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GEOLOGIC MAP AND STRUCTURE SECTIONS
OF THE JOHNSON CREEK QUADRANGLE,
CARIBOU COUNTY, IDAHO

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Trace Elements Investigations Report 260

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

metadc1393366

IN REPLY TO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

AUG 14 1952

AEC - 159/3

Dr. Phillip L. Merritt, Assistant Director
Division of Raw Materials
U. S. Atomic Energy Commission
P. O. Box 30, Ansonia Station
New York 23, New York

Dear Phil:

Transmitted herewith for your information are two copies of Trace Elements Investigations Report 260, "Geologic map and structure sections of the Johnson Creek quadrangle, Caribou County, Idaho," by R. A. Gulbrandsen, K. P. McLaughlin, F. S. Honkala, S. E. Clabau, and K. B. Krauskopf, August 1952.

The Johnson Creek quadrangle is one of the 7½ minute quadrangles which are being mapped for the Atomic Energy Commission in the Aspen Ridge--Dry Ridge area, southeastern Idaho, which contains most of the largest and best phosphate deposits in the western field. Geologic mapping is being continued in adjoining quadrangles and the mapping will serve as a basis for the calculation of reserves and the differentiation of areas suitable for mining.

Mr. Hosted orally approved, on July 2, 1952, the limited distribution of this report. He also approved, on July 17, 1952, our planned open file release of this report.

Sincerely yours,

O.E. McKelvey

for W. H. Bradley
Chief Geologist

UNCLASSIFIED

Geology - Mineralogy

This document consists of 2 pages,
plus 2 figures.
Series A

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEOLOGIC MAP AND STRUCTURE SECTIONS
OF THE JOHNSON CREEK QUADRANGLE, CARIBOU COUNTY, IDAHO*

By

R. A. Gulbrandsen, K. P. McLaughlin, F. S. Honkala,
S. E. Clabaugh, and K. B. Krauskopf

August 1952

Trace Elements Investigations Report 260

This preliminary report is distributed
without editorial and technical review
for conformity with official standards
and nomenclature. It is not for pub-
lic inspection or quotation.

*This report concerns work done of behalf of the Division
of Raw Materials of the U. S. Atomic Energy Commission.

USGS - TEI Report 260

GEOLOGY - MINERALOGY

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EXPLANATION

ROCK UNITS

Qal

Mostly fine-grained sediments

Qt

Travertine

Qts

Sedimentary deposits
Conglomerate, limestone, and gravel

Qt

Angular unconformity

Rtd

D member

Poorly exposed thick-bedded gray limestone and brown sandstone, possibly up to 500 feet thick. Top of Thaynes formation not represented.

Rtc

C member

Thick-bedded brownish-gray calcareous siltstone with irregular bedding surfaces, contains gray limestone nodules and lenses and some fissile gray siltstone at base, 500 to 900 feet thick.

Rtb

B member

Thin-bedded light-brown-weathering calcareous siltstone, weathers to large smooth thin plates that tend to be thicker and whose surfaces are irregular in upper part; 600 to 800 feet thick.

Rtd

A member

Fissile and thin-bedded dark-gray and brown calcareous siltstone and thin-bedded black brittle limestone, basal 10 to 20 feet composed of gray limestone and thin-bedded calcareous siltstone that contain the regionally distinctive Meekoceras fauna, mapped locally as Tiam; 500 to 800 feet thick.

Rdb

Upper member

Thick-bedded (up to 8 feet) gray limestone with some interbedded thin- and thick-bedded olive-green siltstone; 800 to 1,200 feet thick.

Rda

Lower member

Olive-green shale, fissile in part, containing some very fossiliferous limestone beds generally less than one foot in thickness that weather purplish- and brownish-gray, grades upward to thick-bedded olive-green calcareous siltstone that weathers dark-brown and black, 1,000 to 1,400 feet thick in most places.

Ppr

Rex chert member

Massive dark-gray to black ledge-forming chert in lower half is very distinctive over the region; upper half consists of poorly exposed thin-bedded dark-gray to black cherty siltstone; 200 to 300 feet thick.

Pps

Phosphatic shale member

No natural exposures; in trenches it is grayish-brown to black shale including a lower phosphate zone, a middle mudstone zone, and an upper phosphate zone; some limestone beds are present; phosphate rock is generally oolitic; 100 to 200 feet thick in most places.

Cwb

Upper member

Thick-bedded brown and gray sandstone with some interbedded limestone; very distinctive thick-bedded gray limestone in the upper 10 to 15 feet contains silicified fossils, mostly brachiopods (Squamularia), and lenses and beds of black and bluish-white chert, used as marker for overlying phosphate beds; 1,000 to 1,300 feet thick.

Cwa

Lower member

Thin-bedded gray sandy limestone with dark gray fossil fragments; contains interbeds of brownish-weathering calcareous sandstone, large nodules and lenses of the chert horizon; uppermost beds, 500 to 1,000 feet thick.

Cb

Brachiopod limestone

Upper 100 feet distinctive massive gray ledge-forming limestone; contains large corals, tabular corals, and thin-bedded limestone with some interbeds of sandstone; base not exposed, maximum of 600 feet exposed at any one place.

MAP SYMBOLS

Contacts

Contact

Long-dashed where approximately located, short-dashed where gradational, indefinite, or inferred, dotted where covered.

Faults

Fault

Dashed where approximately located or inferred, dotted where covered; U, upthrown side; D, downthrown side.

Folds

Anticline

Location of trace of axial plane, dashed where approximately located, dotted where covered.

Syncline

Approximate location of trace of axial plane, dotted where covered.

Overturned anticline

Location of trace of axial plane, dashed where approximately located.

Overturned syncline

Approximate location of trace of axial plane.

Plunge of minor anticline

Bedding

Strike and dip of beds

Strike and dip of overturned beds

Strike of vertical beds

Horizontal beds

Surface openings

Trench

1206 and 1209 are lot numbers of sampling program trenches

Portal of adit

Queries in map symbols indicate doubtful existence and/or location of feature queried.

GEOLOGIC MAP
OF THE
JOHNSON CREEK QUADRANGLE
Caribou County, Idaho

By
R.A. Gulbrandsen, K.P. McLaughlin, J.S. Honkala,
S.E. Clabough and K.B. Krauskopf

SCALE 1:24,000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

Geology mapped in 1949 and 1950 by

R.A. Gulbrandsen
K.P. McLaughlin
J.S. Honkala
S.E. Clabough
K.B. Krauskopf
E.R. Cressman
W. Hill

Topography from aerial photographs by multiple methods
Aerial photographs taken 1947. Field check 1949

This map is preliminary and has not been reviewed
for conformity with U.S. Geological Survey standards
and nomenclature.

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K. P. McLaughlin
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