

**APPENDIX E:
CROSS SECTIONS AND FIELD MAPS,
BUG AND CHEROKEE FIELDS,
SAN JUAN COUNTY, UTAH**



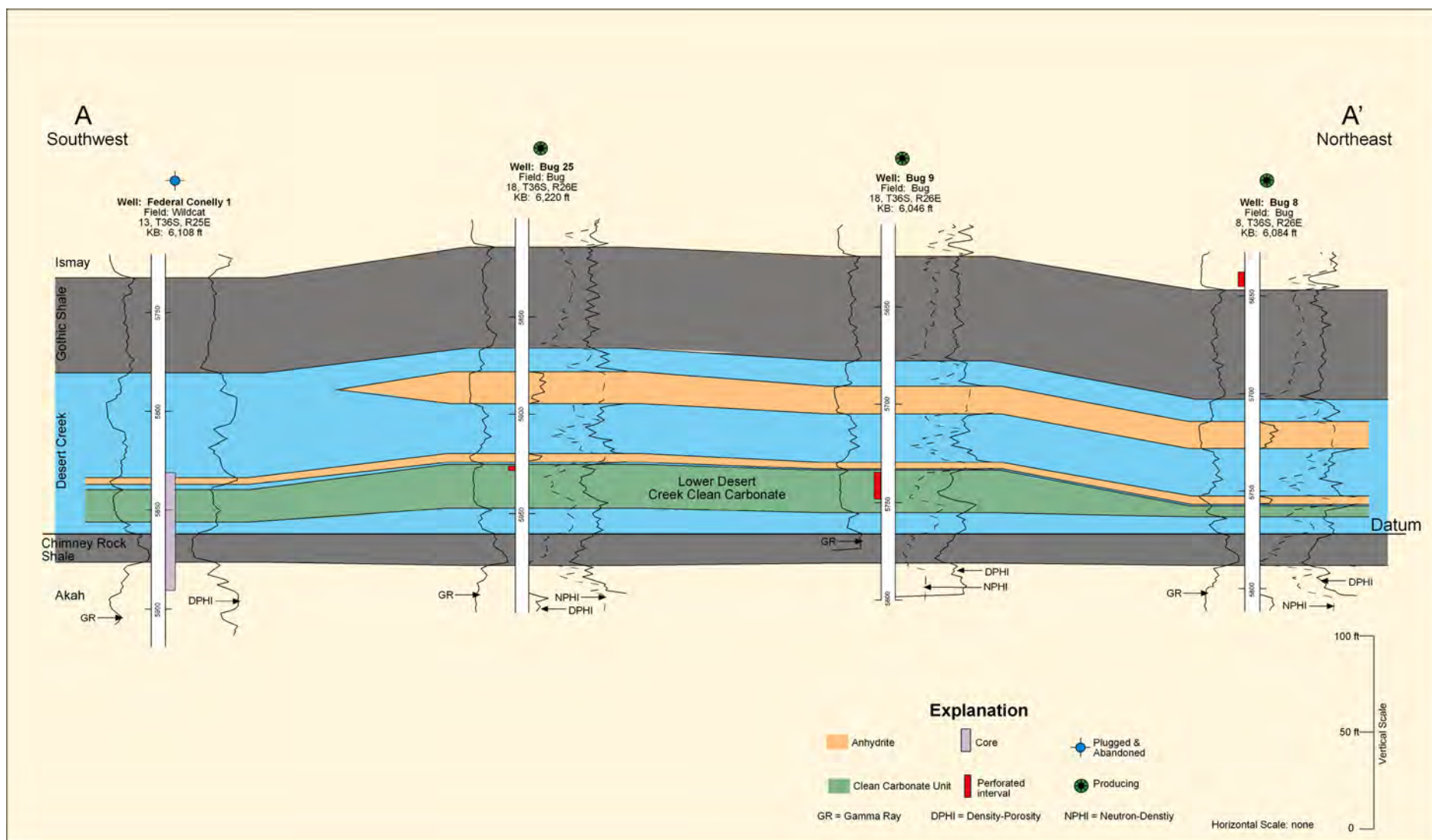


Figure E.1. Southwest to northeast stratigraphic cross section, Bug field, Utah. Line of section A-A' shown on figure E.3

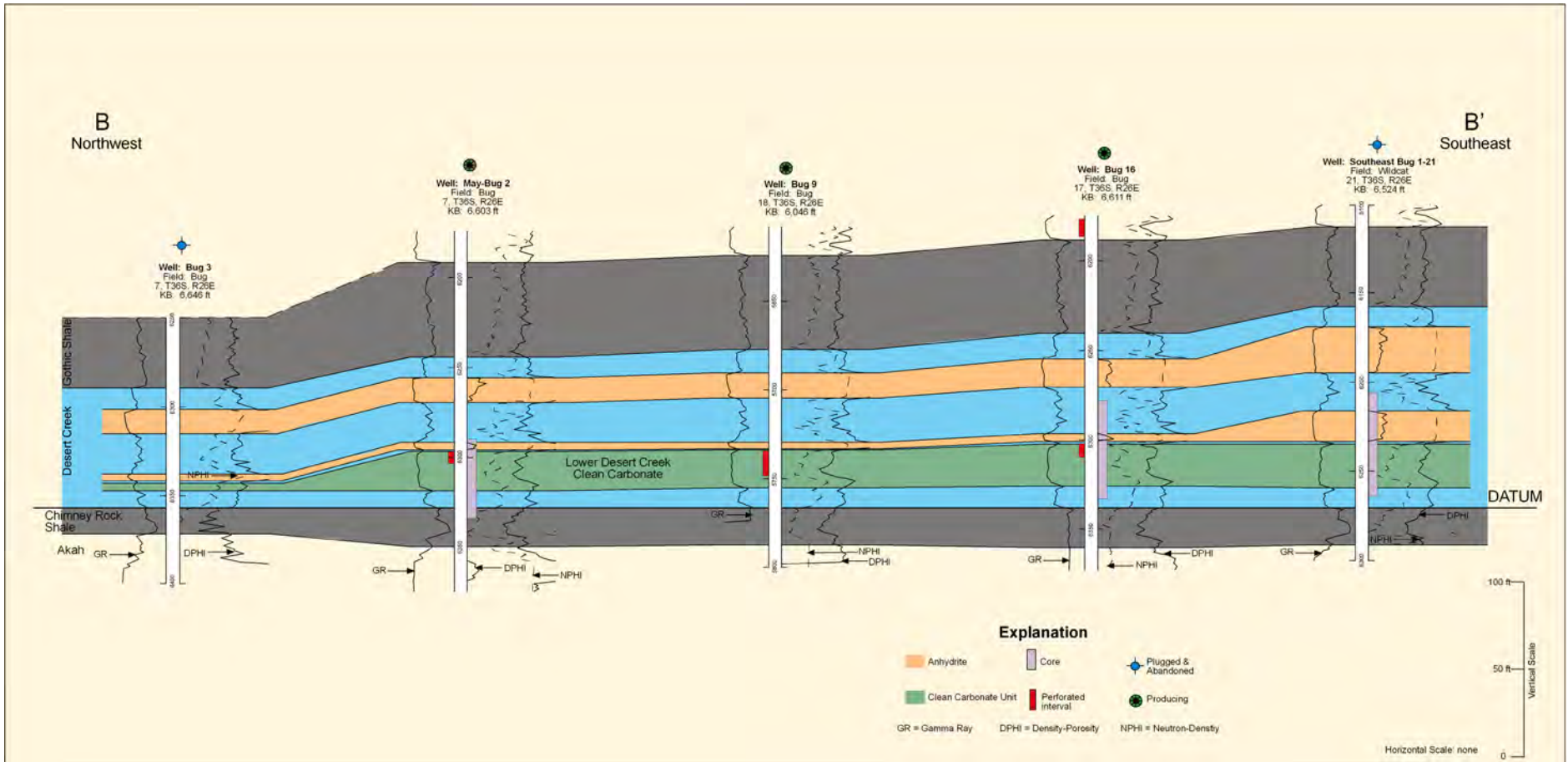
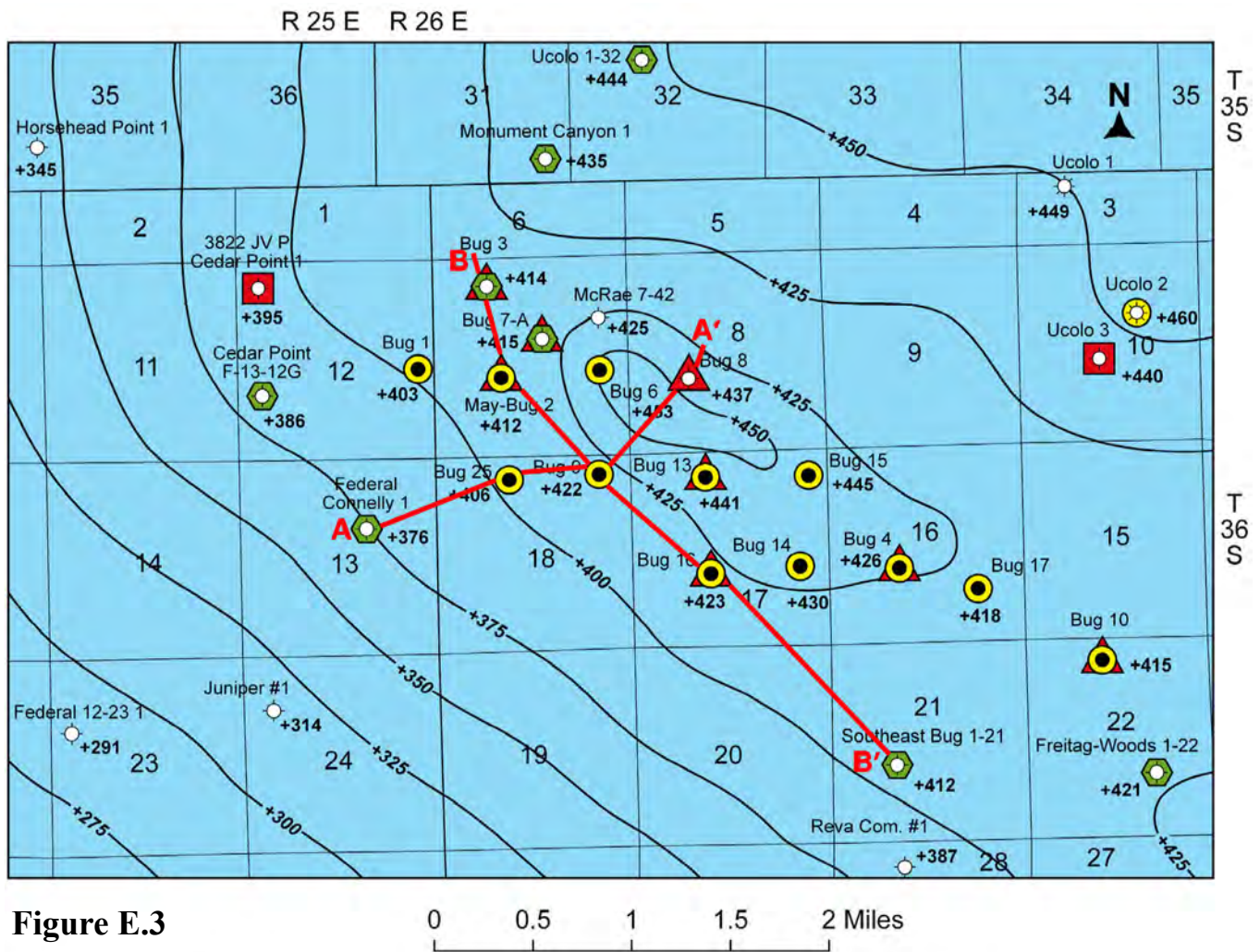


Figure E.2. Northwest to southeast stratigraphic cross section, Bug field, Utah. Northwest to southeast stratigraphic cross section, Bug field, Utah.



Structure Contour
Top of Gothic Shale
 Contour Interval = 25 ft
 Datum = Sea Level

Bug Field
 San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ☆ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core

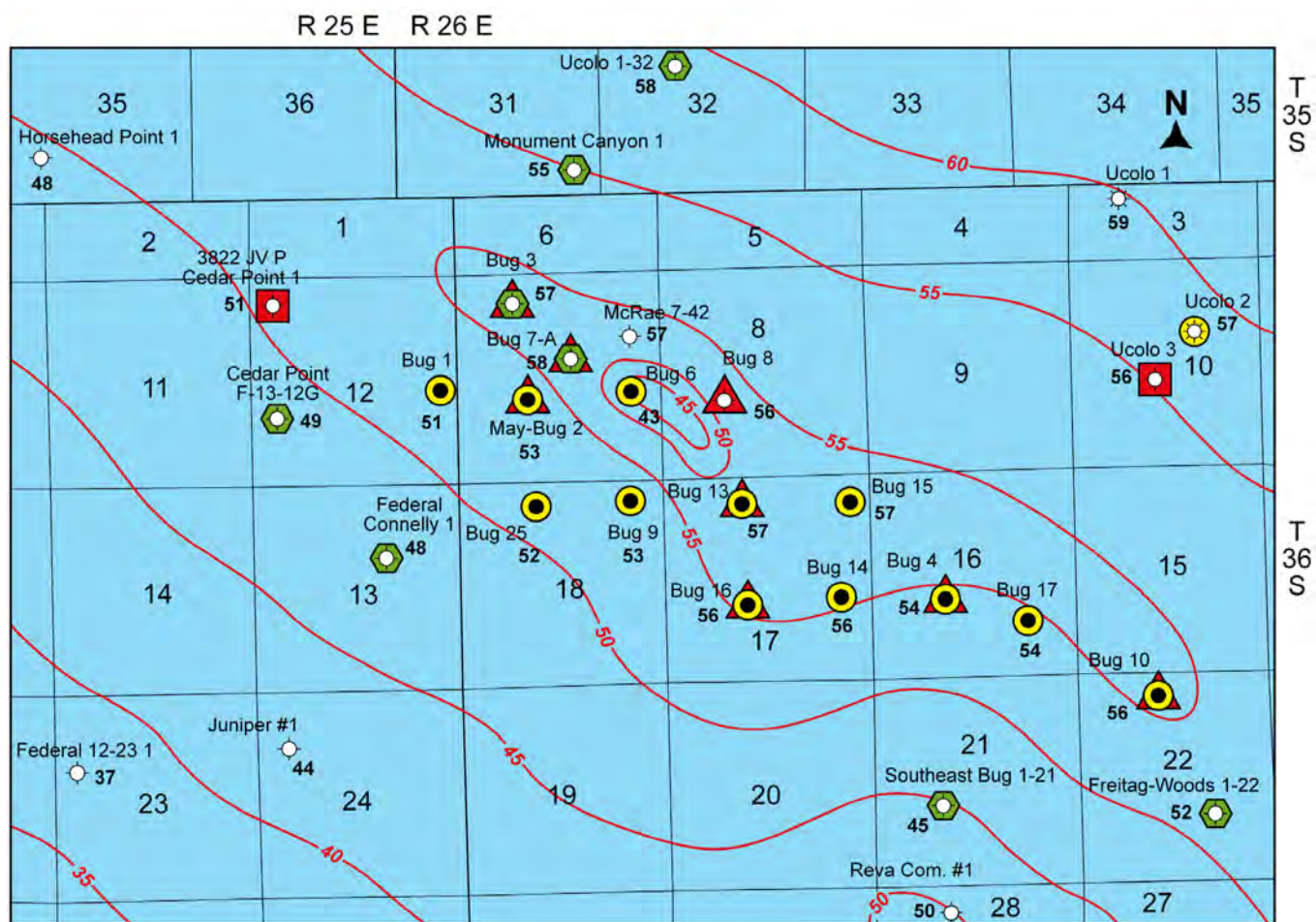


Figure E.4

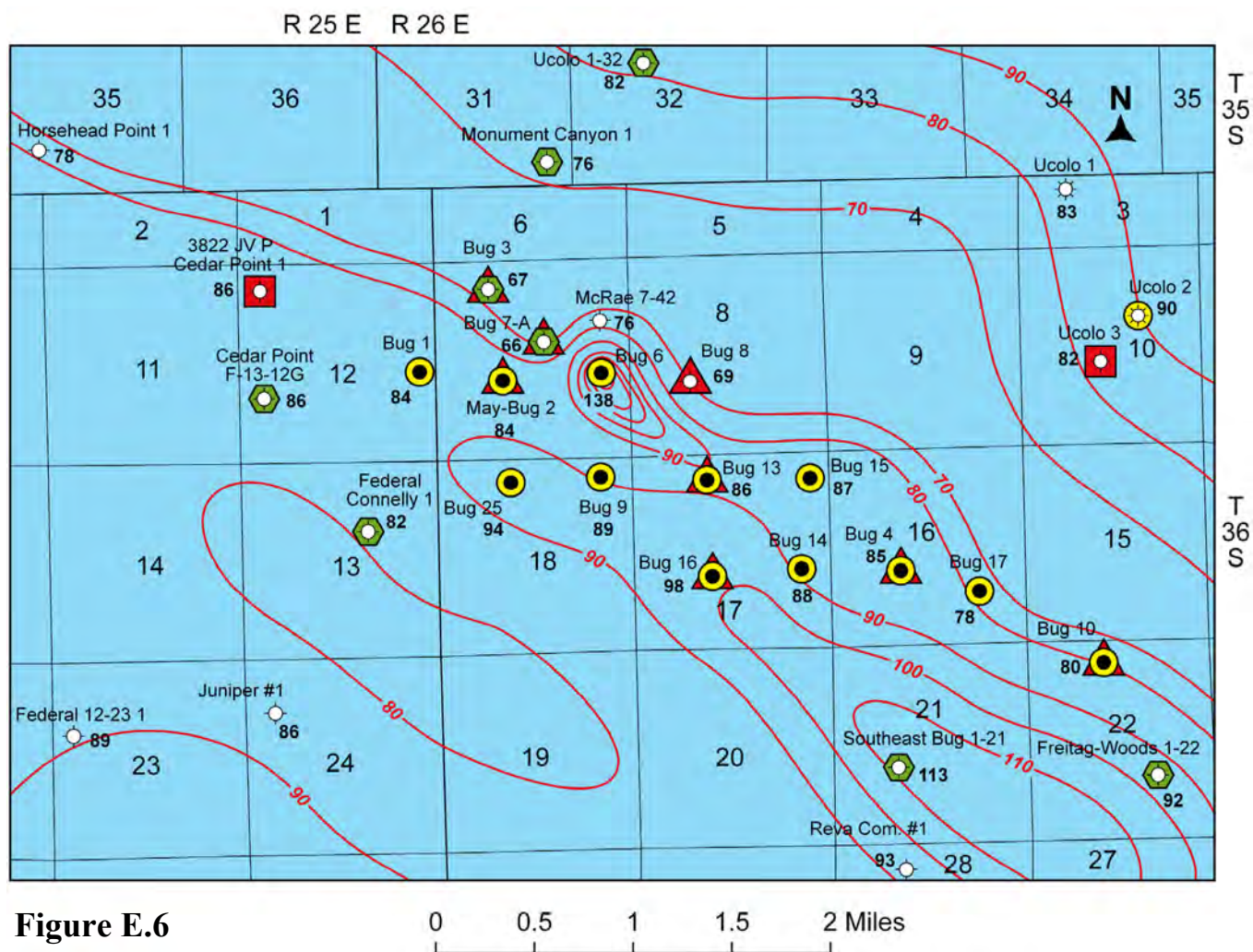
0 0.5 1 1.5 2 Miles

Isochore
Gothic Shale
 Contour Interval = 5 ft

Bug Field
 San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core

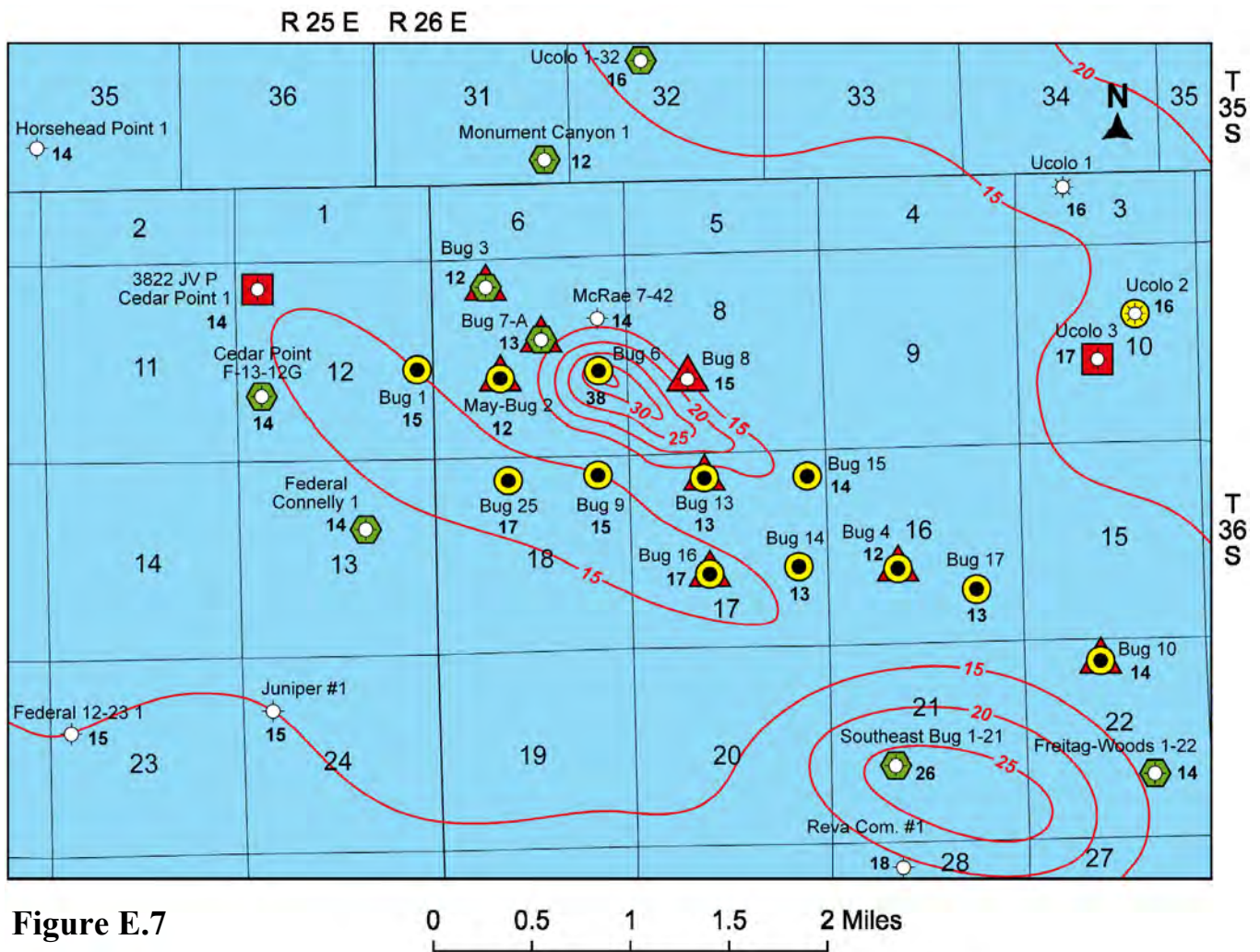


Isochore
Desert Creek
 Contour Interval = 10 ft

Bug Field
 San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬡ Desert Creek drill-stem test
- ⦿ Desert Creek completion
- ◼ Desert Creek completion attempt
- ▲ Desert Creek core

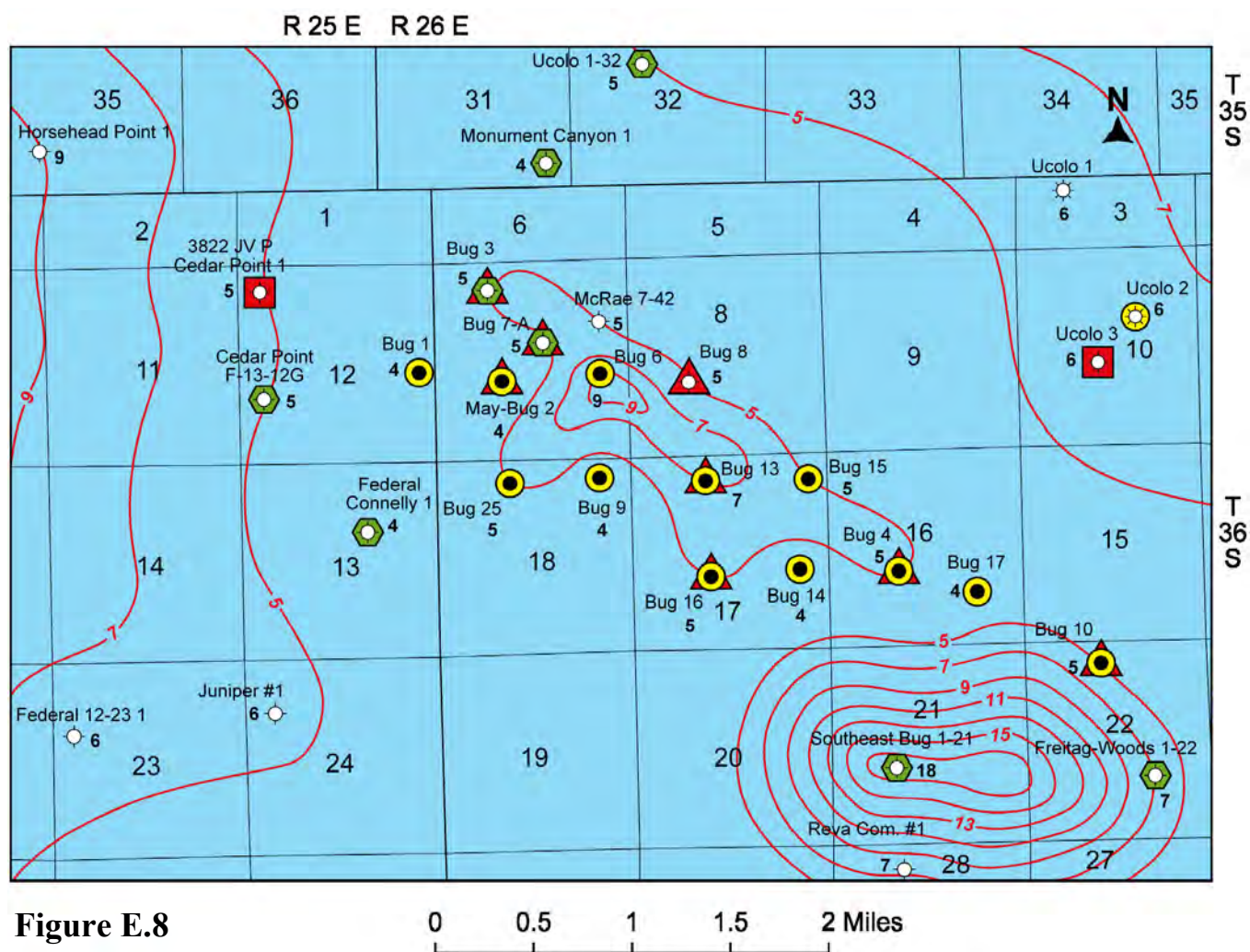


Isochore
Upper Desert Creek Anhydrite
 Contour Interval = 5 ft

Bug Field
 San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬢ Desert Creek drill-stem test
- ⦿ Desert Creek completion
- ◼ Desert Creek completion attempt
- ▲ Desert Creek core



Isochore
Lower Desert Creek Anhydrite
 Contour Interval = 2 ft

Bug Field
 San Juan County, Utah

Explanation

- ⊗ Plugged and abandoned
- ⊙ Producing gas
- ⬢ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core

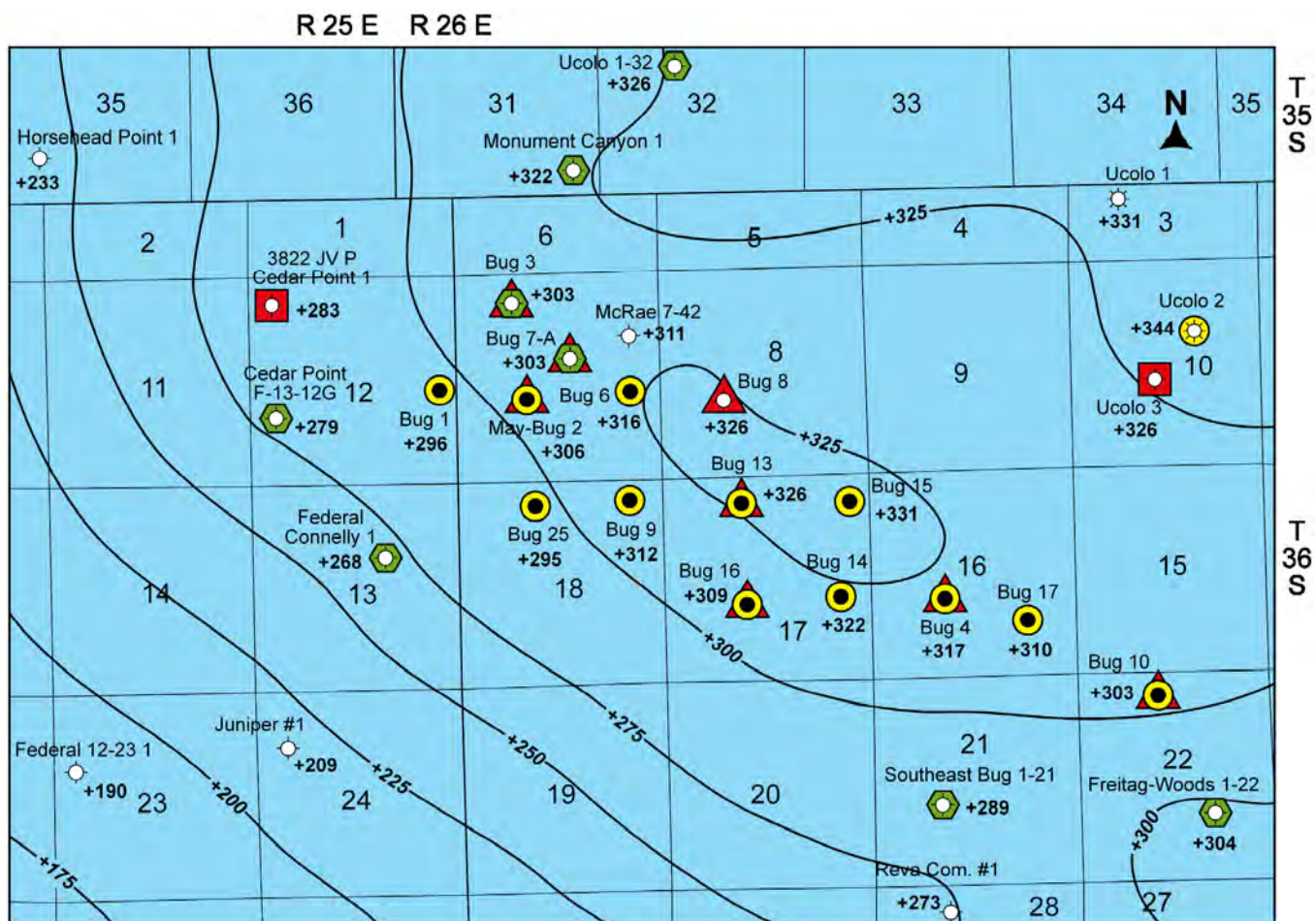


Figure E.9

0 0.5 1 1.5 2 Miles

Structure Contour
Top of Lower Desert Creek
Clean Carbonate
 Contour Interval = 25 ft
 Datum = Sea Level

Bug Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core

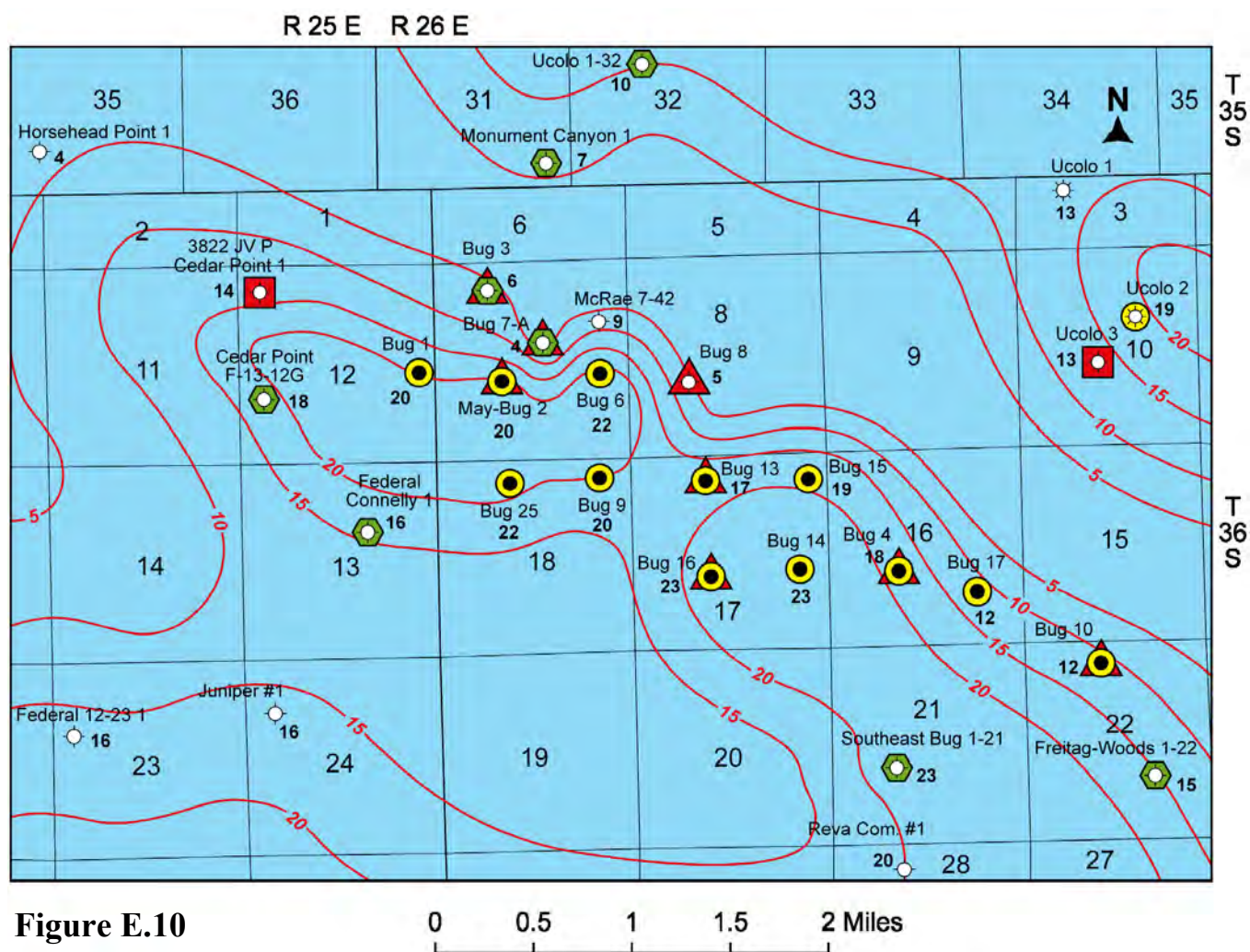


Figure E.10

Isochore
Lower Desert Creek
Clean Carbonate
Contour Interval = 5 ft

Bug Field
San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬢ Desert Creek drill-stem test
- ⦿ Desert Creek completion
- ◼ Desert Creek completion attempt
- ▲ Desert Creek core

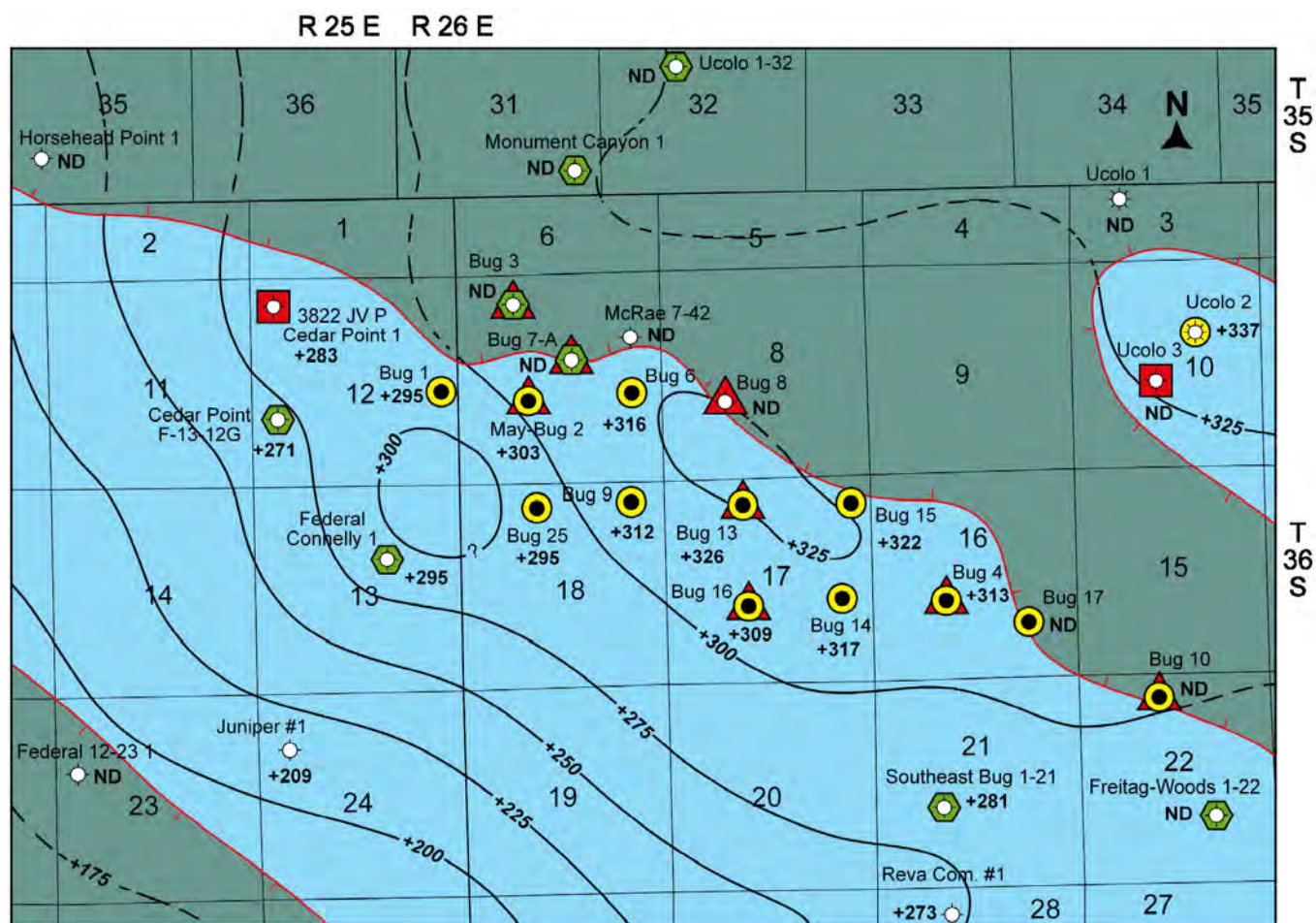


Figure E.11

Structure Contour
Top of Lower Desert Creek Mound
 Contour Interval = 25 ft
 Datum = Sea Level

Bug Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core
- ND No data
- Off-mound

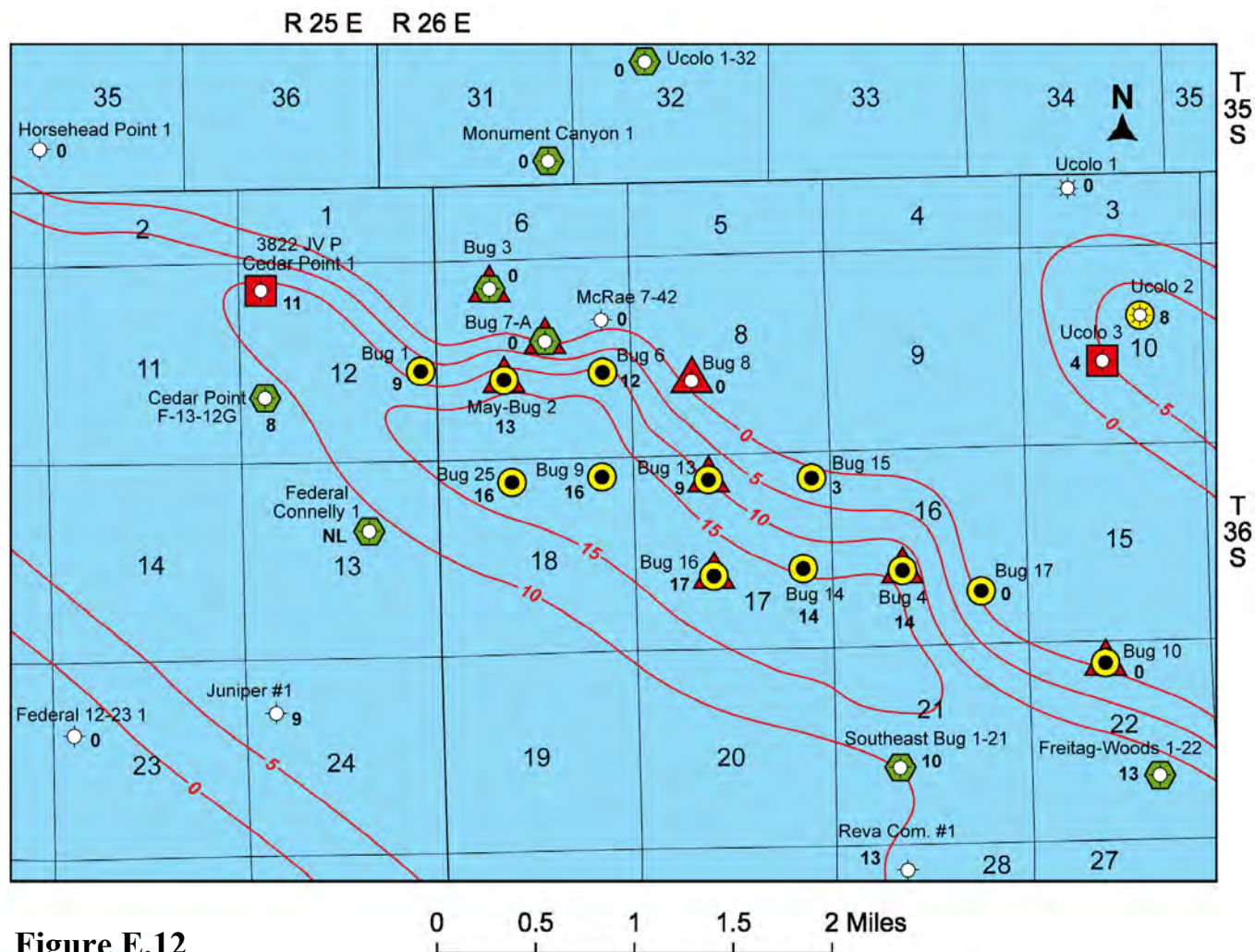


Figure E.12

Isochore
Lower Desert Creek Mound
 Contour Interval = 5 ft
 Porosity > 6%

Bug Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core
- NL No neutron/density log

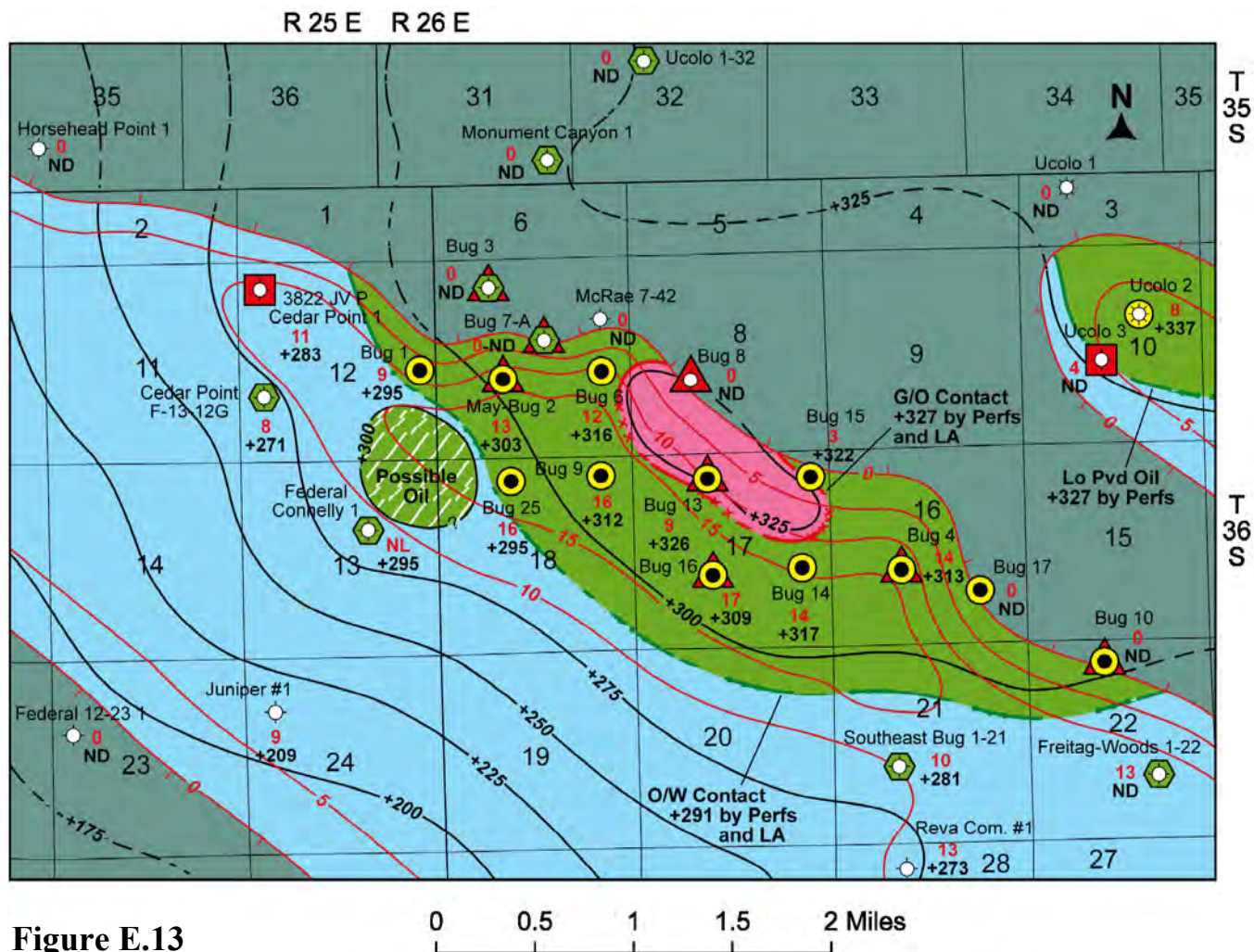


Figure E.13

Isochore

Lower Desert Creek Mound

Contour Interval = 5 ft

Porosity > 6%

Structure Contour

Top of Lower Desert Creek Mound

Contour Interval = 25 ft

Datum = Sea Level

Bug Field

San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core
- NL No neutron/density log
- ND No data
- Oil/water contact
- Gas/oil contact
- Gas
- Oil
- Off-mound
- Mound/clean carbonate

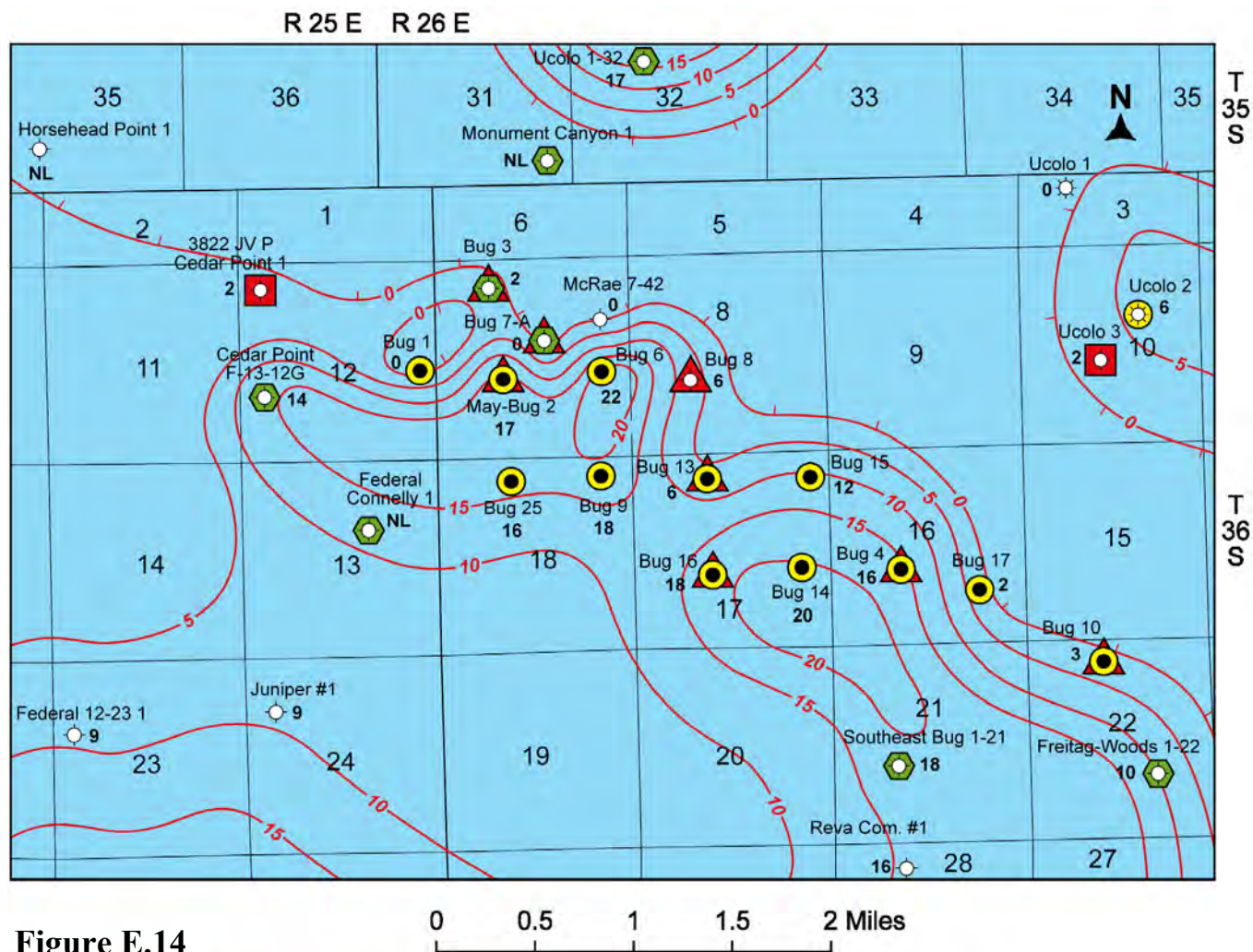


Figure E.14

**Lower Desert Creek Clean Carbonate -
Net Feet of Porosity
(> 10% LA)
Contour Interval = 5 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬢ Desert Creek drill-stem test
- ⦿ Desert Creek completion
- ⬜ Desert Creek completion attempt
- ▲ Desert Creek core
- NL No neutron/density log

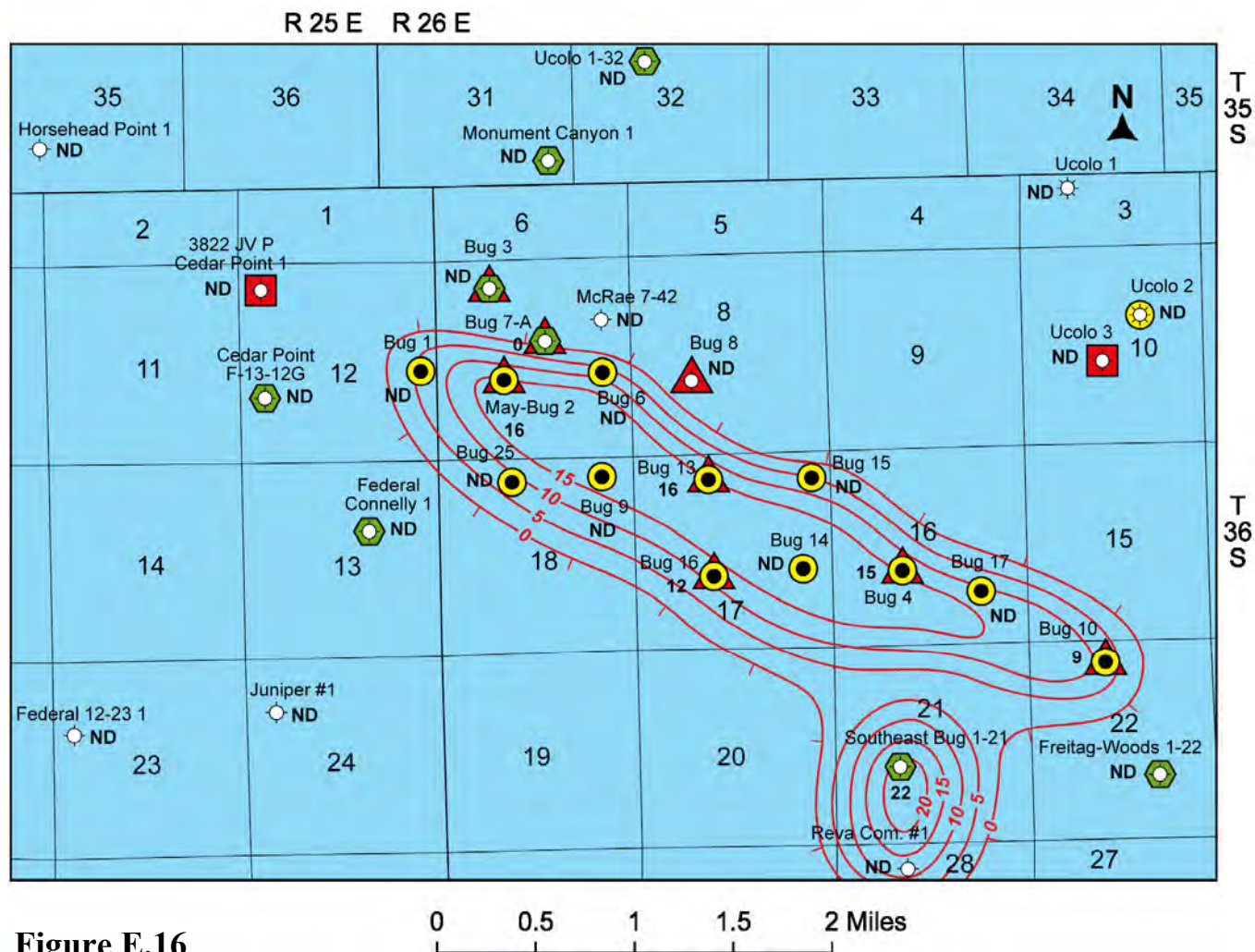


Figure E.16

**Lower Desert Creek Clean Carbonate -
Porosity vs Height
(0 > 6% by core analysis)
Contour Interval = 5 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊗ Plugged and abandoned
- ☆ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core
- ND No data

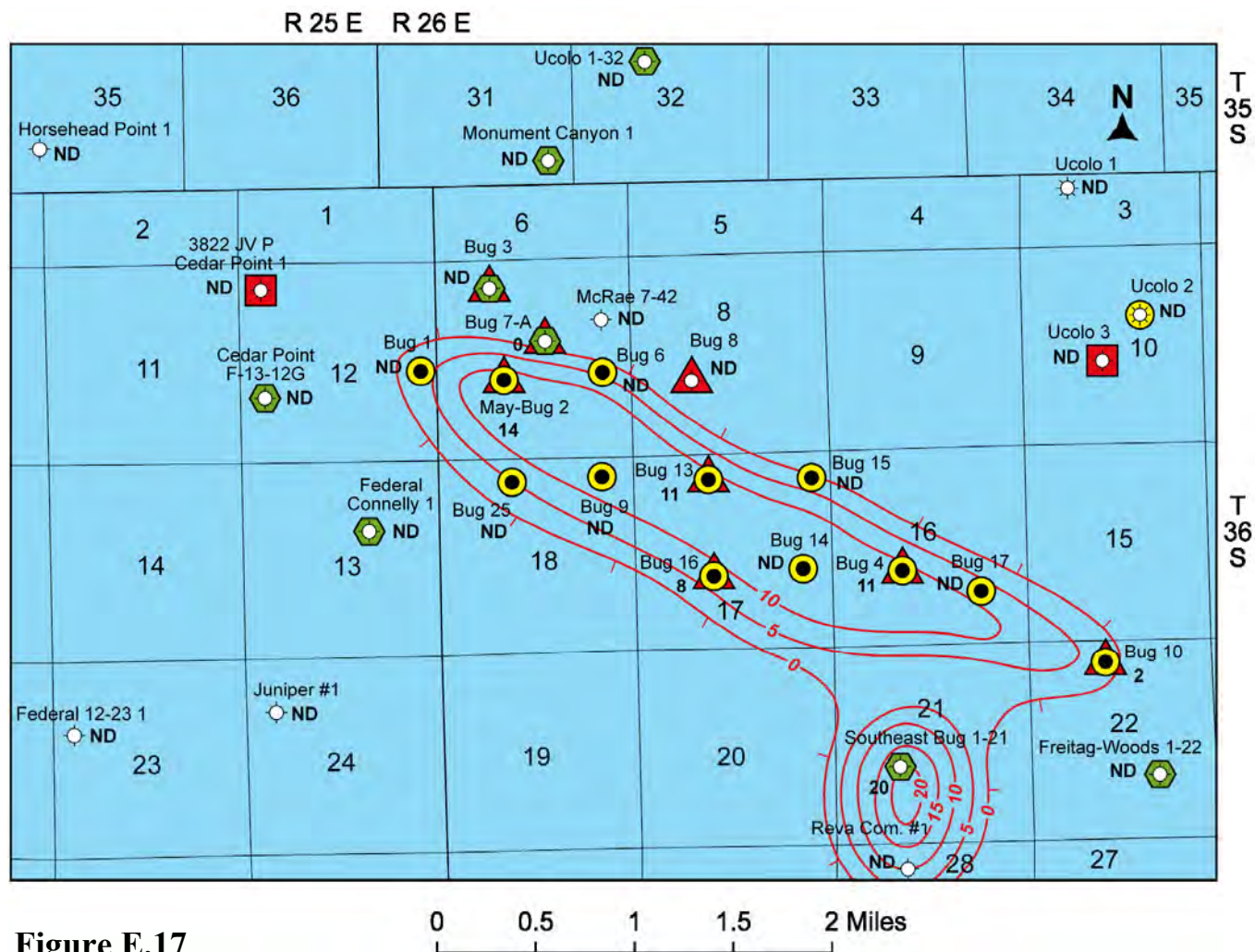


Figure E.17

**Lower Desert Creek Clean Carbonate -
Porosity vs Height
(0 > 10% by core analysis)
Contour Interval = 5 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ☆ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core
- ND No data

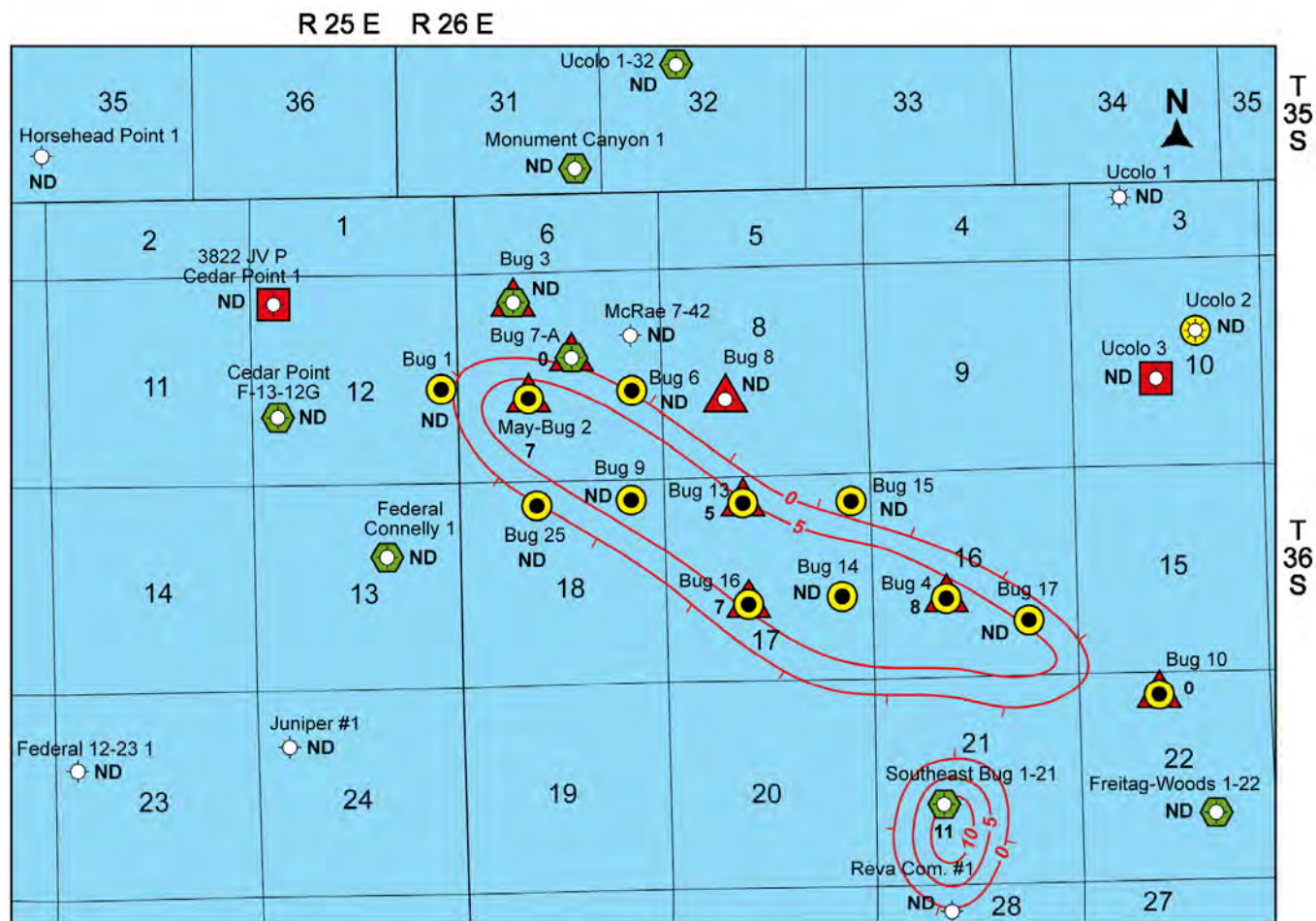


Figure E.18

**Lower Desert Creek Clean Carbonate -
Porosity vs Height
(0 > 12% by core analysis)
Contour Interval = 5 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- ◼ Desert Creek completion attempt
- ▲ Desert Creek core
- ND No data

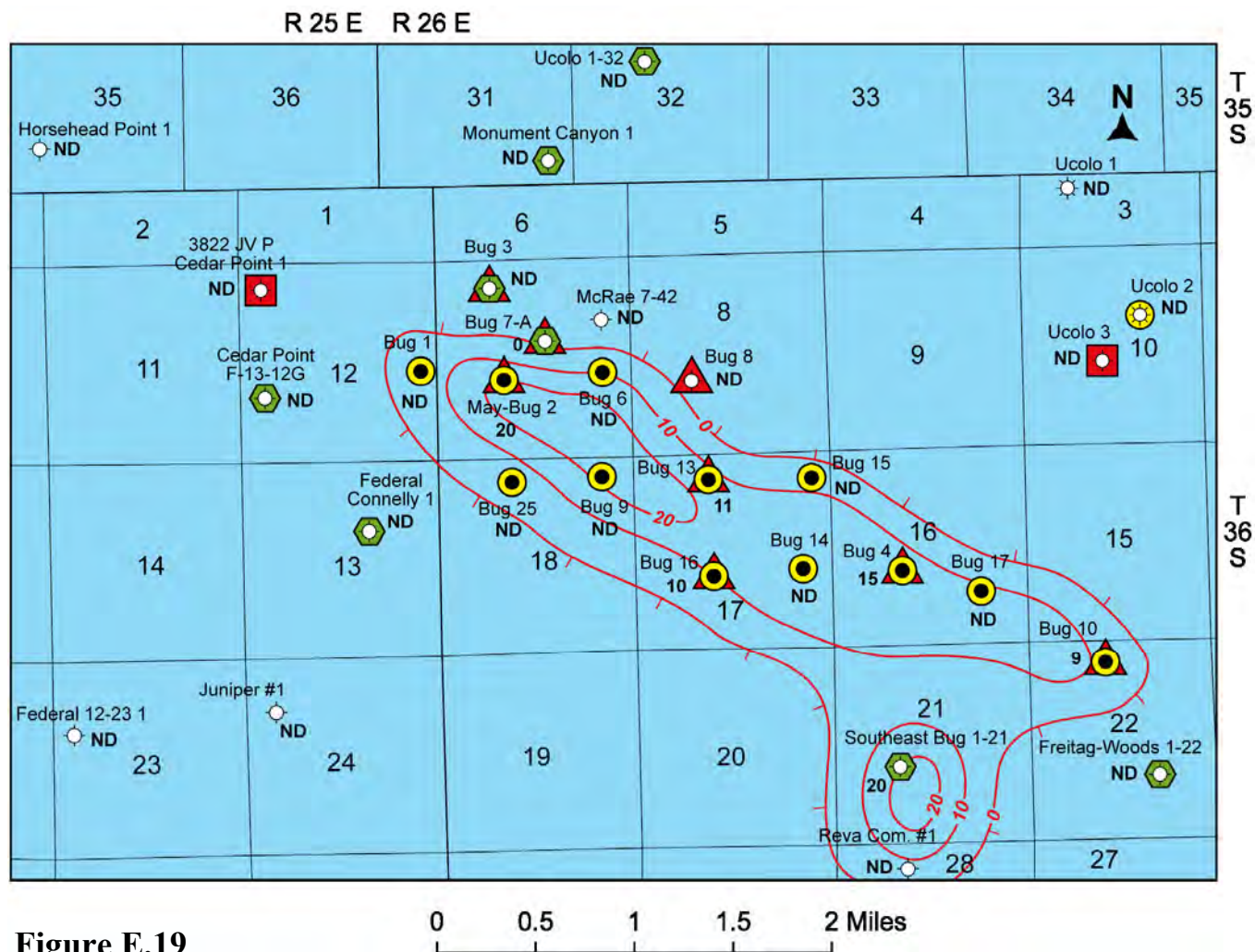


Figure E.19

**Lower Desert Creek Clean Carbonate -
Permeability vs Height
($kh > 2$ md)
Contour Interval = 10 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊗ Plugged and abandoned
- ☆ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core
- ND No data

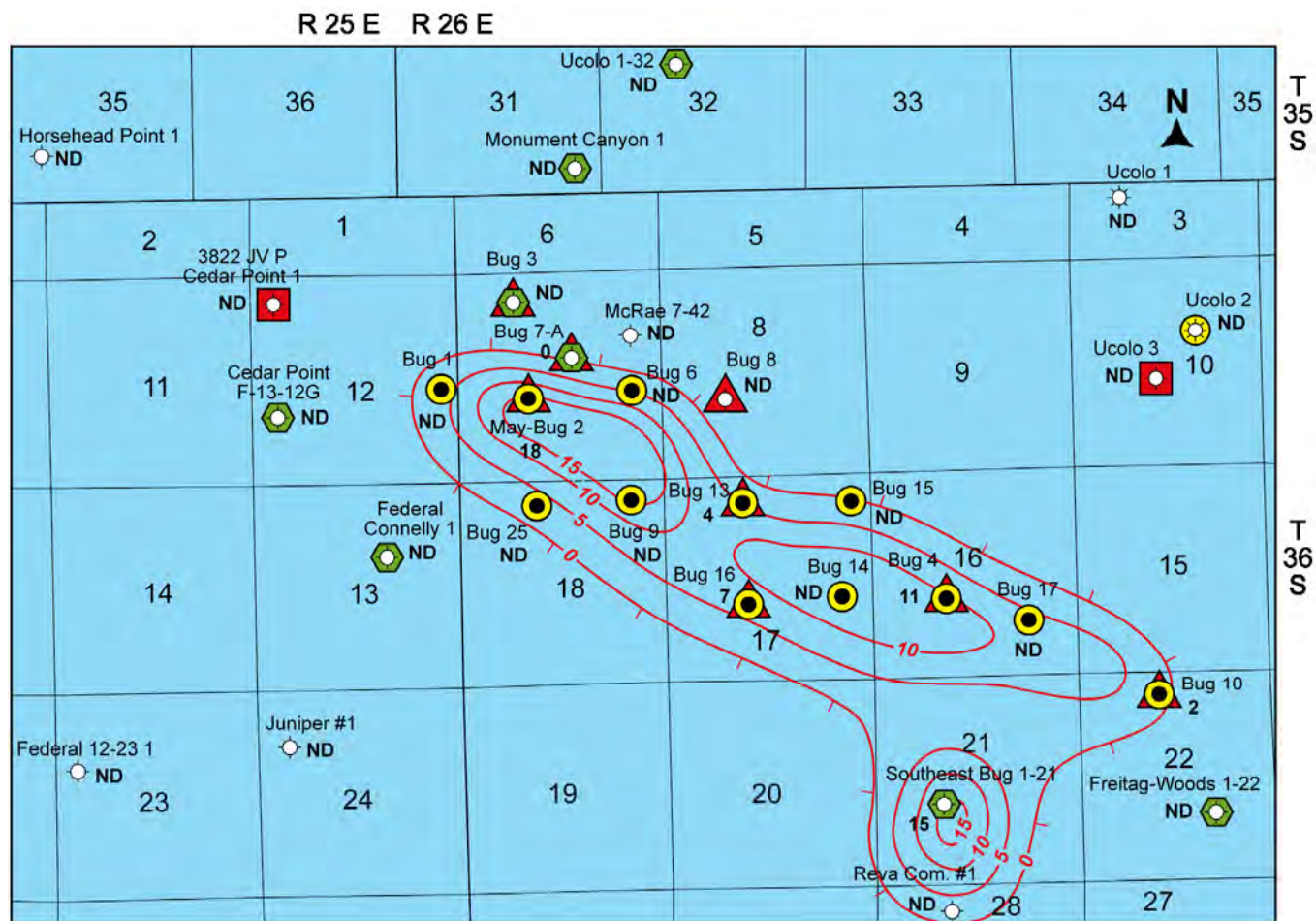


Figure E.20

**Lower Desert Creek Clean Carbonate -
Permeability vs Height
($kh > 10$ md)**

Contour Interval = 5 ft

Bug Field
San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core
- ND No data

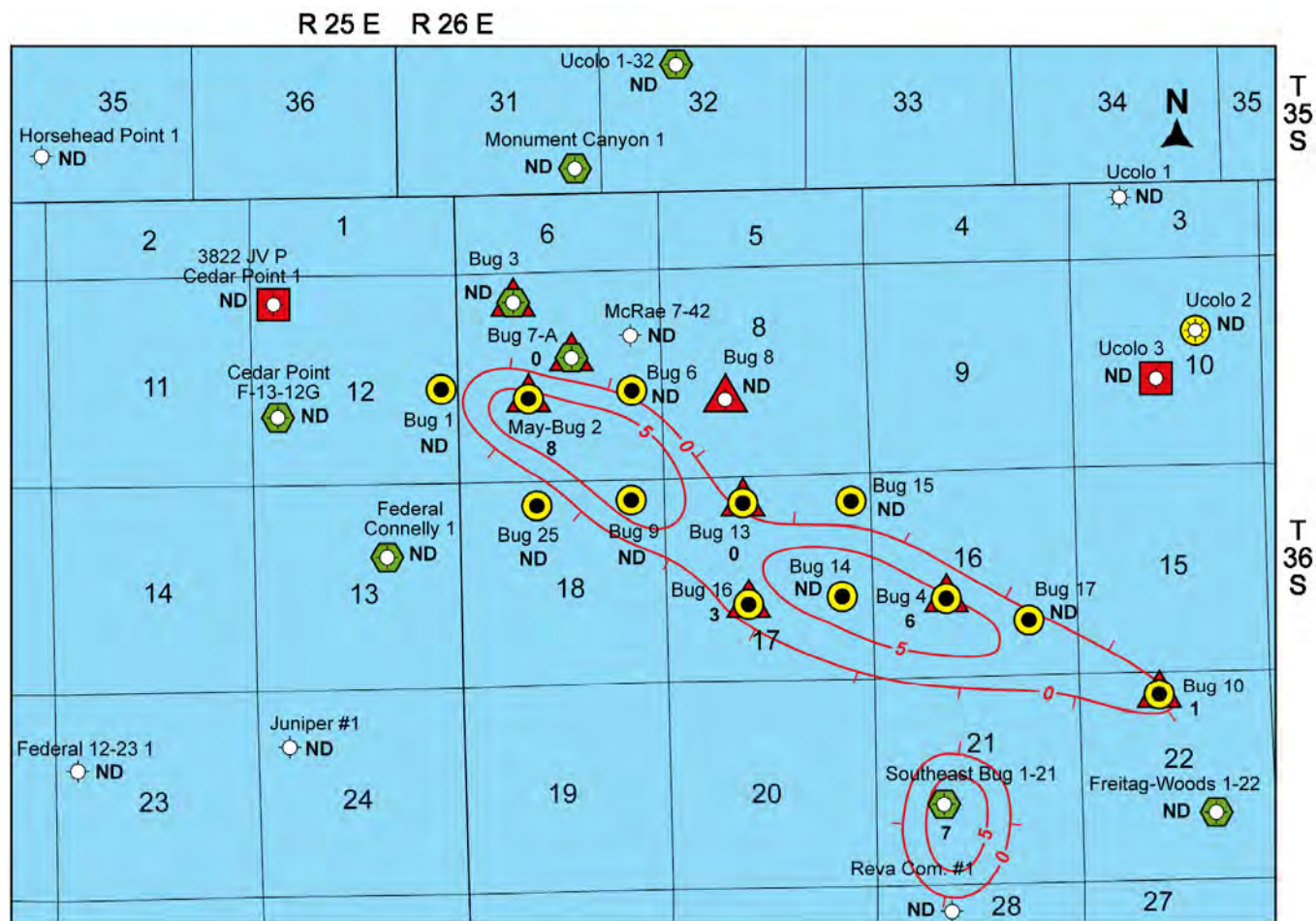


Figure E.21

**Lower Desert Creek Clean Carbonate -
Permeability vs Height
($kh > 50$ md)
Contour Interval = 5 ft**

Bug Field
San Juan County, Utah

Explanation

- ⊗ Plugged and abandoned
- ☆ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core
- ND No data

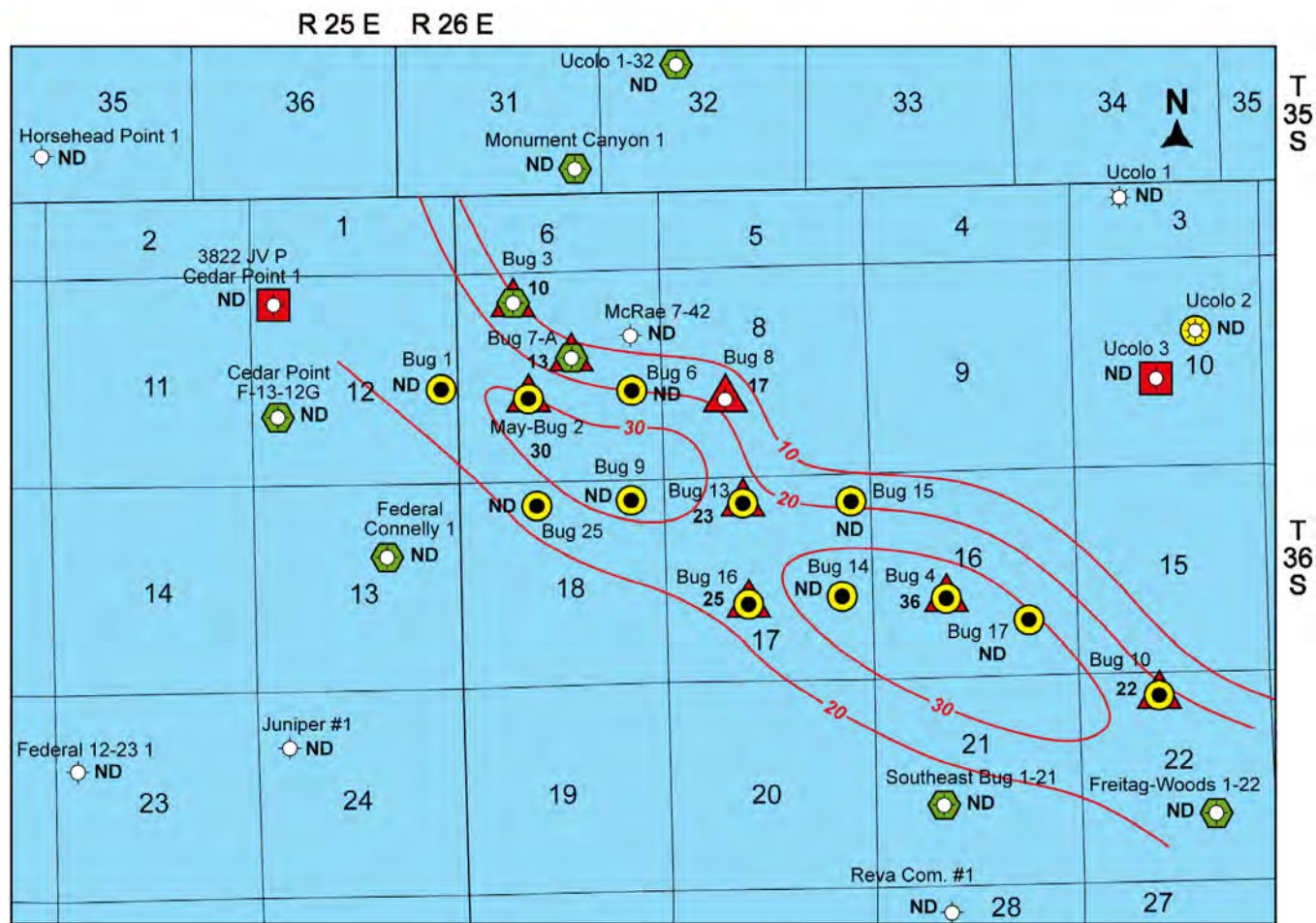







Figure E.22

**Lower Desert Creek Clean Carbonate -
Net Feet of Dolomite
(from core)
Contour Interval = 10 ft**

Bug Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Producing gas
-  Desert Creek drill-stem test
-  Desert Creek completion
-  Desert Creek completion attempt
-  Desert Creek core
- ND** No data

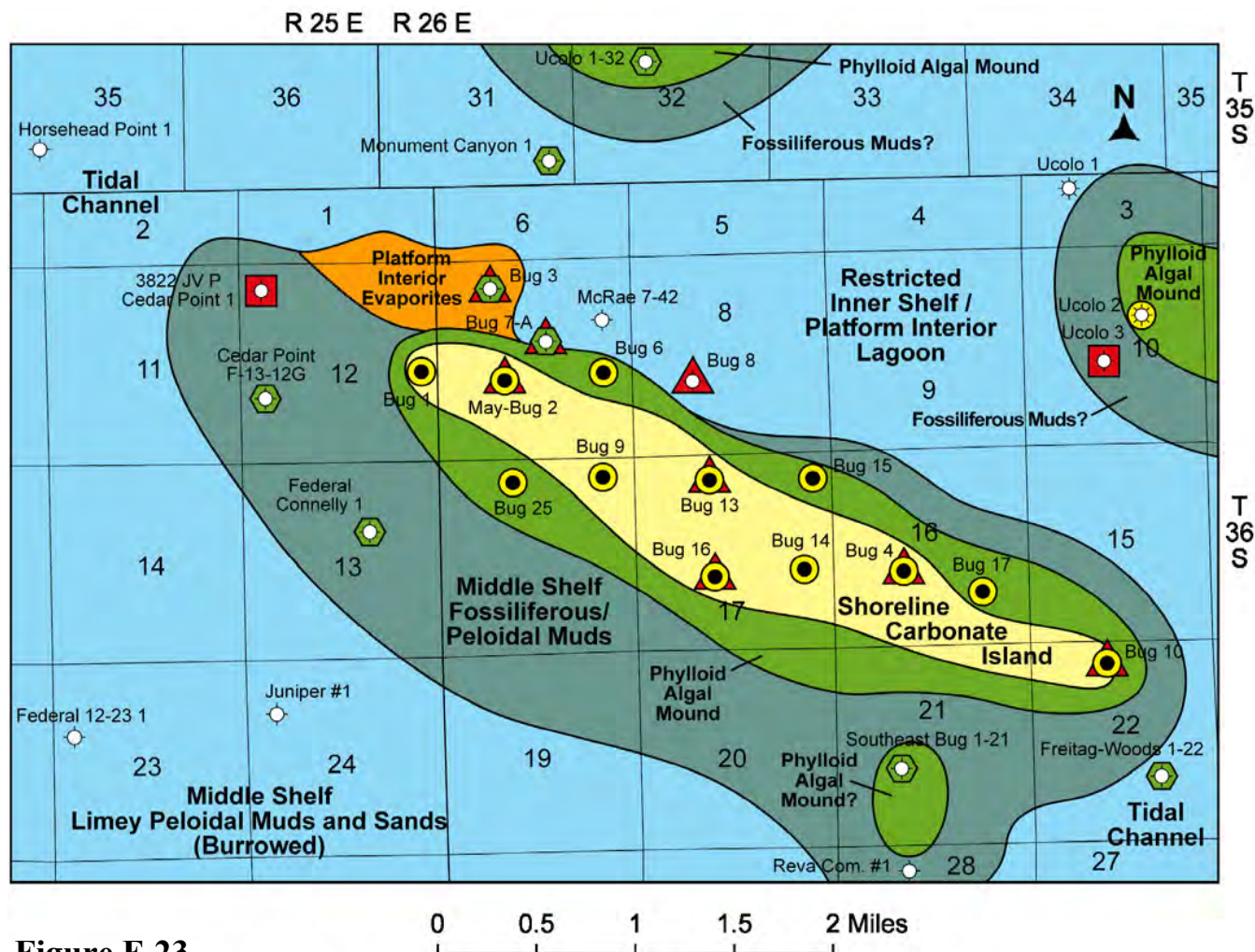


Figure E.23

Lower Desert Creek Facies Map

Bug Field
San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core

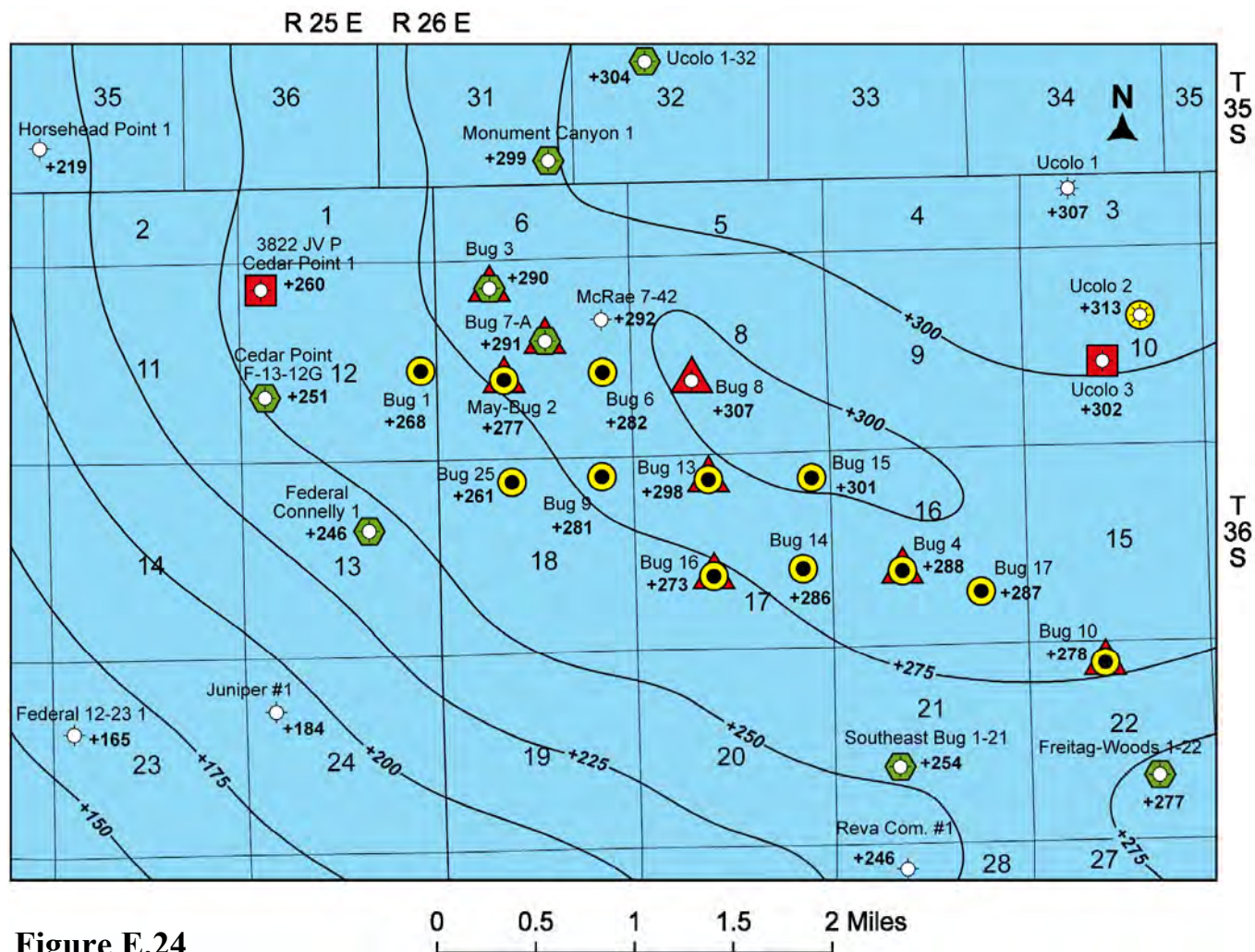


Figure E.24

Structure Contour
Top of Chimney Rock Shale
 Contour Interval = 25 ft
 Datum = Sea Level

Bug Field
 San Juan County, Utah

Explanation

- ⊙ Plugged and abandoned
- ⊛ Producing gas
- ⬡ Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- ▲ Desert Creek core
- NL No neutron/density log

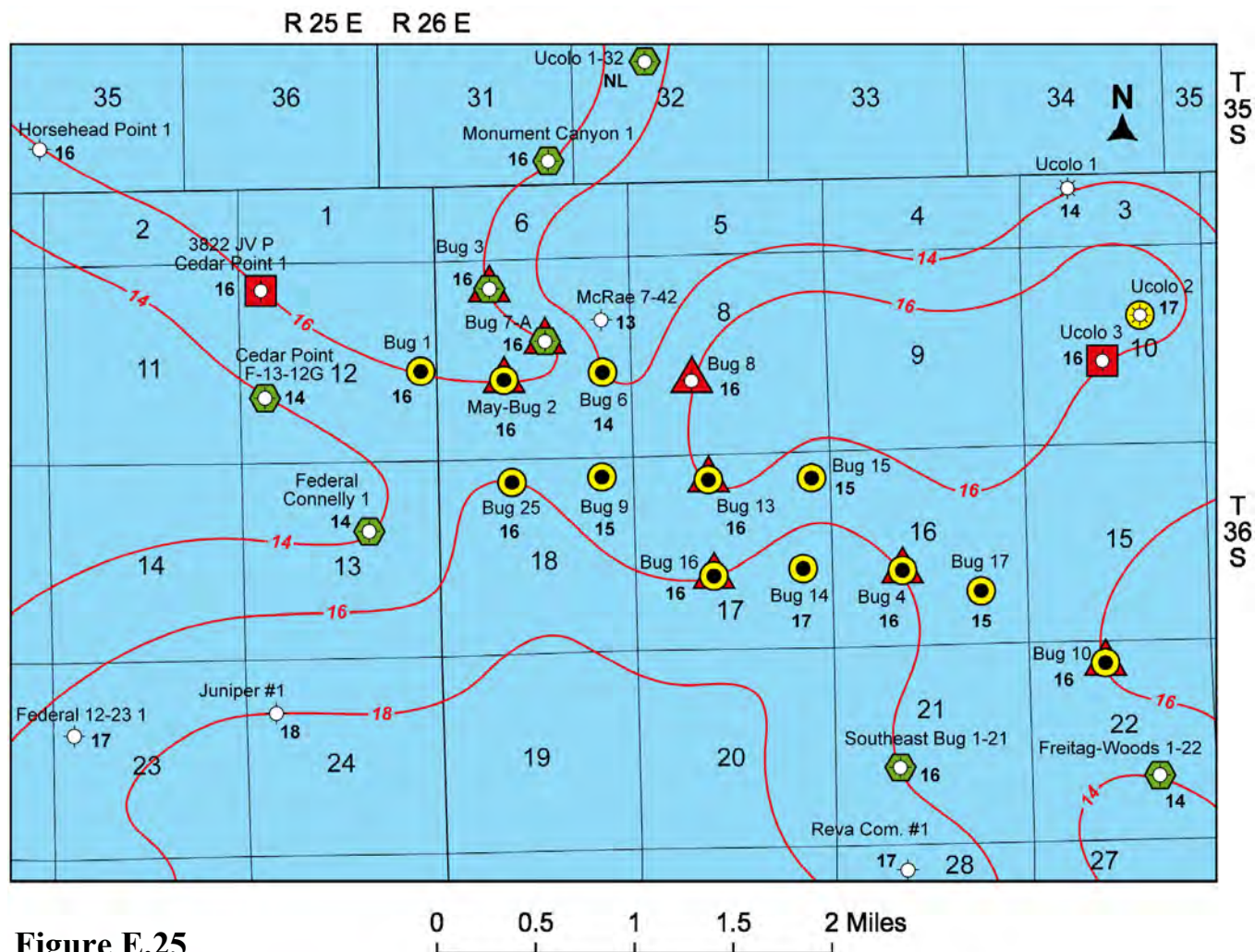


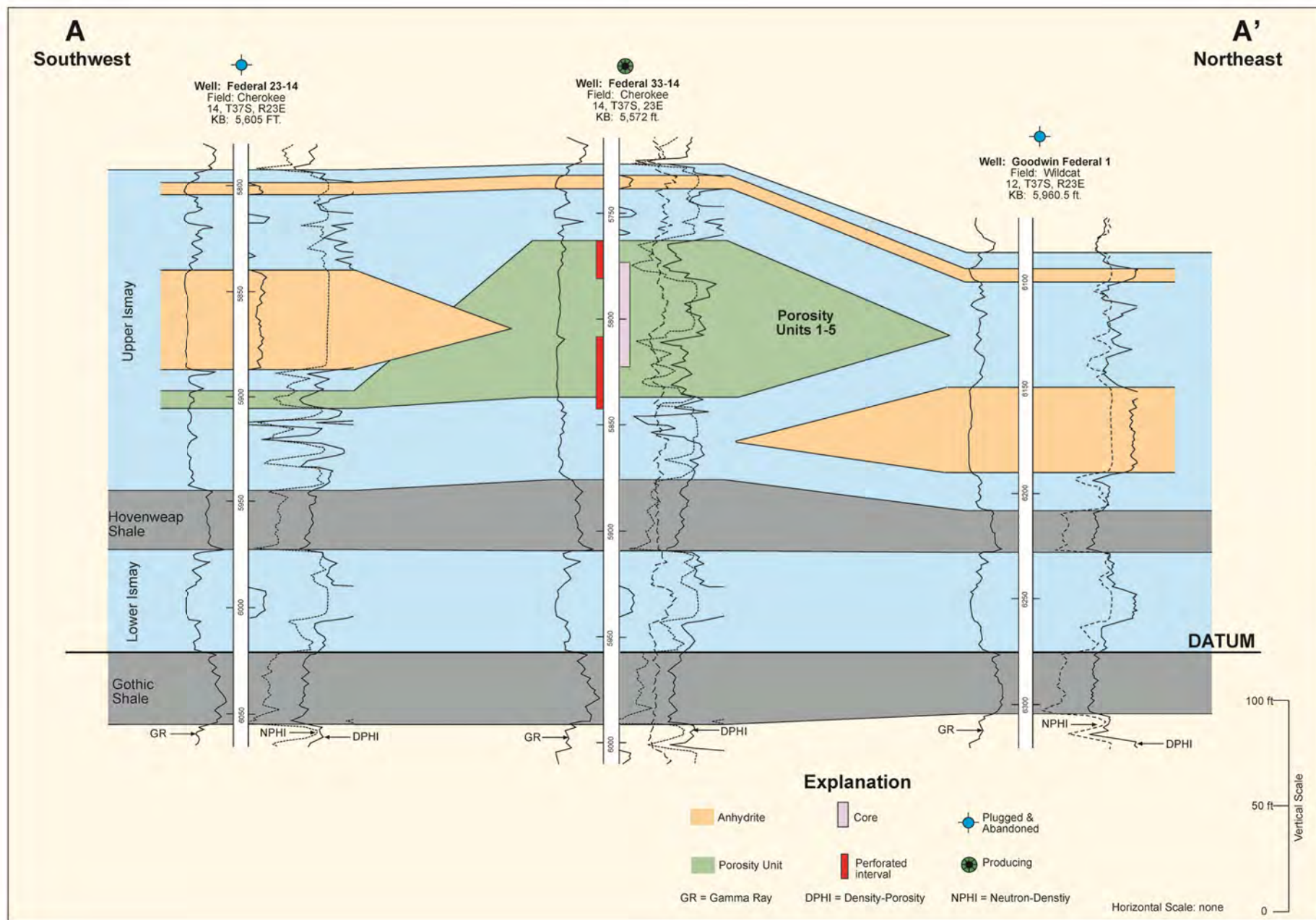
Figure E.25

Isochore
Chimney Rock Shale
 Contour Interval = 2 ft

Bug Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Producing gas
- Desert Creek drill-stem test
- Desert Creek completion
- Desert Creek completion attempt
- Desert Creek core
- NL No neutron/density log



E.26 Southwest to northeast stratigraphic cross section, Cherokee field, Utah. Line of section A-A' shown on figure E.28

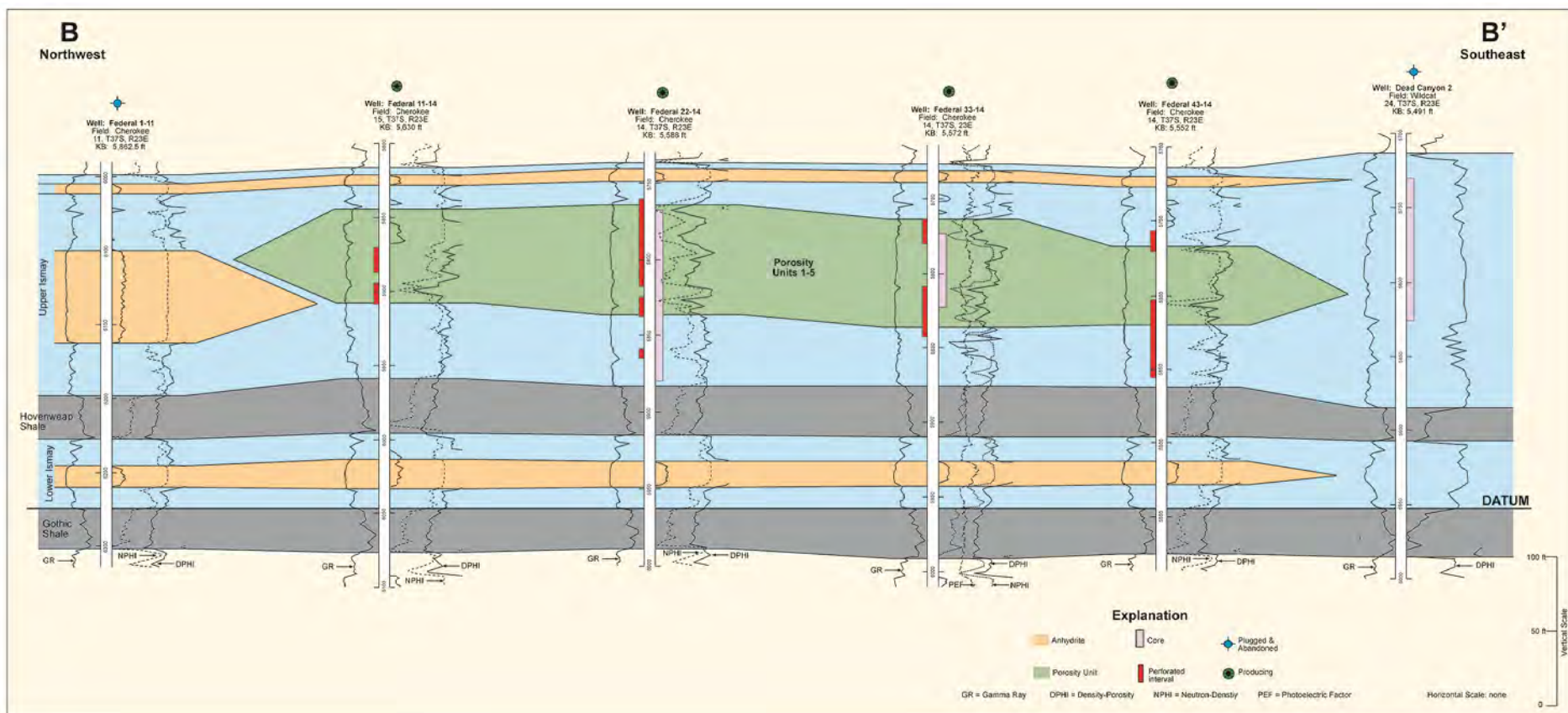


Figure E.27 Northwest to southeast stratigraphic cross section, Cherokee field, Utah. Line of section B-B' shown on figure E.28

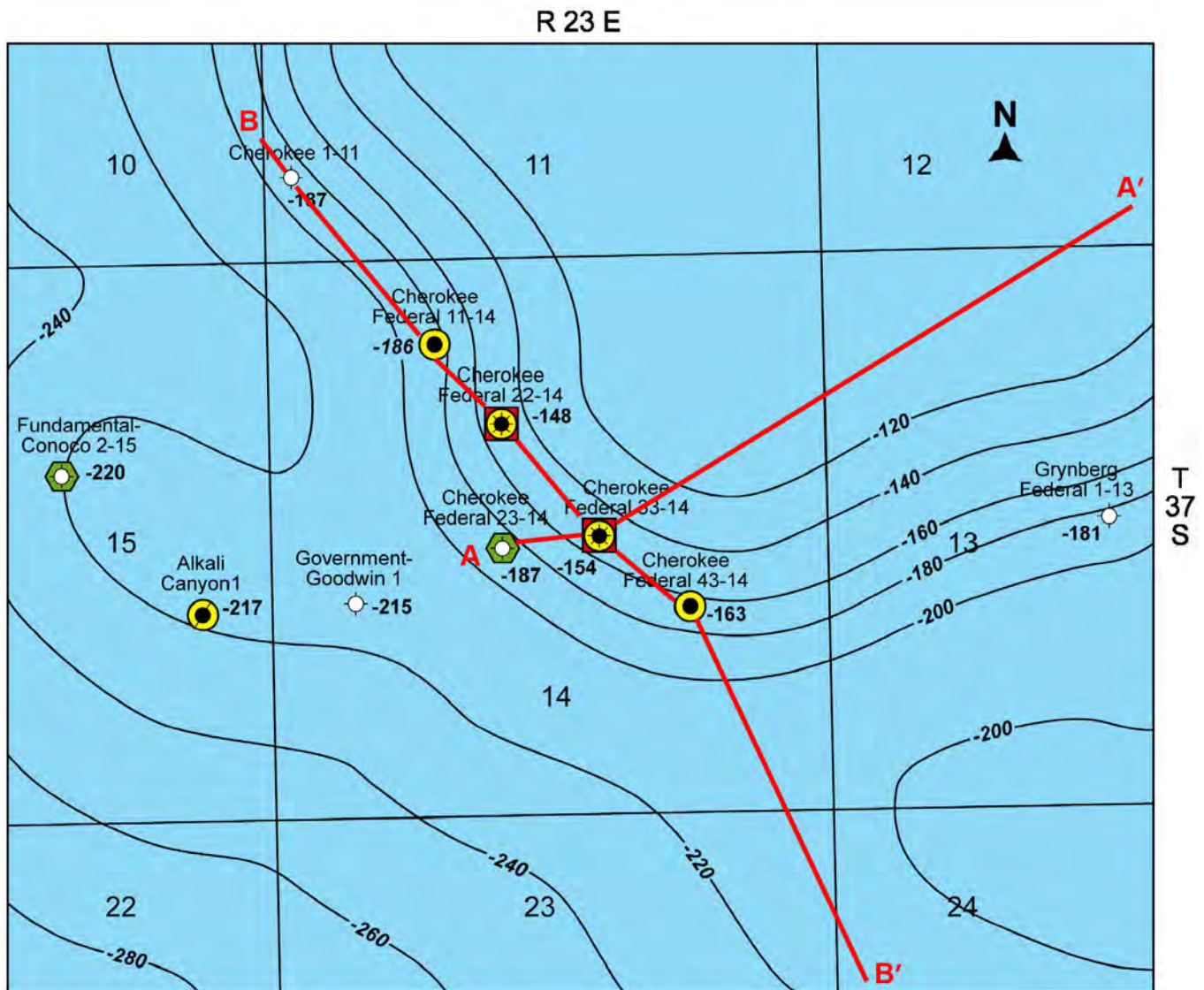


Figure E.28

0 0.5 1 Mile

Structure Contour

Top of Ismay






Contour Interval = 20 ft

Datum = Sea Level

Cherokee Field

San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

Note: Cross sections A-A' and B-B' are shown on figures E.26 and E.27, which extend beyond the edge of the map.

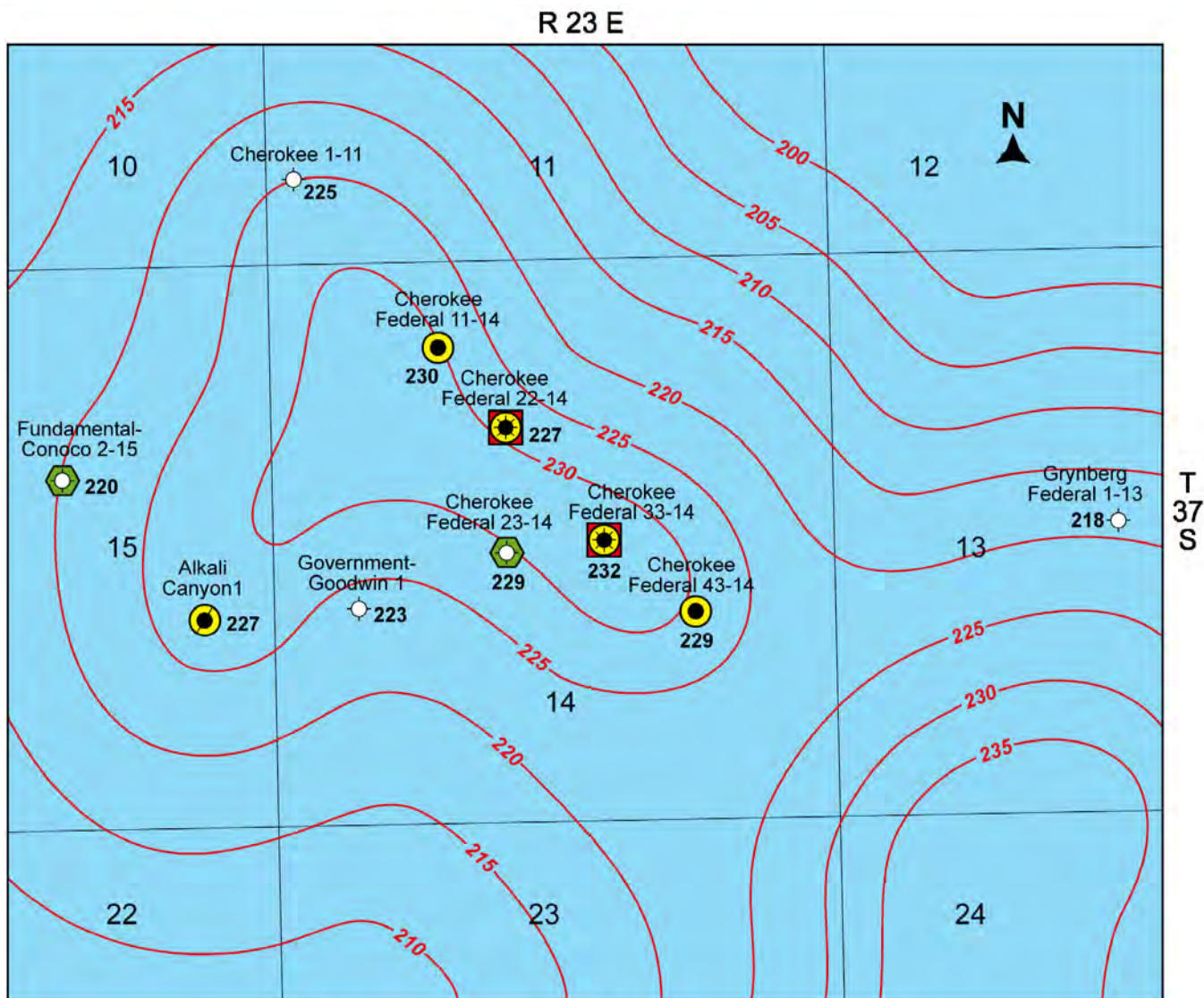







Figure E.29

Ismay Isochore
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

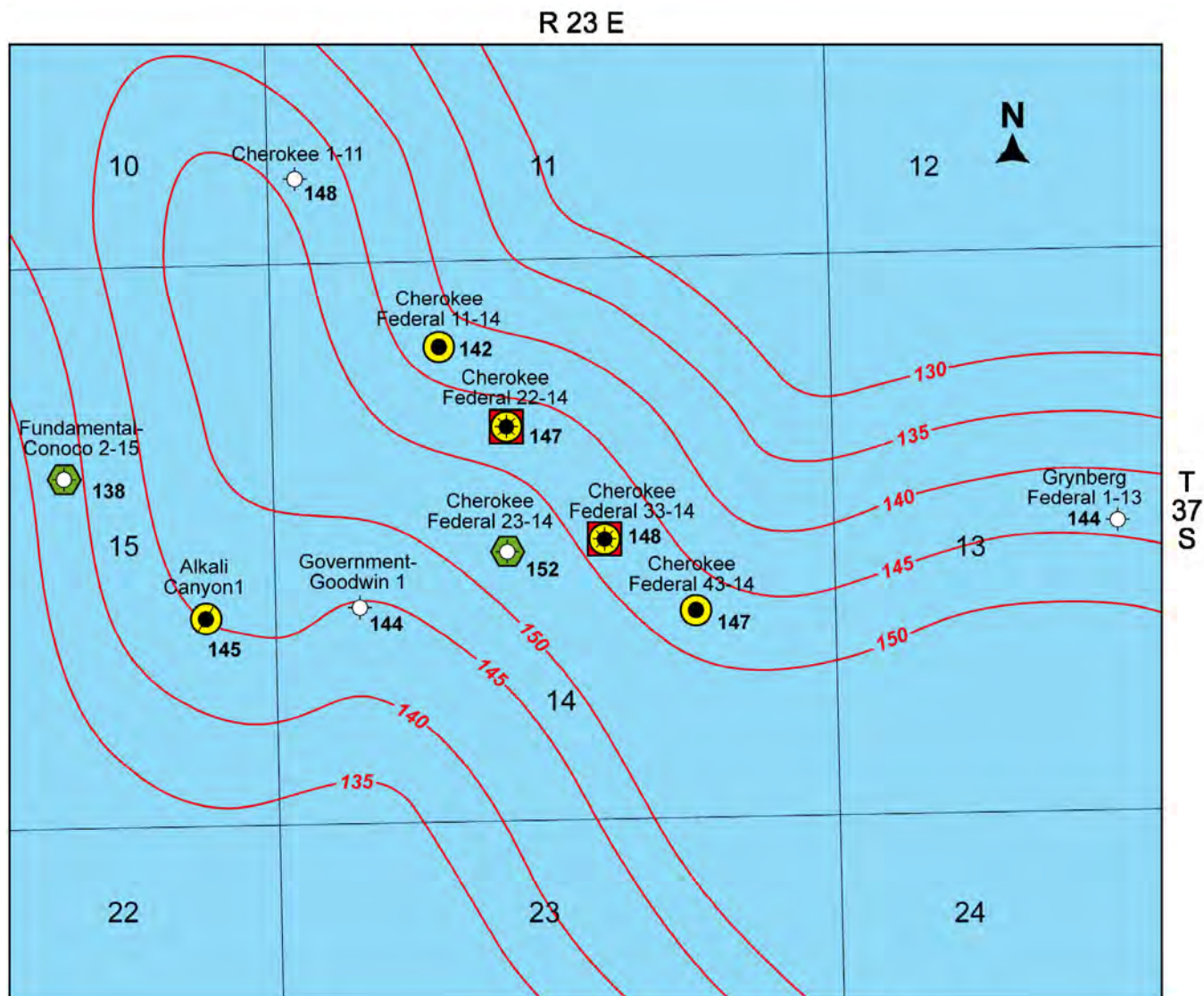







Figure E.30

Isochore: Upper Ismay Zone
Contour Interval = 5 ft

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

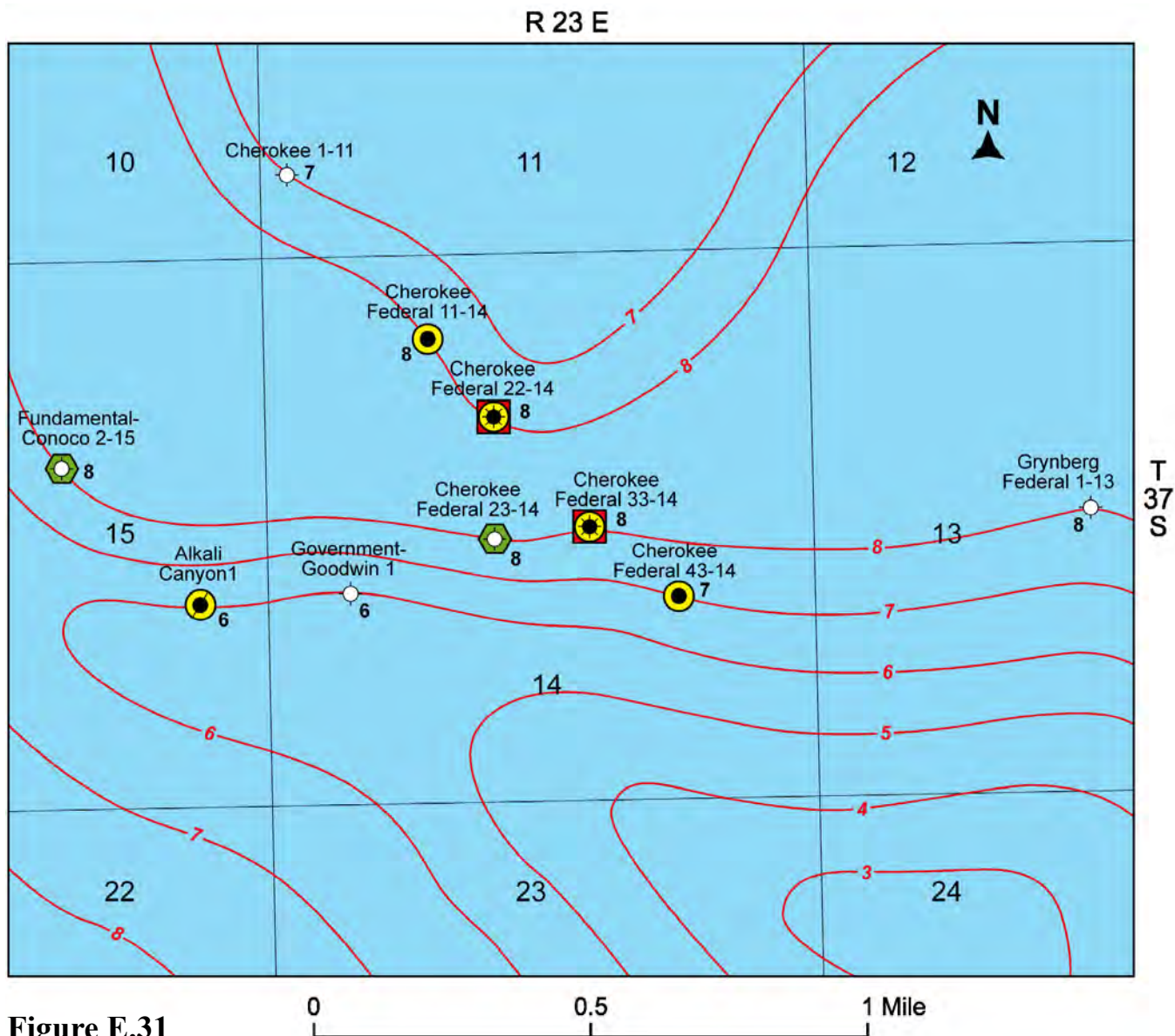







Figure E.31

Isochore: Upper Ismay Anhydrite
Contour Interval = 1 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

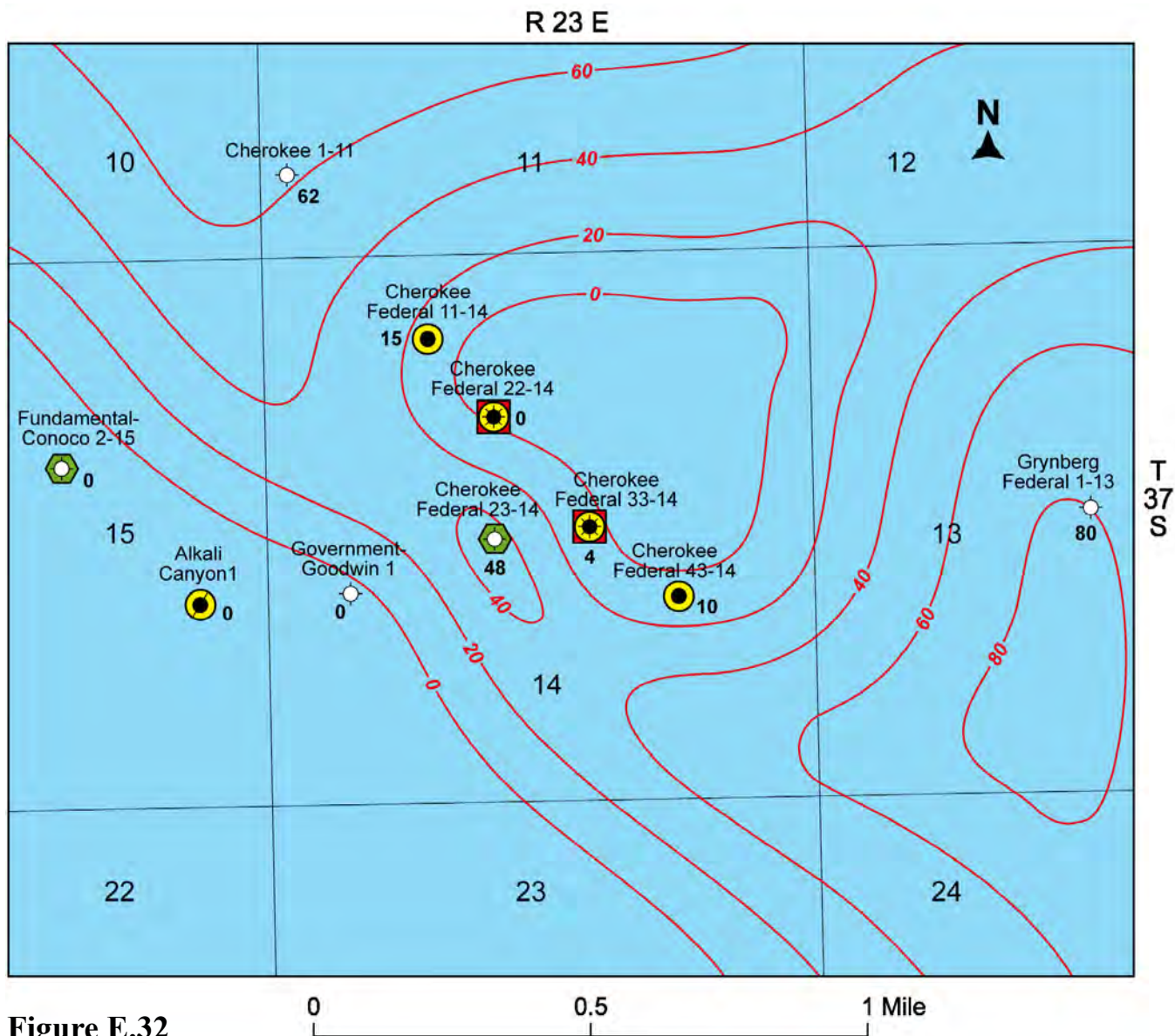







Figure E.32

**Isochore: Upper Ismay
Anhydrite 2**
Contour Interval = 20 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

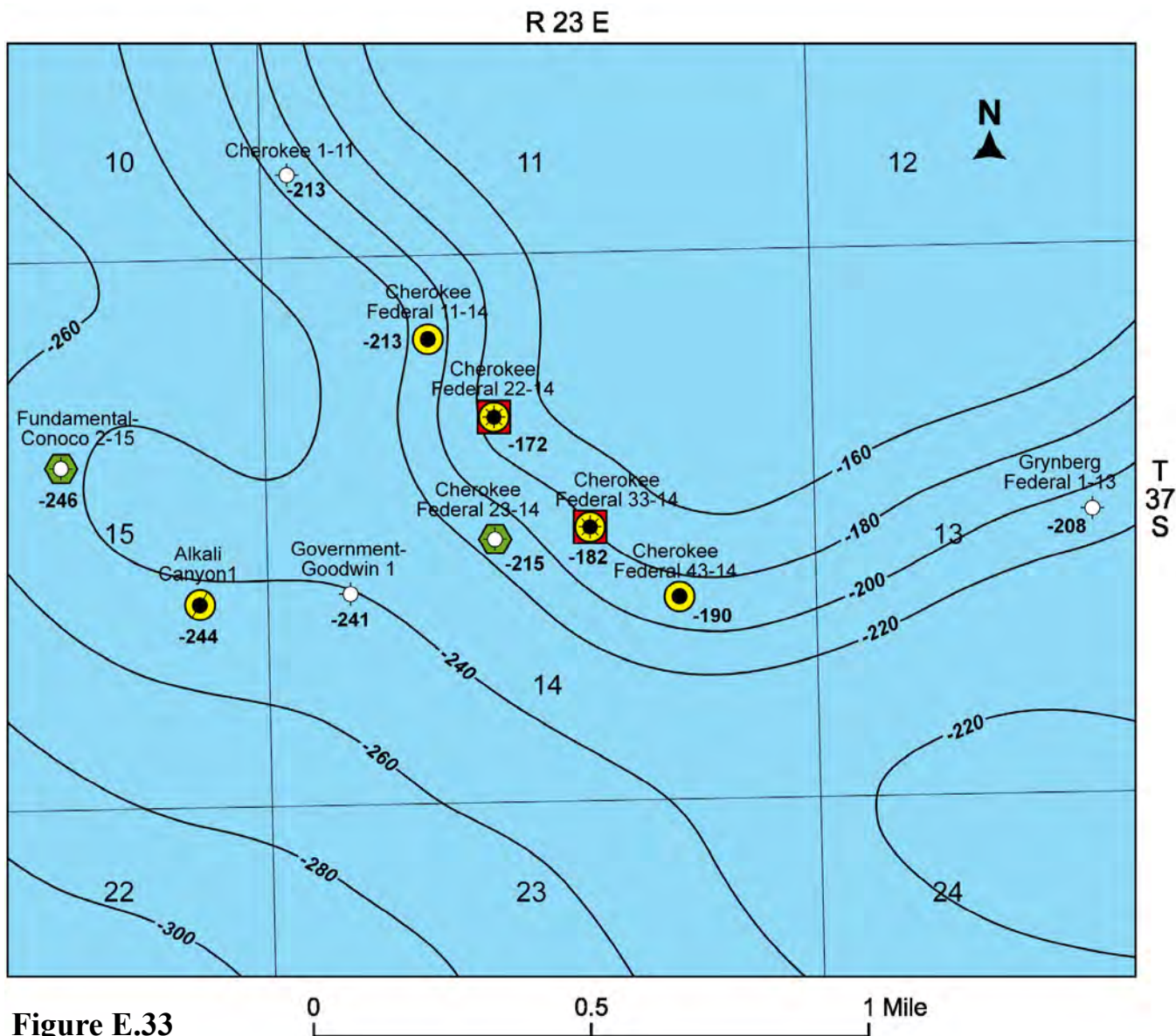


Figure E.33

Structure Contour
Top of Upper Ismay
Clean Carbonate
 Contour Interval = 20 ft
 Datum = Sea Level

Cherokee Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core

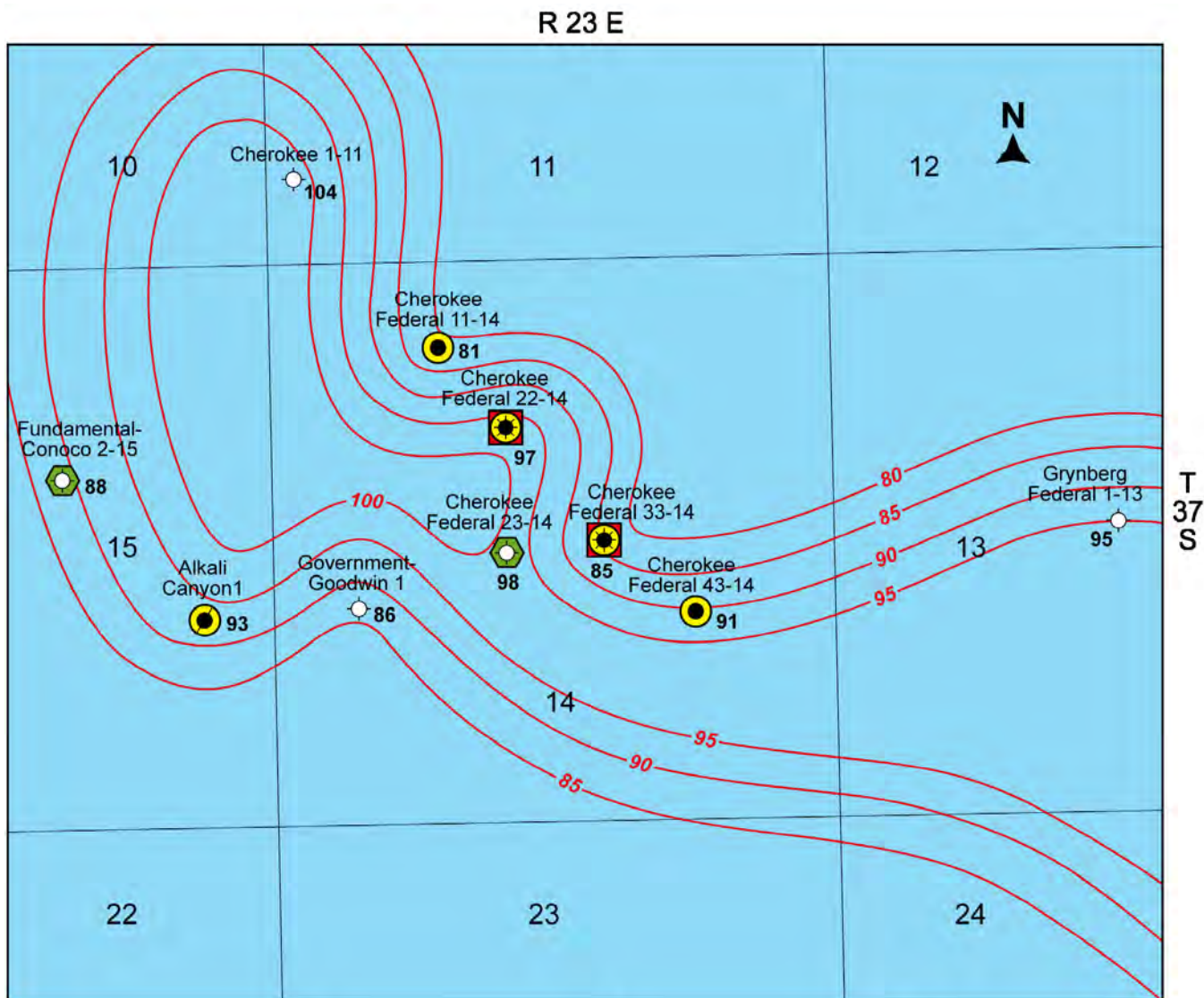







Figure E.34

**Isochore: Upper Ismay
Clean Carbonate**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

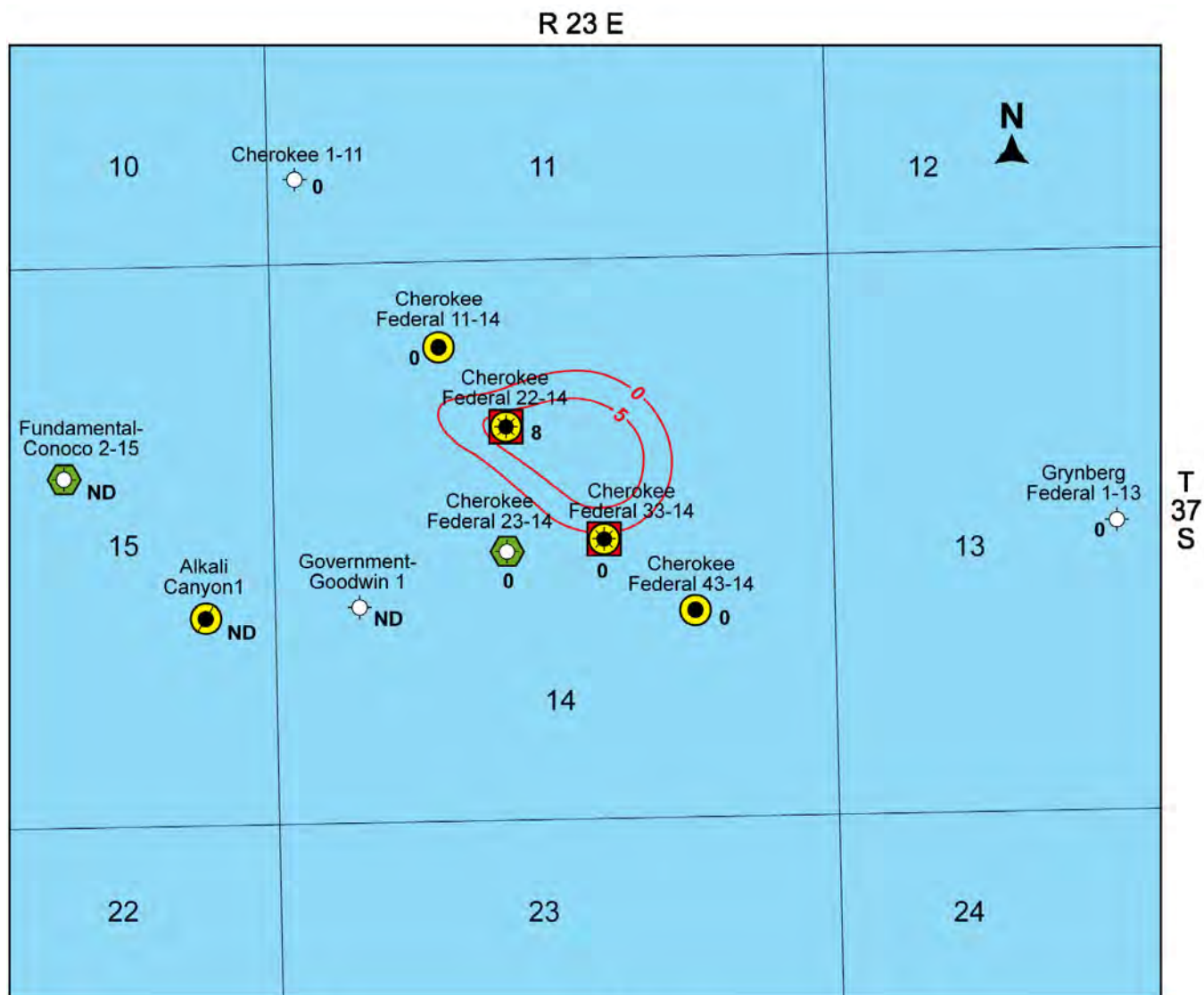







Figure E.35

**Isochore: Ismay Zone,
Porosity Unit 1**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND** No neutron/density log

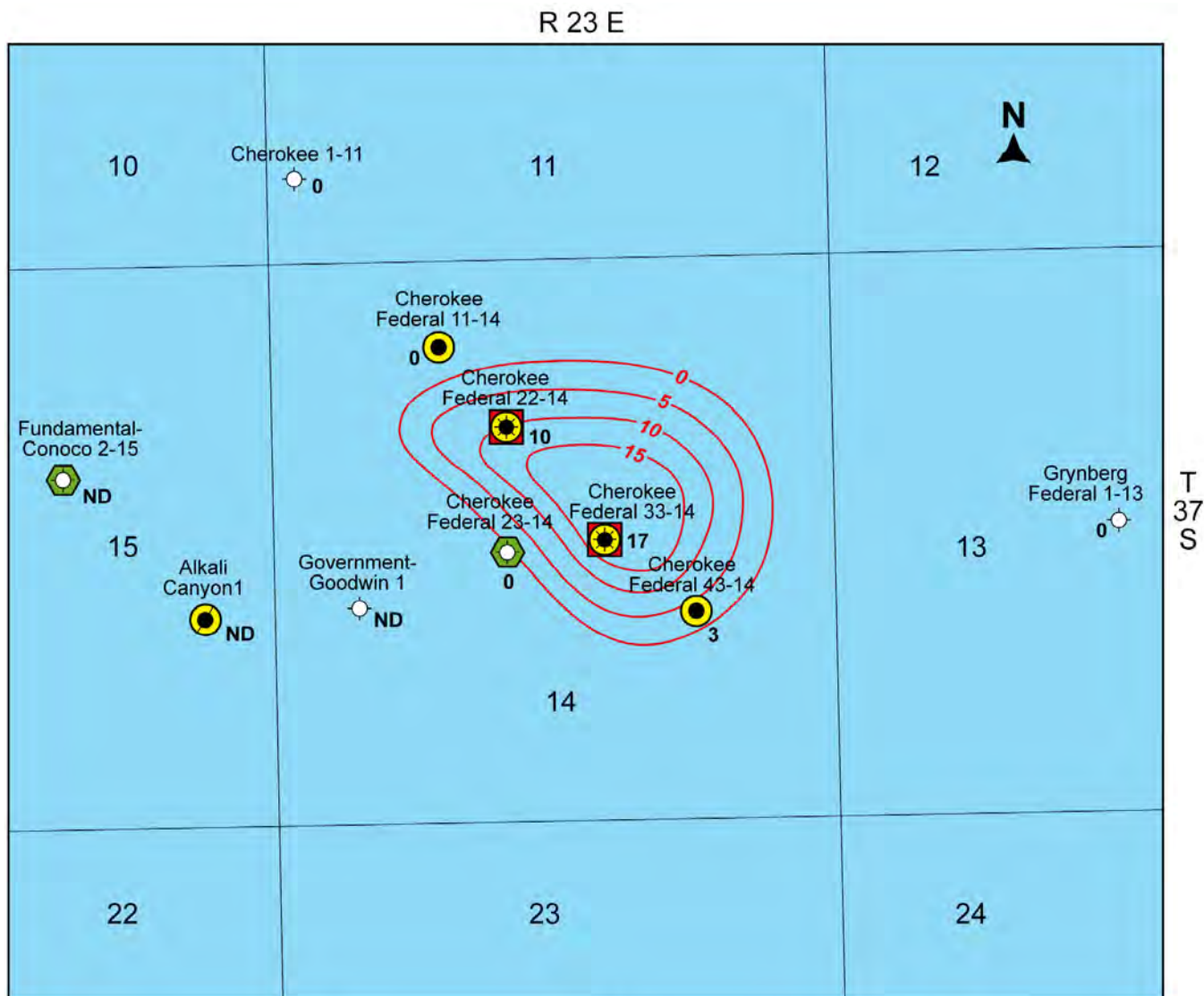







Figure E.36

**Isochore: Ismay Zone,
Porosity Unit 2**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND** No neutron/density log

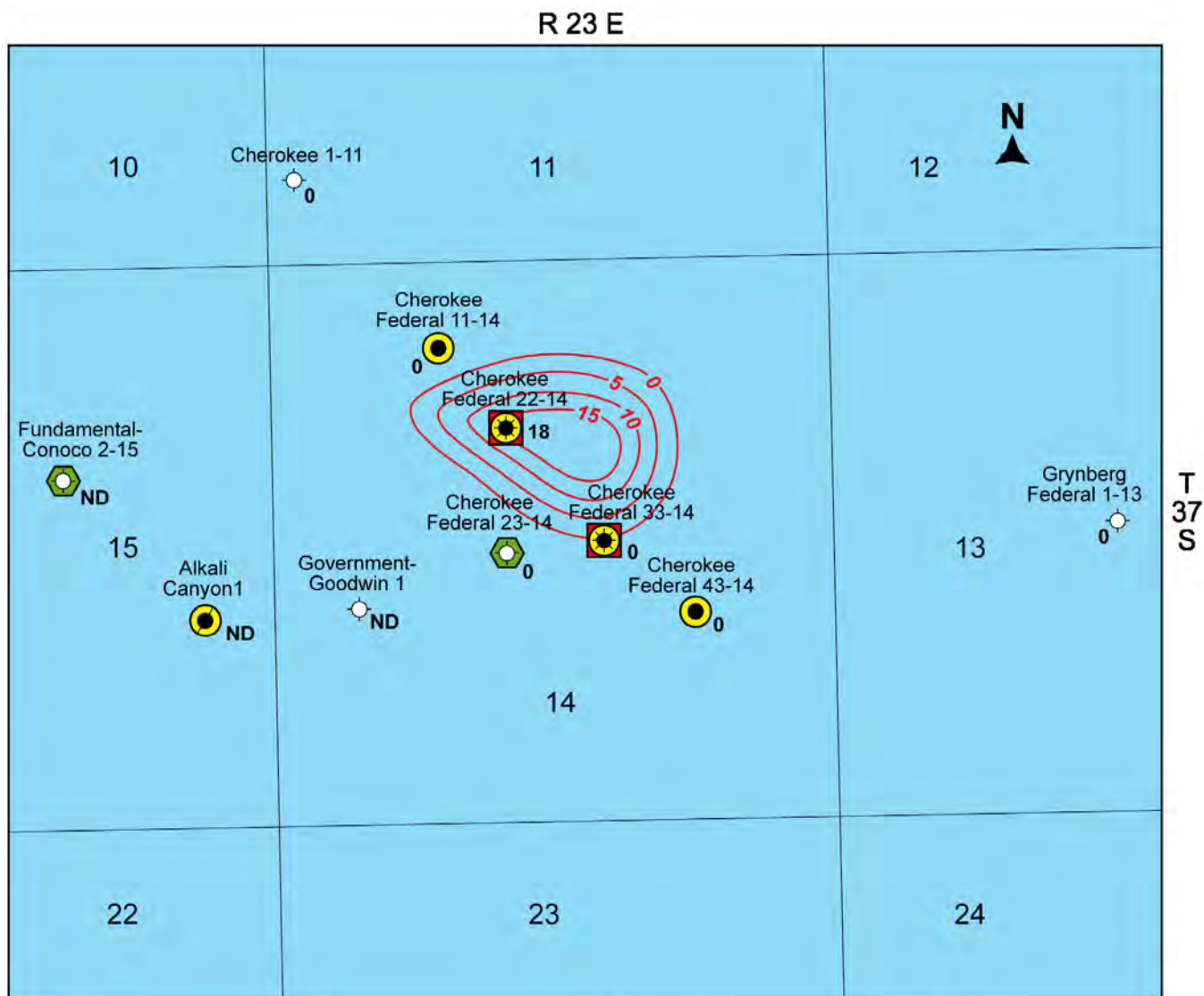







Figure E.37

**Isochore: Ismay Zone,
Porosity Unit 3**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND** No neutron/density log

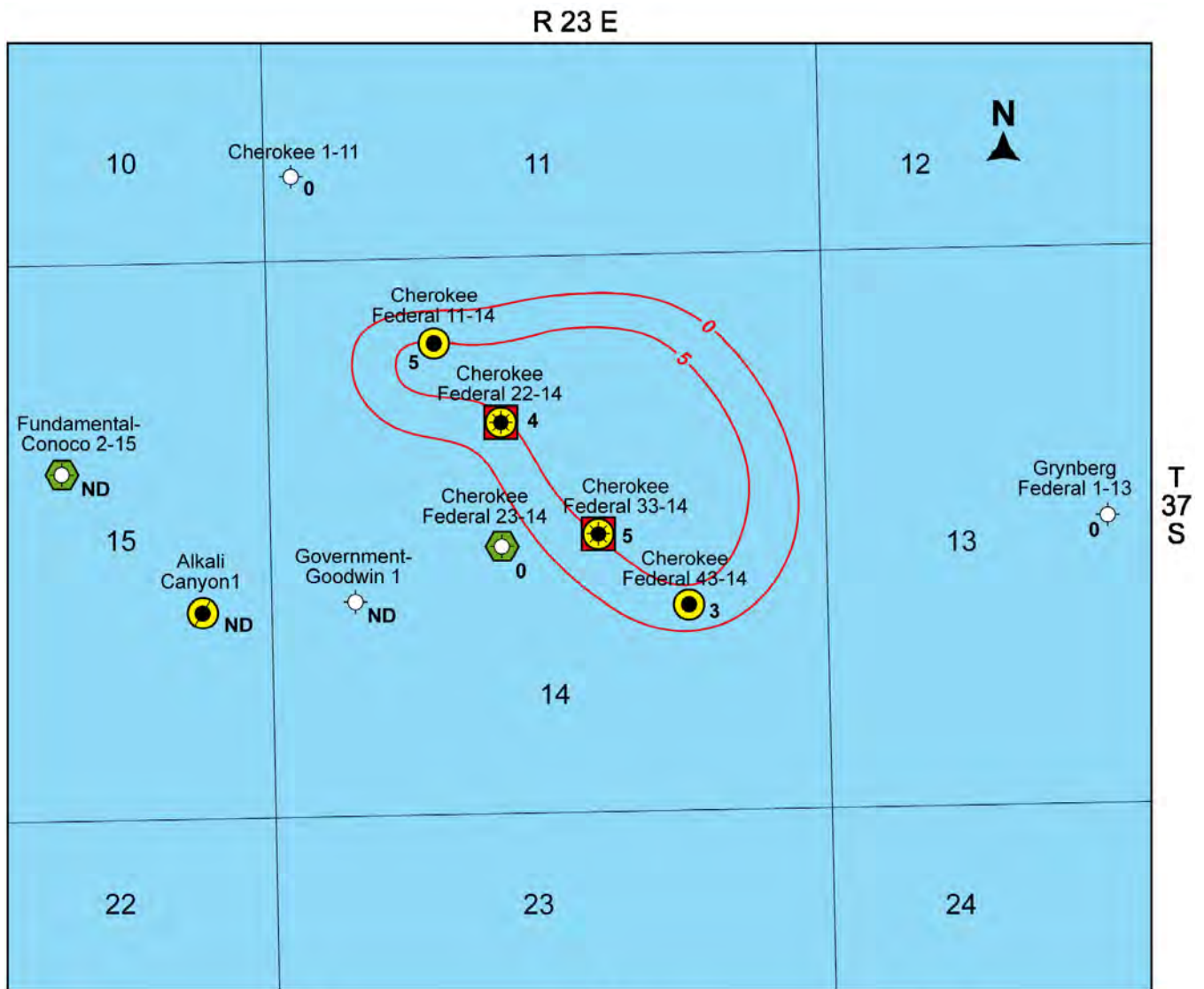







Figure E.38

0 0.5 1 Mile

**Isochore: Ismay Zone,
Porosity Unit 4**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND No neutron/density log

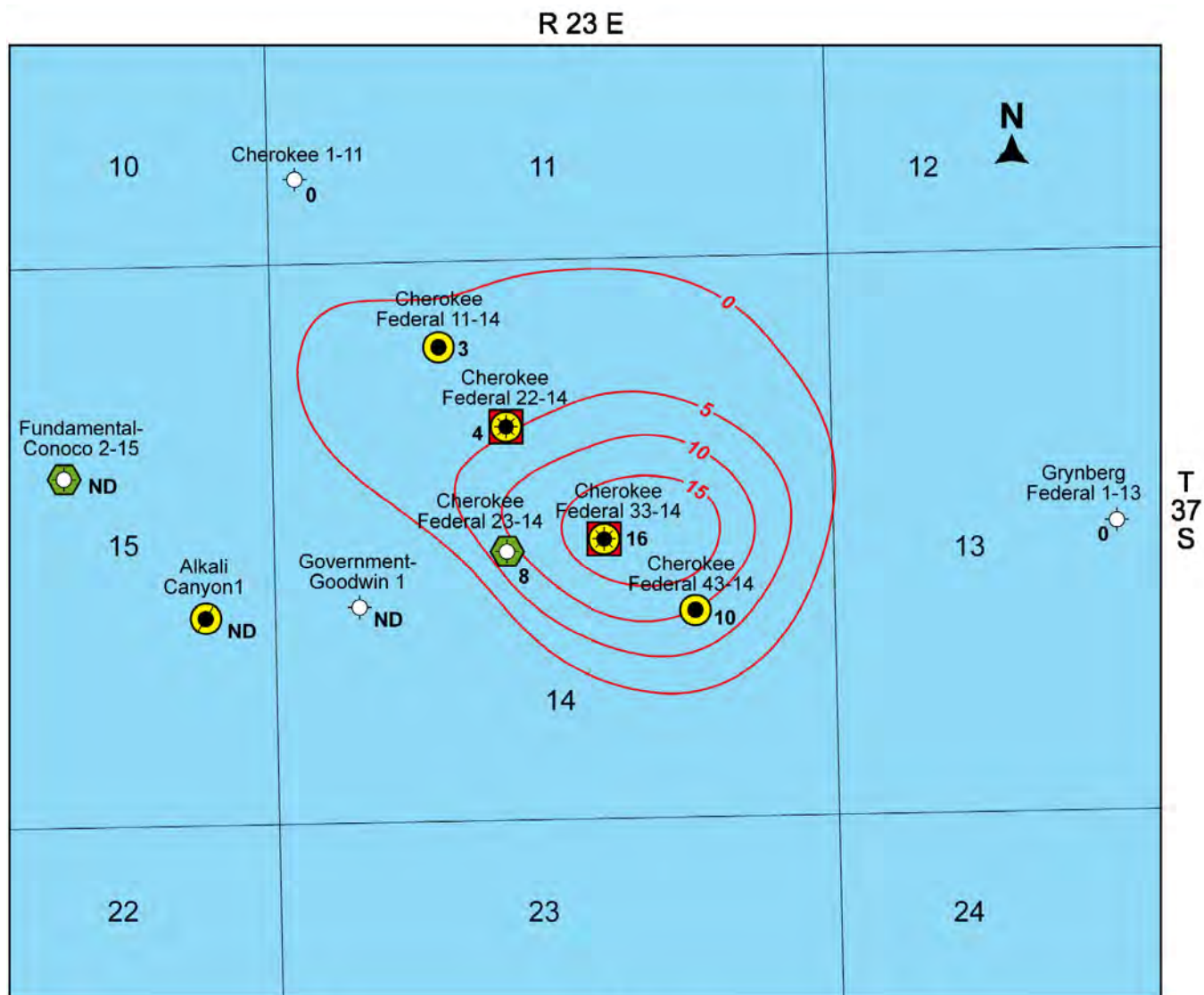







Figure E.39

**Isochore: Ismay Zone,
Porosity Unit 5**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND No neutron/density log

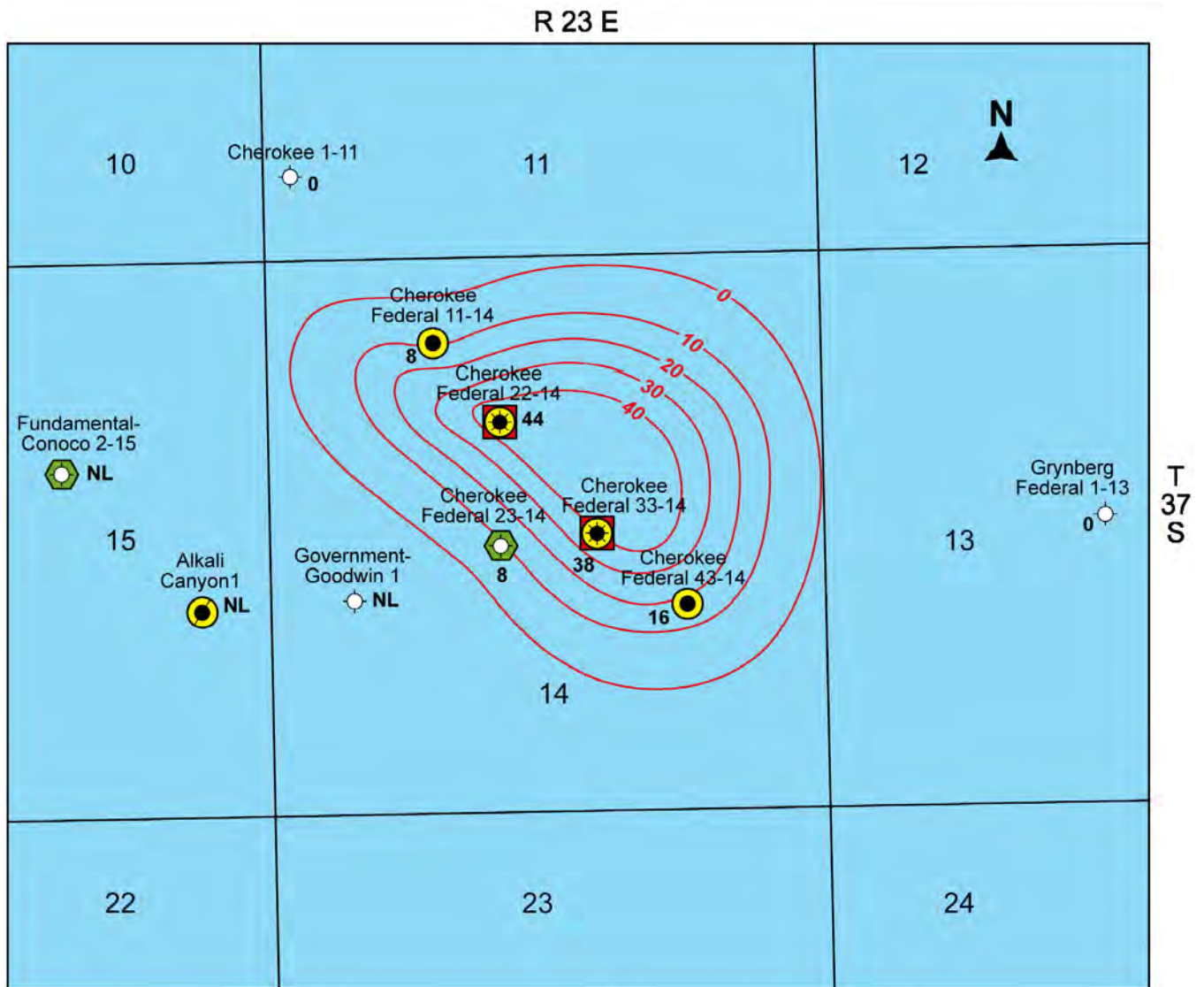







Figure E.40

Upper Ismay Isochore
Porosity Units 1-5
Contour Interval = 10 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- NL No neutron/density log

R 23 E

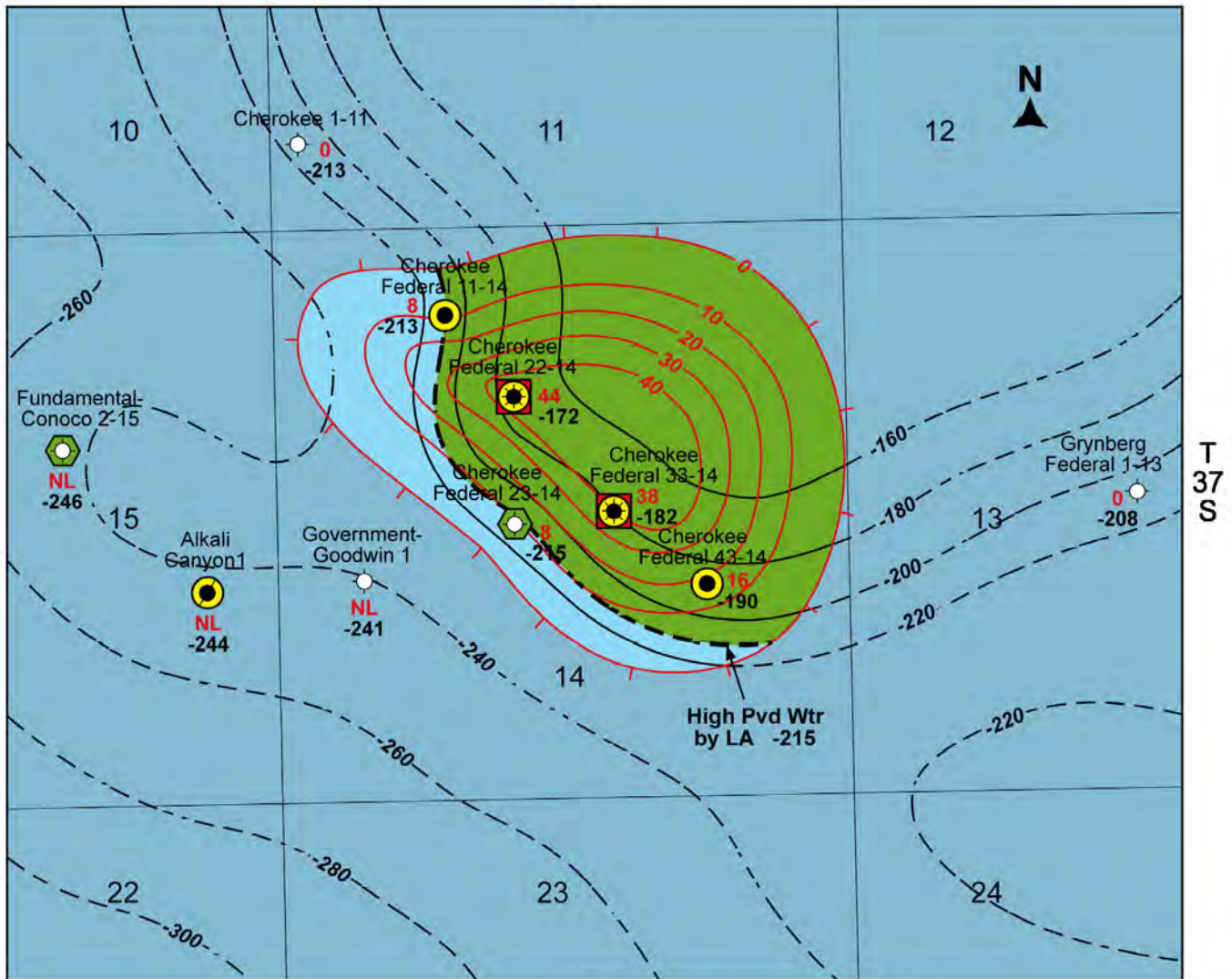


Figure E.41

0 0.5 1 Mile

Upper Ismay Isochore
Porosity Units 1-5
Contour Interval = 10 ft

Structure Contour
Top of Upper Ismay,
Clean Carbonate
Contour Interval = 20 ft
Datum = Sea Level

Cherokee Field
San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core
- NL** No neutron/density log
- Oil
- Off-mound
- Mound/clean carbonate

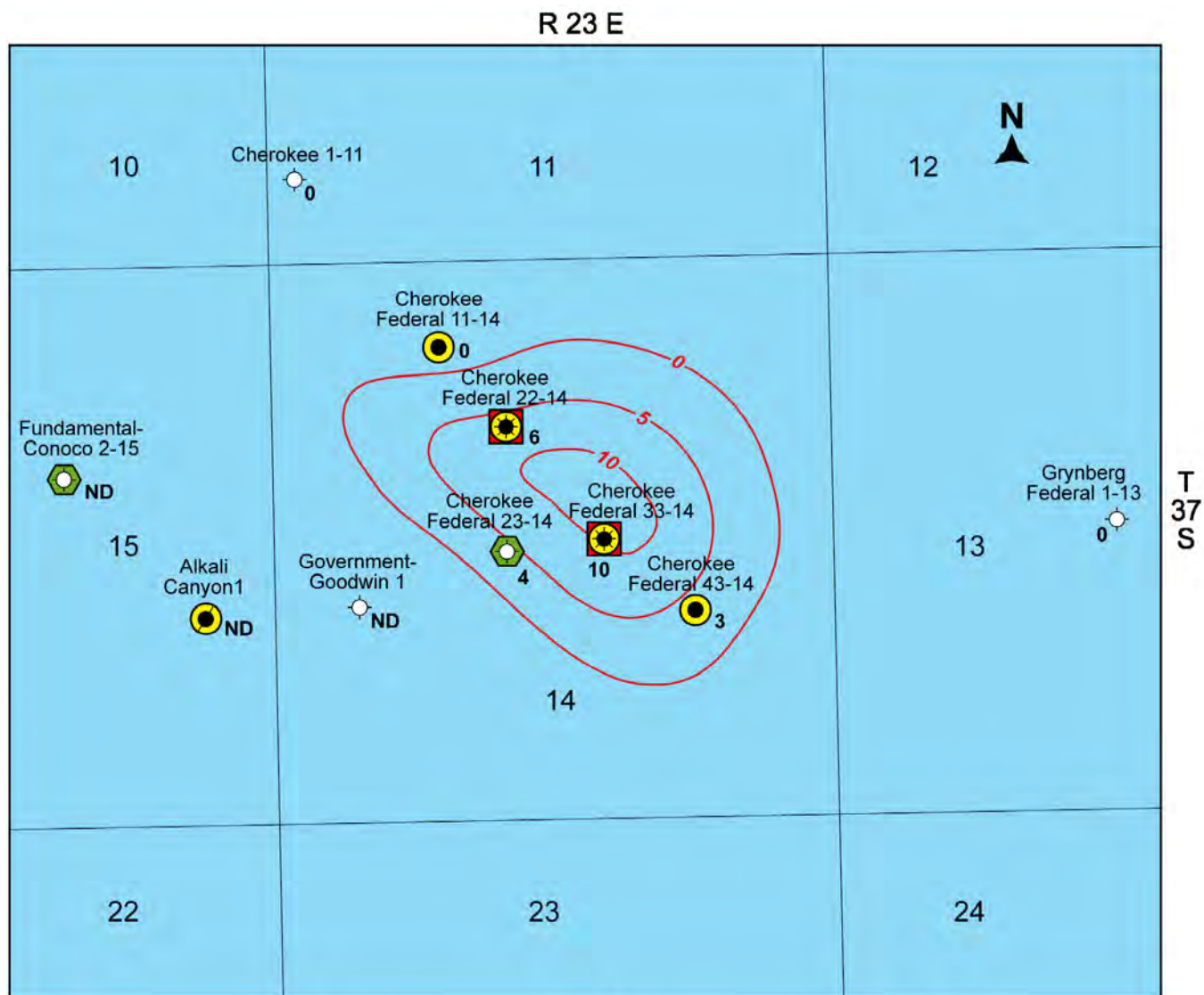


Figure E.42

0 0.5 1 Mile

**Isochore: Ismay Zone,
Porosity Unit 6**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core
- ND** No neutron/density log

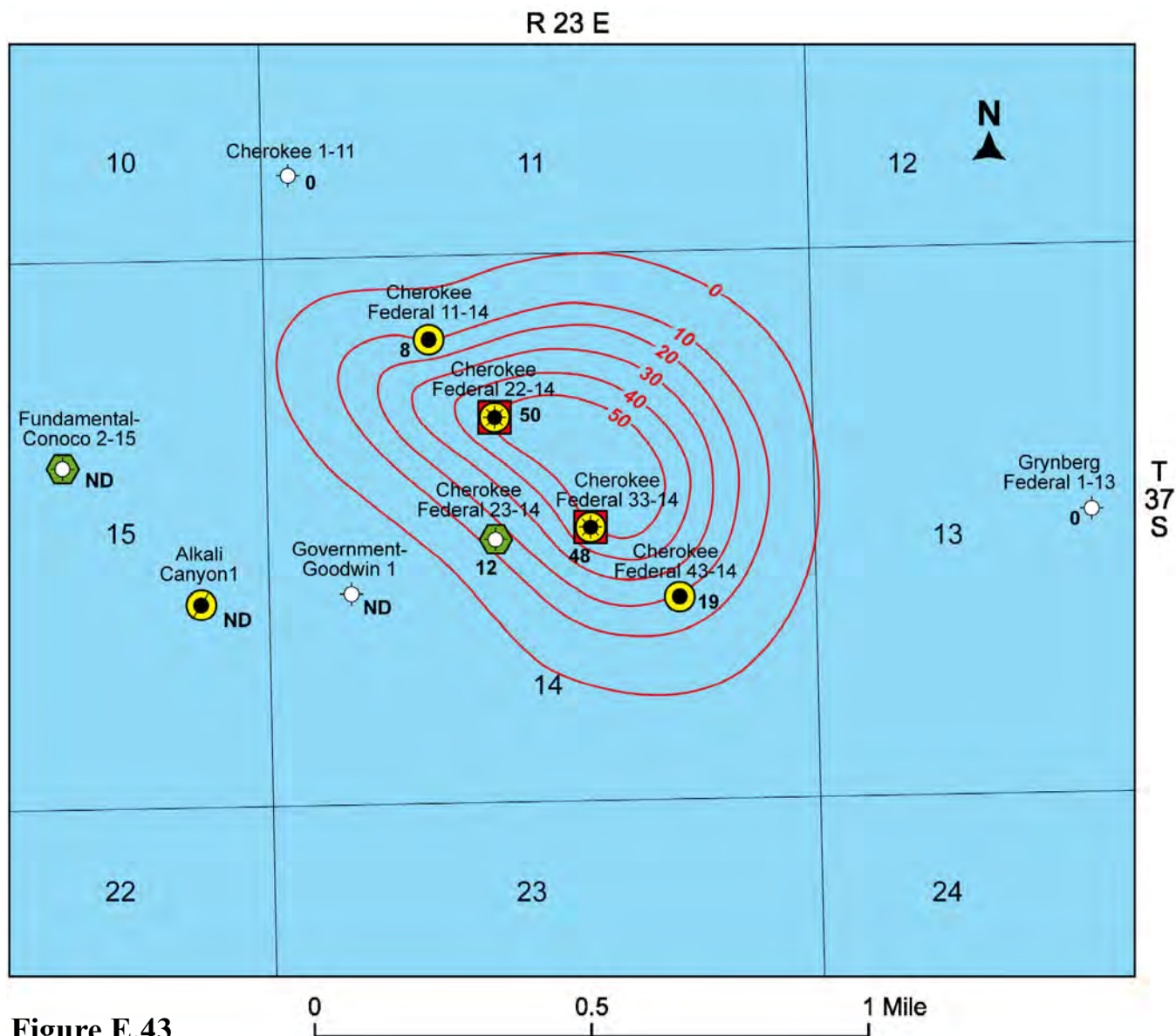







Figure E.43

**Isochore: Ismay Zone,
Porosity Units 1-6
Contour Interval = 10 ft**

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- ND No neutron/density log

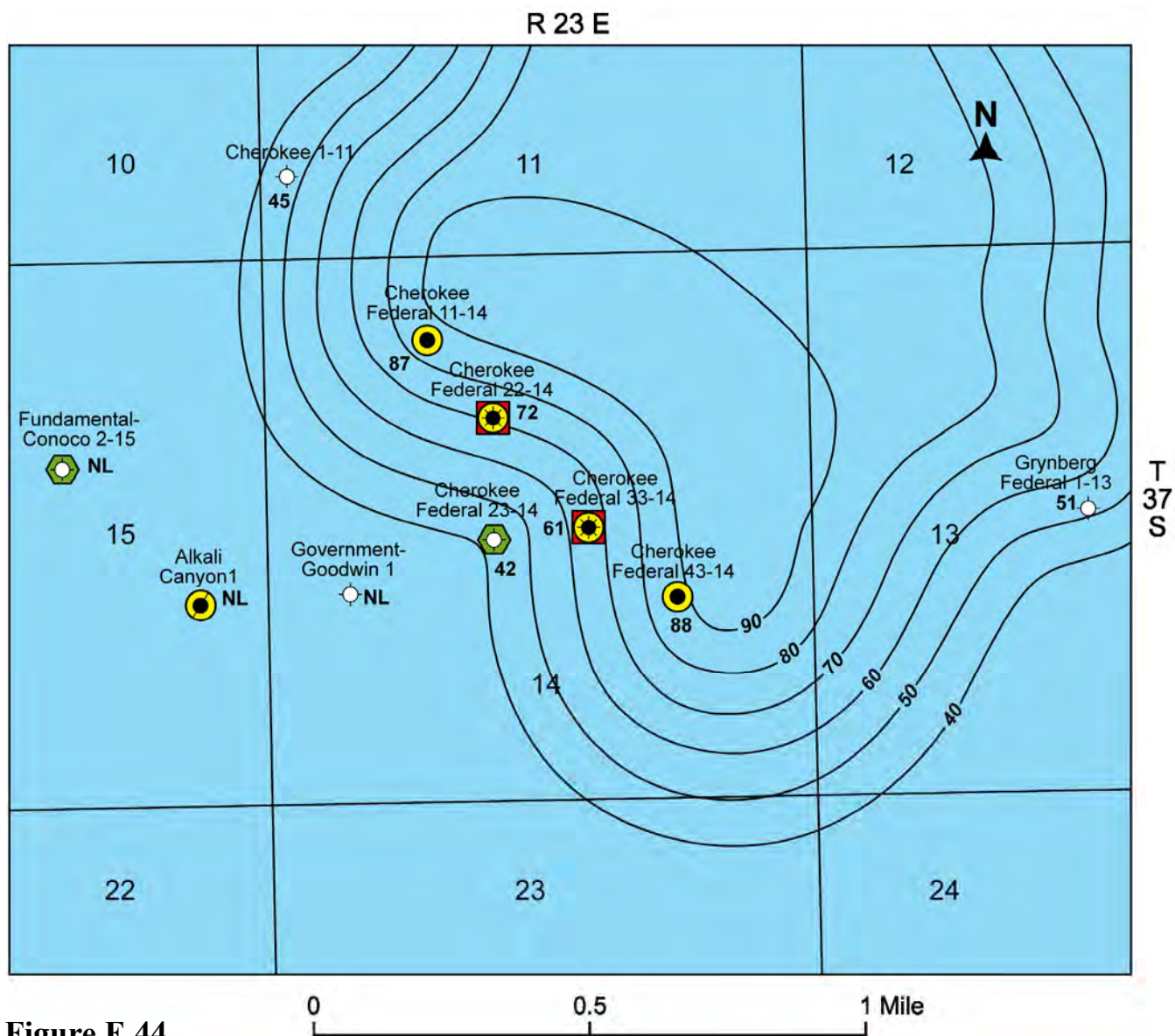







Figure E.44

Upper Ismay:
Net Feet of Limestone (from LA)
 Contour Interval = 10 ft

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core
- NL No neutron/density log

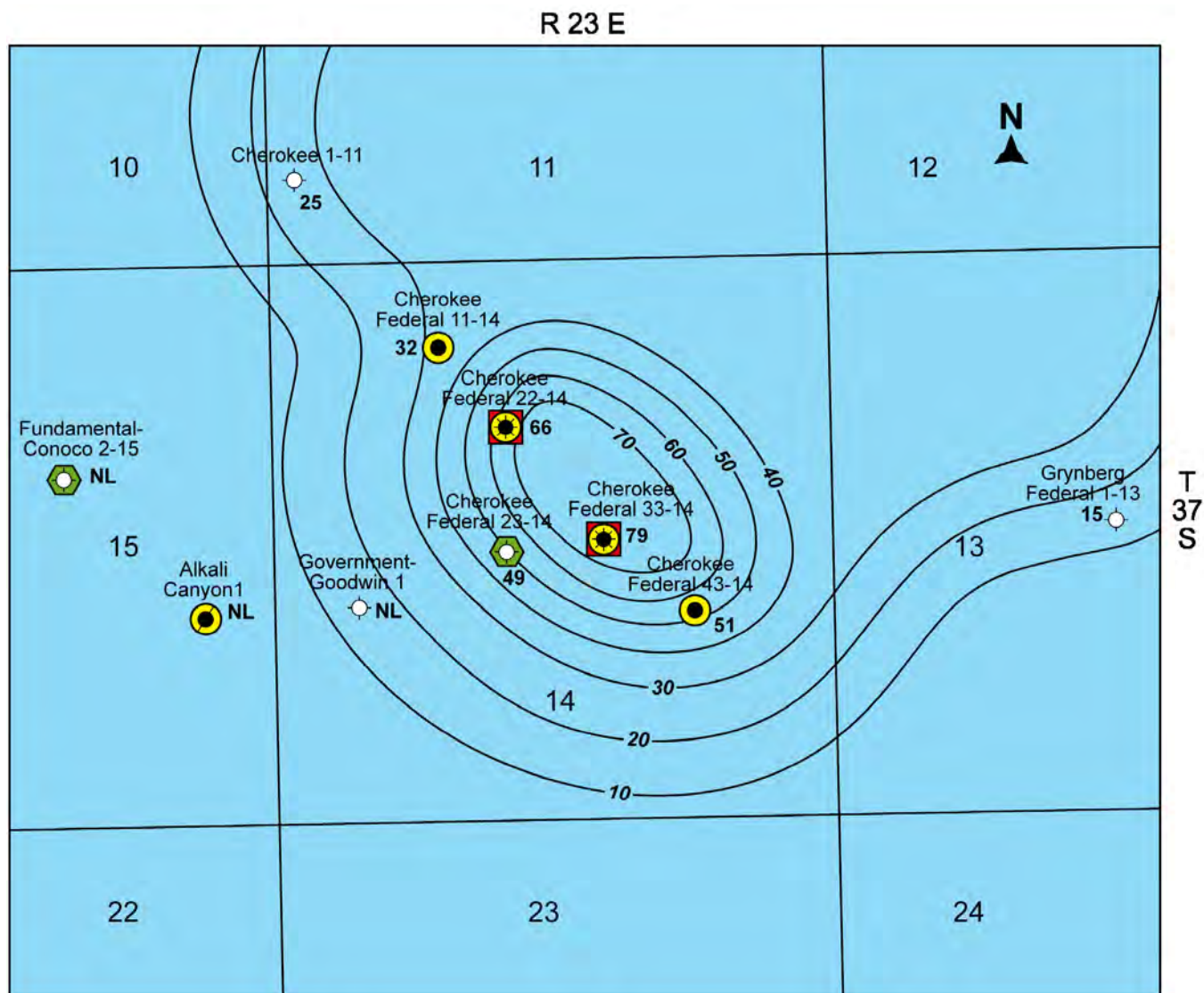


Figure E.45

Upper Ismay:
Net Feet of Dolomite (from LA)
 Contour Interval = 10 ft

Cherokee Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core
- NL No neutron/density log

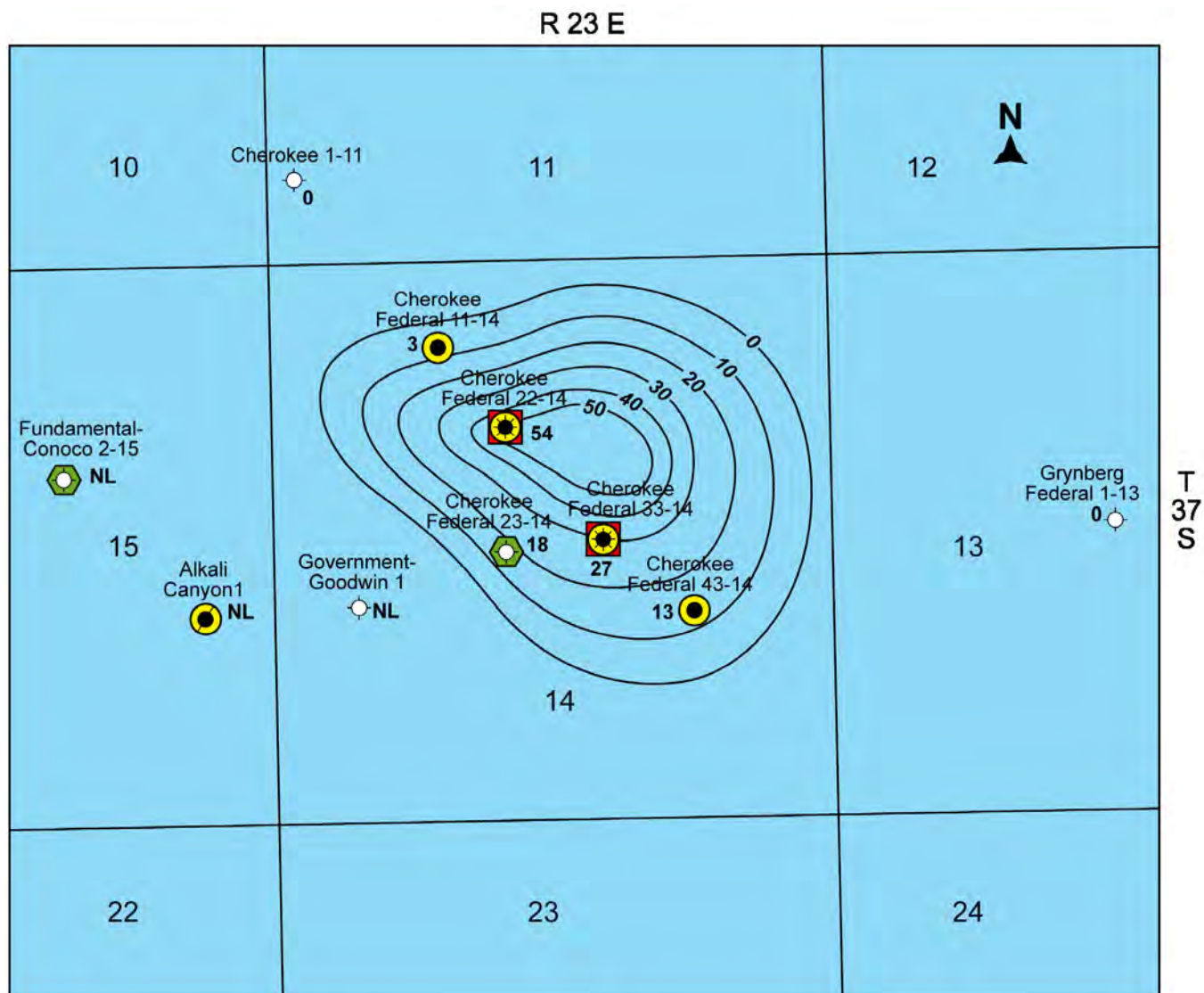


Figure E.46

Upper Ismay:
Net Feet of Porosity (>10% by LA)
 Contour Interval = 10 ft

Cherokee Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core
- NL No neutron/density log

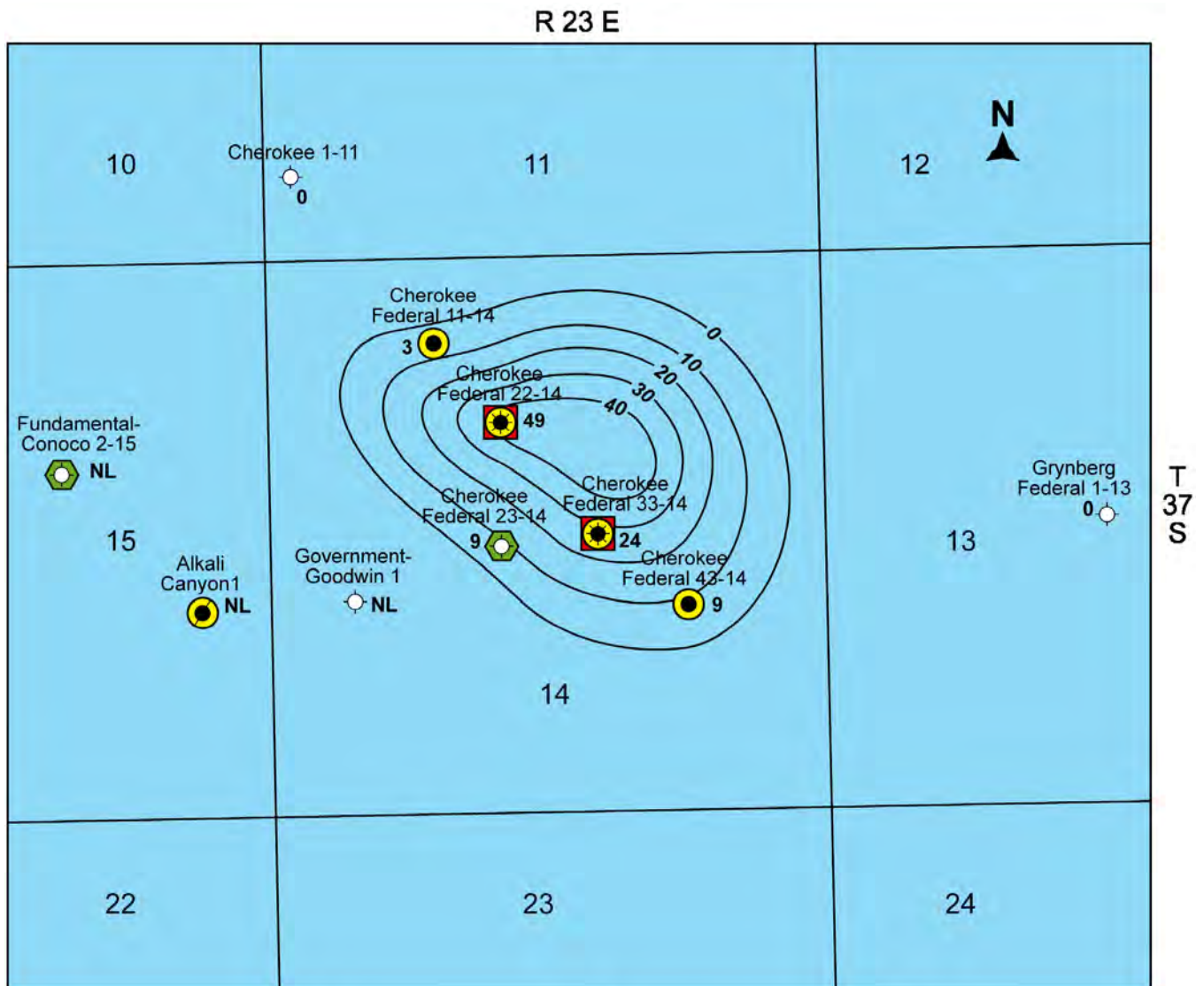


Figure E.47

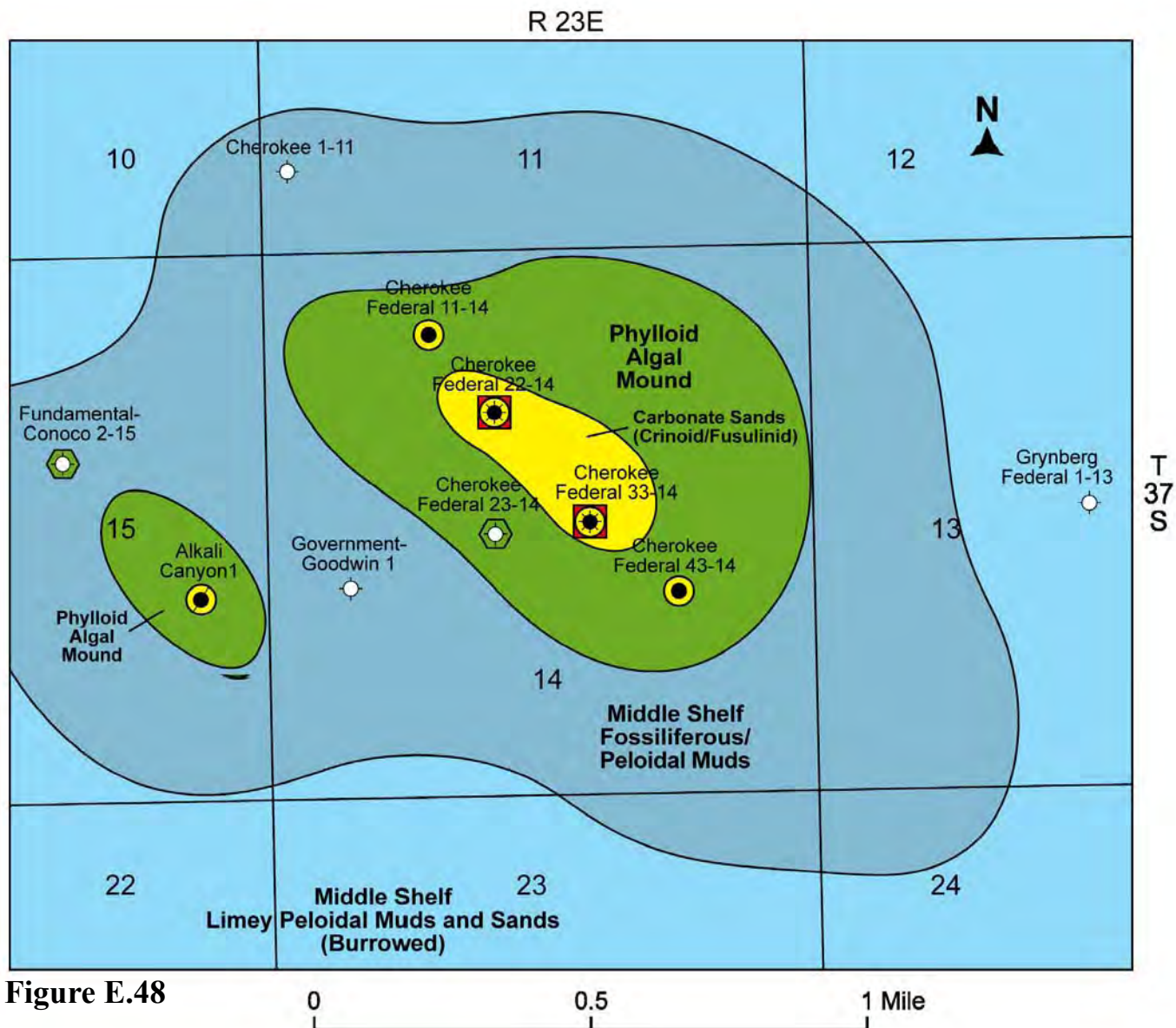
0 0.5 1 Mile

Upper Ismay:
Net Feet of Porosity (>12% by LA)
 Contour Interval = 10 ft

Cherokee Field
 San Juan County, Utah

Explanation






- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core
- NL No neutron/density log



Upper Ismay Facies Map

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

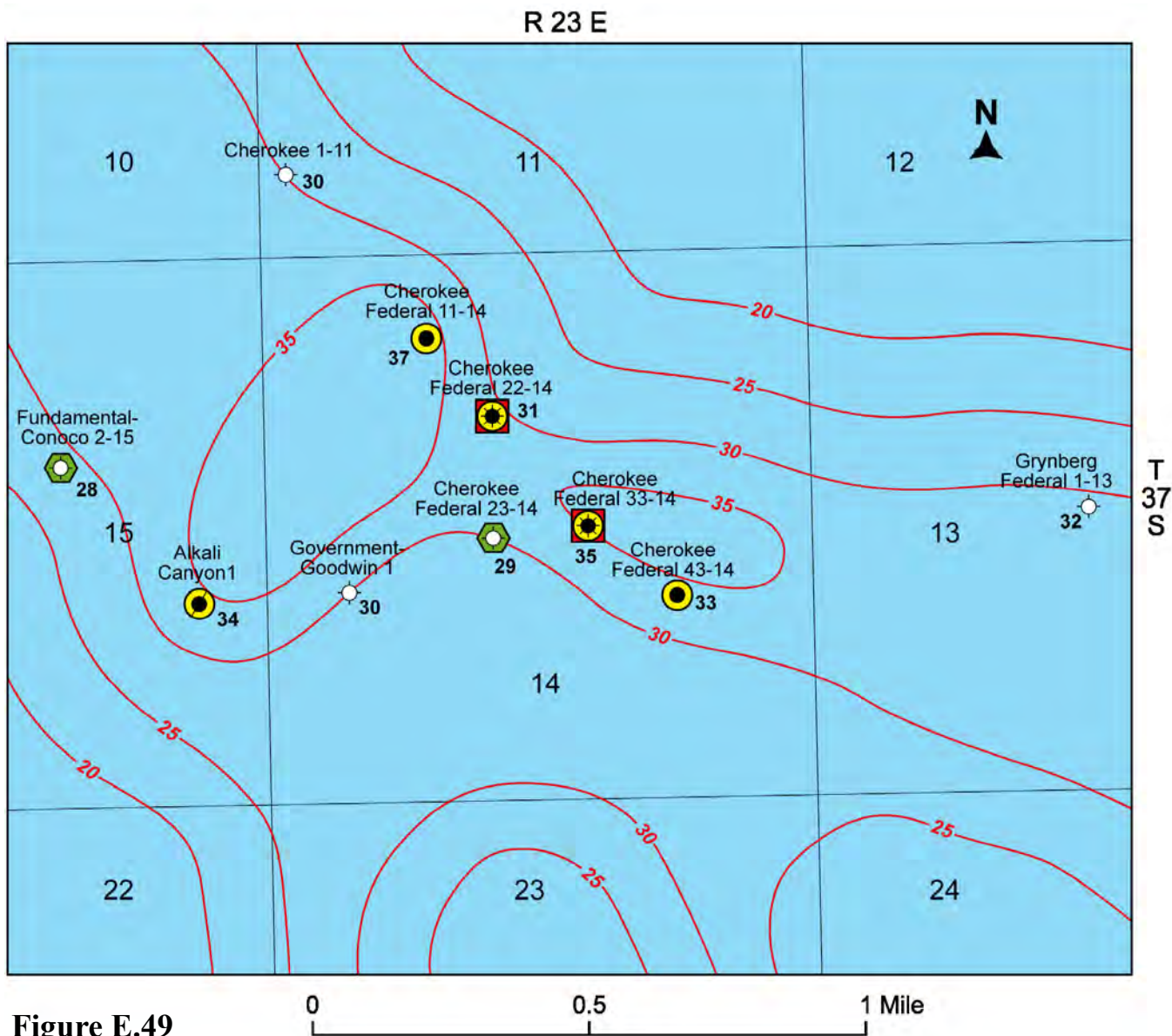







Figure E.49

**Isochore: Hovenweep Shale,
Ismay Zone**
Contour Interval = 5 ft

Cherokee Field
San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

R 23 E

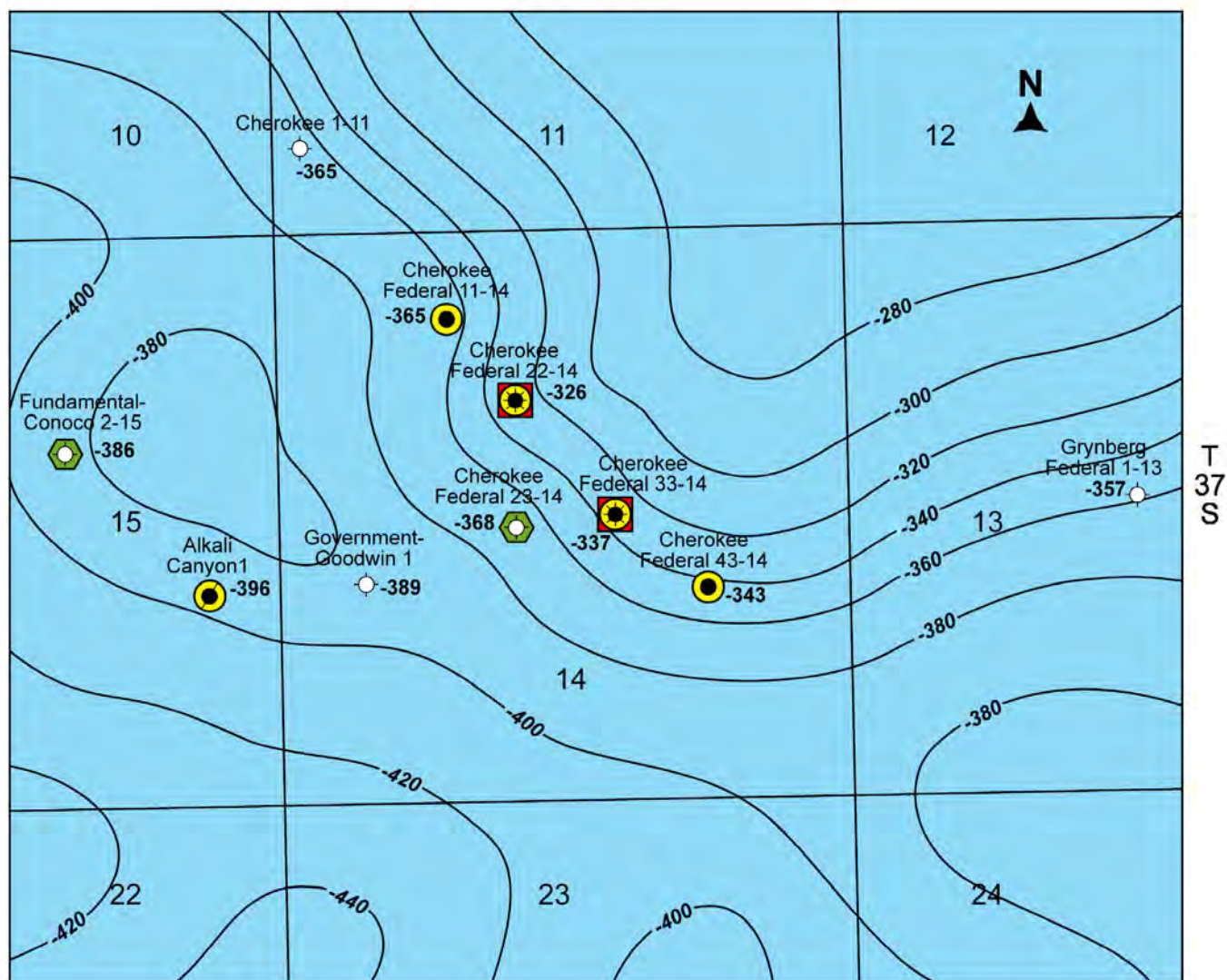


Figure E.50

0 0.5 1 Mile

Structure Contour
Top of Lower Ismay
 Contour Interval = 20 ft
 Datum = Sea Level

Cherokee Field
 San Juan County, Utah

Explanation

- Plugged and abandoned
- Ismay drill-stem test
- Ismay completion
- Abandoned Ismay producer
- Ismay completion/core

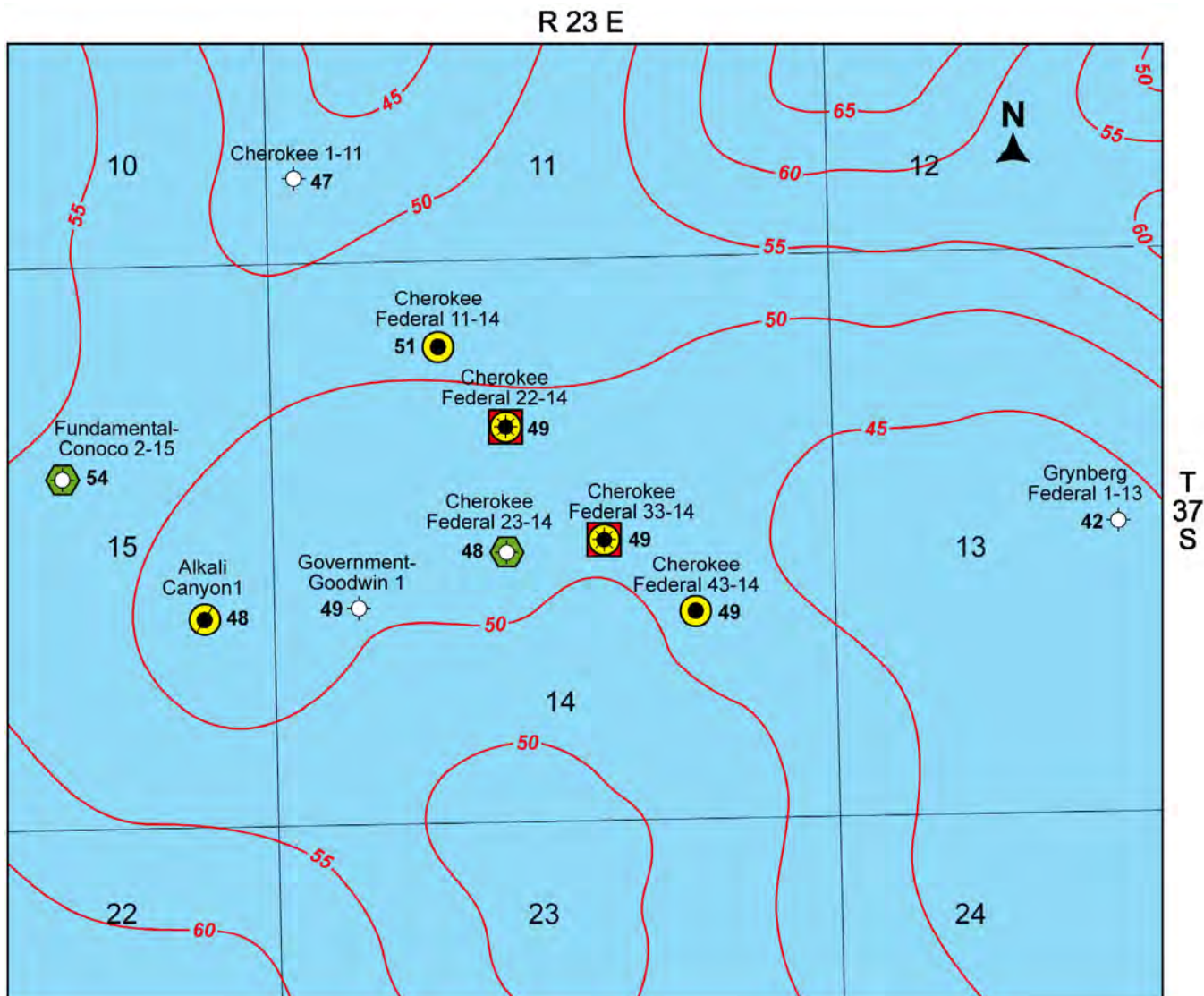







Figure E.51

0 0.5 1 Mile

Isochore: Lower Ismay
Contour Interval = 5 ft

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

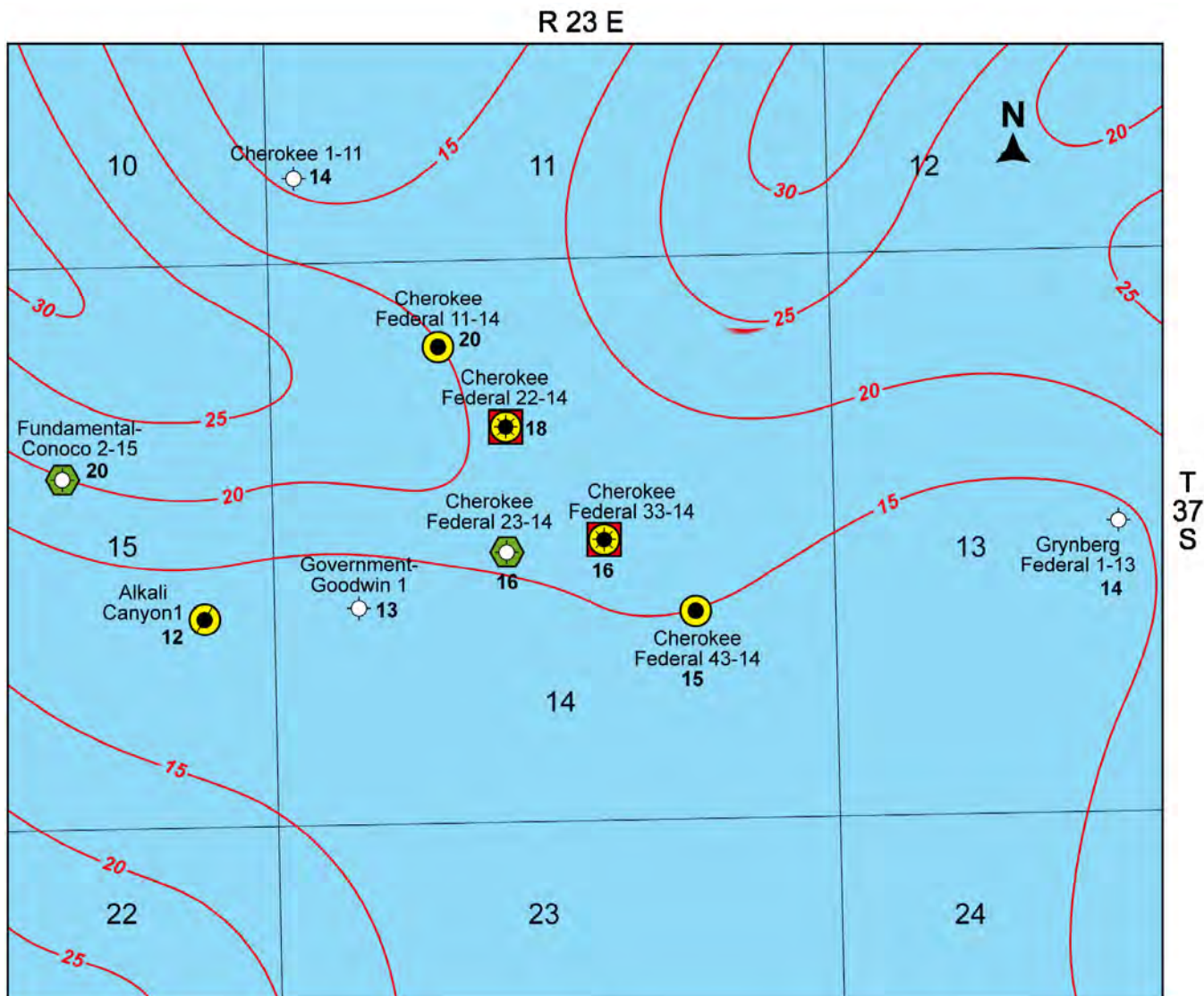







Figure E.52

0 0.5 1 Mile

Isochore: Lower Ismay Anhydrite
Contour Interval = 5 ft

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

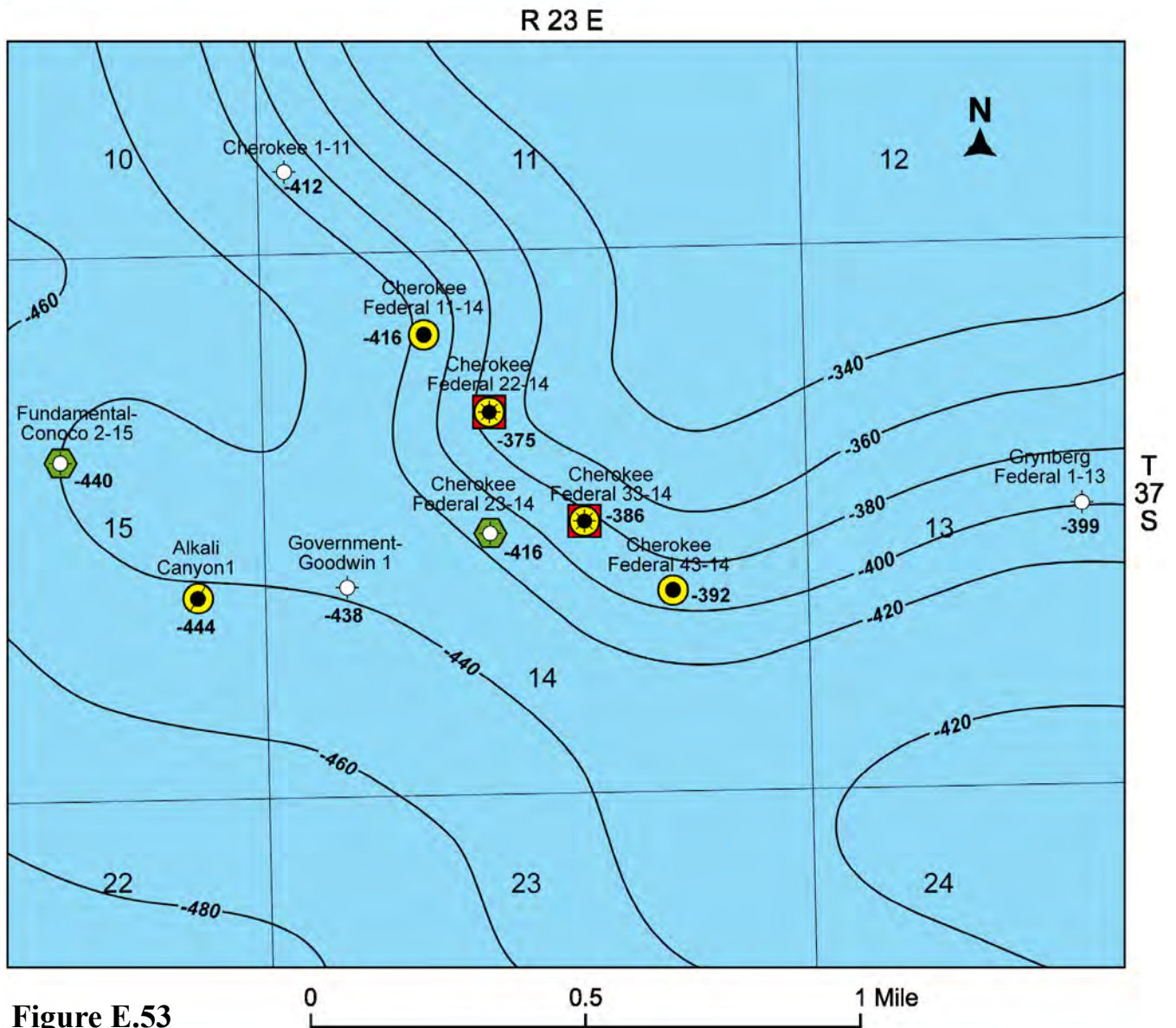







Figure E.53

Structure Contour
Top of Gothic Shale
 Contour Interval = 20 ft
 Datum = Sea Level

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core

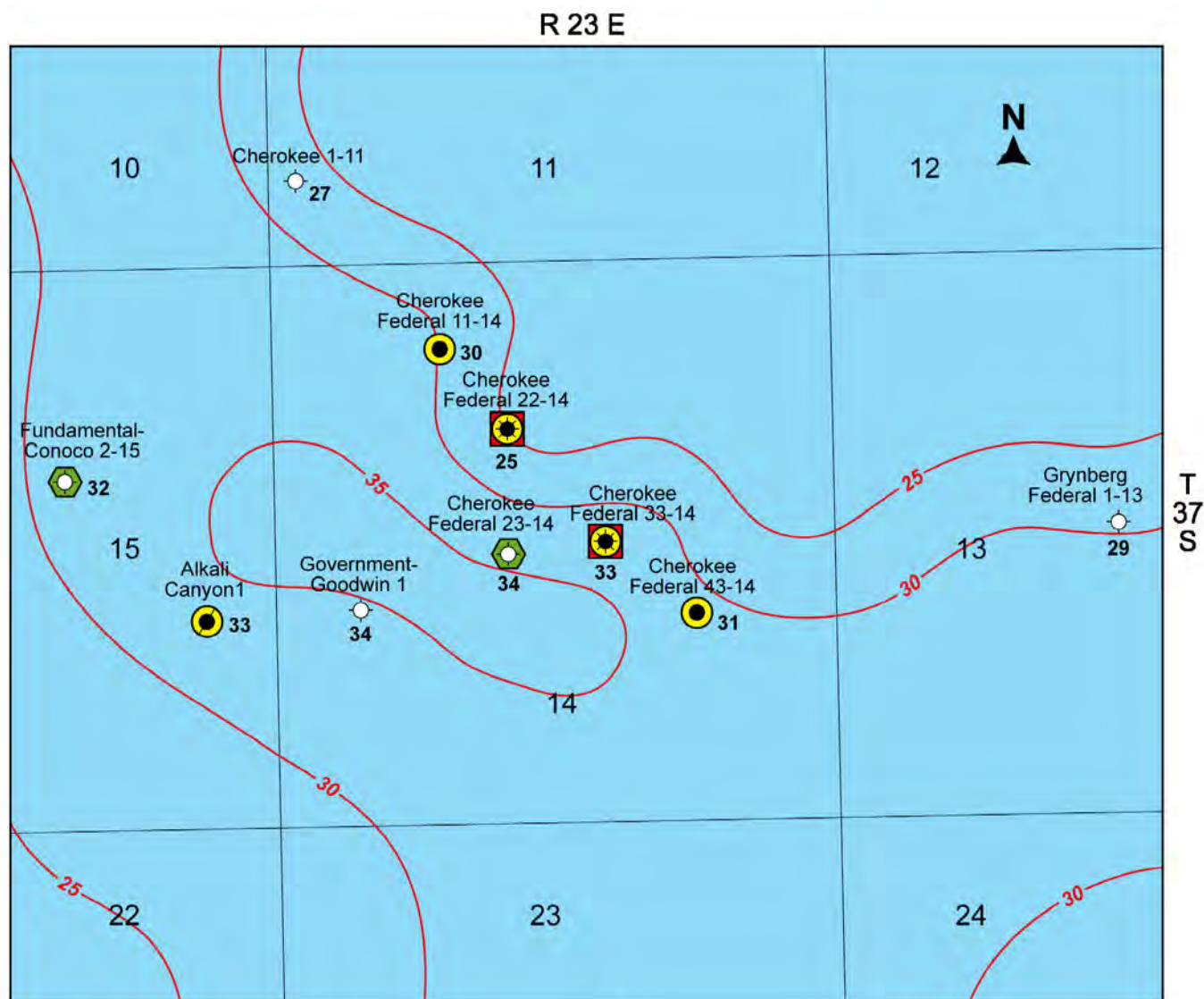







Figure E.54

Isochore: Gothic Shale
Contour Interval = 5 ft

Cherokee Field
 San Juan County, Utah

Explanation

-  Plugged and abandoned
-  Ismay drill-stem test
-  Ismay completion
-  Abandoned Ismay producer
-  Ismay completion/core