

X-ray diffraction analysis of seven core samples from the Phillips
Petroleum Company (Cherryville Corp.) North Cook Inlet Unit A-12
(A-15) well

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The XRD results -
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XRD Analysis of Seven Samples from
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From/Location: C. J. Stuart - PRC C10

Telephone: 754-6456

To/Location: S. Bergman - PRC 3005

Problem

Seven samples from Cook Inlet Alaska Tertiary Basin were submitted for x-ray diffraction analysis. These results will be used for sandstone reservoir quality characterization.

Method

The samples were ground to approximately 40µm in size. Bulk whole rock and <2µm clay size portions were analyzed. The bulk whole rock was analyzed as a random packed sample. The <2µm clay fraction was separated from the bulk rock by centrifugation and analyzed as an oriented sample prepared by pressure mounting techniques on stainless steel plates.


The analyses were performed on a Scintag x-ray diffractometer at 45 KV-35 mA, using Cu K_α radiation and a solid state detector. The bulk rocks were analyzed over a 2-theta range of 2-45 degrees while spinning. The <2µm clay fraction was analyzed over 2-28 degrees while spinning. Both sets of analyses were run at 2 degrees per minute. The <2µm clay fraction was also glycolated to allow for identification of mixed-layer phases.

Semi-quantitative results are reported. The data are obtained by calculations using internal reference ratios and integrated peak areas. The standard internal reference ratios have been determined specifically for the ARCO Scintag x-ray diffractometer.

Results and Conclusions

The major phases present are quartz, microcline, feldspars, and clay minerals (TLS). The <2µm clay size fraction phases present are kaolinite, chlorite, illite, a mixed-layer phase, and quartz.

If I can be of further assistance, please call.


C. J. Stuart

cc: C. A. Andersen

Sample	Q	TLS	M	F
11136.2	12	23	31	34
11146.3	14	19	24	43
11158.5	9	17	32	42
12938.8	23	28	20	29
12947.4	28	14	30	28
12950.4	23	25	22	30
12968.7	30	22	24	24

major phases

Sample	Q	Kaolinite	Chlorite	Illite	Mixed Layer
11136.2	0	2	0	1	20
11146.3	0	4	0	2	13
11158.5	0	2	0	0	15
12938.8	1	4	8	1	14
12947.4	1	3	0	2	8
12950.4	1	5	0	3	17
12968.7	2	5	0	4	11

<2 μ m clay fraction