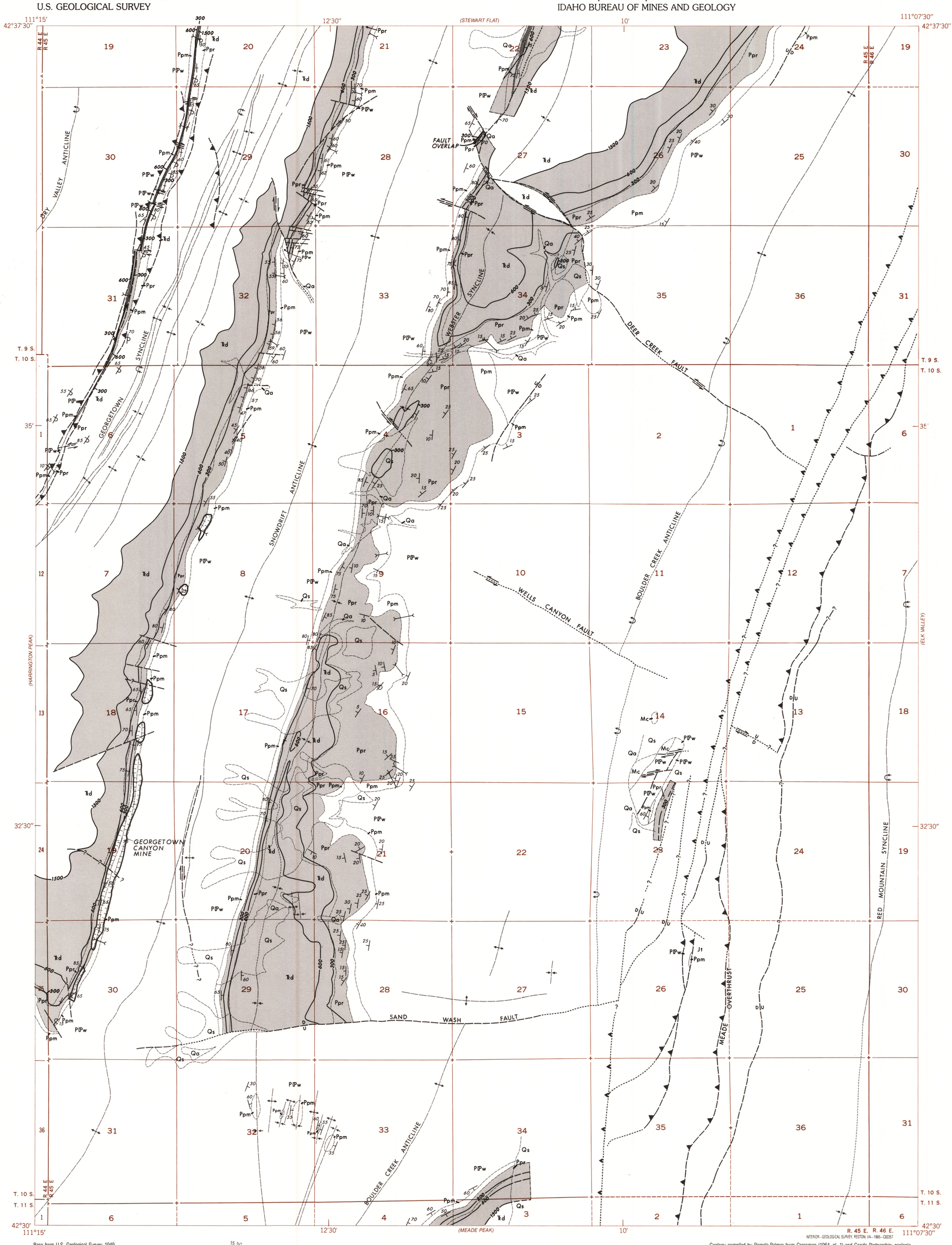
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

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

MINERAL INVESTIGATIONS
RESOURCE MAP MR–75
SHEET 2 OF 3



Base from U.S. Geological Survey, 1949

APPROXIMATE MEAN DECLINATION, 1985

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	Lower Triassic	TRIASSIC
	Trd		
	Ppr		PERMIAN
	Ppm		
	PPw		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, mud-flow, 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. Approximately 2,610 ft thick

* 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 1,200 to 1,600 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 280 ft thick

Ppm — Meade Peak Phosphatic Shale Member (Lower Permian) – Phosphorite and mudstone. Approximately 150 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 1,500 to 1,600 ft thick

Mc — CHESTERFIELD RANGE GROUP (UPPER AND LOWER MISSISSIPPIAN) – Limestone, sandstone, and siltstone. Approximately 1,650 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 – 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
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

600 — OVERBURDEN ISOPACHS—On top of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation. Only 300-, 600-, 1500-feet isopachs are shown. Dashed where isopachs are projected past control points or where structure is uncertain

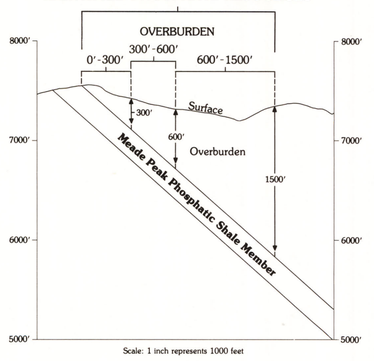
RESOURCE BLOCK END BOUNDARY

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.

Geology compiled by Pamela Palmer from Cressman (1964, pl. 1) and Conda Partnership; geologic interpretation by Ken Paul, Bea Johnston, and R. David Hovland; overburden isopachs by Ken Paul and Pamela Dunlap Derkey; pit boundaries by Pamela Dunlap Derkey; drill hole and trench logs analyzed by Alexandra Zemanek and Mahasti Fakourbayat; resource blocks by Pamela Palmer; assisted by P.J. Keller and Margie Lane; cartography by David Taylor and Gibb C. Johnson

IDENTIFIED PHOSPHATE RESOURCES

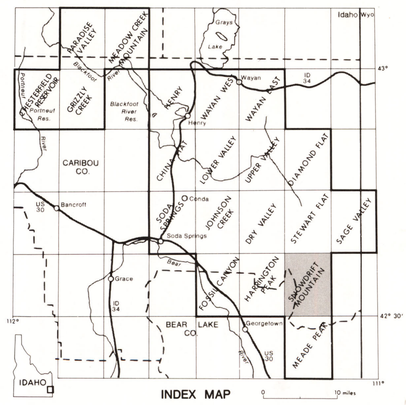


Scale: 1 inch represents 1000 feet

RESOURCES FOR SNOWDRIFT MTN QUADRANGLE

Overburden	0′-300′	300′-600′	600′-1500′	TOTAL
Million Short Tons	471	299	591	1,360

Resources calculated to three significant figures for phosphate rock containing ≥ 16% P_2O_5



INDEX MAP

IDENTIFIED PHOSPHATE RESOURCES

MAPS SHOWING SELECTED GEOLOGY AND PHOSPHATE RESOURCES OF THE SNOWDRIFT MOUNTAIN QUADRANGLE, BEAR LAKE AND CARIBOU COUNTIES, IDAHO

By

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1985