

VALLEY-FILL SANDSTONES IN THE KOOTENAI FORMATION ON THE CROW
INDIAN RESERVATION, SOUTH-CENTRAL MONTANA

Quarterly Technical Report

Report Period: 07/01/1997 through 09/30/1997

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Report Issue Date: 10/01/1997

DE-FG22-96BC14996

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Abstract

Subsurface data is being collected, organized, and a digital database is being prepared for the project. An ACCESS database and PC-Arcview will be used to manage and interpret the data.

All of the four 30' X 60' geologic quadrangles have been scanned to produce a digital surface geologic data base for the Crow Reservation and all are nearing completion. Writing of the map explanations has begun.

Field investigations were nearly completed during this quarter; only minor field checks remain. With the help of a student field assistant from the Crow Tribe, the entire project area was inventoried for the presence of valley-fill deposits in the Kootenai Formation. Field inventory has resulted in the identification of nine exposures of thick valley-fill deposits. These appear to represent at least four major westward-trending valley systems. All the channel localities have been measured and described in detail and paleocurrent data has been collected from all but one locality. In addition, two stratigraphic sections were measured in areas where channels are absent.

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Executive Summary

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Introduction

The stratigraphic study of the valley-fill sandstones in the Kootenai Formation was begun in August, 1996 with reconnaissance field work to locate the exposures of channel sandstone deposits. Subsurface aspects of the project were begun in the second quarter and are continuing.

Digitization of surface geologic maps of the Crow Reservation area continues, as well as processing and editing of the data. An oil and gas training seminar for Crow Tribal members was completed in the third quarter.

Results and Discussion

Subsurface data collection was begun in the second quarter of this project, and continues this quarter. A collection of most of the oil and gas well logs for the Crow Reservation area was donated to the project by a company that had initiated an exploration program on the reservation several years ago. These have been filed and inventoried to determine missing well coverage. Preliminary regional subsurface cross sections have been constructed for correlation purposes and to identify channel facies.

A digital data base of commercially available "scout card" data has been generated using Microsoft Access. PC-Arcview will be used for map generation and interpretation.

Geologic maps of all four 30' X 60' quadrangles that encompass the Crow Reservation have been digitally scanned for the geologic data base that will be provided to the Crow Tribe. These are all nearing completion. The map explanations for these maps are currently being compiled,

Field investigations for this field season were begun during the last quarter. To help with these investigations a field assistant was employed as described in the original project proposal. Marzha Fritzler, a member of the Crow Tribe and a student at Haskell Indian Nations University in Liberal, Kansas was selected for this position.

Field investigations were nearly completed during this quarter; only minor field checks remain. With the help of the student field assistant from the Crow Tribe, the entire project area was inventoried for the presence of valley-fill deposits in the Kootenai Formation. Field inventory has resulted in the identification of nine exposures of major valley-fill deposits. These appear to represent at least four major westward-trending valley systems. All the channel localities have been measured and described in detail and paleocurrent data has been collected from all but one locality. In addition, two stratigraphic sections were measured in areas where channels are absent. Preliminary versions of all the measured sections have all been digitally plotted using LogPlot97 by Rockware.

Reconnaissance investigations of valley-fill deposits in the Bighorn Basin to the west have also been conducted. Preliminary results indicate that some of

these channels appear to be continuations of the channels identified on the Crow Reservation.

Conclusion

Subsurface data is being collected, organized, and a digital database is being prepared for the project. The database will be managed with Microsoft Access; PC-Arcview will be used for map generation and interpretation.

All four 30' X 60' geologic quadrangles have been scanned to produce a digital surface geologic data base for the Crow Reservation. All quadrangles are nearing completion and the map explanations are being compiled.

Field investigations were nearly completed this quarter and have been very successful in identifying significant exposures of valley-fill sandstones. At least four major westward-trending valley systems have been identified. Measured sections of all localities have been completed.