Insights into mudstone sedimentology, organic richness, and anoxia at the opening of the Cretaceous Interior Seaway: Colorado's Skull Creek Formation

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Introduction and Motivation

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Dakota-Mowry Petroleum System

100		Lo Br Ri	Muskwa-Otter P Evie-Klua Musiwa- Diter Park	ark,	North An	nerican (as of Ma	shale pla ay 2011)	ys	
Dakota-Mowry Petroleum System 30 20 10							0 GEOLOG		
MESC	ZOIC	CENOZOIC					TIME		
CRETA	CEOUS	TERTIARY AND QUATERNARY							
E	L	PALEO	EOCENE	OLIGO	MIOCEN	E PP	SYS	STEM EVENTS	
	Plainview (?), Skull Creek (?), Mowry, Graneros, Huntsman Shales							SOURCE ROCK	
	Lytle, Plainview, Muddy ("J"), and D Sandstones						RESERVOIR ROCK		
	Mowry, Graneros, and Huntsman Shales						SEAL ROCK		
						5	OVERBURDEN ROCK		
	Laramide orogeny						TRAP FORMATION		
							GENERATION		
							MIGRATION		
							ACCUMULATION		
N	1od. EIA (20	011)		Maltrata	DER U	1990		200 400 600 800	

1. What depositional environments are represented by the Skull Creek formation?

2. What are the vertical sedimentary and geochemical trends in the formation?

3. Is the Skull Creek an effective source rock in the Dakota-Mowry Petroleum system?

Study Area





Outcrop data from Masterson, 2015

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Data: Core Overview







Well

Well

С

Facies Overview







Depositional Model

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1. What depositional environments are represented by the Skull Creek formation?

2. What are the vertical sedimentary and geochemical trends in the formation?

Vertical Trends

2.70.00

2'

SC3



SC1

2'

Plainview

9



2'

SC2

10

Lower Skull Creek



Middle Skull Creek



12

Upper Skull Creek



Well Log Correlations



Well Log Correlations



SOUTH

A

A1

Isopach Maps



Mod. Burtner and Warner, 1984

Source Rock Analysis





1. What depositional environments are represented by the Skull Creek formation?

2. What are the vertical sedimentary and geochemical trends in the formation?

3. Is the Skull Creek an effective source rock in the Dakota-Mowry Petroleum system?

Source Rock Potential



Thank You!



Advisor: Steve Sonnenberg

Committee:

- James Hagadorn
- Donna Anderson

Core Access

- Keith Shanley
 - Occidental Petroleum
- Gus Gustason
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- Dan Harrington
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