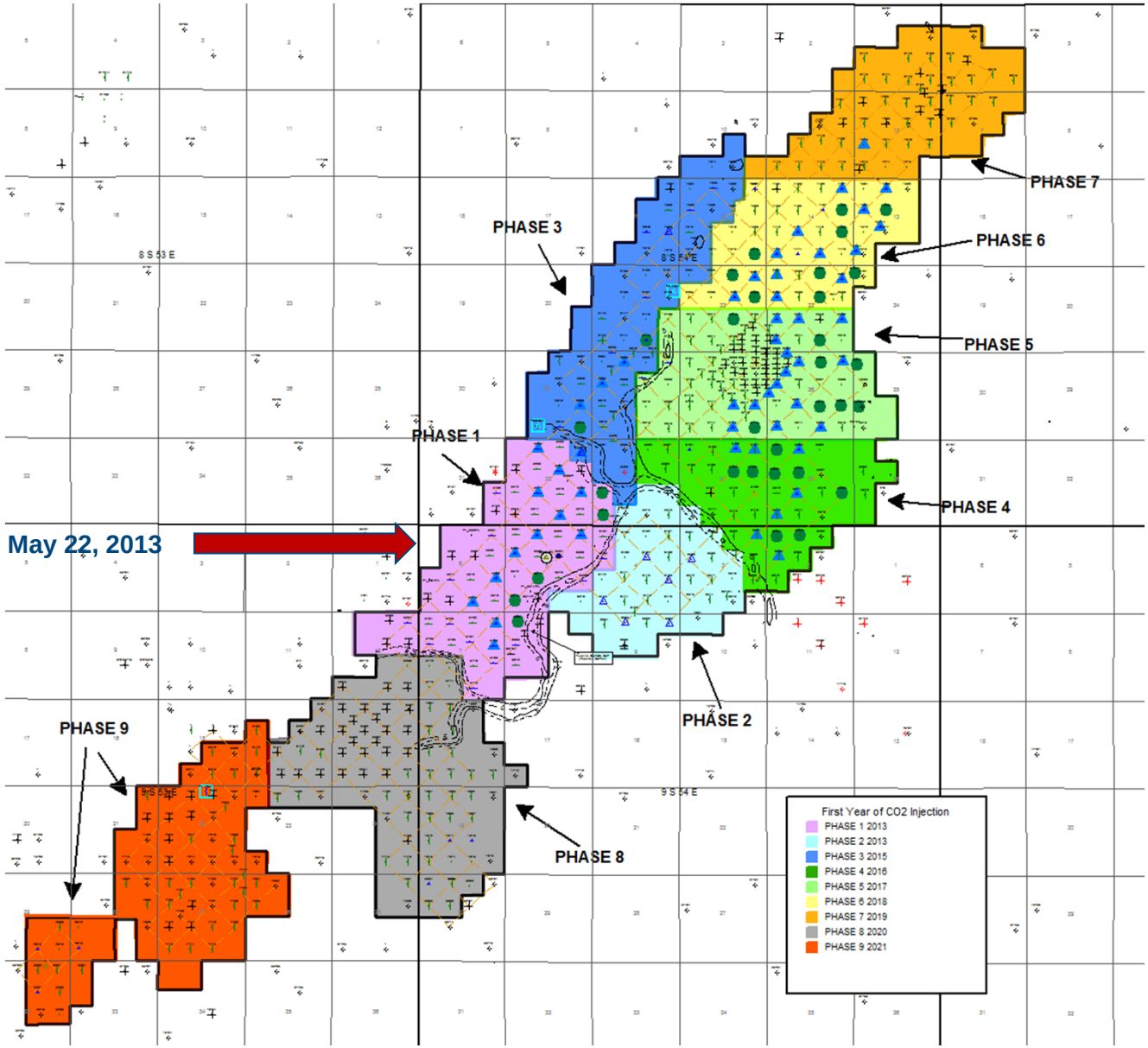
Location:

- Southeast corner of Montana
- Northern Powder River Basin
- 84 miles NE of Gillette, Wyoming

General Field Data

- Discovered in 1967 and Covers 21,771 Acres (15 x 3.5 miles)
- Peak Production of 56,000 BOPD (August 1968)
- The Muddy Sandstone (only producing reservoir)
  - Depth = 4,300-4,600 ft
  - Gross thickness = 30-45 ft (Net 15-25 ft) (1-4 lenticular sands)
  - Permeability ranges: 100-1,175 md (Up to of 3 Darcies)
  - Porosity Ranges = 20-35% (Some Loose Consolidation)
  - STOOIP = 353.5 MMBO (32-41^{o} API oil)
- Field was developed within 2 yrs with 450 producers (Unitized for WF '70, CO2 '90)
- Cumulative production totals 133.4 MMbo (37.7% recovery)
- CO_2 Flood Potential = 30-50 MM barrels oil (9-14% incremental)

Bell Creek CO_2 Phase Development Map



CO2 Injection Began May 22, 2013

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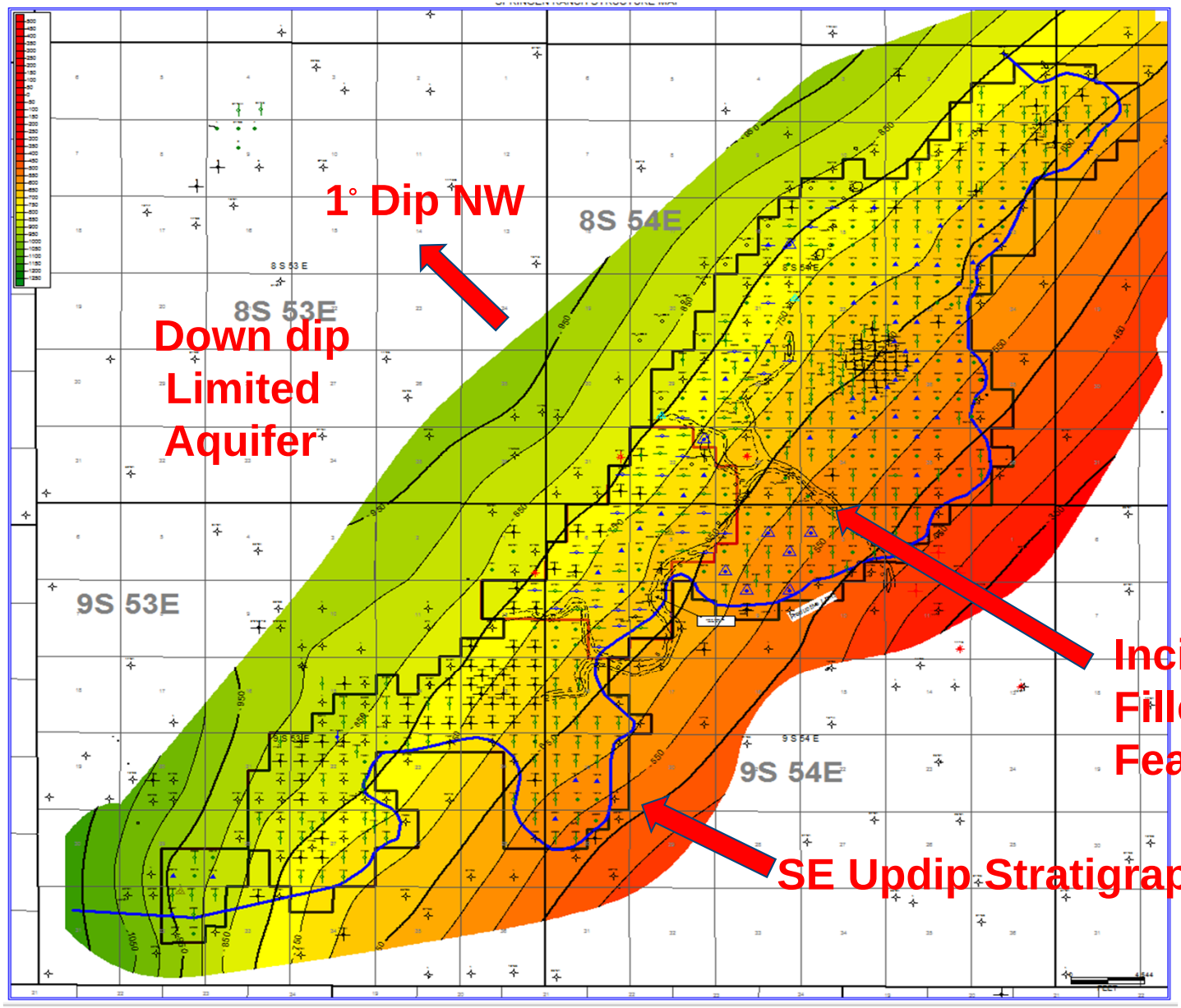
GEOLOGY

GROWTH & INCOME

Bell Creek Muddy Structure Map



Up Dip Stratagraphic Trap

KELSO
0407
T9S R54E S4

<1,881FT>

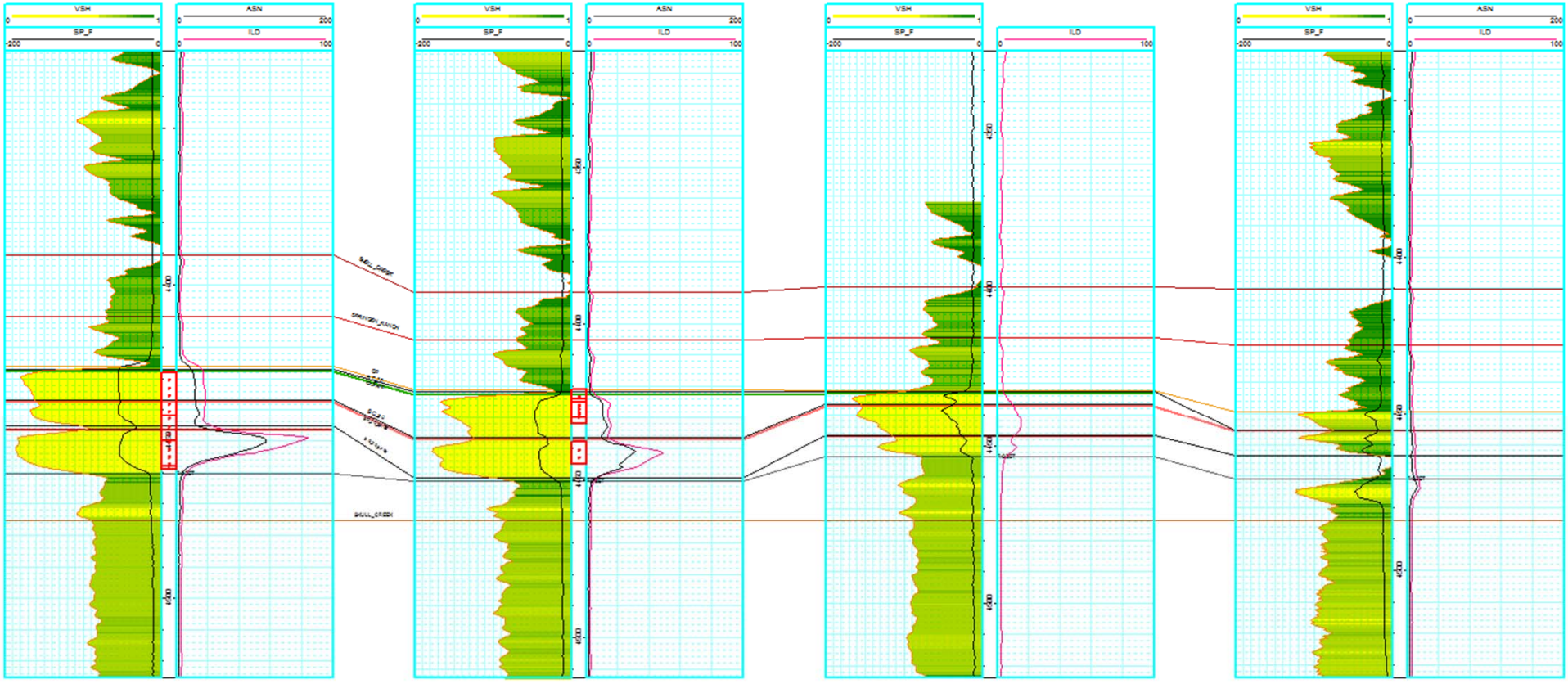
WADE WILLIAMS
0409
T9S R54E S4

<2,875FT>

UNIT C
1004
T9S R54E S10

<3,848FT>

BRUNER
1
T9S R54E S10

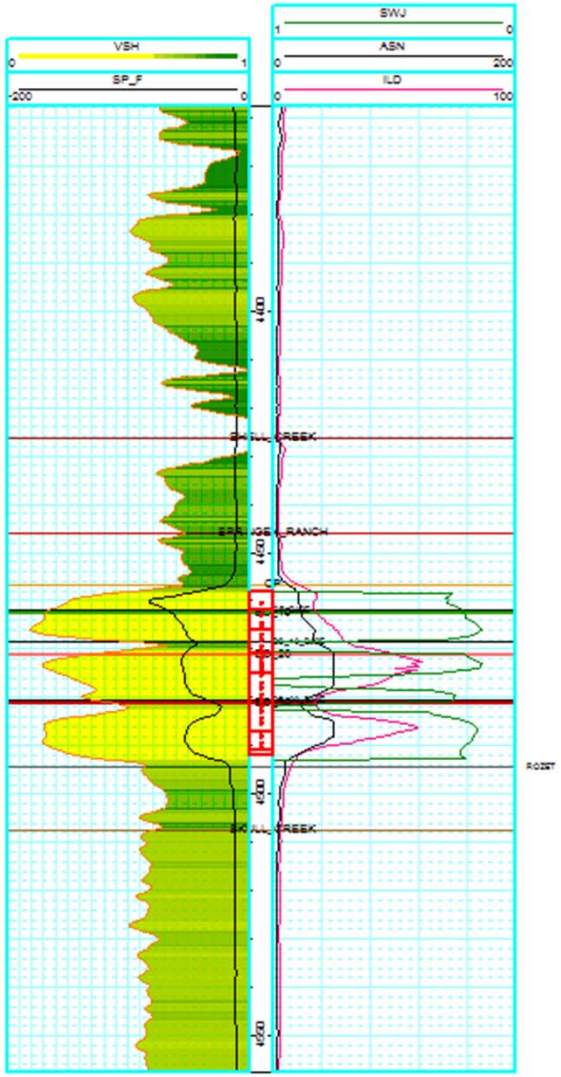


Bell Creek Muddy Sand Type Log

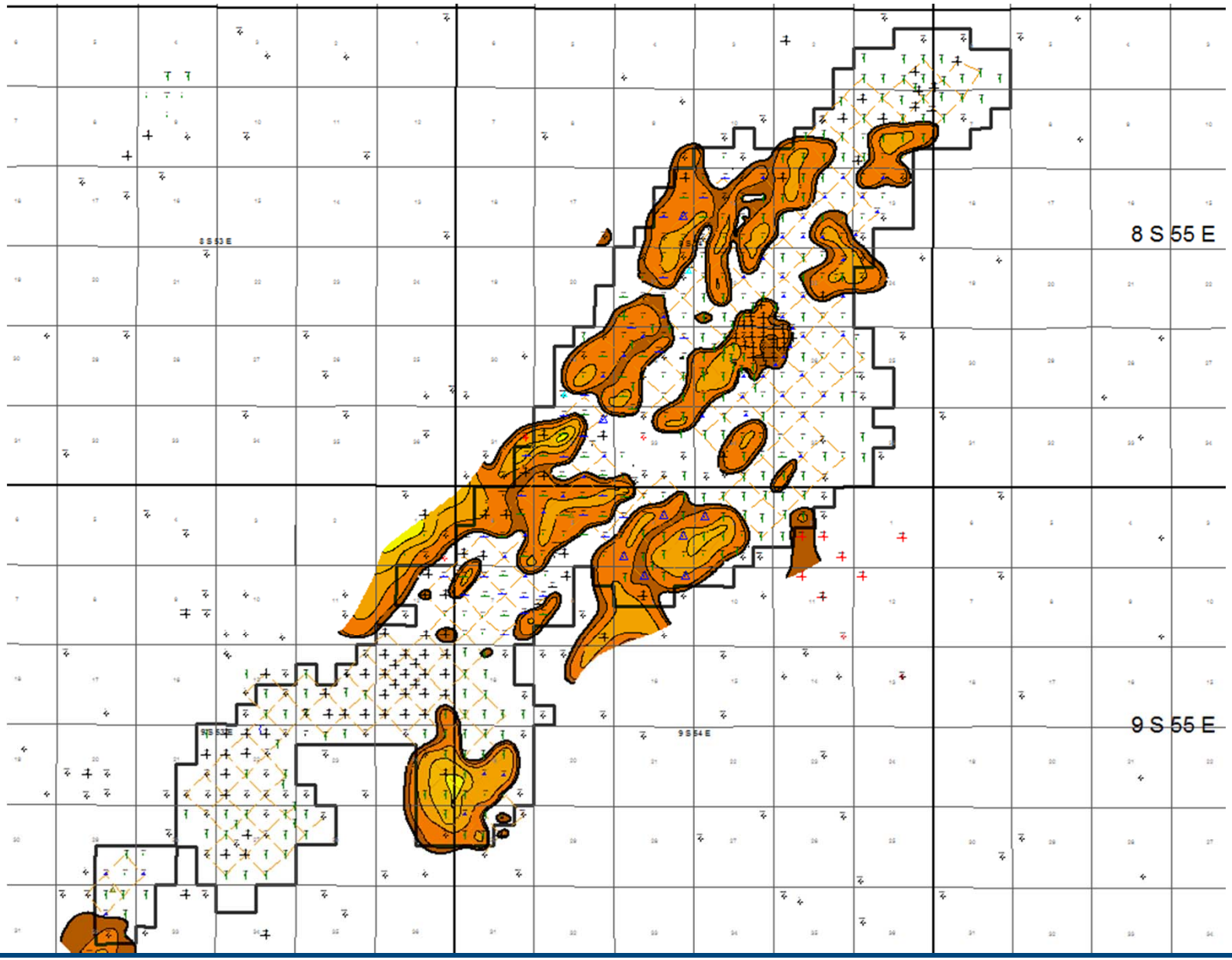
Three Sand Benches in this well

Stacked Barrier Bar Para Sequences

Sand Bounded on Top and Bottom by Thick Shale Intervals



Top Sand Isopach



Muddy Sand Outcrop Near Hulett, WY

Muddy Sand Outcrop Near Hulett, WY

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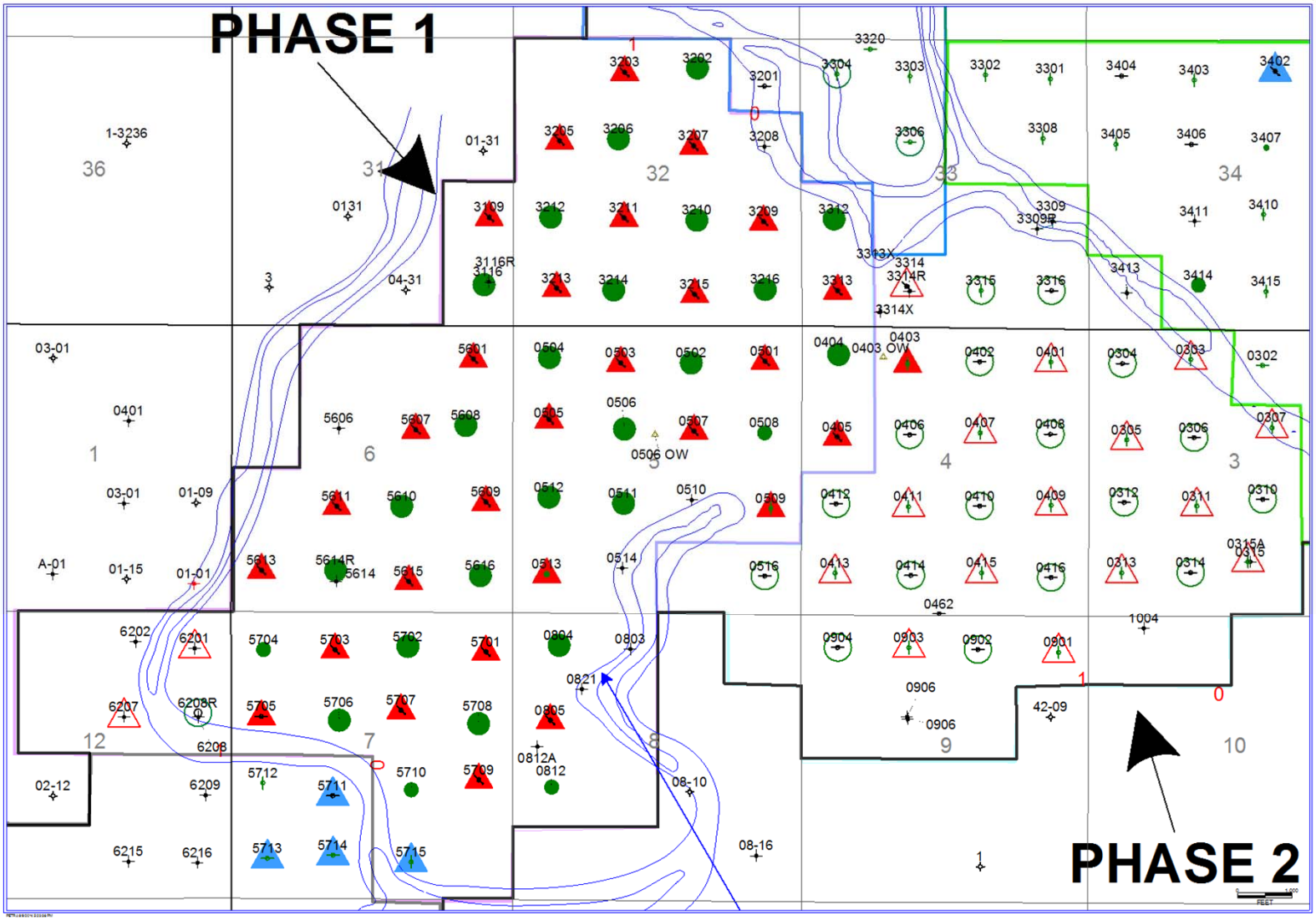
ACTIVITY

AUGUST 2013 PHASE 1 & 2 ACTIVITY



Well Symbols

- ACTIVE WATER INJECTORS
- INACTIVE WATER INJECTORS
- PROPOSED WATER INJECTOR
- AUG 2013 ACTIVE CO 2 INJECTORS
- AUG 2013 ACTIVE OIL PRODUCERS
- AUG 2013 INACTIVE OIL PRODUCERS
- AUG 2013 PROPOSED CO 2 INJECTORS
- AUG 2013 PROPOSED PRODUCERS

1 Active Water Injector

29 Active CO 2 Injectors

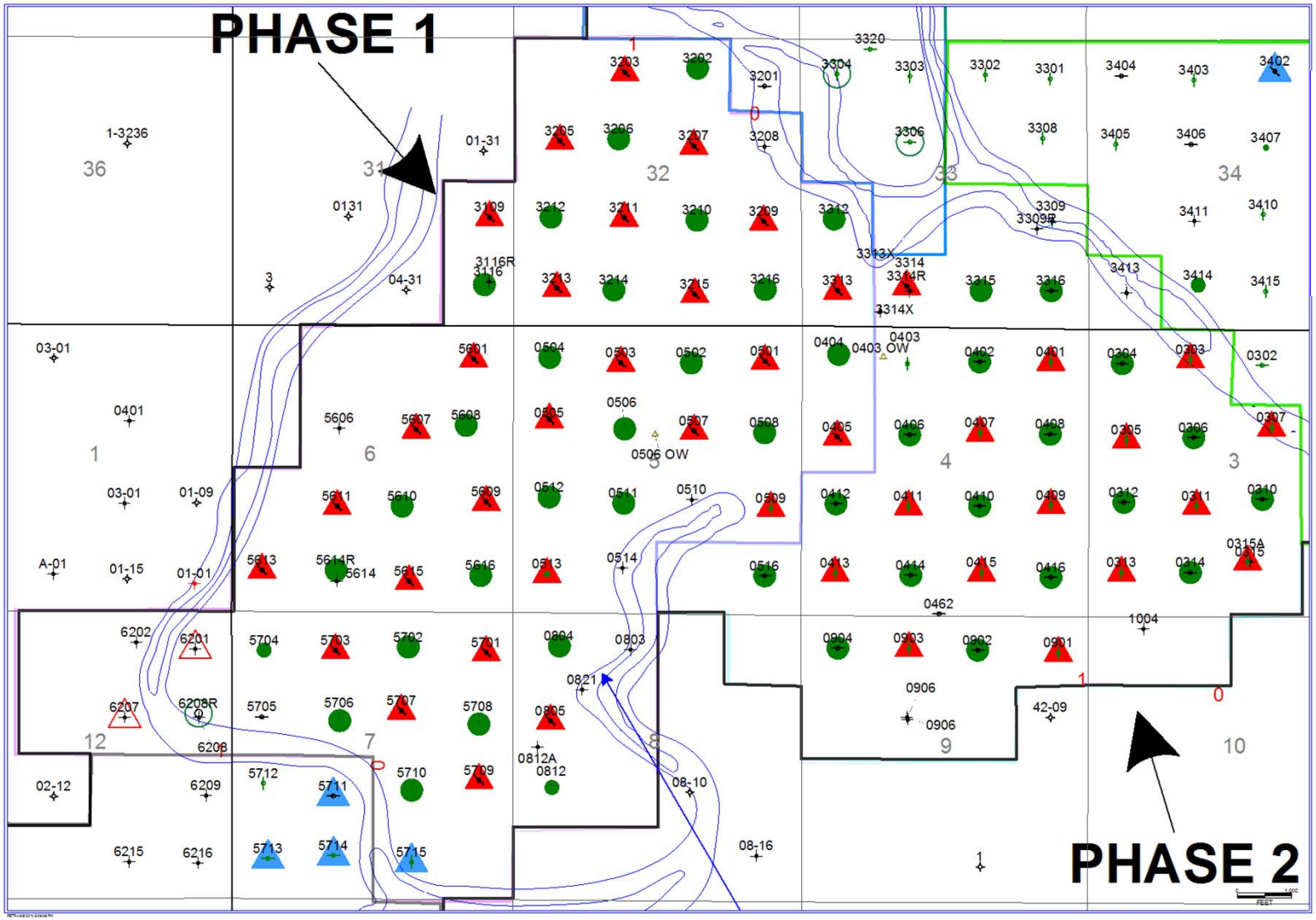
22 Active CO 2 Producers

4 Inactive CO 2 Producers

17 Proposed CO 2 Injectors

18 Proposed CO 2 Producers

AUGUST 2014 PHASE 1 & 2 ACTIVITY



Well Symbols

- PROPOSED CO2 INJECTORS
- ACTIVE WATER INJECTORS
- INACTIVE WATER INJECTORS
- PROPOSED WATER INJECTOR
- AUG 2014 ACTIVE CO 2 INJECTORS
- AUG 2014 ACTIVE OIL PRODUCERS
- AUG 2014 INACTIVE OIL PRODUCERS

1 Active Water Injector

42 Active CO 2 Injectors

41 Active CO 2 Producers

2 Inactive CO 2 Producers

2 Proposed CO 2 Injectors

1 Proposed CO 2 Producers

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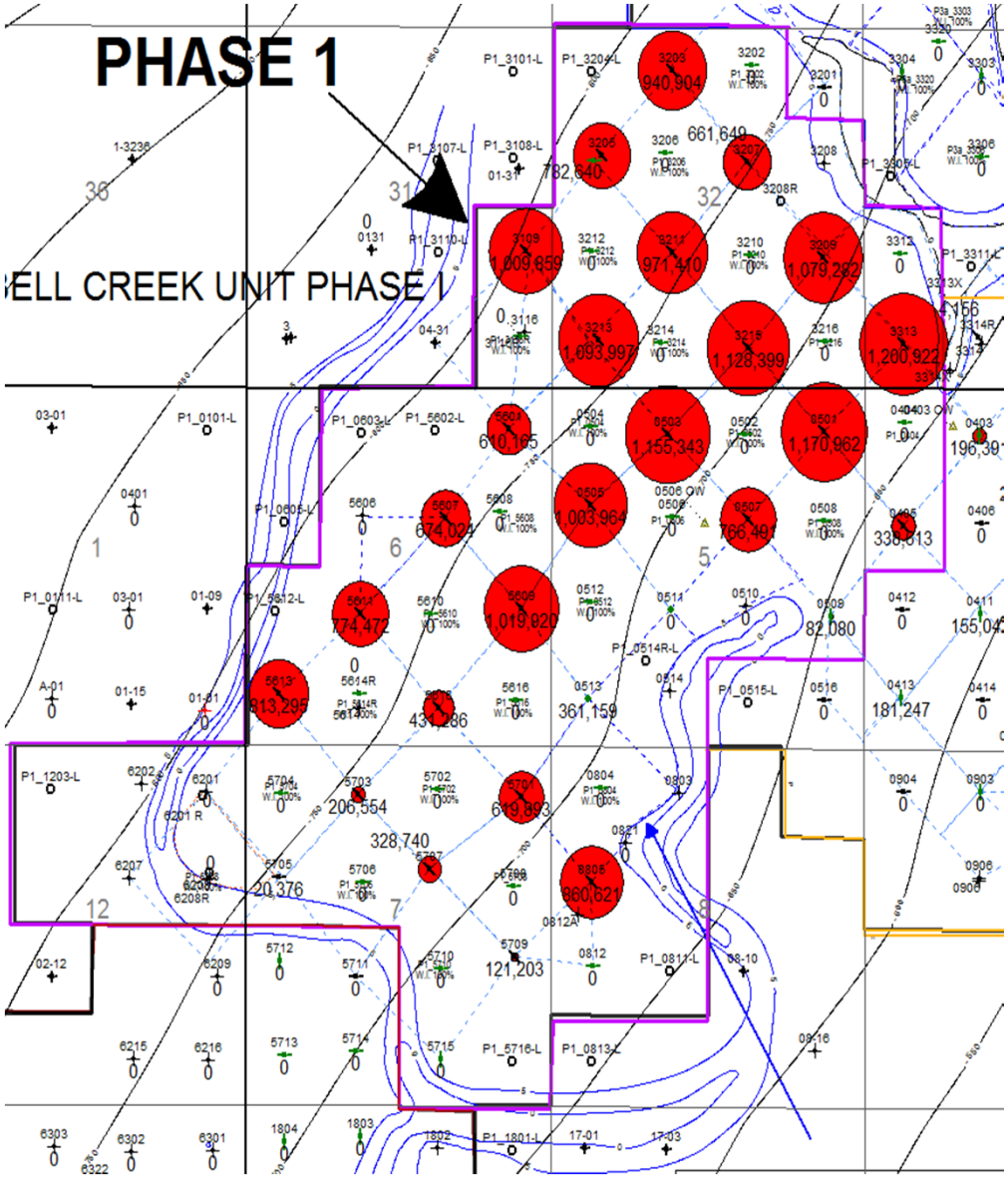
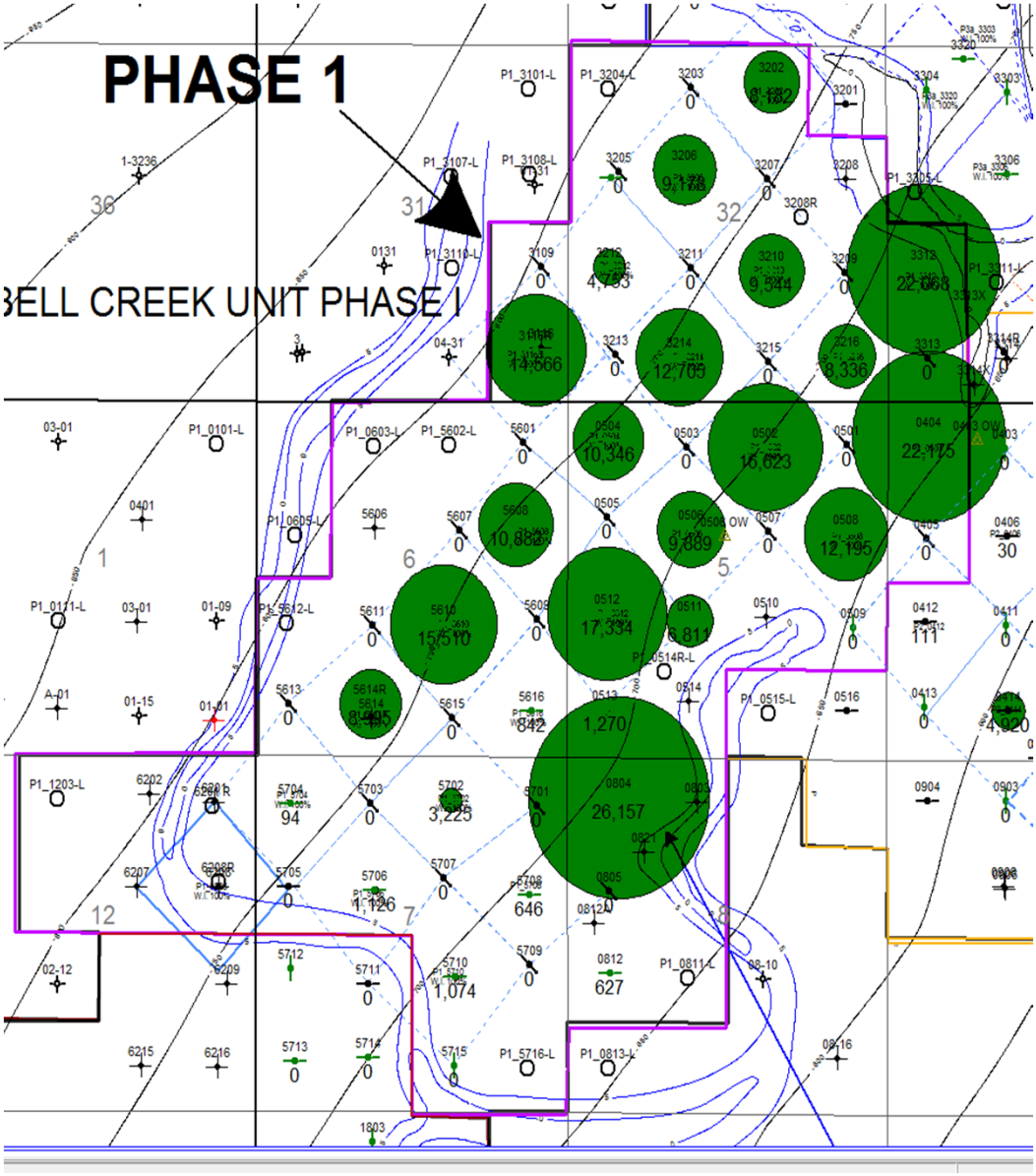
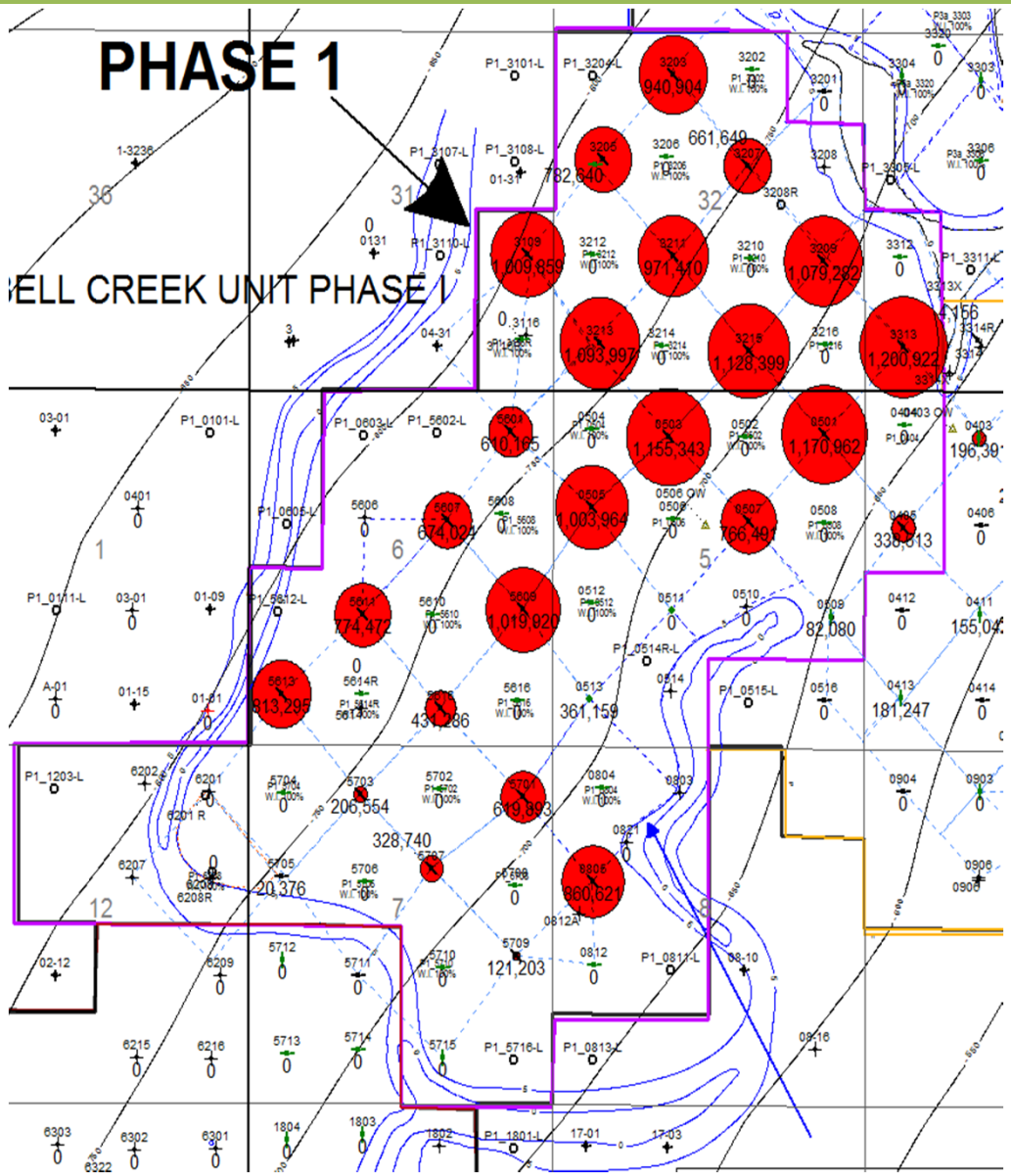
PRODUCTION

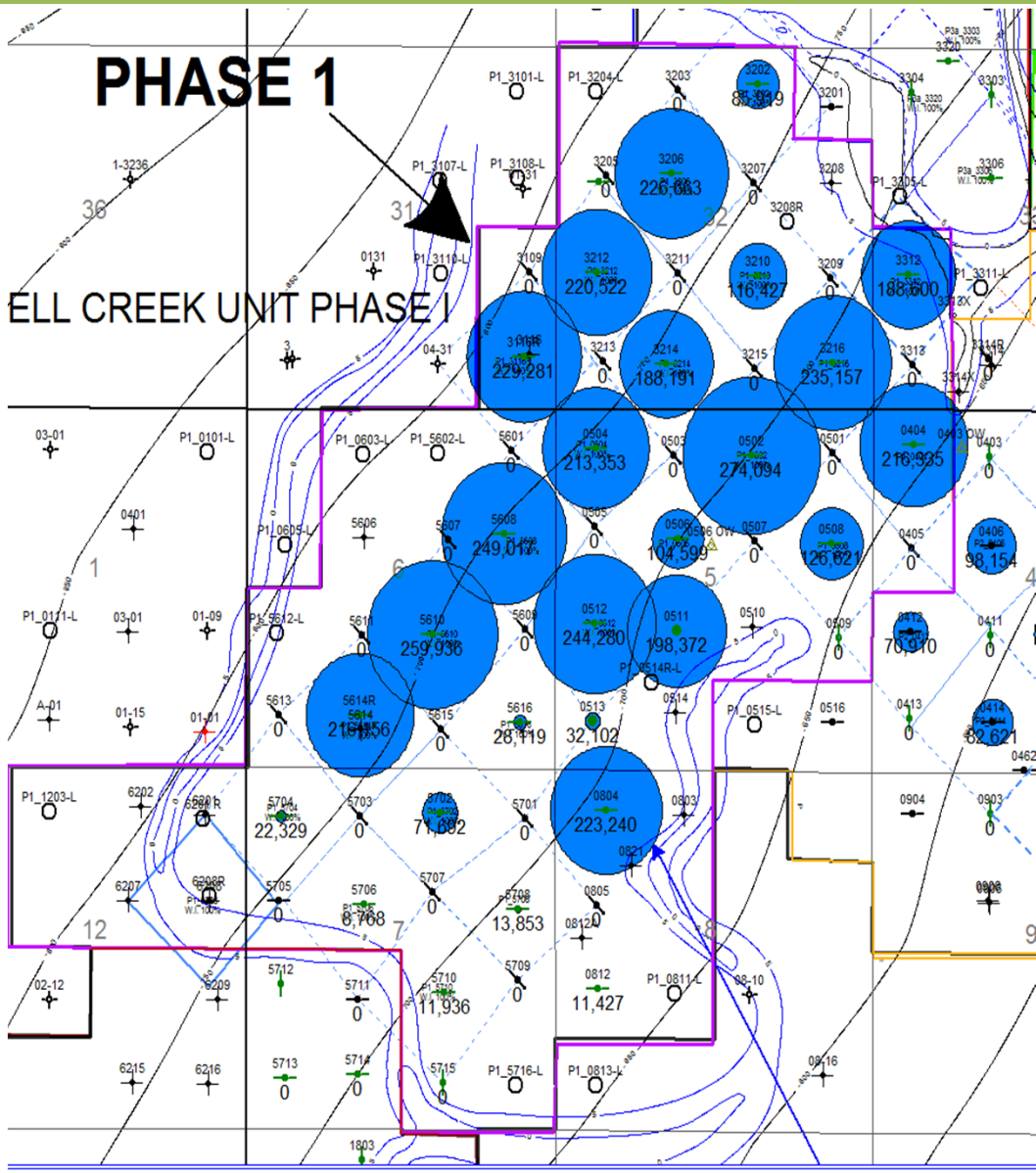
CO2 Injection VS Oil Production 5/22/13 - Present



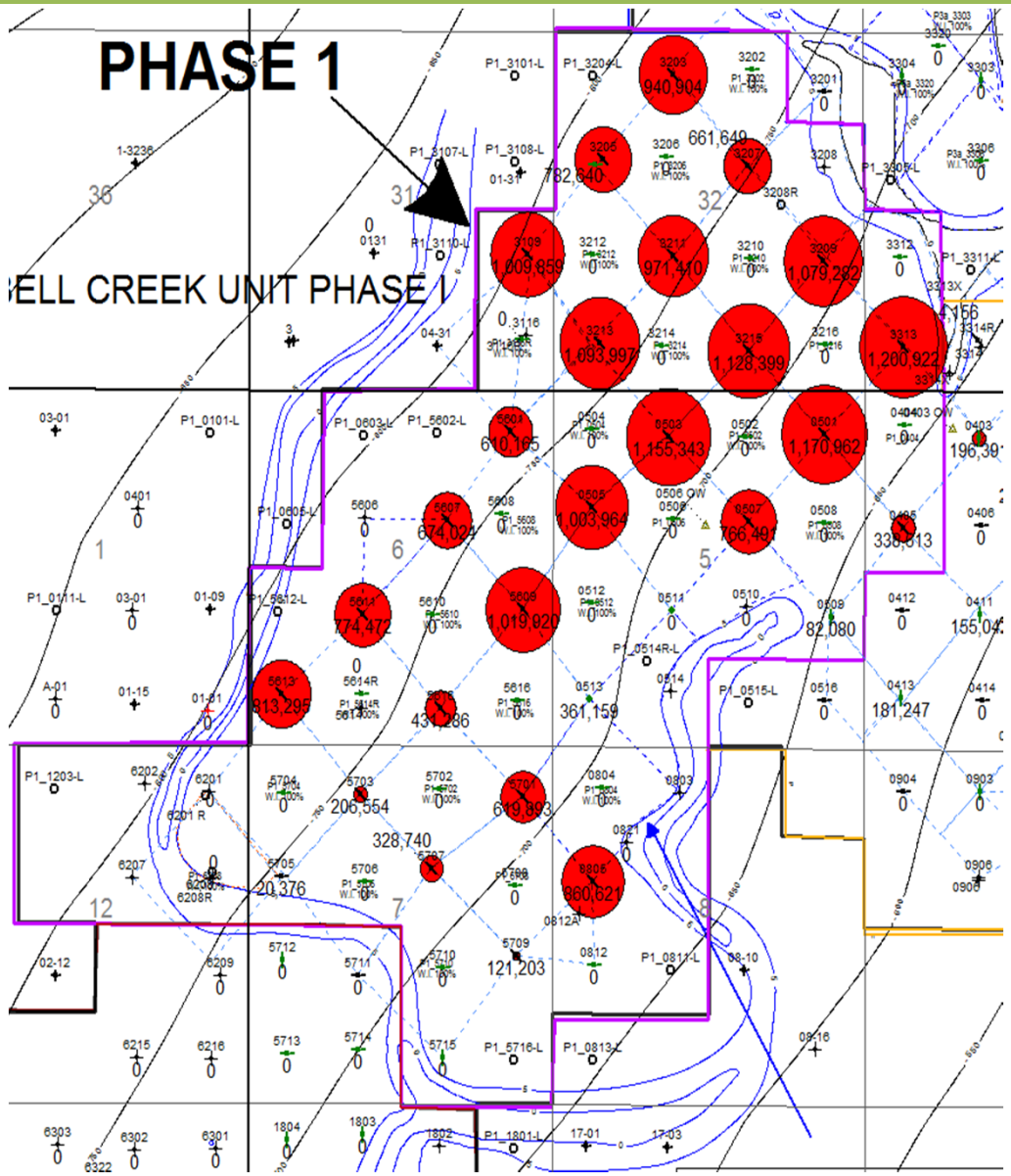


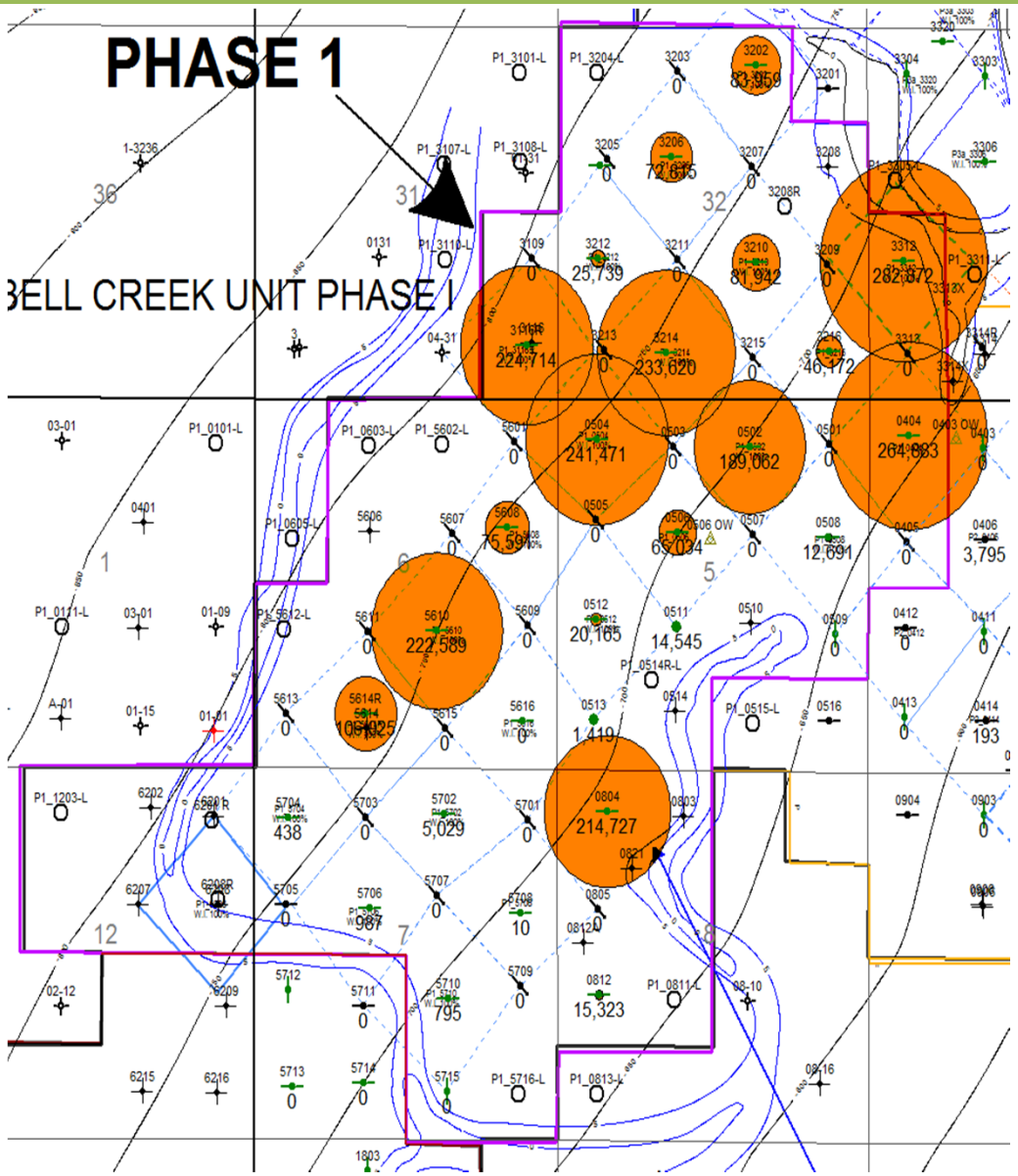
CO2 Injection VS Water Production 5/22/13 Present



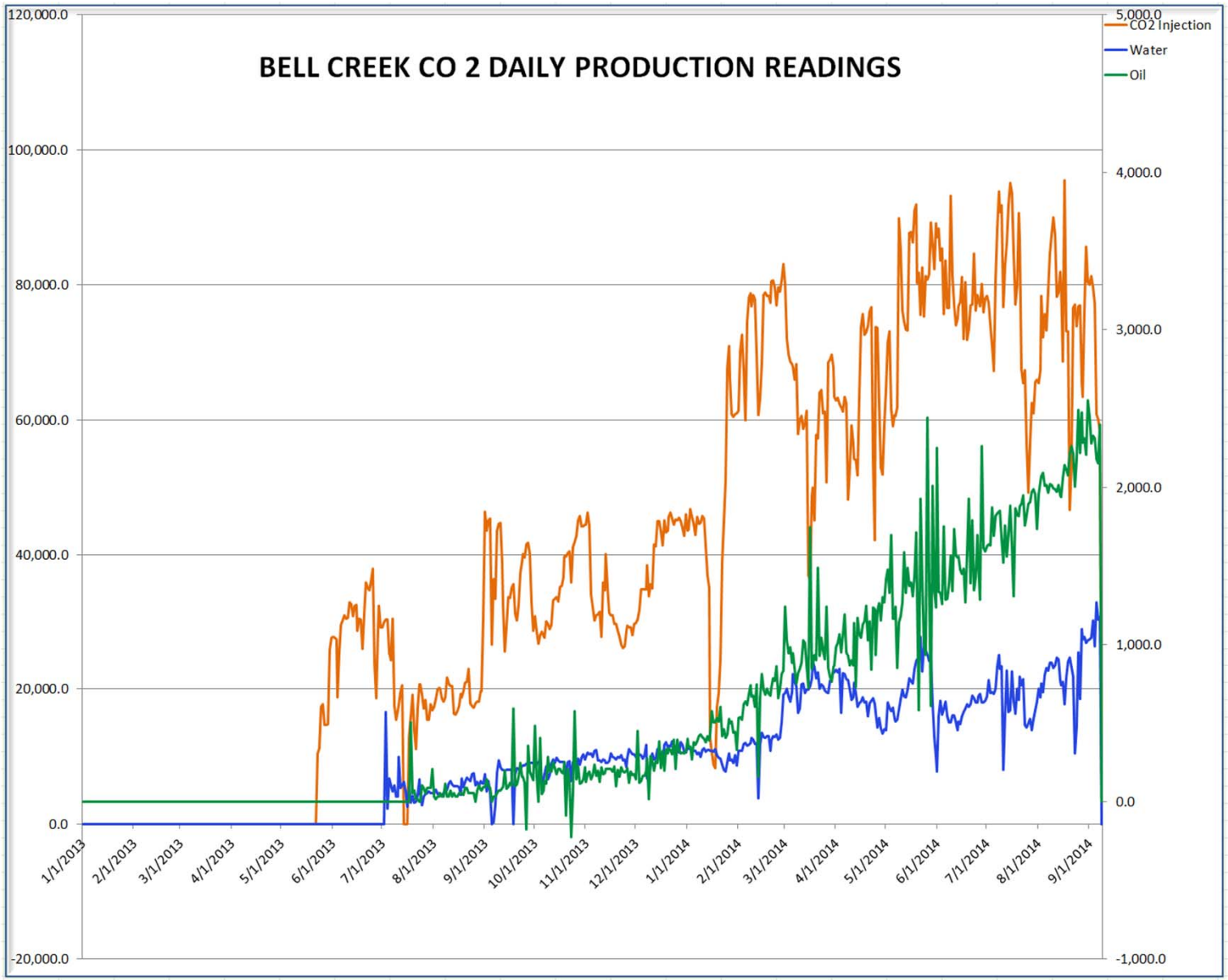


CO2 Injection VS CO2 Production 5/22/13 - Present





BELL CREEK CO 2 DAILY PRODUCTION READINGS



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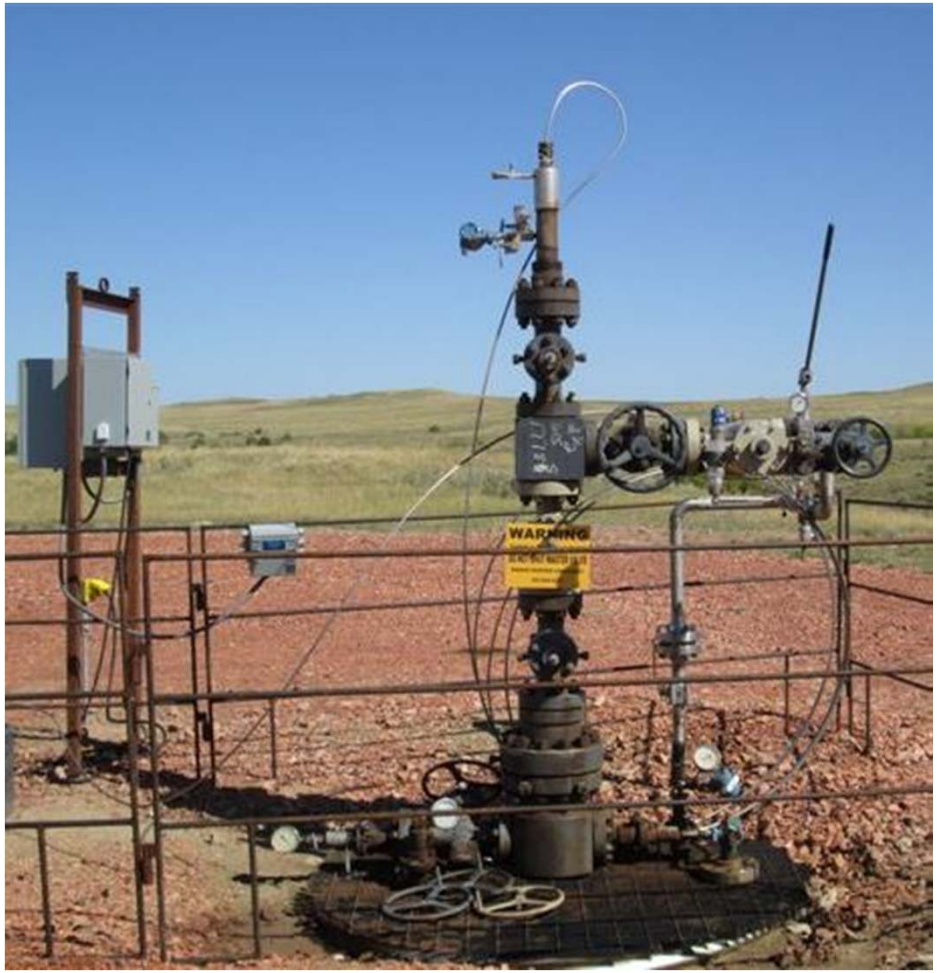
FACILITIES

Wellhead Configuration / Monitoring

Producer with Capillary String



Injector (CO_2 or Water)

Test Site Production Manifold

Test Site Injection Manifold

Manifold Building: High & Low Pressure Piping & Water, CO2 Purchase and Recycle Distribution

EOR Facility: Under Construction

EOR Facility Today

EOR Facility in Two Weeks

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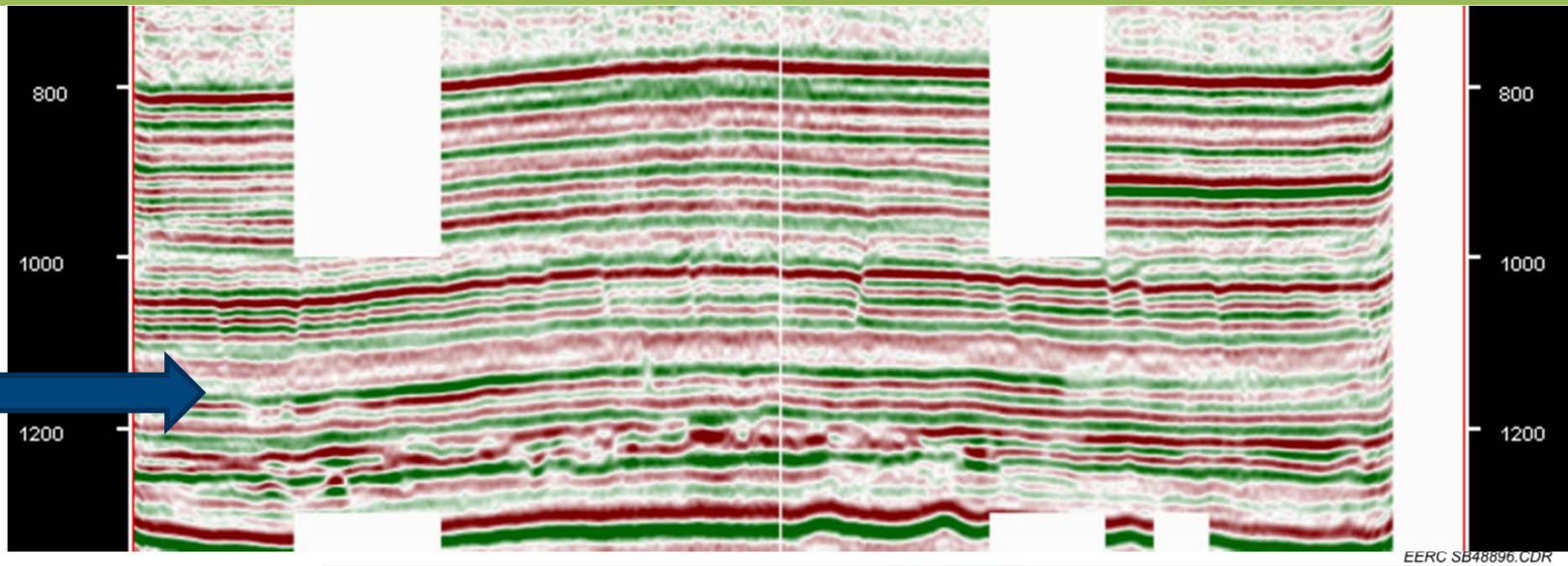
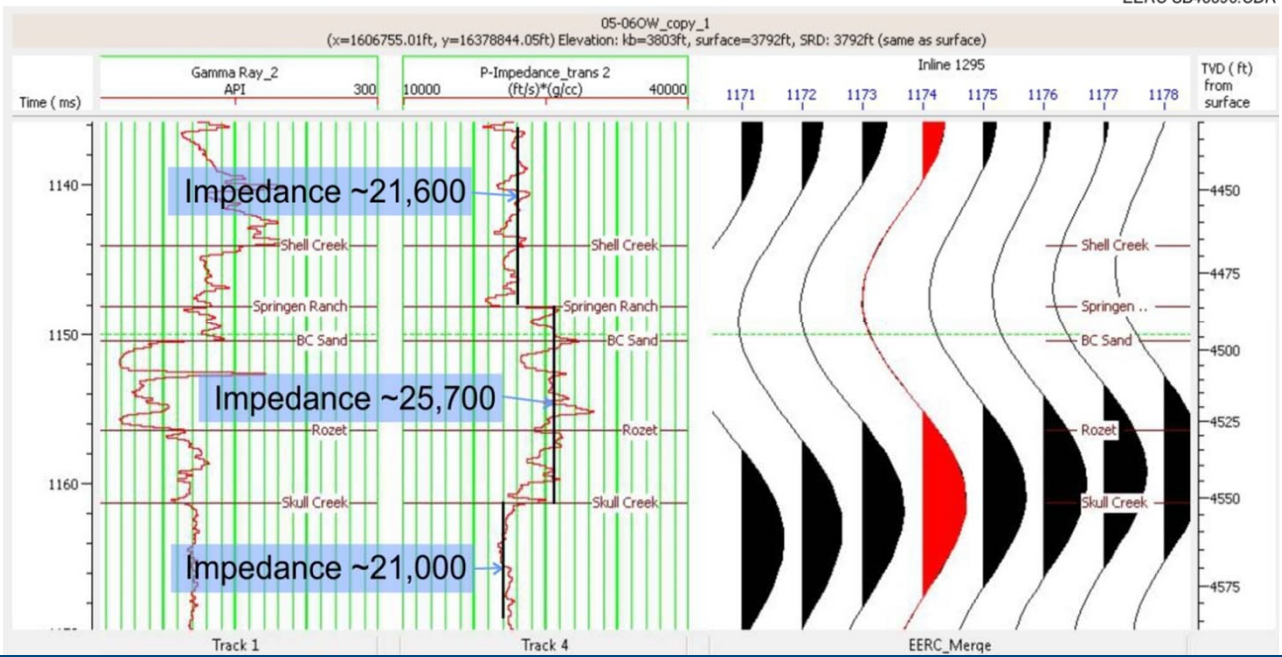
QUESTIONS

3-D Surface Seismic

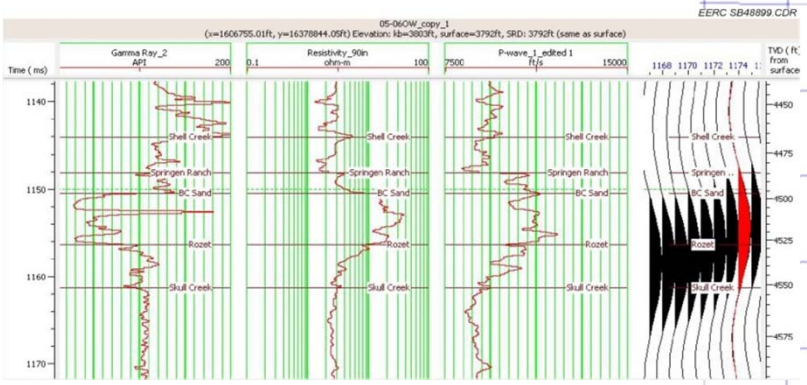
Baseline Survey: Acquired Sep 2012 Reservoir ~1150 ms



Reservoir Reflection: Impedance changes at tops of Springen Ranch and Skull Creek.

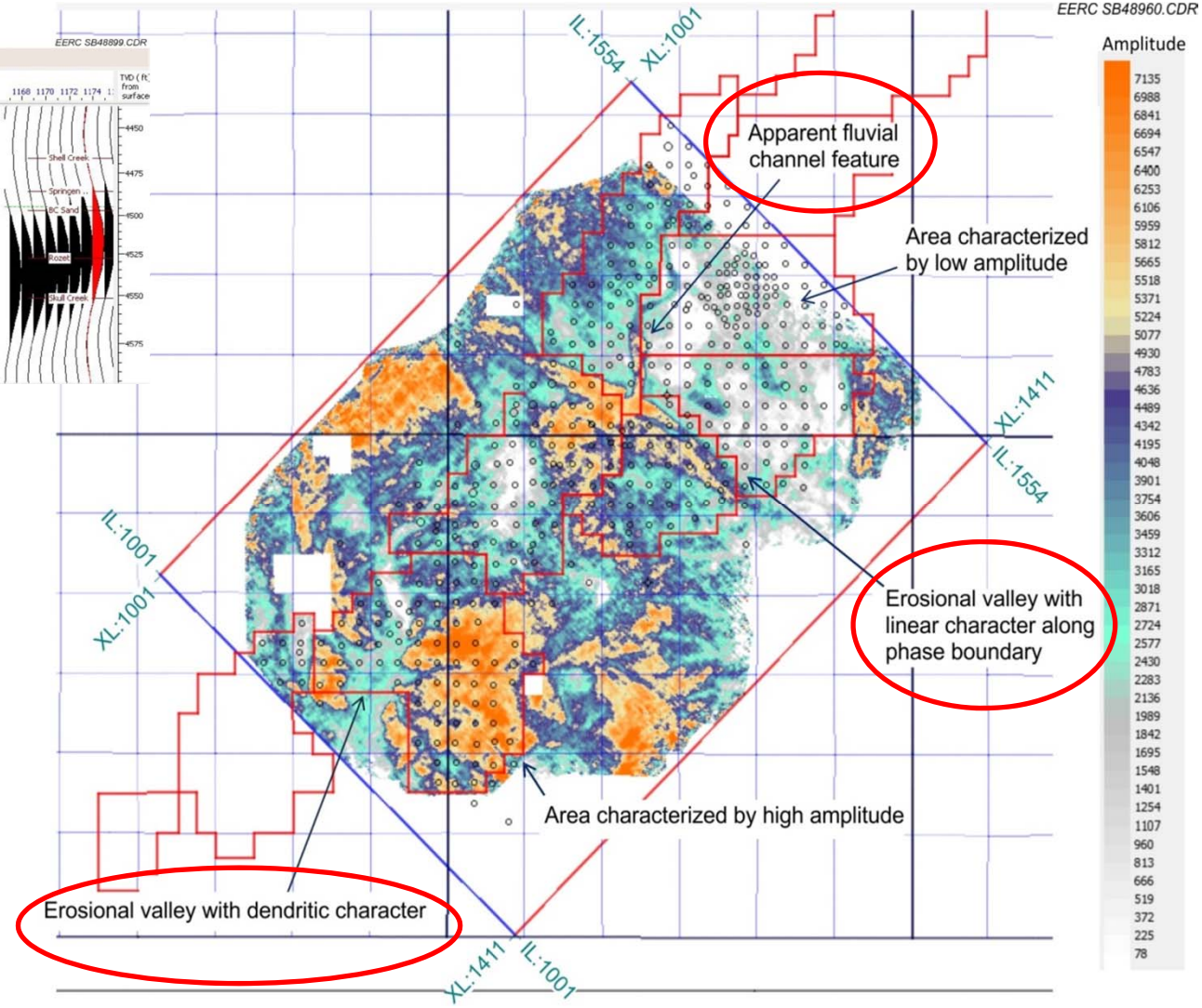


Map of Muddy Reflector Amplitude



Summing the positive samples over the phase shifted “Muddy” reflector, some geologic features stand out…

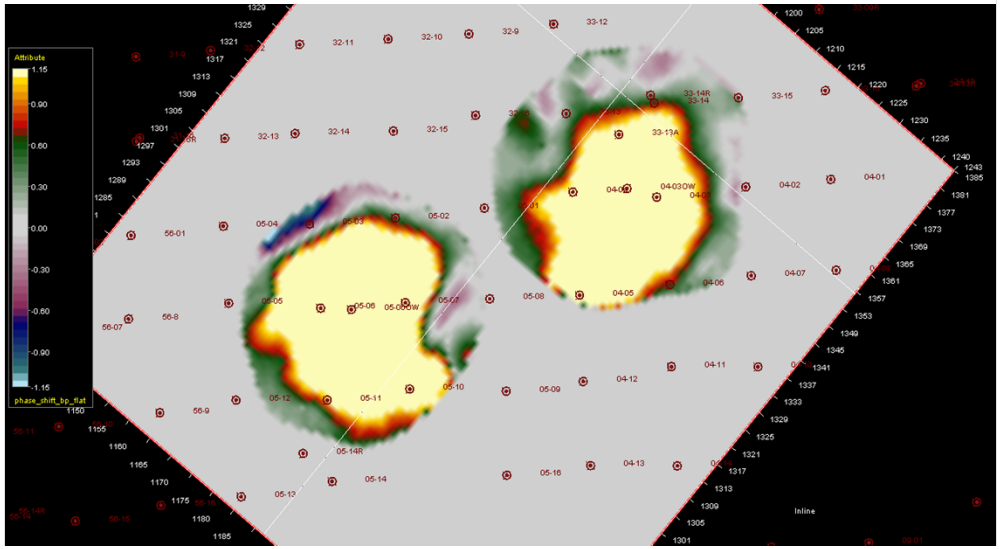
- A fluvial channel
- Two erosional valleys
- Areas of high and low amplitude



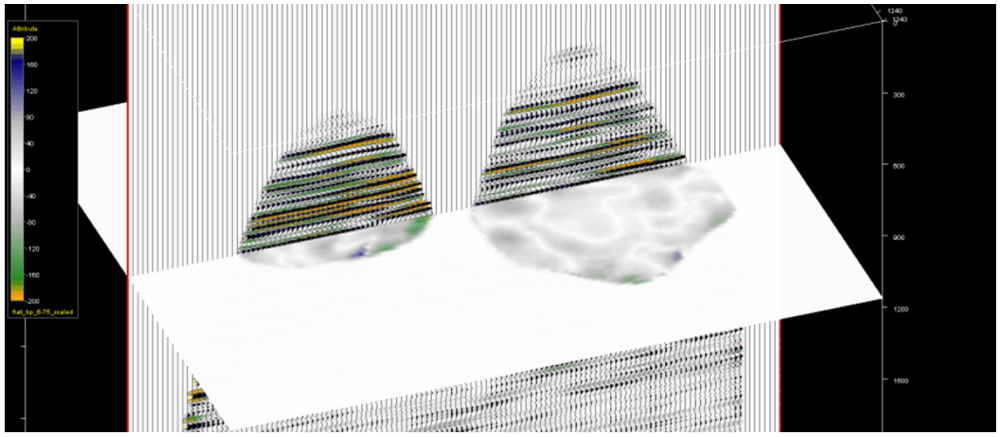
Baseline 3D VSP

- Survey acquired May 2013.
- Monitor survey acquisition pending ~ late October 2014.
- 4D differencing & interpretation pending early 2015.

Baseline 3-D VSP coverage at Reservoir Level



Baseline 3-D VSP Cross-section at the Muddy



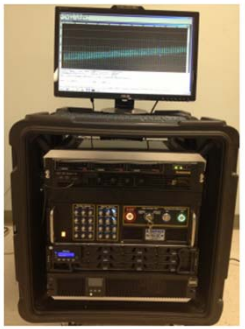
Passive Monitoring Setup

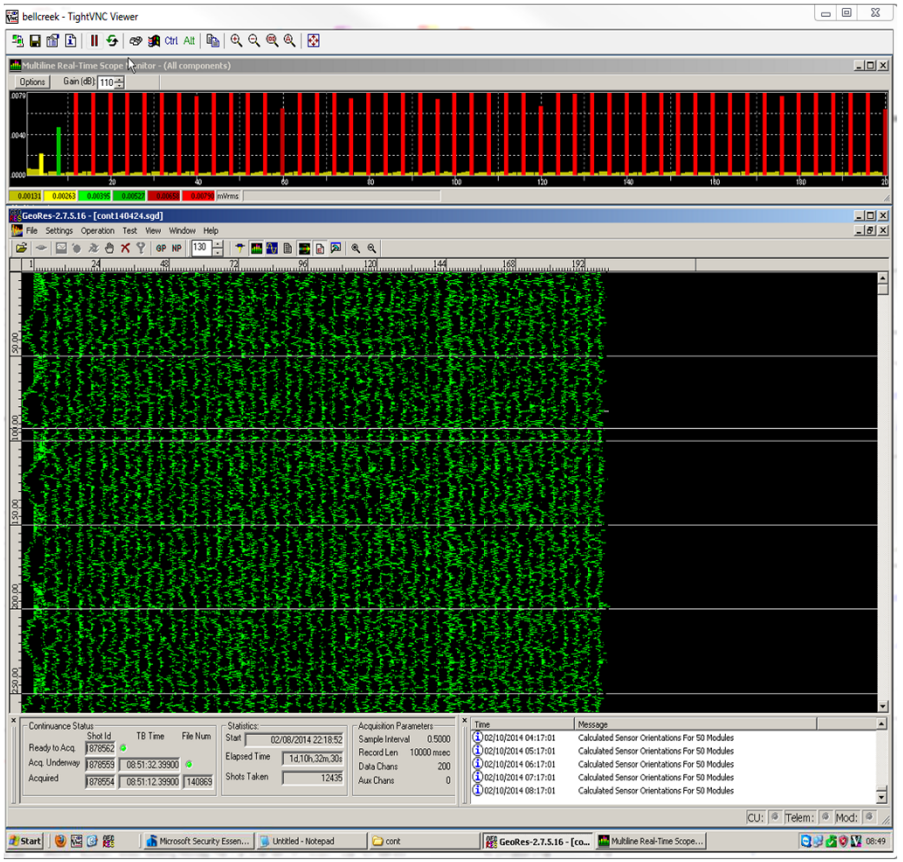
- Monitoring Well 04-03 OW has 50 three-component geophones cemented in the wellbore.
  - Depth: 3669’ msl to 1258’ msl
  - 15-m spacing(49.2 ft)
  - ~3648 small events; nearly all during working hours. Analysis in progress.

Monitor Well 04-03 OW

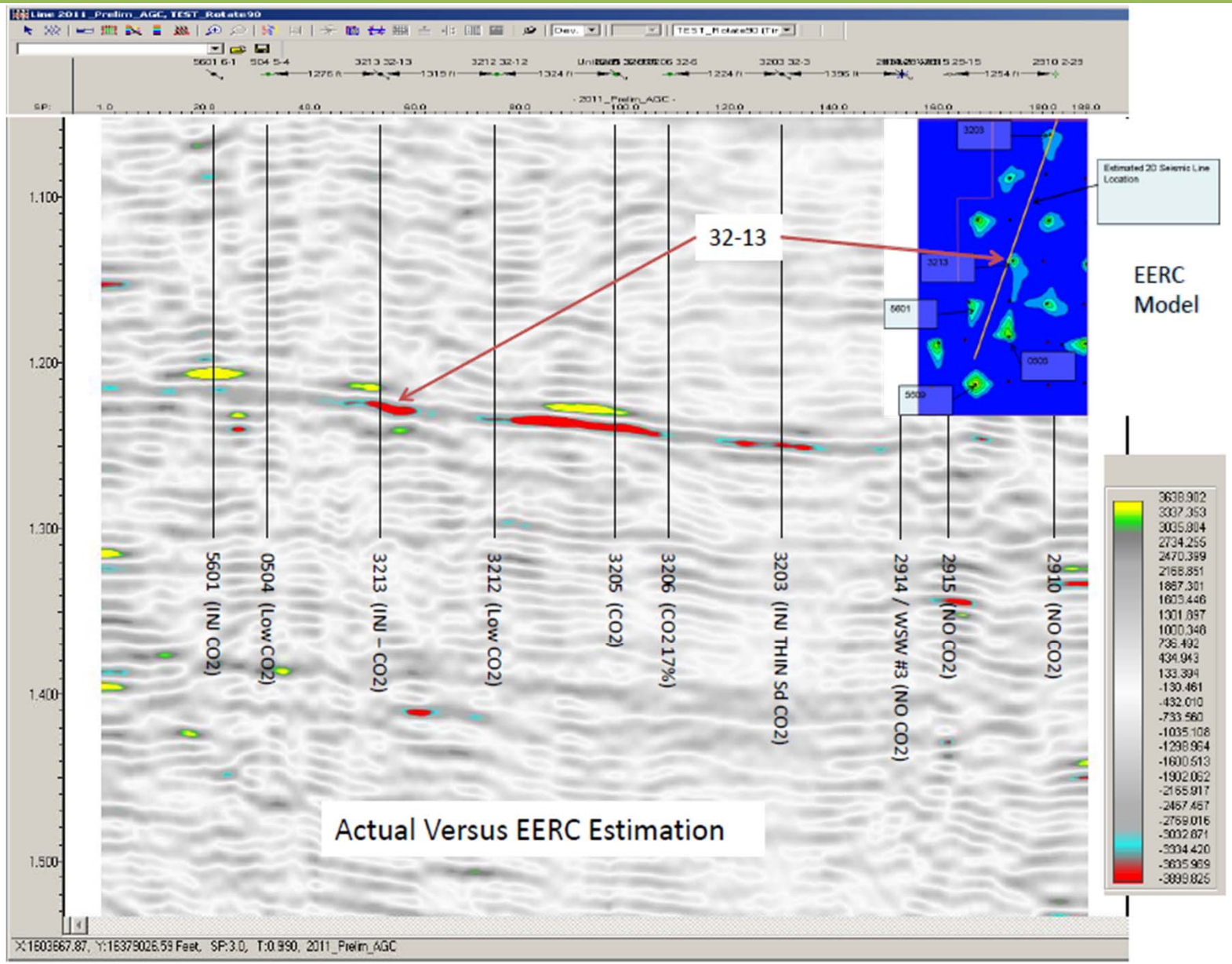
Permanent 50-Level Array

GeoRes System HC-W



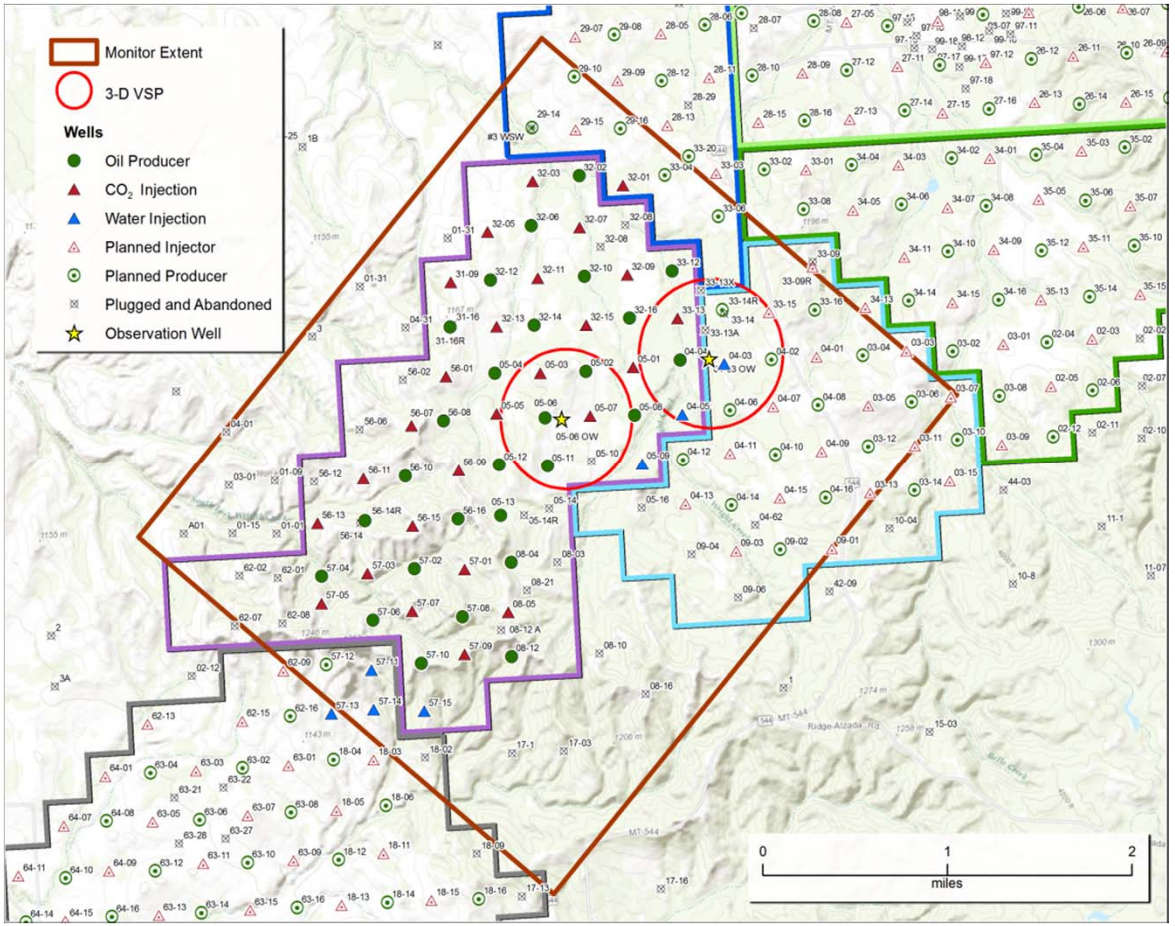


Time Lapse 2D



4D Monitor Survey - 4D Differencing

- 10 sq mile post-injection surface survey pending
- Centered on Phases 1 & 2
- Field Work ~October 15-30
- Processing ~Nov and Dec
- Interpretation ~Jan and Feb 2015
- 4D differencing will show where the injected CO_2 has moved.



Acknowledgment

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QUESTIONS