

# **PROPOSED STRATIGRAPHIC CORRELATION FRAMEWORK, WOLFCAMP OF DELAWARE BASIN, WEST TEXAS**

*Mary Van Der Loop  
Sanctuary Oaks Consultants Int'l Inc.  
P. O. Box 453  
Flatonia, TX 78941  
361-865-2901  
832-434-3639 cell  
[sanctuaryoaksgeo@yahoo.com](mailto:sanctuaryoaksgeo@yahoo.com)*

# Outline

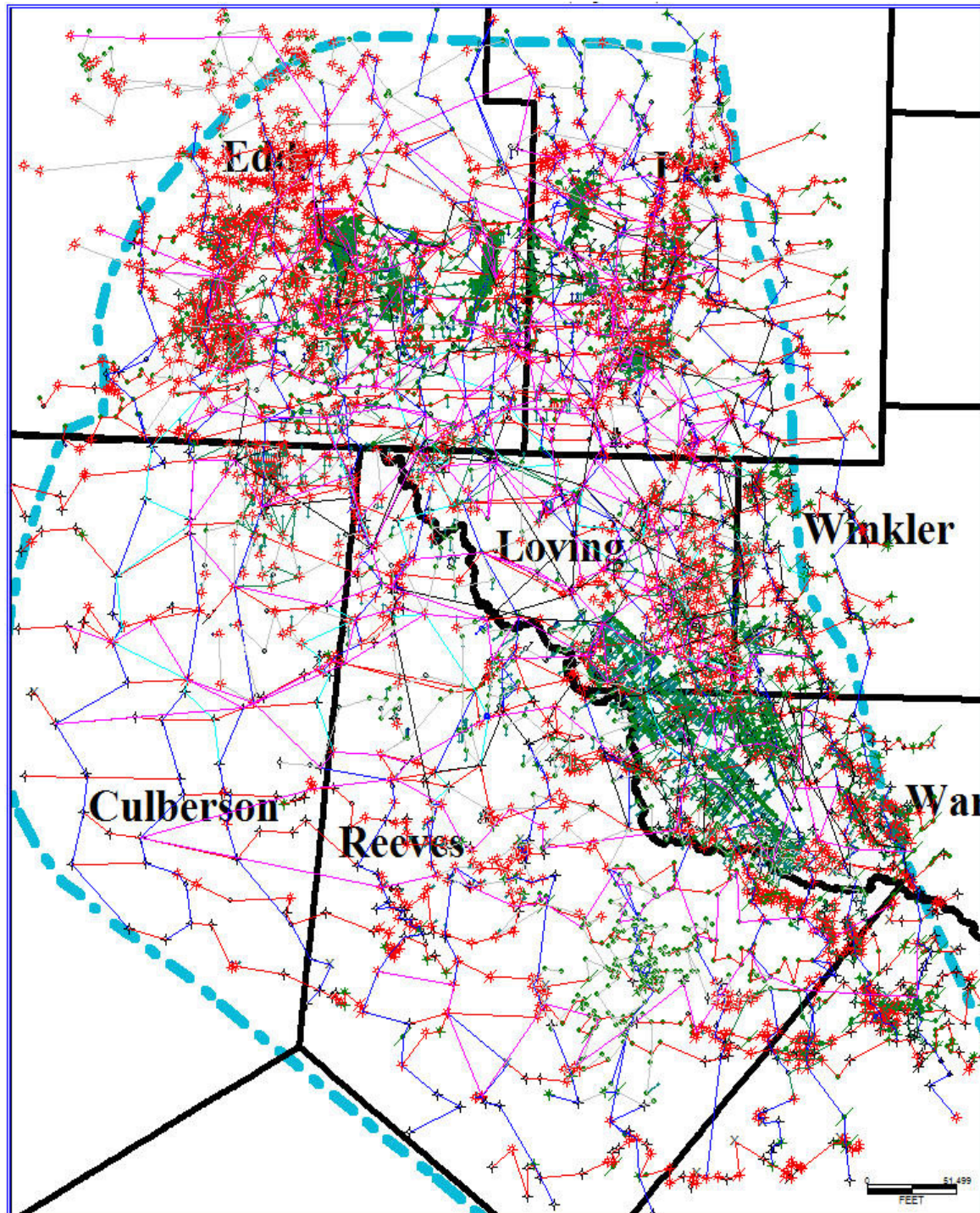
- Acknowledgments –
  - ***THANKS to Brian Ayers and Tema Oil and Gas, Houston, TX***
- Identify five correlative stratigraphic units in subsurface Wolfcampian Series of Delaware Basin
  - Based on log character, marker beds, lithologies, and paleontology
- Propose the following unit names, from Base Wolfcamp to Top Wolfcamp, based on the first significant production from that stratigraphic level:
  - Haley Unit
  - Debris Unit
  - Red Hills Unit
  - Ford West Unit
  - Phantom and Phantom Sands Unit
- Entire Wolfcamp Section is productive of Oil and Gas in Delaware Basin
- These units record a Sea Level Highstand/Lowstand/ Highstand depositional sequence during Wolfcampian time

# Early Permian Wolfcampian 290 MYA

From Ron  
Blakey,  
Northern  
Arizona Univ, ,  
2011, Regional  
Paleogeography  
of North  
America

<https://www2.nau.edu/rcb7/namP290.jpg>





# Cross Section Network

The proposed subsurface stratigraphic units are based on examination and correlation of >5000 logs, >900 sample logs and mudlogs, and 62 Hollingsworth paleo reports

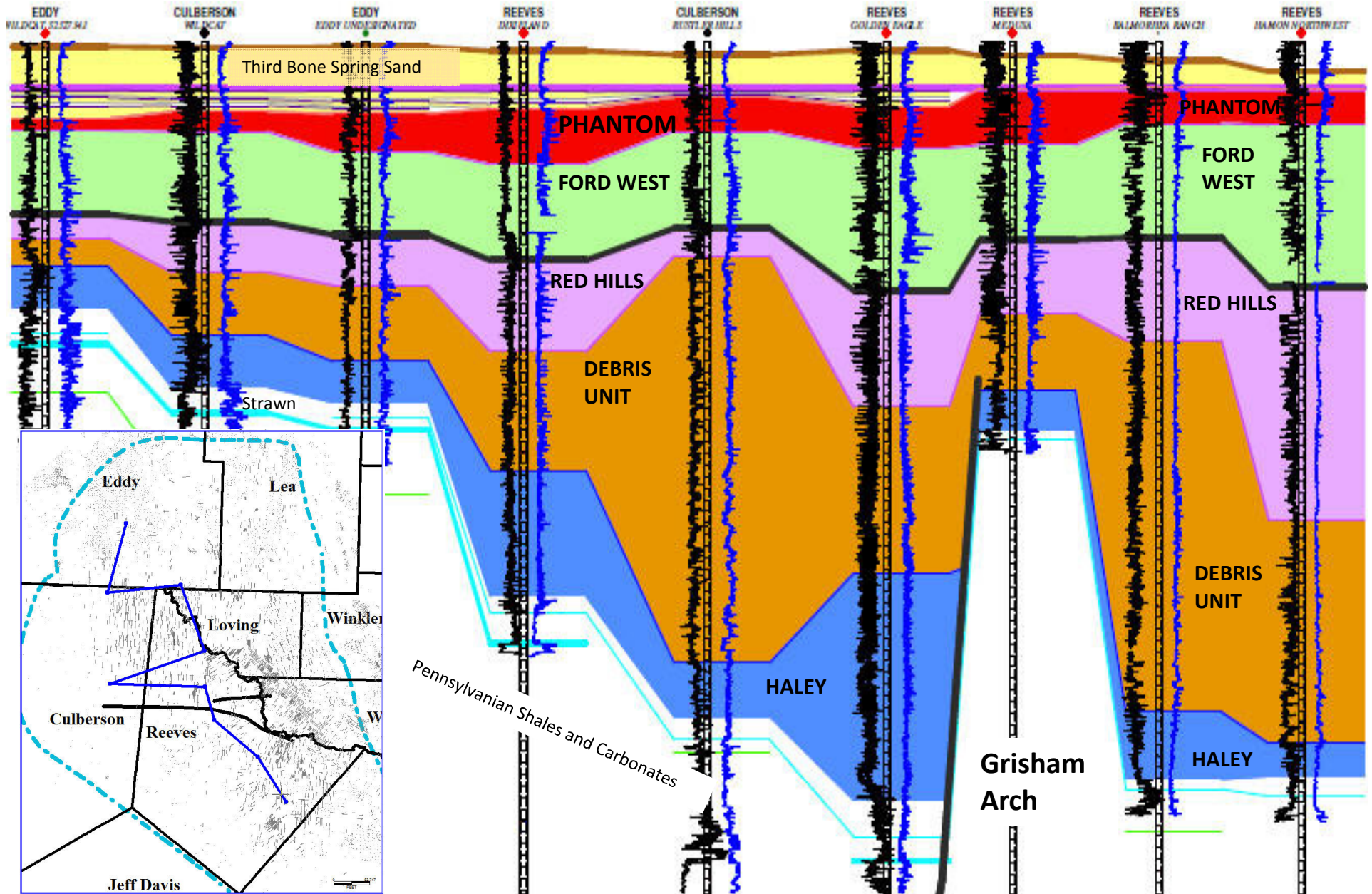


# Regional Cross Section, Wolfcamp Delaware Basin

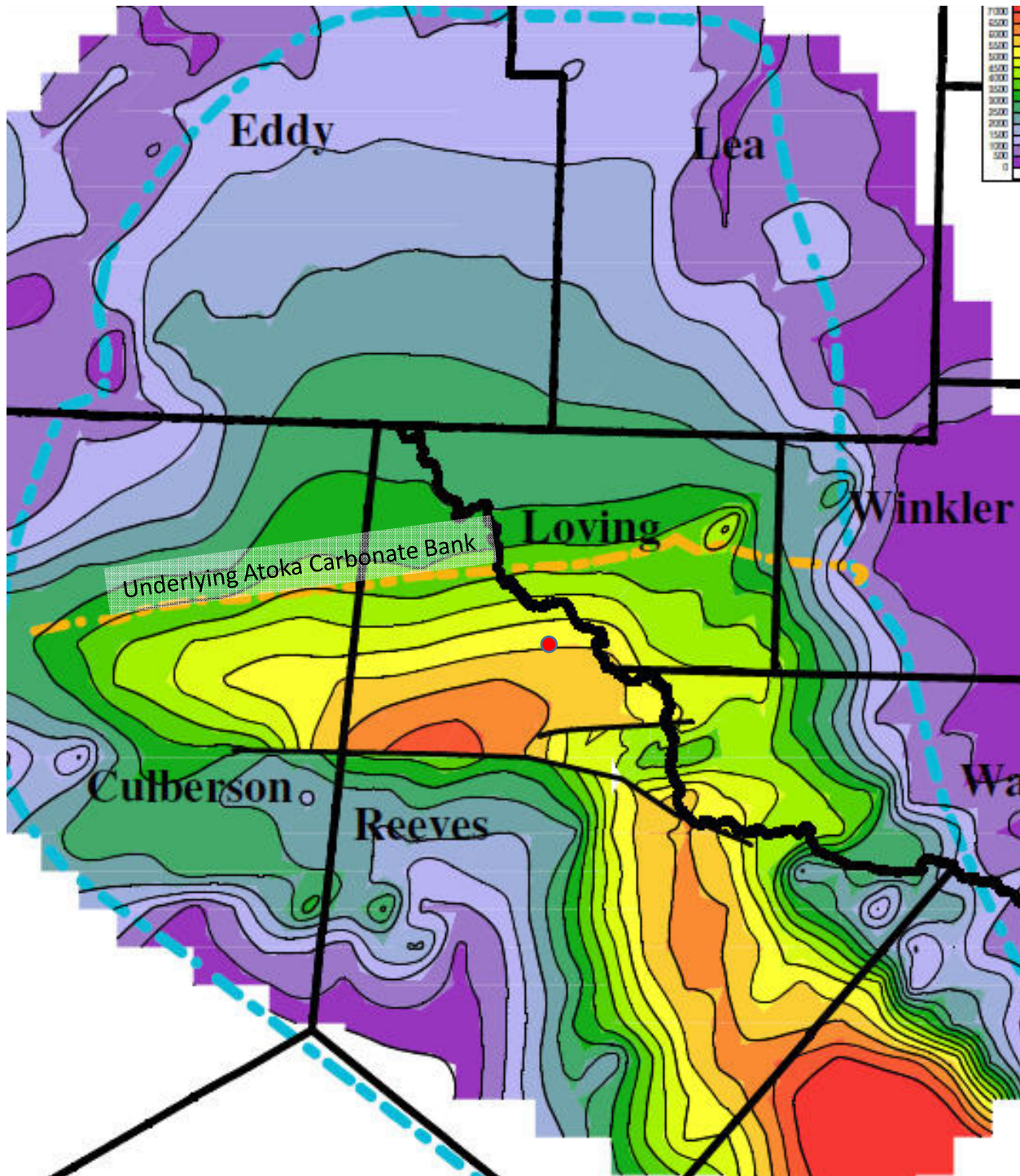
North

Datum = Top Wolfcamp

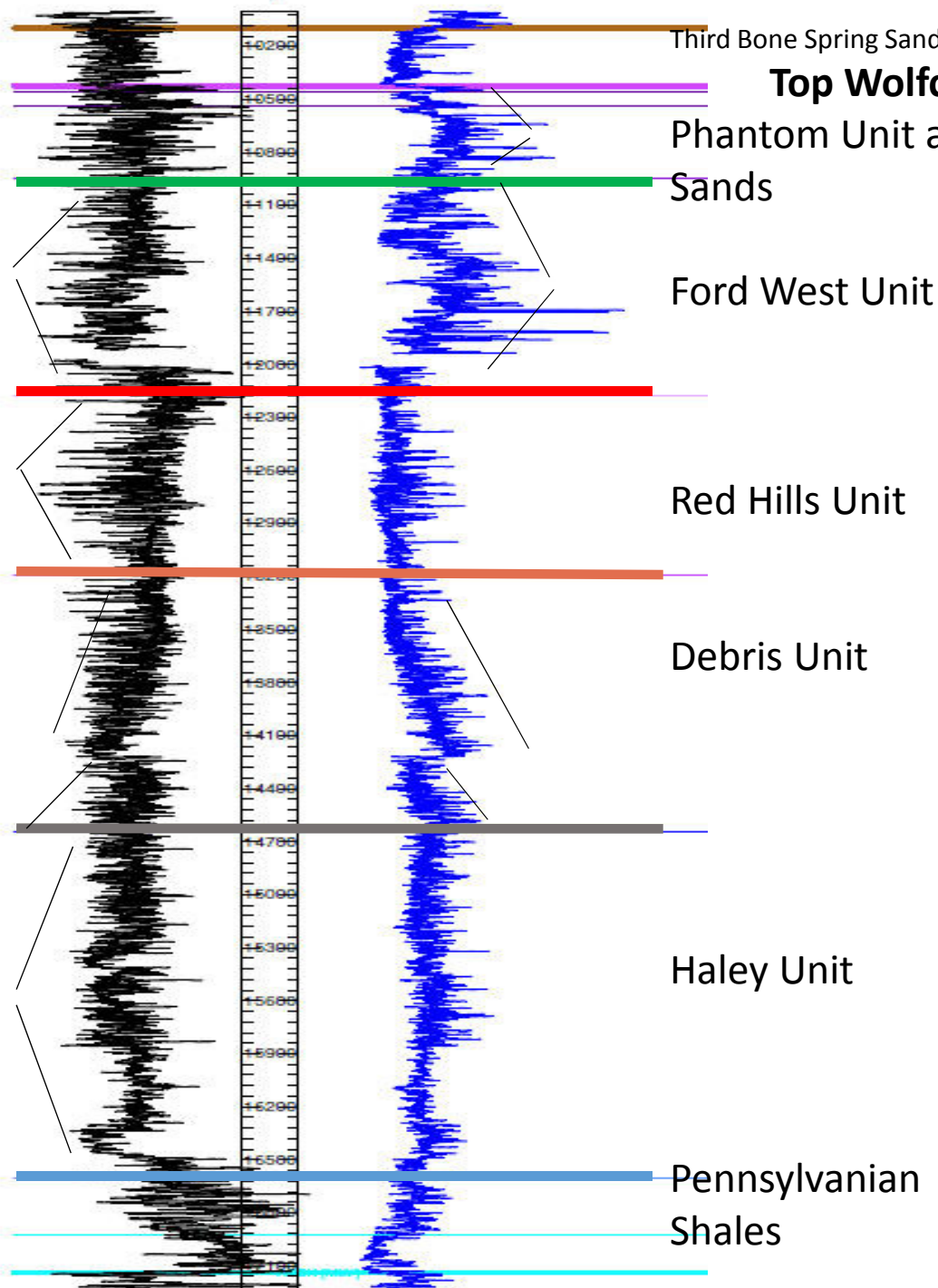
South



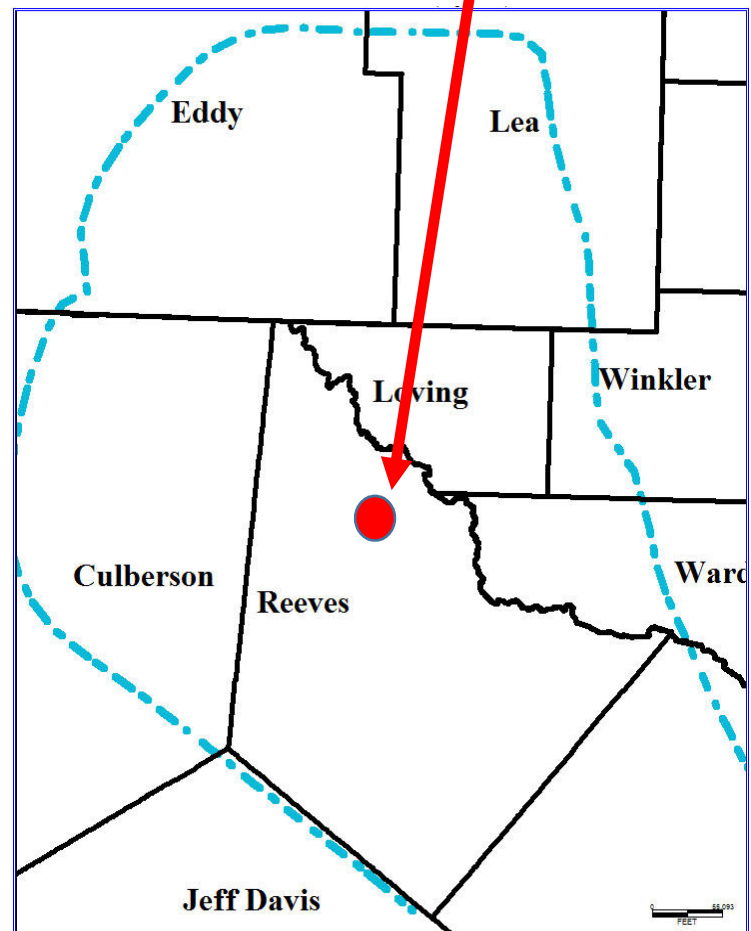




Gross  
Isopach  
Wolfcamp  
  
Delaware  
Basin,  
West Texas



Type Log  
 42 389 32207  
 BTA #1 JVP  
 Penwell, Reeves  
 Co., TX

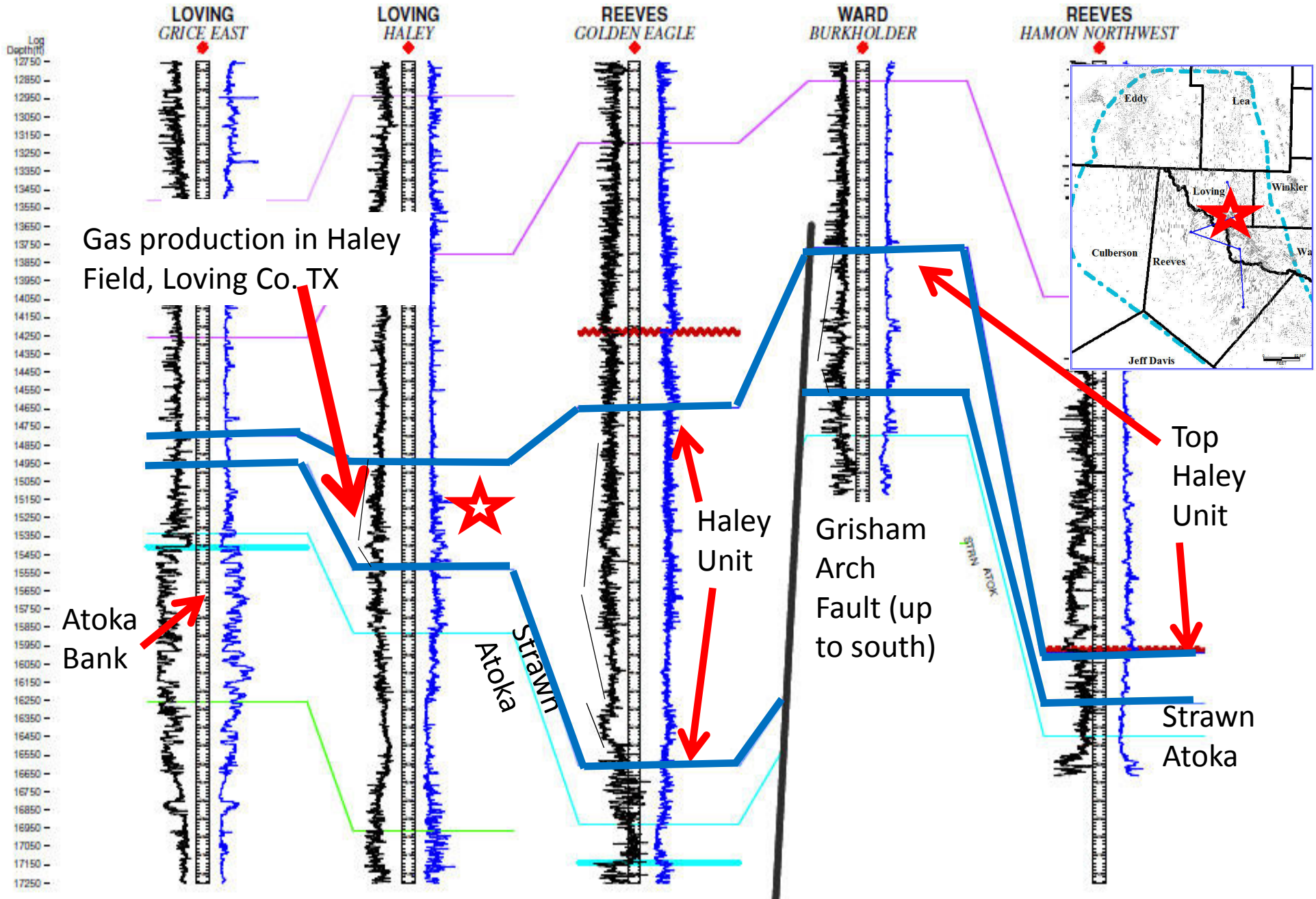




North

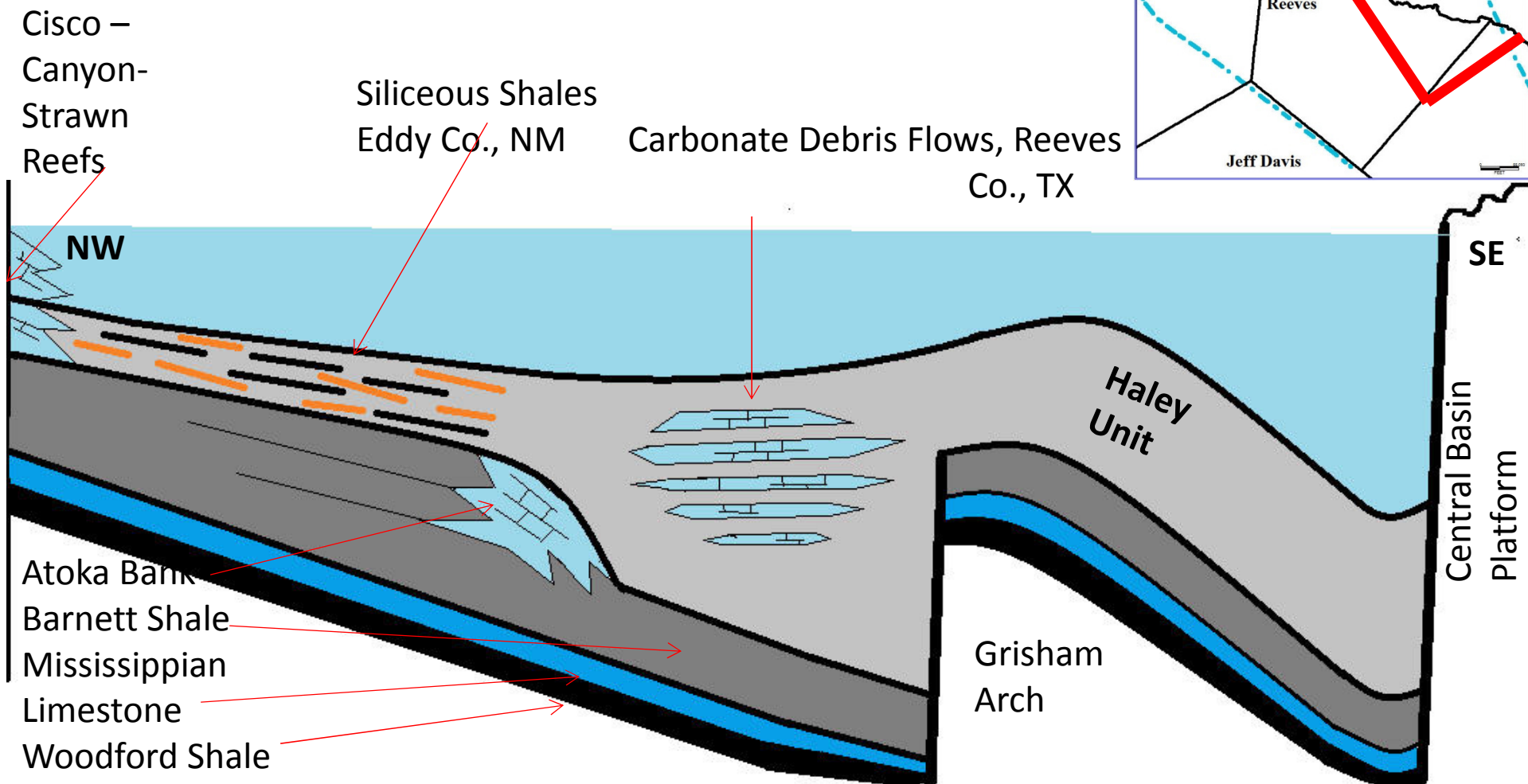
# Haley Unit Type Logs Cross Section

South

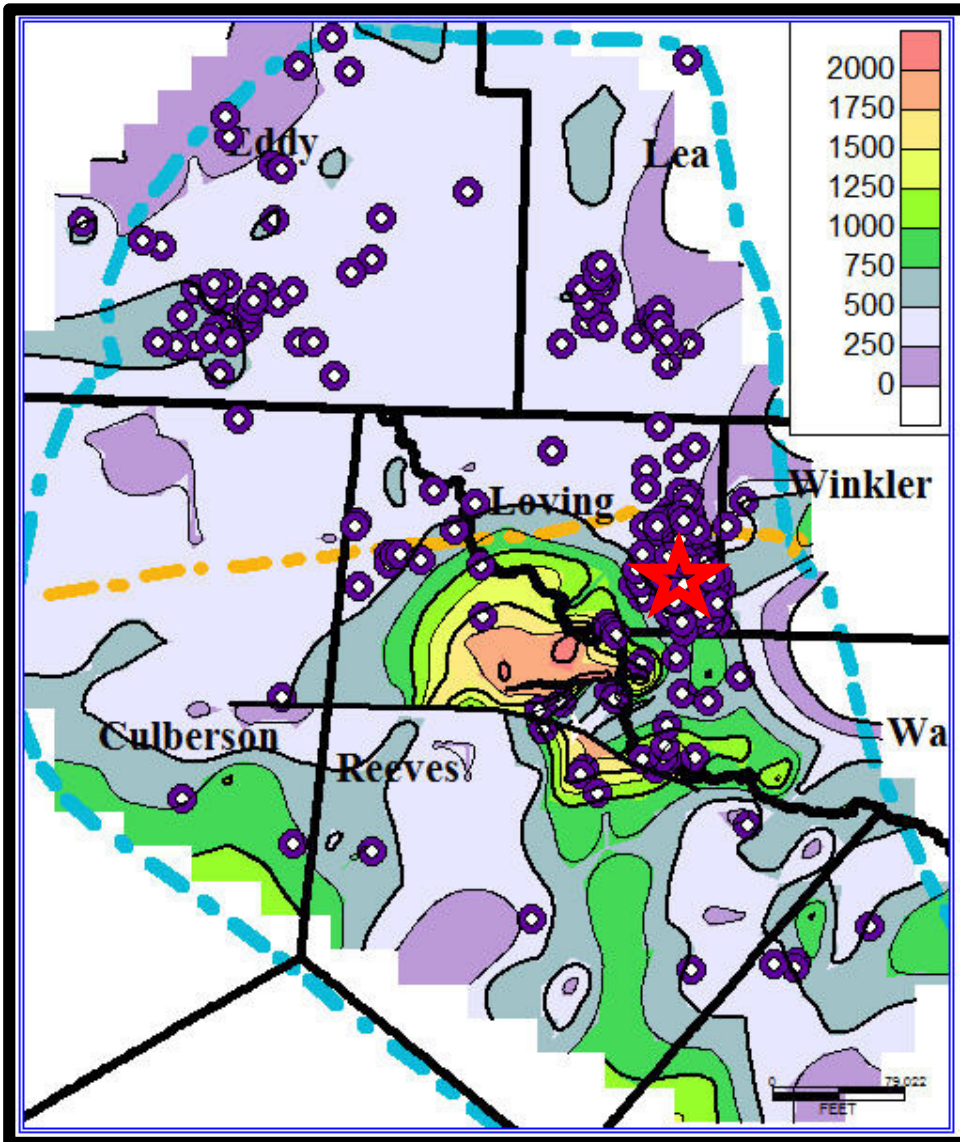
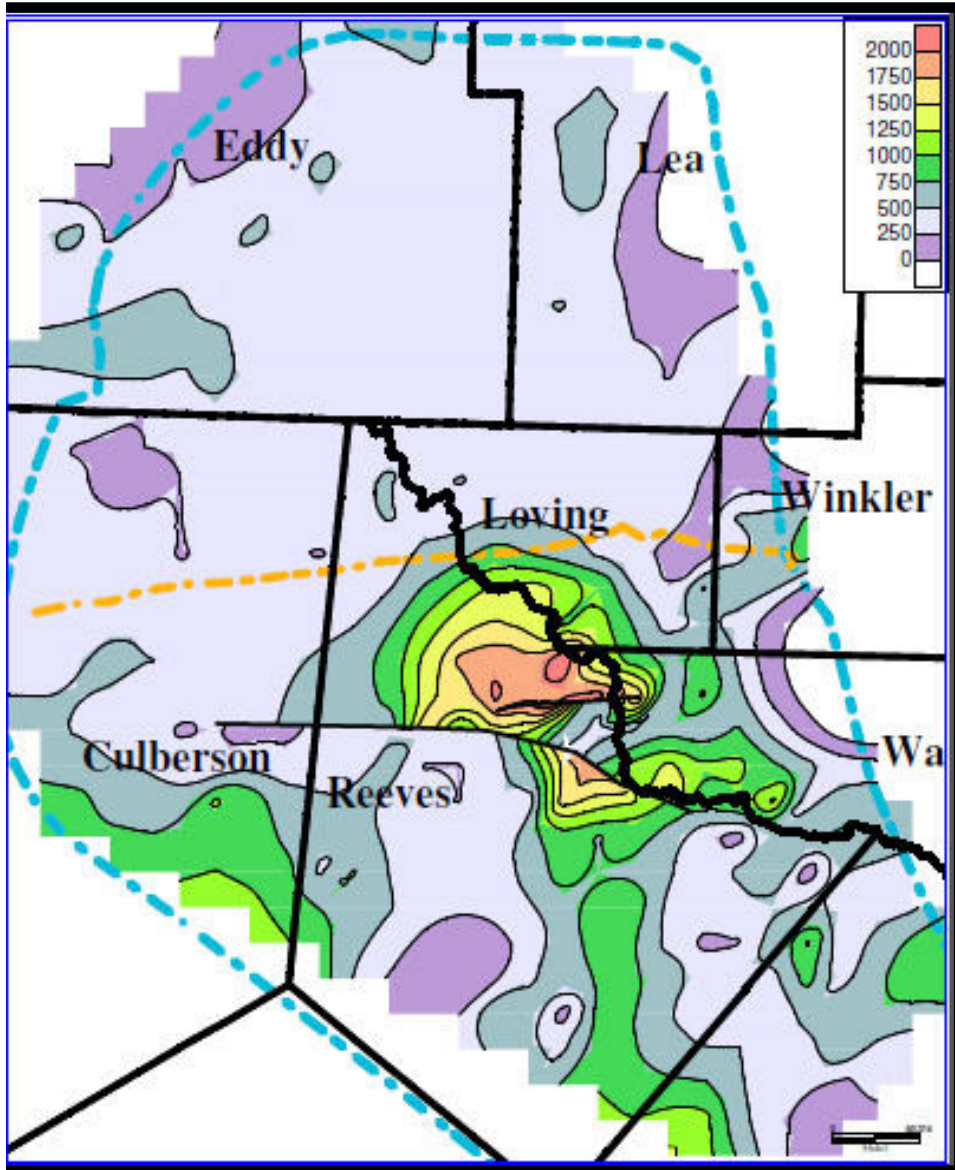




# Schematic – Wolfcamp Haley Unit Depositional Environments



# Isopach Wolfcamp Haley Unit with production

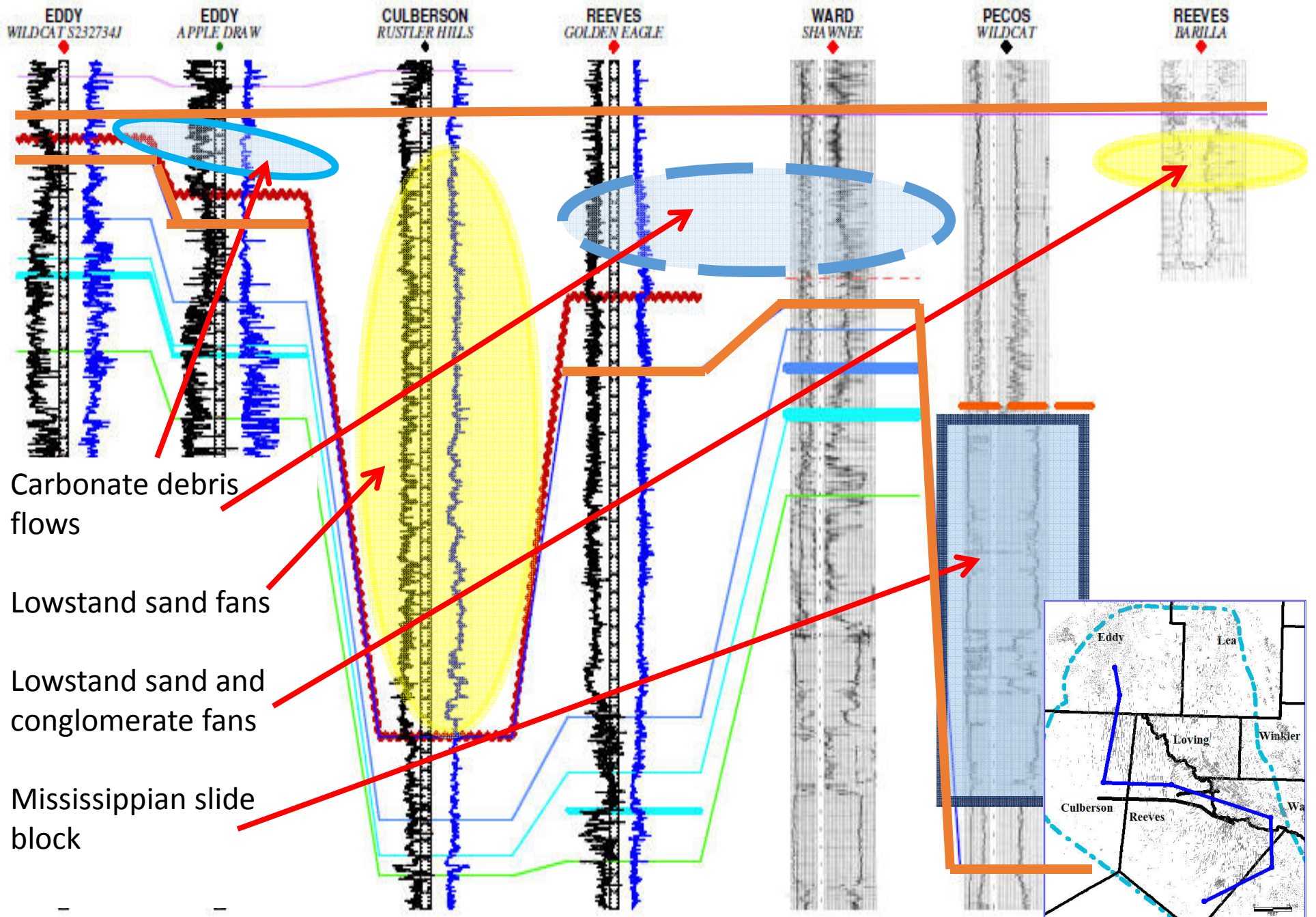




North

# Wolfcamp Debris Unit Type Logs Cross Section

South

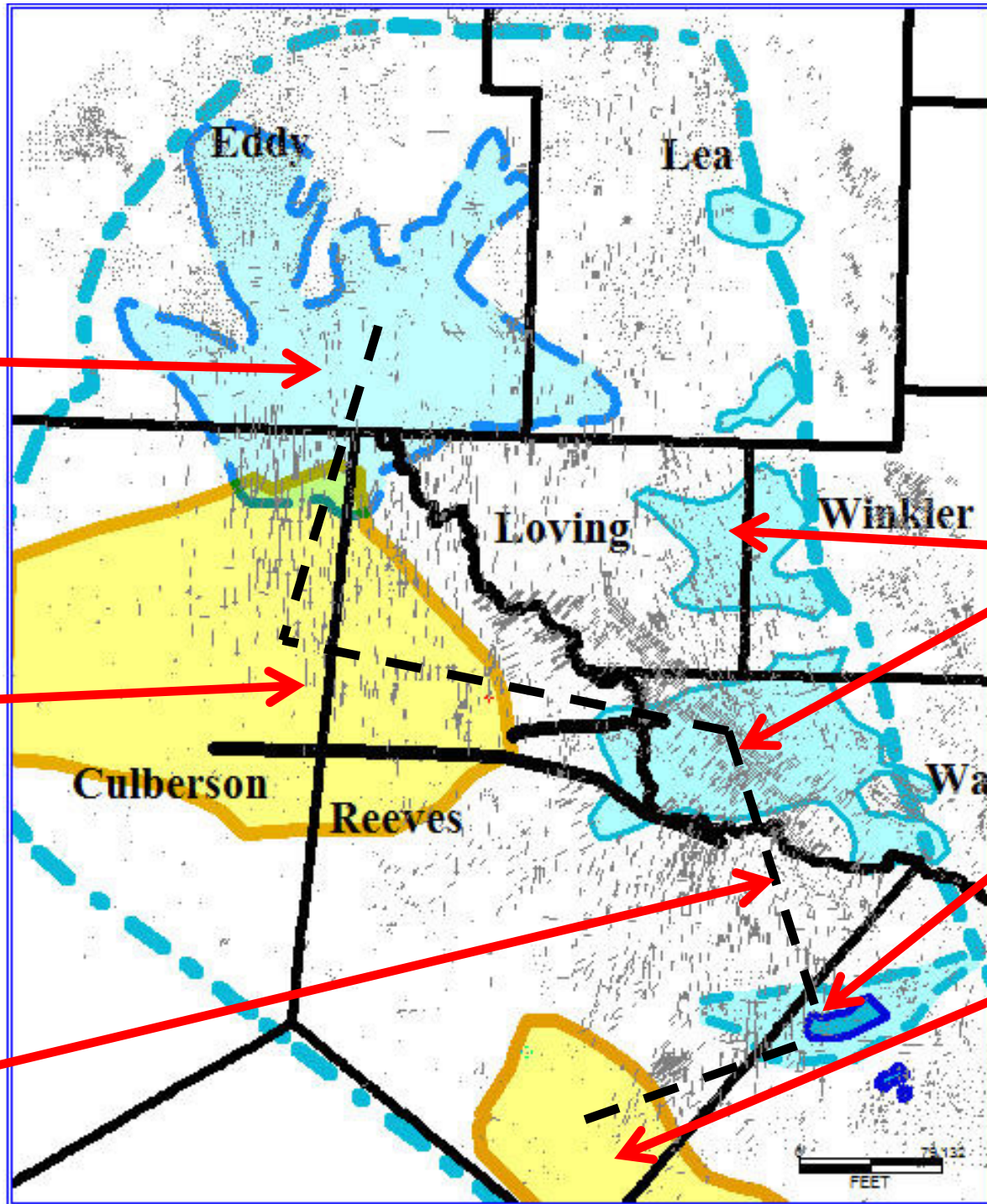




Carbonate  
Debris Flows  
with  
erosional  
base

Siliclastic  
lowstand  
fans with  
erosional  
base

Black dashed  
line = Line of  
cross section  
from  
previous slide



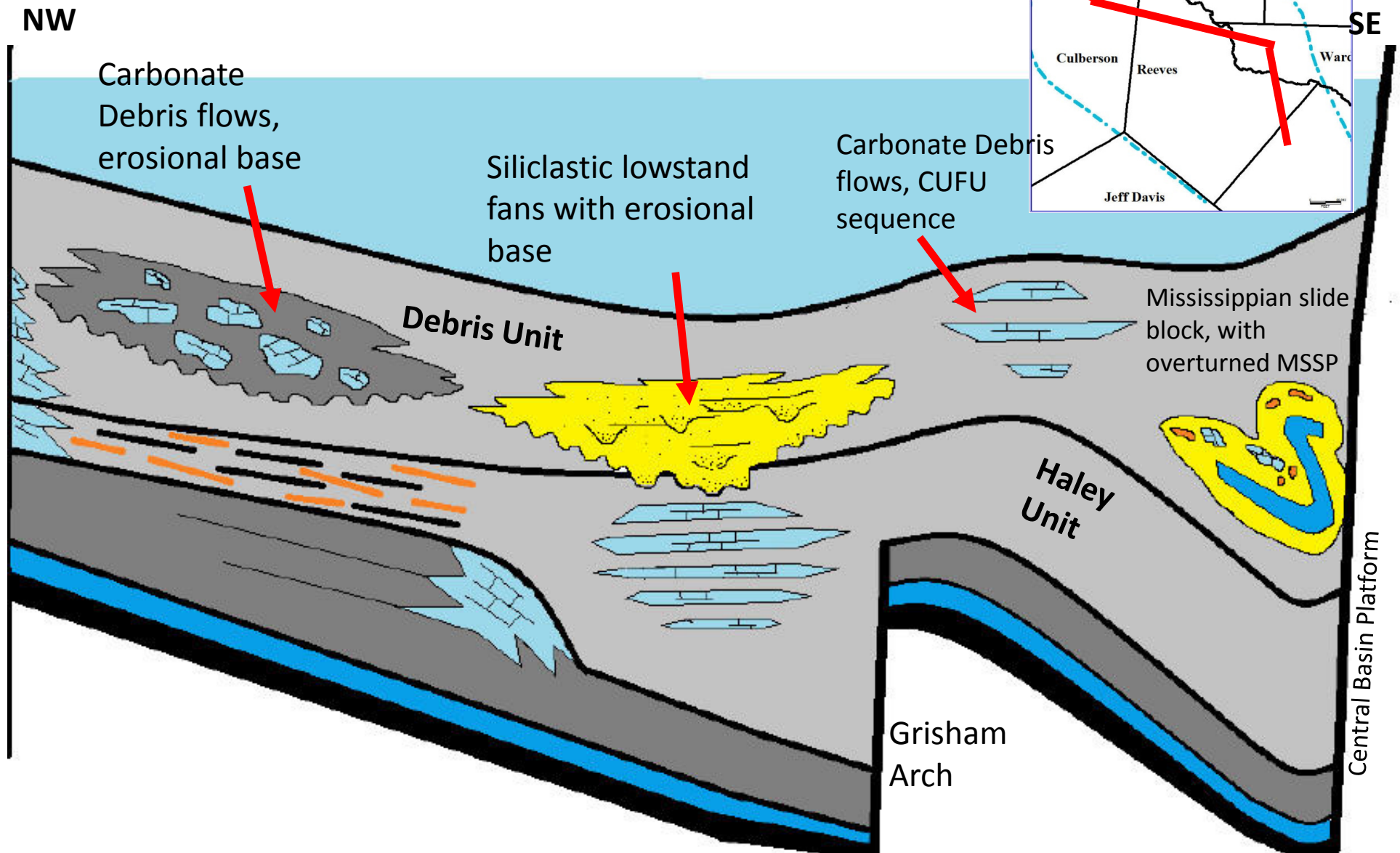
## Debris Unit Components

Carbonate Debris  
flows with  
reworked Strawn  
Fusulines

Mississippian slide  
block with  
carbonate debris  
blocks and chert  
conglomerates

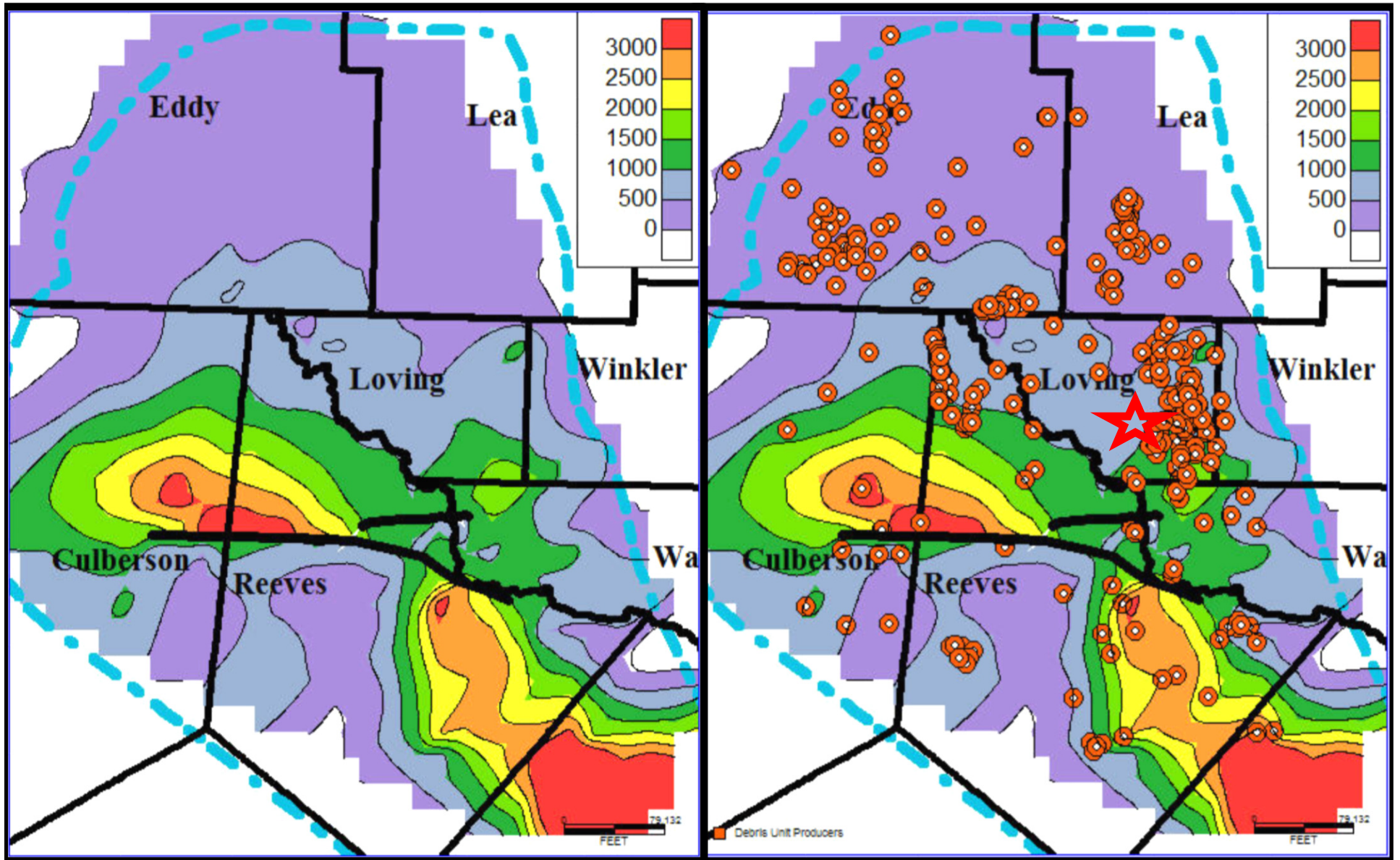
Siliclastic lowstand  
fans

# Schematic – Wolfcamp Debris Unit Depositional Environments



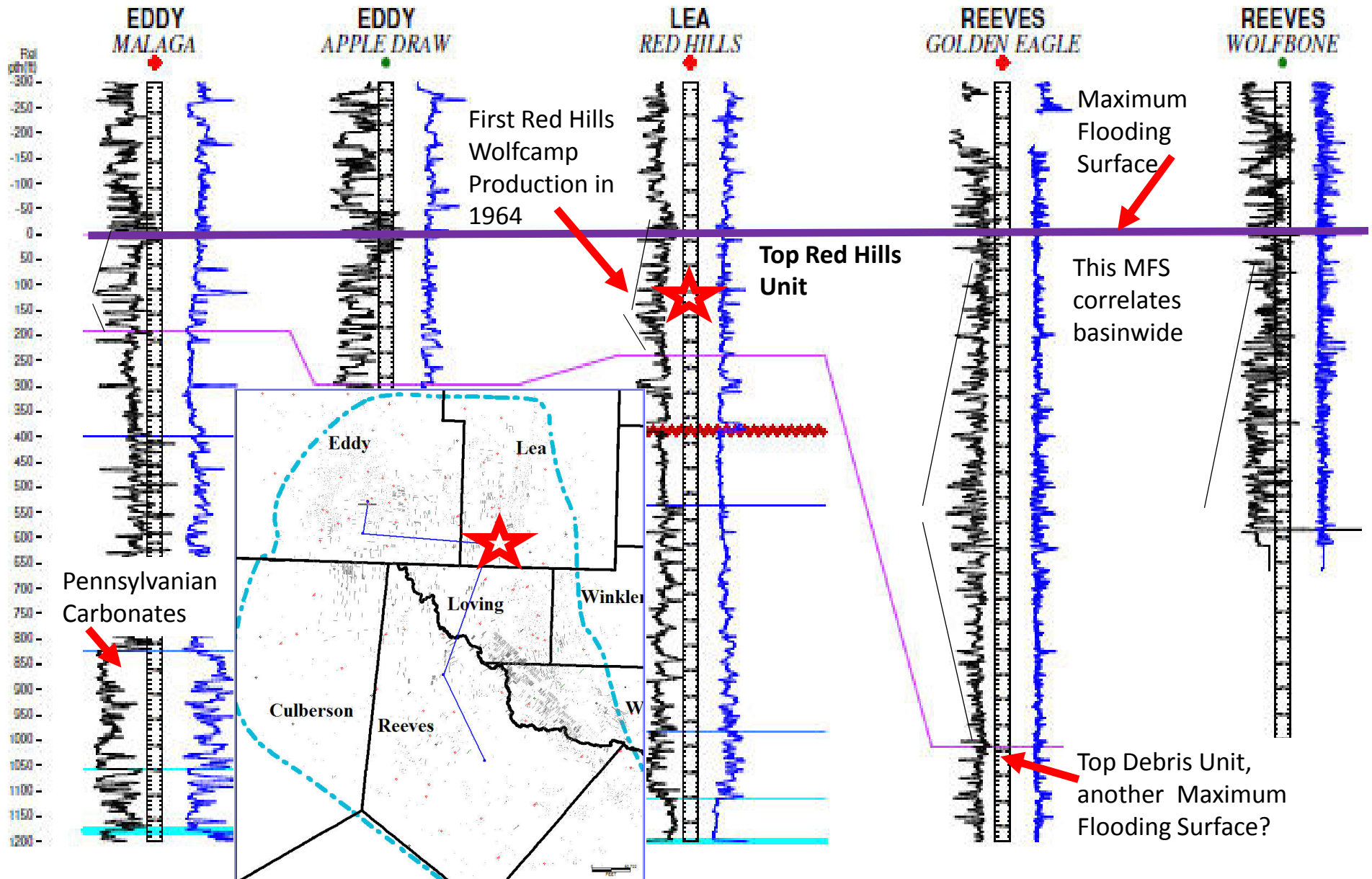


# Wolfcamp Debris Unit with Production

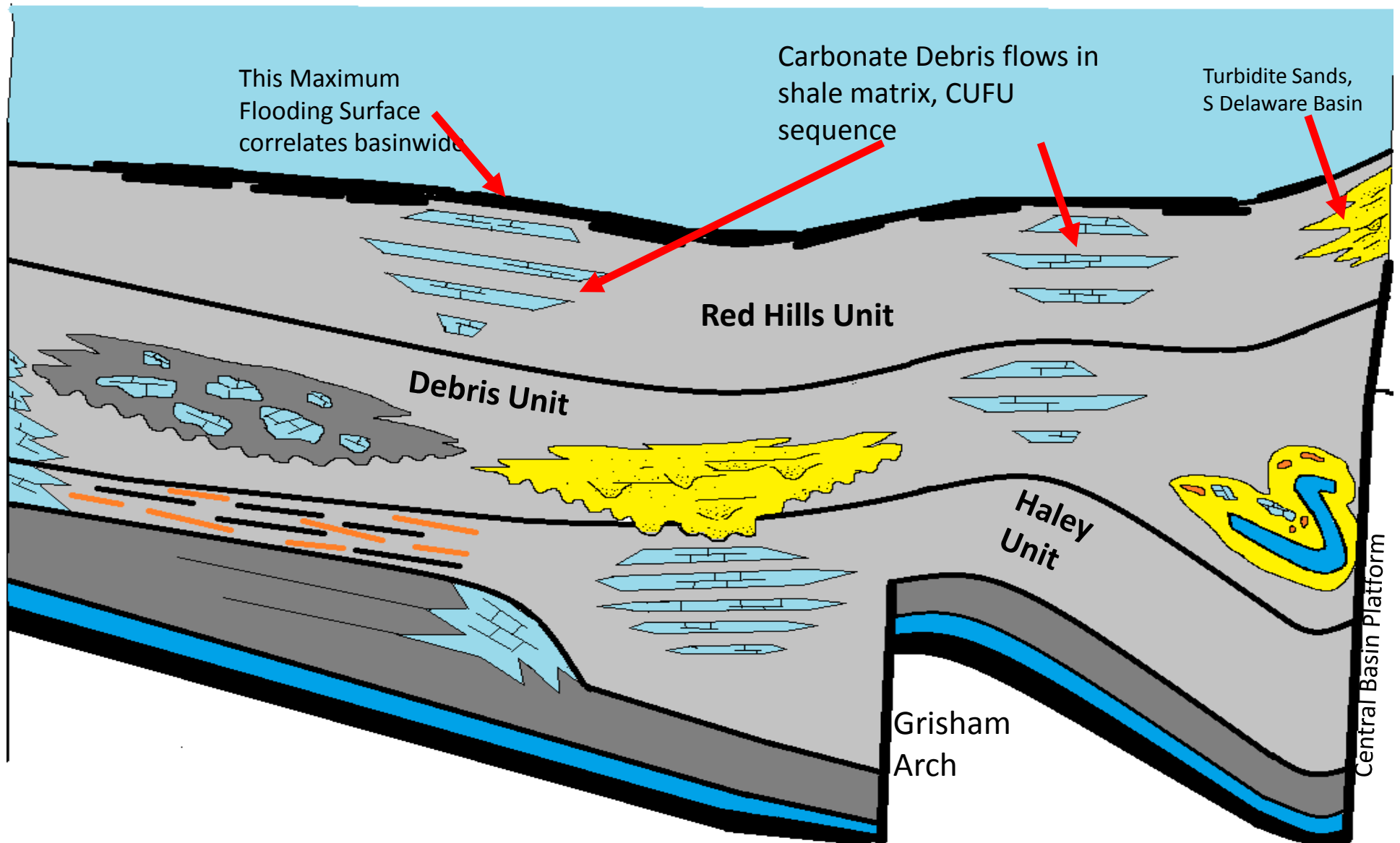




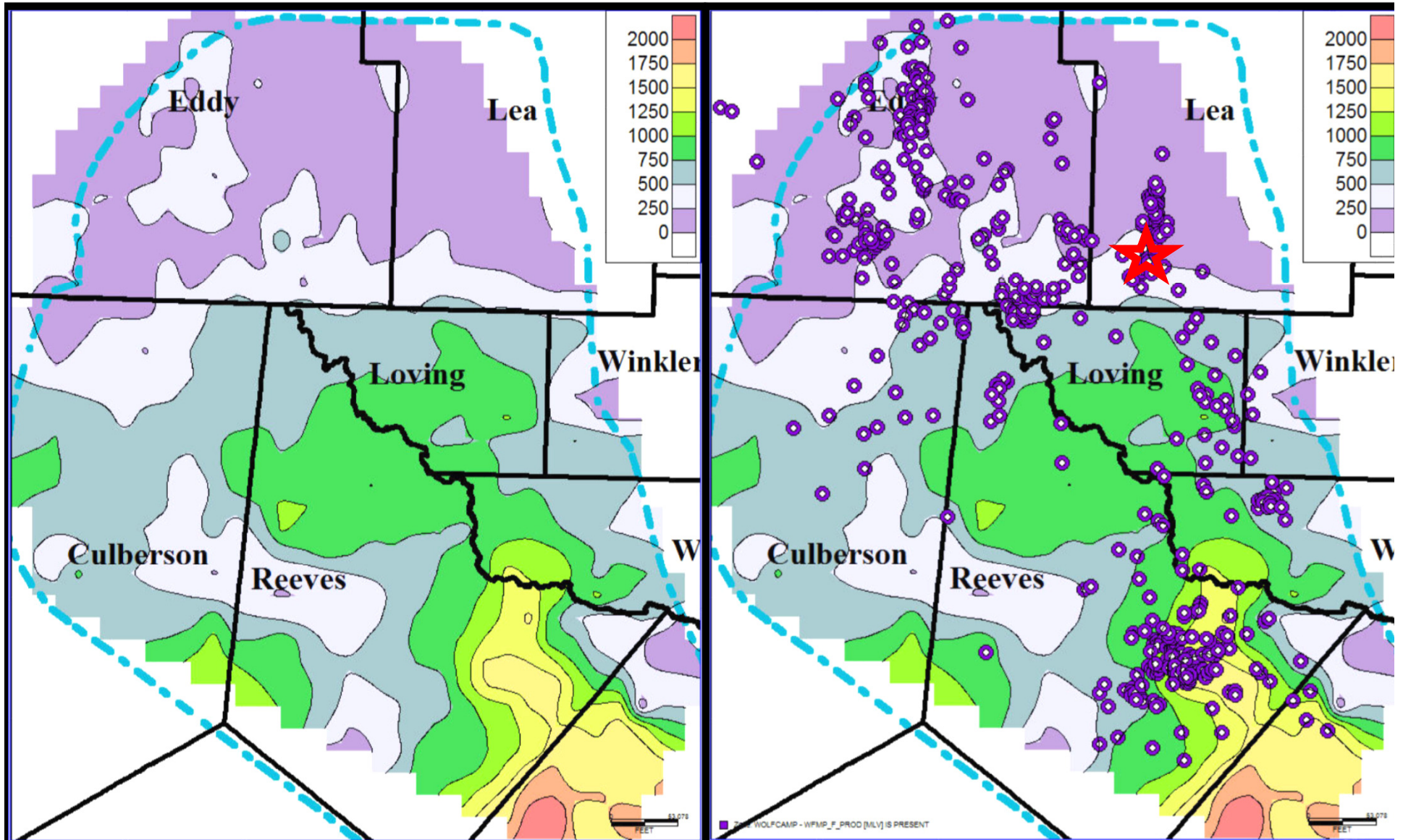
# Red Hills Unit Type Logs Cross Section



# Schematic – Wolfcamp Red Hills Unit Depositional Environments

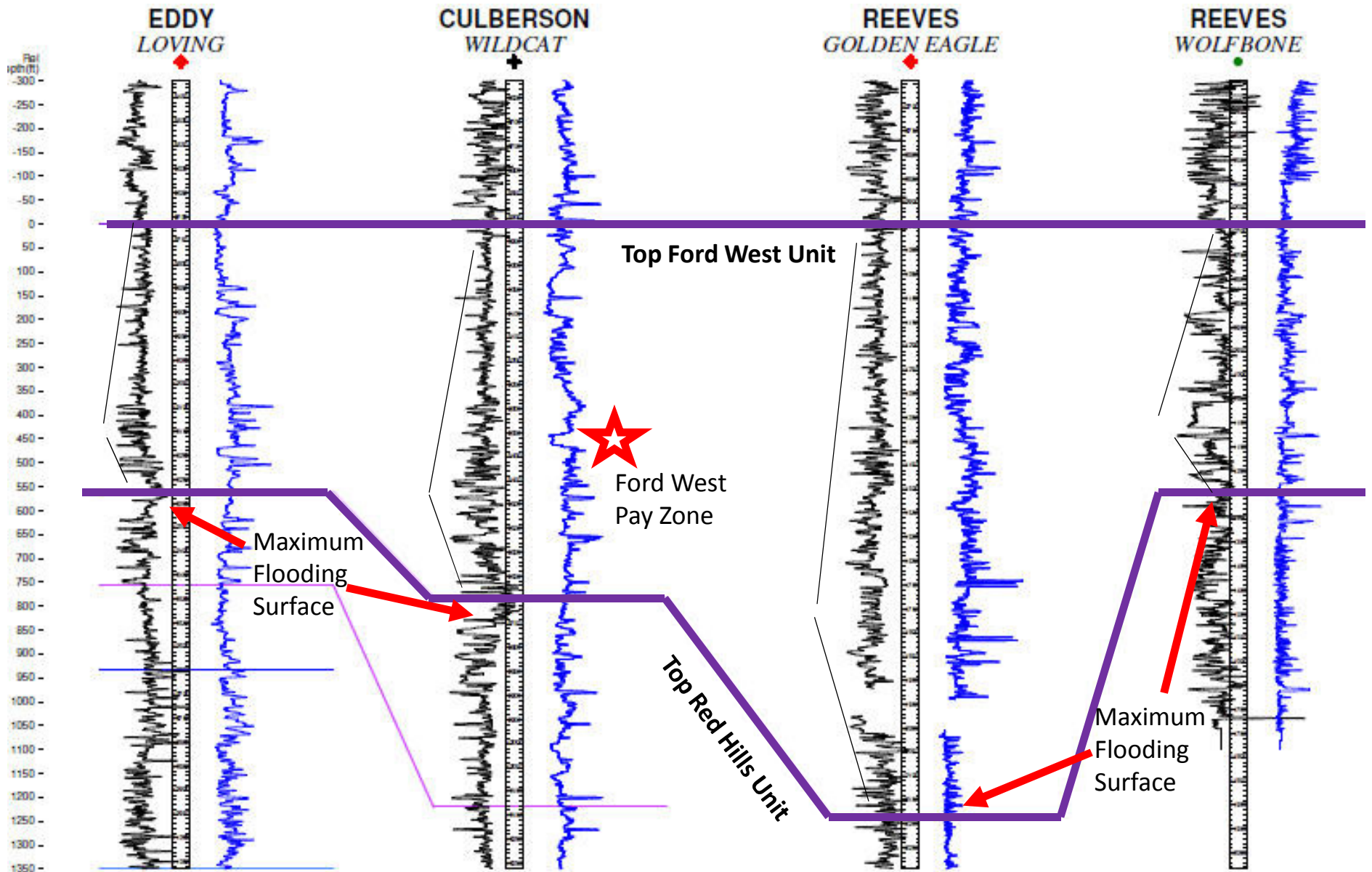


# Red Hills Unit Isopach with Production

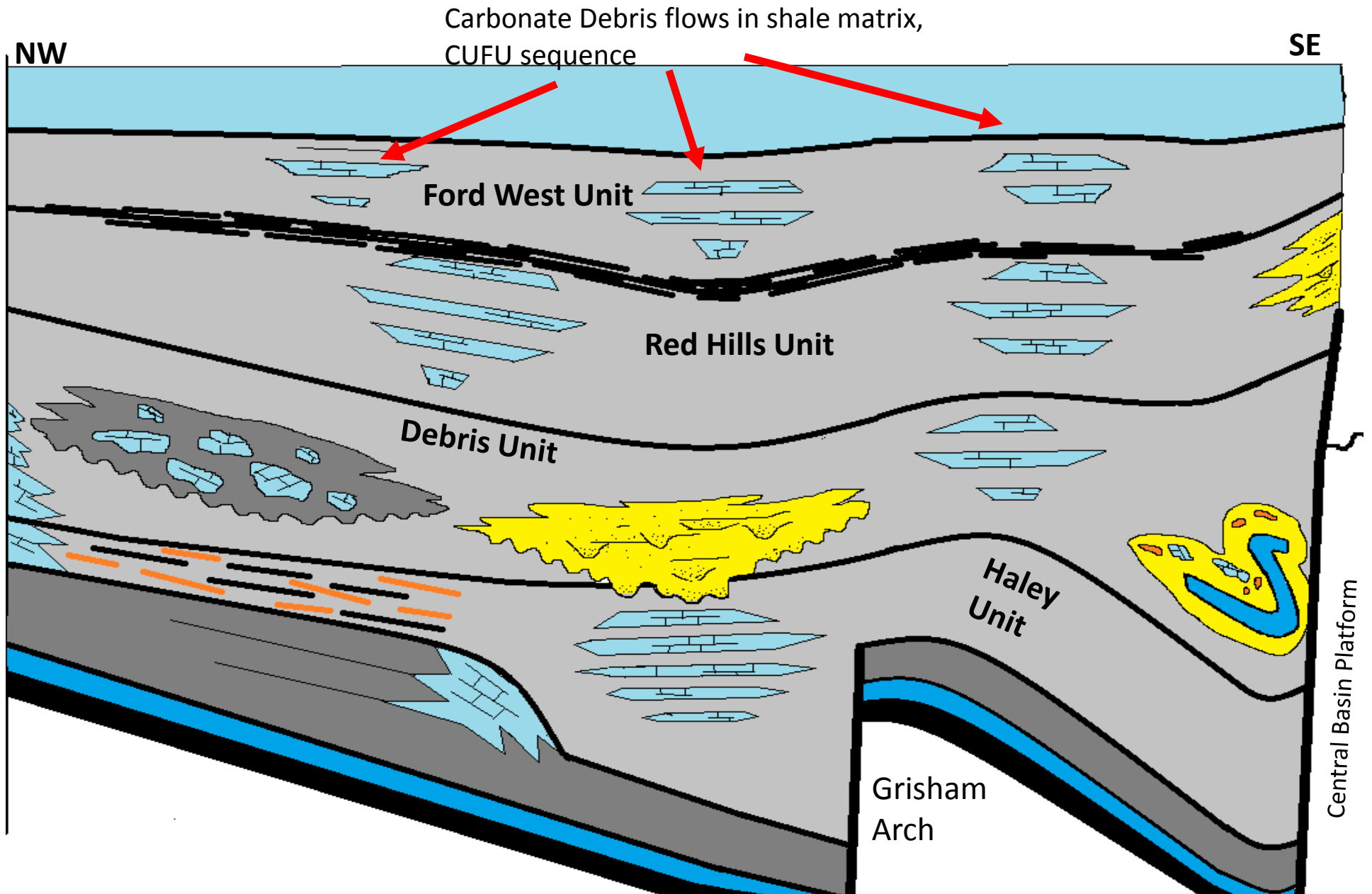




# Ford West Type Logs Cross Section

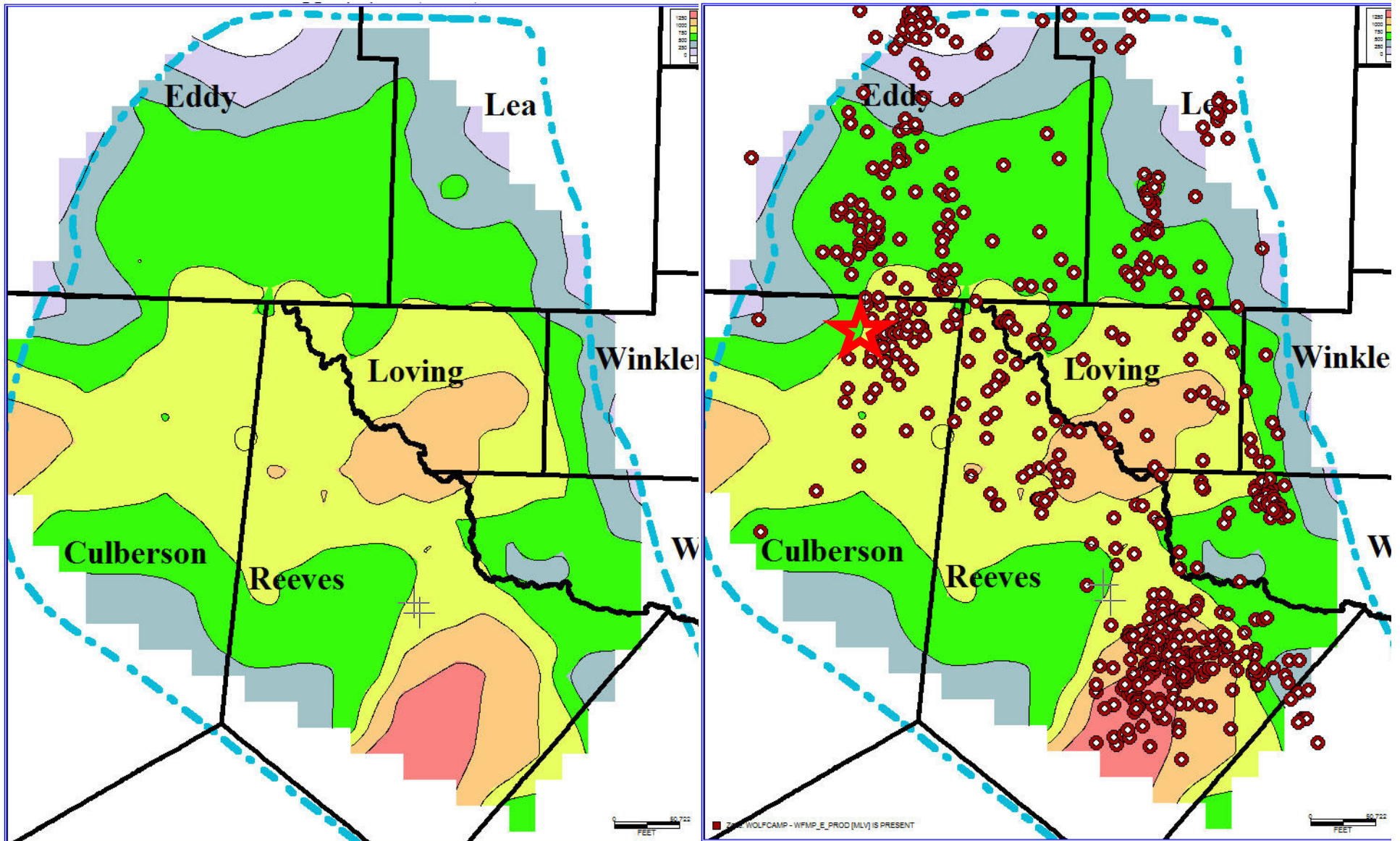


# Schematic – Wolfcamp Ford West Unit Depositional Environments





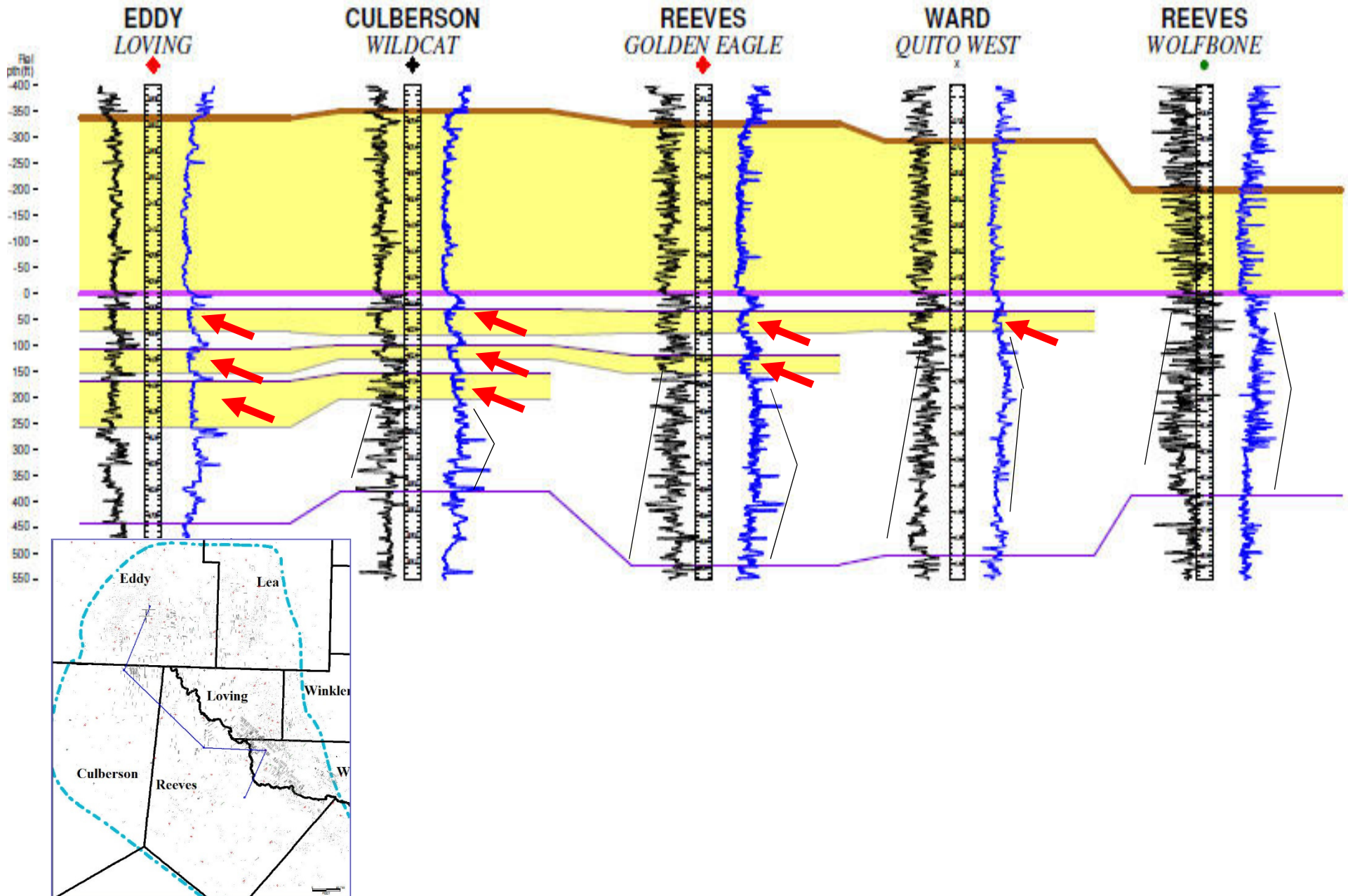
# Ford West Isopach with Production



NW

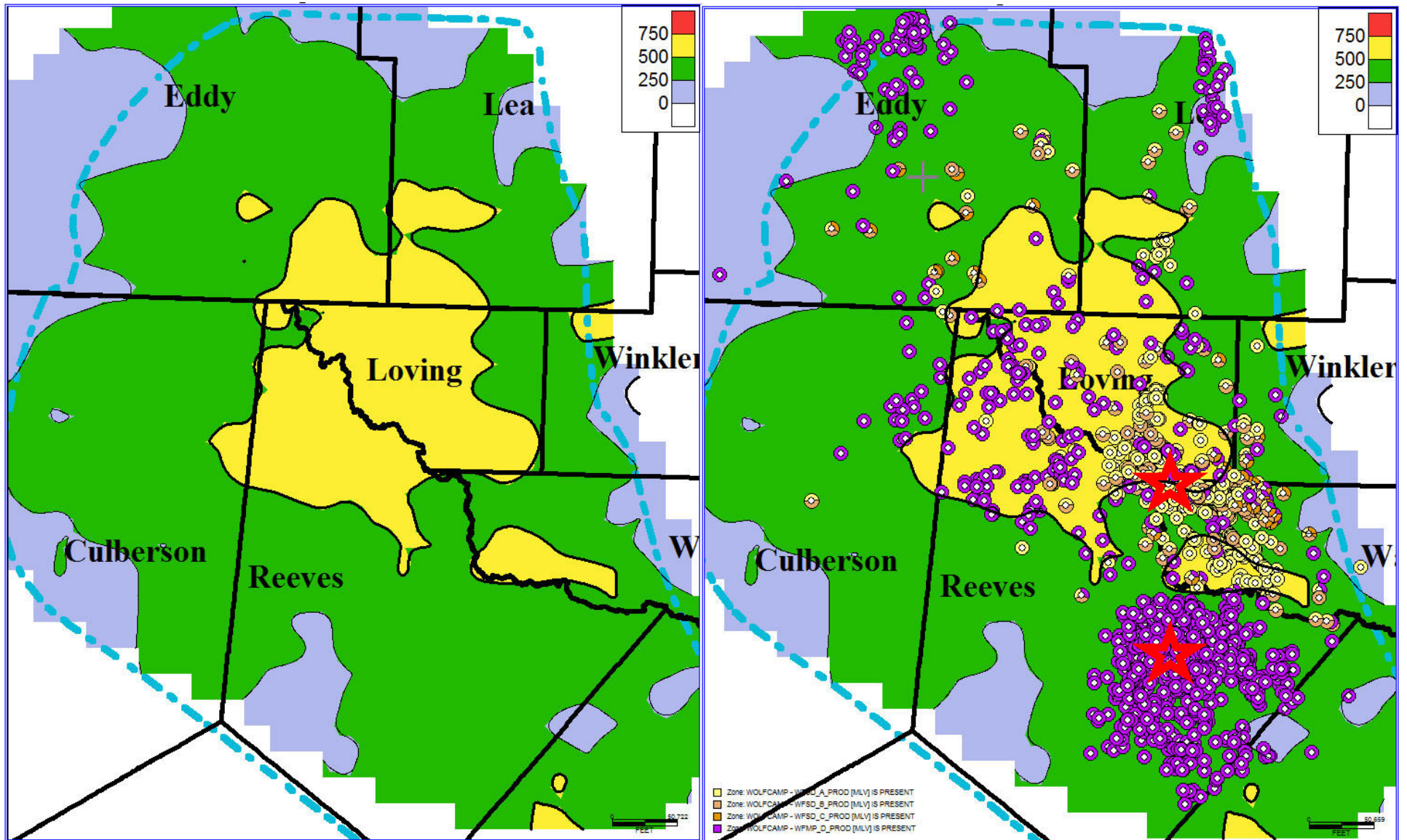
# Phantom Unit Type Logs Cross Section

SE



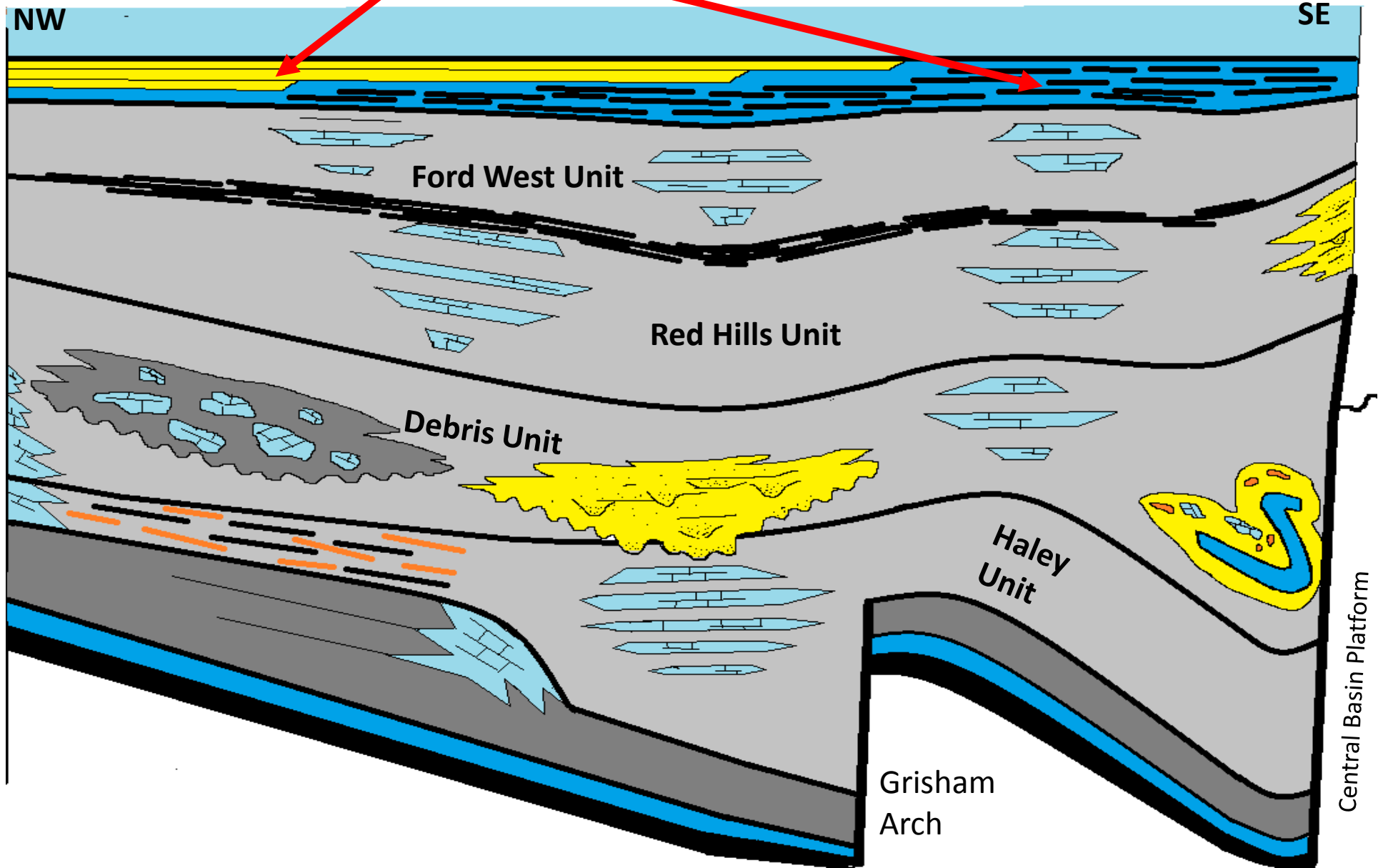


# Phantom Unit Isopach

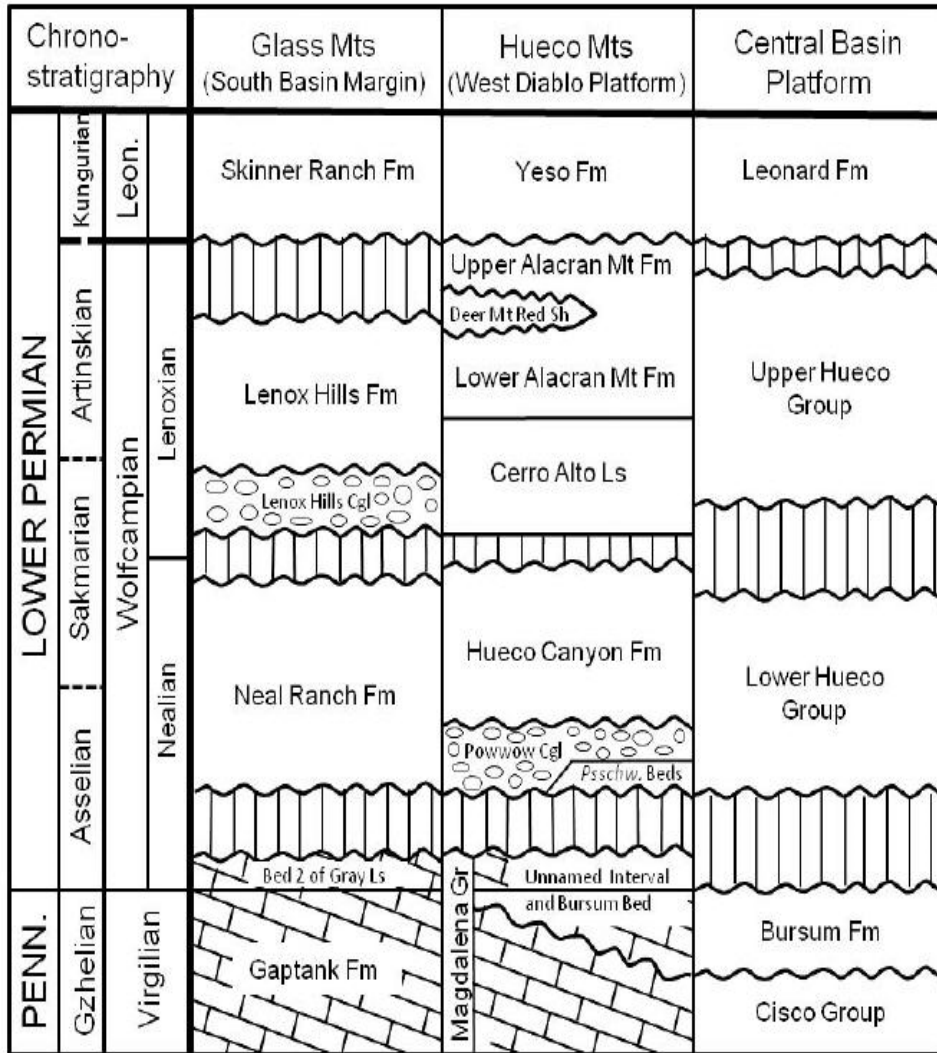




# Schematic – Wolfcamp Phantom Unit and Phantom Sands Depositional Environments

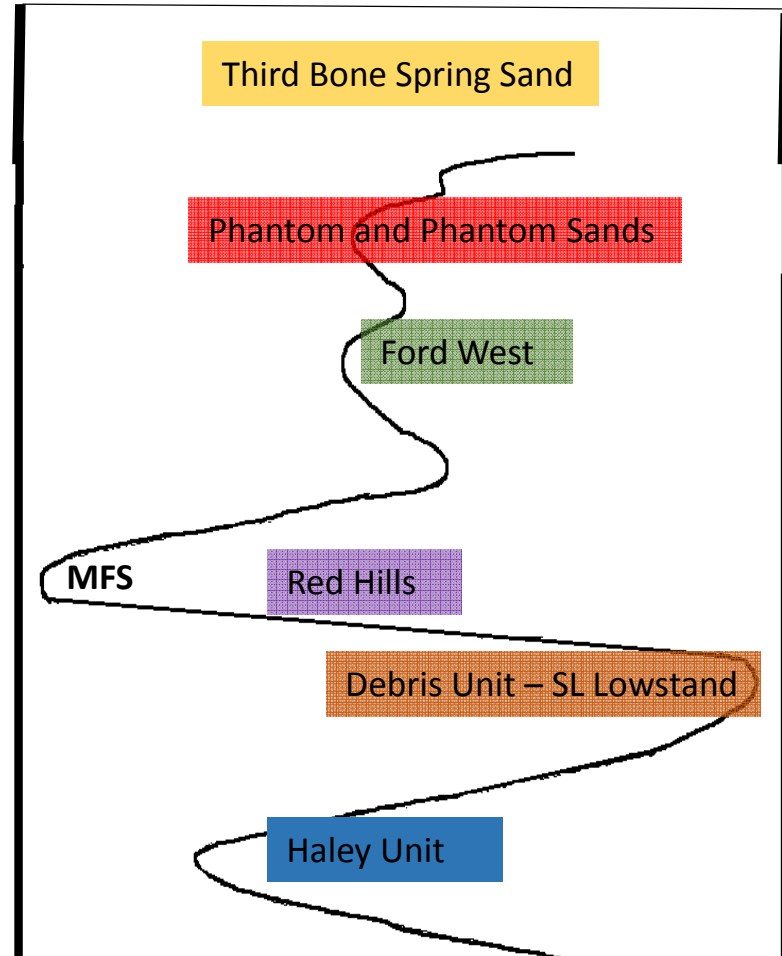


# Stratigraphic Column and Sealevel Curve



Rising SL

Falling SL



Stratigraphic Column Modified from  
Wahlman and Tasker, 2013

# Conclusions

- Proposed Regional Stratigraphic Correlation for subsurface Wolfcamp of Delaware Basin based on Log Character, Correlative Markers, Lithology and Paleontology
- Proposed Stratigraphic Unit Names based on First Significant Production from each rock stratigraphic horizon
  - Phantom/Phantom Sands
  - Ford West
  - Red Hills
  - Debris
  - Haley
- Proposed that these Units fit a Sealevel Highstand/Lowstand/Highstand pattern
- ***Thanks to Brian Ayers at Tema Oil and Gas***

**THANK YOU!      Any Questions or Discussion?**