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

MINERAL INVESTIGATIONS
RESOURCE MAP MR–73
SHEET 1 OF 3

Base from U.S. Geological Survey, 1980

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

15 ½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1984

Geology compiled by Pamela Palmer from Conner (1980); geologic interpretation by Bea Johnston and R. David Hovland; structure contours by Bea Johnston, assisted by Keri Paul; cartography by David Taylor and Gibb C. Johnson

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1984—C82255

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
PPw			PERMIAN AND PENNSYLVANIAN
Mc, 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. 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

Trt — THAYNES LIMESTONE (LOWER TRIASSIC)-Sandstone, limestone, siltstone, and shale. As mapped, may include the Lanes Tongue of the Ankareh Formation. Approximately 4,166 ft thick

Trd — 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 – 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.

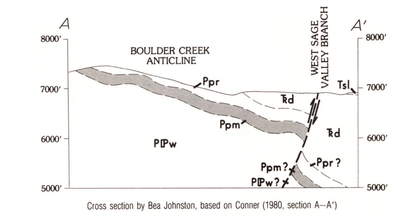
* FAULT SEPARATION – No calculated resource
FAULT OVERLAP – Twice calculated resources if covered by 1500 ft. or less of overburden

FAULT TRACE AT DEPTH

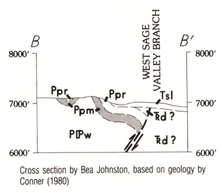
STRUCTURE CONTOURS–On top of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation. Contour interval 200 feet. Approximately located; dashed where contours are projected past control points or where structure is uncertain

6000 — Index Contour
5800 — Intermediate Contour

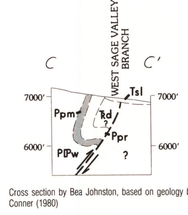
(*) — Map units and symbols shown with an asterisk are not on this map.



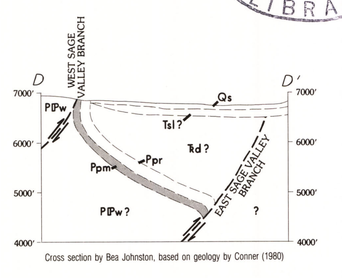
Cross section by Bea Johnston, based on Conner (1980, section A–A')



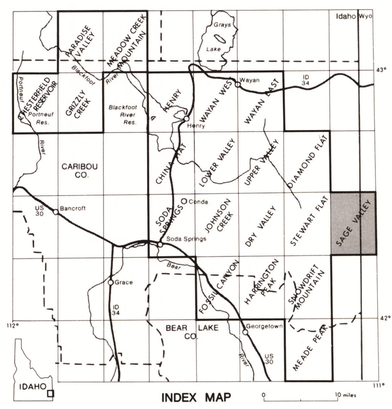
Cross section by Bea Johnston, based on geology by Conner (1980)



Cross section by Bea Johnston, based on geology by Conner (1980)



Cross section by Bea Johnston, based on geology by Conner (1980)



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

MAPS SHOWING SELECTED GEOLOGY AND PHOSPHATE RESOURCES OF THE SAGE VALLEY QUADRANGLE, CARIBOU COUNTY, IDAHO

By

Pamela Dunlap Derkey,[1] Bea Johnston,[1] Pamela Palmer,[1] and R. David Hovland[2]

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

1984

For sale by Branch of Distribution, U.S. Geological Survey
Box 25286, Federal Center, Denver, CO 80225
Explanatory pamphlet accompanies map