DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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

Base from U.S. Geological Survey, 1949

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APPROXIMATE MEAN DECLINATION, 1984

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

INTERIOR-GEOLOGICAL SURVEY, RESTON, VA-1984-C82254

Geology compiled by Pamela Palmer from Montgomery and Cheney (1967) and Conda Partnership; geologic interpretation by Ken Paul and R. David Hovland; structure contours by Ken Paul; drill hole and trench logs analyzed by Mahasti Fakourbayat and Nancy J. Wotruba; assisted by Margie Lane; cartography by David Taylor and Gibb C. Johnson

U S GEOLOGICAL SURVEY
RESTON VA
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CORRELATION OF MAP UNITS

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

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

Ŧt — THAYNES LIMESTONE (LOWER TRIASSIC)–Sandstone, limestone, siltstone, and shale. As mapped, may include the Lanes Tongue of the Ankareh Formation. Approximately 2,200 ft thick

Ŧd — DINWOODY FORMATION (LOWER TRIASSIC) – Siltstone, shale, and limestone. As mapped, may include tongue of the Woodside Shale. Approximately 1,650 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 235 to 250 ft thick

Ppm — Meade Peak Phosphatic Shale Member (Lower Permian)– Phosphorite and mudstone. Approximately 90 to 278 ft thick

PIPw — WELLS FORMATION (PERMIAN AND PENNSYLVANIAN) – Sandstone and limestone. As mapped, may include the Grandeur Tongue of the Park City Formation. Approximately 2,275 ft thick

Mc — CHESTERFIELD RANGE GROUP (UPPER AND LOWER MISSISSIPPIAN) – Limestone, sandstone, and siltstone. Approximately 800 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

FAULT TRACE AT DEPTH

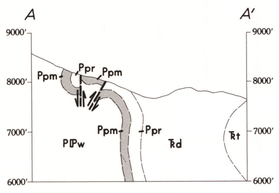
STRUCTURE CONTOURS–On top of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation. Contour interval 200 feet. Approximately located; dashed where contours are projected past control points or where structure is uncertain.

6000 — Index Contour

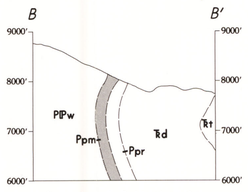
5800 — Intermediate Contour

Structure contours of steeply dipping units may not be shown in: secs. 5, 8, 17, and 20, T. 9 S., R. 45 E., and secs. 30, 31, and 32, T. 8 S., R. 45 E.

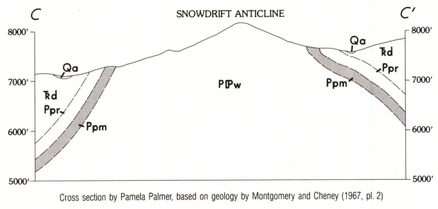
(*) Map units and symbols shown with an asterisk are not on this map.



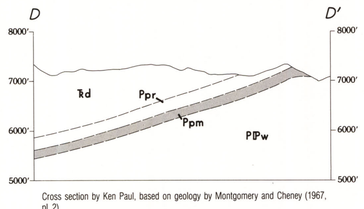
Cross section by Ken Paul, based on geology by Montgomery and Cheney (1967, pl. 2) and Conda Partnership



Cross section by Ken Paul, based on geology by Montgomery and Cheney (1967, pl. 2)



Cross section by Pamela Palmer, based on geology by Montgomery and Cheney (1967, pl. 2)



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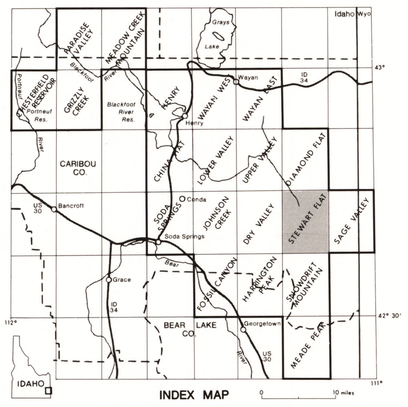

STRUCTURE CONTOURS ON THE TOP OF THE MEADE PEAK PHOSPHATIC SHALE MEMBER

MAPS SHOWING SELECTED GEOLOGY AND PHOSPHATE RESOURCES OF THE STEWART FLAT QUADRANGLE, CARIBOU COUNTY, IDAHO

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Explanatory pamphlet accompanies map