

Lab 3: Recognition of and Differentiation Between Strandplain Shorefaces and Deltas

There are 10-cored intervals taken from various Cretaceous units of the Western Interior Seaway. Units include Viking Fm, Dunvegan Fm, Cardium Fm, and Belly River Fm. The exercise will run 2 weeks in length.

The first week you will break into 7 groups (2 undergrad + 5 grad) and study the first 5 wells. Two cored wells will have to be shared with 2 groups. You will peruse all 5 wells as a group, making notes regarding the facies types and how they should be described. Each group will then select a different well to log. Construct a litholog of the interval, and provide a short write-up (1 to 2 pages) of the main facies within the facies succession, what they tell you about depositional conditions. Summarize how the facies in the facies succession combine to yield the various depositional subenvironments. Use the *WAVE* Knowledgebase to propose possible depositional scenarios and then rank these options with respect to your expertise as a group. *A photocopy of week one's write-up is due at the start of the following week's lab, although it will not be marked until the lab is completed.*

Next week, your group will evaluate 5 new cores, characterize the main facies types and facies succession as you did the previous week, and select a second core to log. As with the core in week 1, construct a litholog of the interval, and provide a short write-up (1 to 2 pages) of the main facies within the succession, and use the *WAVE* Knowledgebase to outline possible depositional settings and rank these.

In addition to your write up for cores 1 and 2, you must submit a 1 to 2 page write up that establishes facies characteristics that are indicative of shoreface *versus* deltaic influence. Given the 10 wells present, how would you rank the relative degrees of deltaic influence on sedimentation? How would you assess the different marine and riverine processes operating on the facies?

1) The original core log and facies description from week one, 2) your log and facies description from week two, and 3) your discussion of shoreface versus deltaic settings are all due at the start of the following lab period on October 30, 2015.

Week 1

08-10-23-16W4 Verger Viking Fm
02/14-12-47-04W5 Wilson Creek Viking Fm
14-05-30-02W5 Carstairs Viking Fm
03-31-42-03W5 Wilson Creek Viking Fm
11-29-49-21W4 Joarcam Viking Fm

Week 2

14-34-74-10W6 Knopcik Dunvegan Fm
14-10-33-05W5 Sundre Viking- Cardium Fm
16-10-49-06W5 Pembina Cardium (Core 1) 1599-1617m
14-19-42-04W5 Wilson Creek Belly River Fm
08-31-42-04W5 Wilson Creek Belly River Fm