

**CORRELATION OF MAP UNITS**

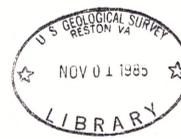
Qa	Qs	} QUATERNARY
QTs		
QTb		} QUATERNARY AND TERTIARY
Tsl		
Tw		} QUATERNARY OR TERTIARY
Jt		
Jt		} TERTIARY
Jt		
Jt		} MIOCENE
Jt		
Jt		} EOCENE
Jt		
Jt		} MIDDLE JURASSIC
Jt		
Jt		} LOWER TRIASSIC
Jt		
Jt		} TRIASSIC
Jt		
Jt		} PERMIAN
Jt		
Jt		} PERMIAN AND PENNSYLVANIAN
Jt		
Jt		} MISSISSIPPIAN
Jt		

- 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, mud-flow, and boulder deposits
  - QTs SEDIMENTARY DEPOSITS (QUATERNARY AND TERTIARY) - Undivided surficial deposits and Salt Lake Formation
  - \* QTb BASALT (PLEISTOCENE OR PLEIOCENE) - 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
  - \* Jt THAYNES LIMESTONE (LOWER TRIASSIC) - Sandstone, limestone, siltstone, and shale. As mapped, may include the Lanes Tongue of the Ankaeh Formation
  - Jd 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
  - Ppr PHOSPHORIA FORMATION (PERMIAN) - Includes: 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
  - PPw 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
- 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 - Sawtooth 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
- 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
- OVERBURDEN ISOPACHS - On top of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation. Only 300-, 600-, 1500-foot isopachs are shown. Dashed lines where control is poor and interpretation of structure is uncertain
- RESOURCE BLOCK END BOUNDARY
- IDENTIFIED PHOSPHATE RESOURCES - Excluding outcrop or projected outcrop of the Meade Peak Phosphatic Shale Member
- Map units and symbols shown with an asterisk are not on this map.

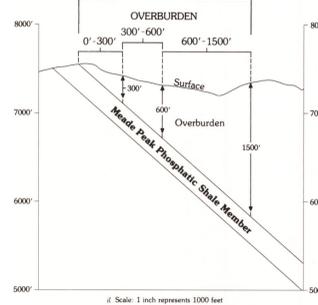


**IDENTIFIED PHOSPHATE RESOURCES**

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

By  
Pamela Palmer,<sup>1</sup> Warren Barrash,<sup>1</sup> Pamela Dunlap Derkey,<sup>1</sup> Nancy J. Wotruba,<sup>1</sup> Mahasti Fakourbayat,<sup>1</sup> and Susan T. Miller<sup>2</sup>  
<sup>1</sup> Idaho Bureau of Mines and Geology  
<sup>2</sup> Bureau of Land Management  
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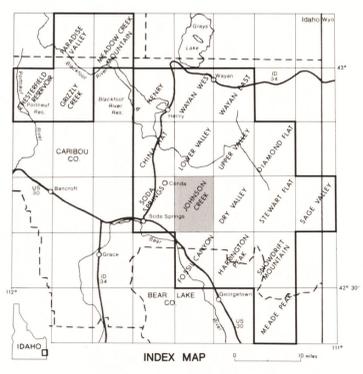
**IDENTIFIED PHOSPHATE RESOURCES**



RESOURCES FOR JOHNSON CREEK QUADRANGLE

Overburden	0'-300'	300'-600'	600'-1500'	TOTAL
Million Short Tons	547	212	294	1,054

Resources calculated to three significant figures for phosphate rock containing  $\geq 16\%$  P<sub>2</sub>O<sub>5</sub>.



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c.2  
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