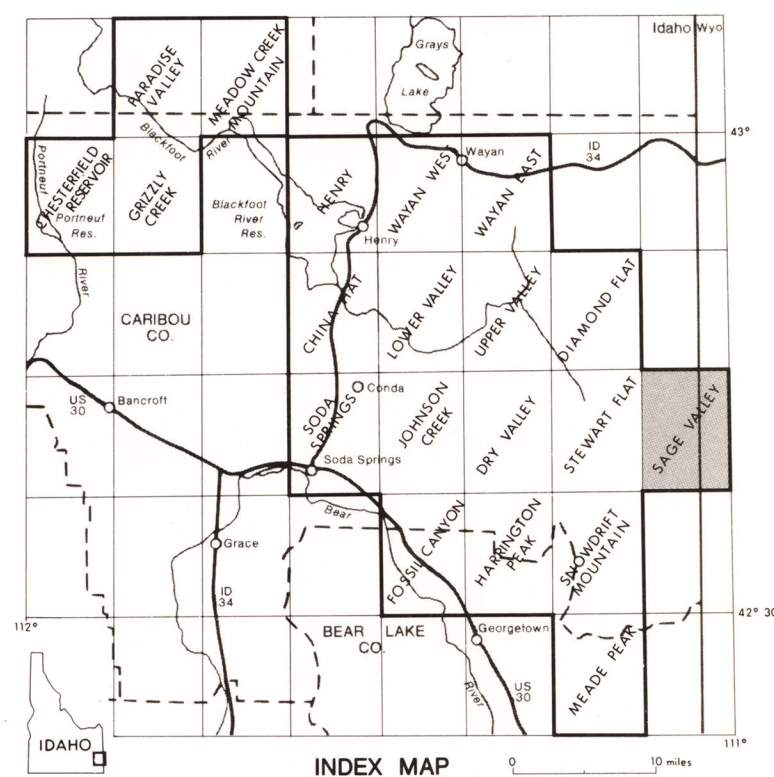
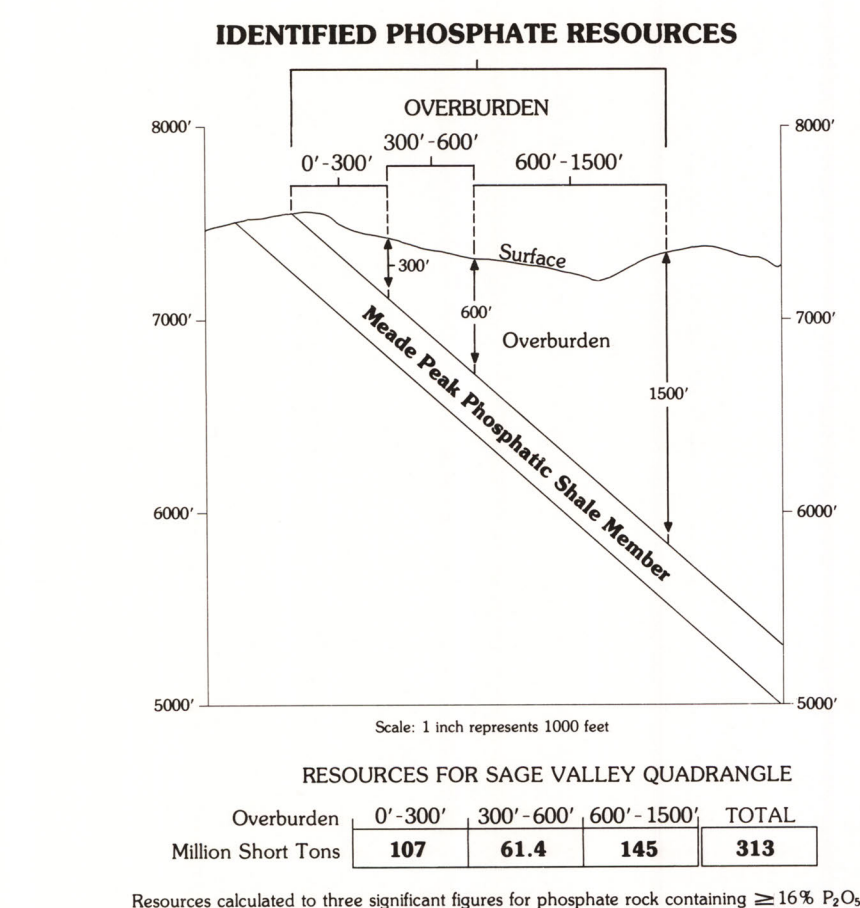


- CORRELATION OF MAP UNITS**
- | Map Unit | Geological Period       |
|----------|-------------------------|
| Qa       | QUATERNARY              |
| Qs       | QUATERNARY              |
| QTs      | QUATERNARY AND TERTIARY |
| QTb      | QUATERNARY OR TERTIARY  |
| Tsl      | QUATERNARY OR TERTIARY  |
| Tw       | QUATERNARY OR TERTIARY  |
| Jt       | QUATERNARY OR TERTIARY  |
| Tt       | QUATERNARY OR TERTIARY  |
| Td       | QUATERNARY OR TERTIARY  |
| Ppr      | QUATERNARY OR TERTIARY  |
| Ppm      | QUATERNARY OR TERTIARY  |
| PPw      | QUATERNARY OR TERTIARY  |
| Mc       | QUATERNARY OR TERTIARY  |
| Mm       | QUATERNARY OR TERTIARY  |
- 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 PLOCENE) - Olivine and augite-olivine basalt.
  - Tsl** SALT LAKE FORMATION (PLIOCENE AND MIOCENE) - Limestone, sandstone, and chert conglomerate and rhyolitic tuff. Approximately 0 to 984 ft thick.
  - Tw** WASATCH FORMATION (LOWER EOCENE) - Red conglomerate and sandstone.
  - Jt** TWIN CREEK LIMESTONE (MIDDLE JURASSIC) - Limestone, siltstone, and sandstone.
  - Tt** THAYNES LIMESTONE (LOWER TRIASSIC) - Sandstone, limestone, siltstone, and shale. As mapped, may include the Lanes Tongue of the Ankerh Formation. Approximately 4,166 ft thick.
  - Td** DINWOODY FORMATION (LOWER TRIASSIC) - Siltstone, shale, and limestone. As mapped, may include tongue of the Woodside Shale. Approximately 1,673 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 262 ft thick.
  - Ppm** Meade Peak Phosphatic Shale Member (Lower Permian) - Phosphorite and mudstone. Approximately 148 ft thick.
  - PPw** WELLS FORMATION (PERMIAN AND PENNSYLVANIAN) - Sandstone and limestone. As mapped, may include the Grandeur Tongue of the Park City Formation. Approximately 1,387 ft thick.
  - Mc** CHESTERFIELD RANGE GROUP (UPPER AND LOWER MISSISSIPPIAN) - Limestone, sandstone, and siltstone.
  - 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** - For computing resource tonnages.
- PHOSPHATE TRENCH** - For computing resource tonnages.
- 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 where isopachs are projected past control points or where 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**  
**SAGE VALLEY QUADRANGLE, CARIBOU COUNTY, IDAHO**

By  
**Pamela Dunlap Derkey,<sup>1</sup> Bea Johnston,<sup>1</sup> Pamela Palmer,<sup>1</sup> and R. David Hovland<sup>2</sup>**  
<sup>1</sup>Idaho Bureau of Mines and Geology  
<sup>2</sup>Bureau of Land Management  
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