DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

A contribution of the
BUREAU OF LAND MANAGEMENT
Prepared in cooperation with the
IDAHO BUREAU OF MINES AND GEOLOGY

MINERAL INVESTIGATIONS
RESOURCE MAP MR–80
SHEET 1 OF 3

Base from U.S. Geological Survey, 1949

APPROXIMATE MEAN
DECLINATION, 1985

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1985—C82262

SCALE 1:24 000

CORRELATION OF MAP UNITS

Qa, Qs			QUATERNARY
QTs			QUATERNARY AND TERTIARY
QTb	Pleistocene or Pliocene		QUATERNARY OR TERTIARY
Tsl	Pliocene and Miocene		TERTIARY
Tw	Eocene		
Jt	Middle Jurassic		JURASSIC
Trt, Trd	Lower Triassic		TRIASSIC
Ppr, Ppm			PERMIAN
PIPw			PERMIAN AND PENNSYLVANIAN
Mc			MISSISSIPPIAN
Mm			

DESCRIPTION OF MAP UNITS

Qa — ALLUVIUM (QUATERNARY)–Unconsolidated sedimentary deposits along stream valleys; may include colluvium in Fossil Canyon quadrangle and hillwash and alluvial fans in Dry Valley quadrangle

* Qs — SURFICIAL DEPOSITS (QUATERNARY)–Includes colluvium, older alluvium, hillwash, talus, alluvial-fan, landslide, mudflow, and boulder deposits

QTs — SEDIMENTARY DEPOSITS (QUATERNARY AND TERTIARY) – Undivided surficial deposits and Salt Lake Formation

* QTb — BASALT (PLEISTOCENE OR PLIOCENE) – Olivine and augite-olivine basalt

* Tsl — SALT LAKE FORMATION (PLIOCENE AND MIOCENE) – Limestone, sandstone, and chert conglomerate and rhyolitic tuff

* Tw — WASATCH FORMATION (LOWER EOCENE) – Red conglomerate and sandstone

* Jt — TWIN CREEK LIMESTONE (MIDDLE JURASSIC) – Limestone, siltstone, and sandstone

* Trt — THAYNES LIMESTONE (LOWER TRIASSIC)-Sandstone, limestone, siltstone, and shale. As mapped. may include the Lanes Tongue of the Ankareh Formation

Trd — DINWOODY FORMATION (LOWER TRIASSIC)–Siltstone, shale, and limestone. As mapped, may include tongue of the Woodside Shale. Approximately 1,800 to 2,600 ft thick

PHOSPHORIA FORMATION (PERMIAN) – Includes:

Ppr — Rex Chert Member (Lower Permian) – Chert. As mapped, may include cherty shale member of the Phosphoria Formation and lentils of the Franson Member of the Park City Formation. Approximately 200 to 300 ft thick

Ppm — Meade Peak Phosphatic Shale Member (Lower Permian) – Phosphorite and mudstone. Approximately 100 to 200 ft thick

PIPw — WELLS FORMATION (PERMIAN AND PENNSYLVANIAN)–Sandstone and limestone. As mapped, may include the Grandeur Tongue of the Park City formation. Approximately 1,900 to 2,200 ft thick

Mc — CHESTERFIELD RANGE GROUP (UPPER AND LOWER MISSISSIPPIAN) – Limestone, sandstone, and siltstone. Approximately 1,000 ft thick

* Mm — MADISON LIMESTONE (UPPER AND LOWER MISSISSIPPIAN) – Limestone

———?——— CONTACT – Dashed where approximately located, gradational, indefinite or inferred; dotted where concealed; queried where doubtful

U/D ———?——— FAULT – Dashed where approximately located or inferred; dotted where concealed; queried where doubtful. U, upthrown side; D, downthrown side; arrows show relative horizontal movement

———?——— THRUST FAULT – Sawteeth on upper plate. Dashed where approximately located or inferred; dotted where concealed; queried where doubtful

———?——— ANTICLINE – Showing crestline. Dashed where approximately located or inferred; dotted where concealed; queried where doubtful

———?——— SYNCLINE – Showing troughline. Dashed where approximately located or inferred; dotted where concealed; queried where doubtful

———?——— OVERTURNED ANTICLINE – Showing direction of dip of limbs. Dashed where approximately located or inferred; dotted where concealed; queried where doubtful

———?——— OVERTURNED SYNCLINE – Showing direction of dip of limbs. Dashed where approximately located or inferred; dotted where concealed; queried where doubtful

STRIKE AND DIP OF BEDS – Inclined; overturned; vertical; horizontal

PHOSPHATE DRILL HOLE } For computing resource tonnages
PHOSPHATE TRENCH }

PHOSPHATE MINE PIT BOUNDARY – As of September 1979

The geology shown includes: 1) the trace of the top and bottom contacts of the Phosphoria Formation and where data are available the top and bottom contacts of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation, 2) appropriate structural data required for construction of structure contours, overburden isopachs, and resource blocks, and 3) other structural data necessary for understanding the regional geologic picture.

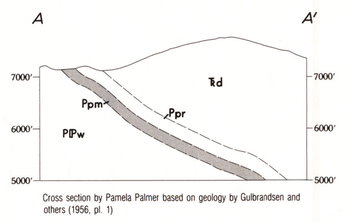
FAULT SEPARATION – No calculated resource
FAULT OVERLAP – Twice calculated resources if covered by 1500 ft. or less of overburden
FAULT TRACE AT DEPTH

STRUCTURE CONTOURS–On top of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation. Contour interval 200 feet. Approximately located; dashed where contours are projected past control points or where structure is uncertain.

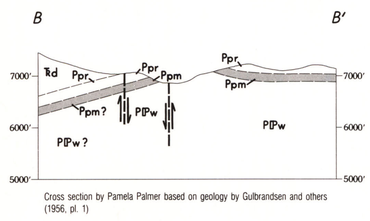
6000 — Index Contour
5800 — Intermediate Contour

Structure contours are not shown in: sec. 36, T. 8 S., R 42 E., secs. 1 and 12, T. 9 S., R. 42 E. and the western edges of secs. 6 and 7, T. 9 S., R. 43 E.

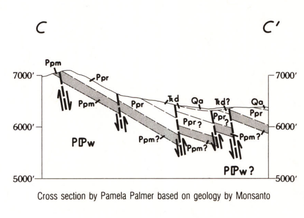
* Map units and symbols shown with an asterisk are not on this map.



Cross section by Pamela Palmer based on geology by Gulbrandsen and others (1956, pl. 1)

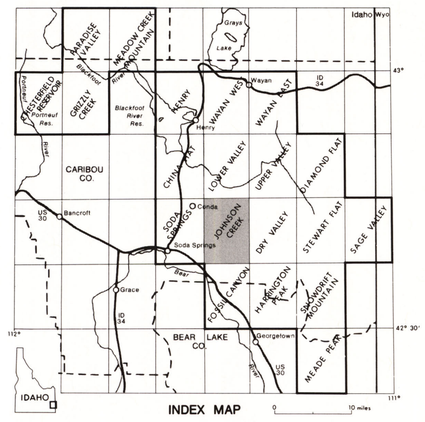


Cross section by Pamela Palmer based on geology by Gulbrandsen and others (1956, pl. 1)



Cross section by Pamela Palmer based on geology by Monsanto

Geology compiled by Pamela Palmer from Gulbrandsen and others (1956), Alumet, Monsanto, and Simplot; geologic interpretation by Pamela Palmer, Warren Barrash, and Susan T. Miller; structure contours by Pamela Palmer; pit boundaries by Pamela Dunlap Derkey; drill hole and trench logs analyzed by Nancy J. Wotruba and Mahasti Fakourbayat; assisted by Margie Lane; cartography by David Taylor and Gibb C. Johnson



STRUCTURE CONTOURS ON THE TOP OF THE MEADE PEAK PHOSPHATIC SHALE MEMBER

MAPS SHOWING SELECTED GEOLOGY AND PHOSPHATE RESOURCES OF THE JOHNSON CREEK QUADRANGLE, CARIBOU COUNTY, IDAHO

By

Pamela Palmer,[1] Warren Barrash,[1] Pamela Dunlap Derkey,[1] Nancy J. Wotruba,[1] Mahasti Fakourbayat,[1] and Susan T. Miller[2]

[1]Idaho Bureau of Mines and Geology
[2]Bureau of Land Management

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Explanatory pamphlet accompanies map

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