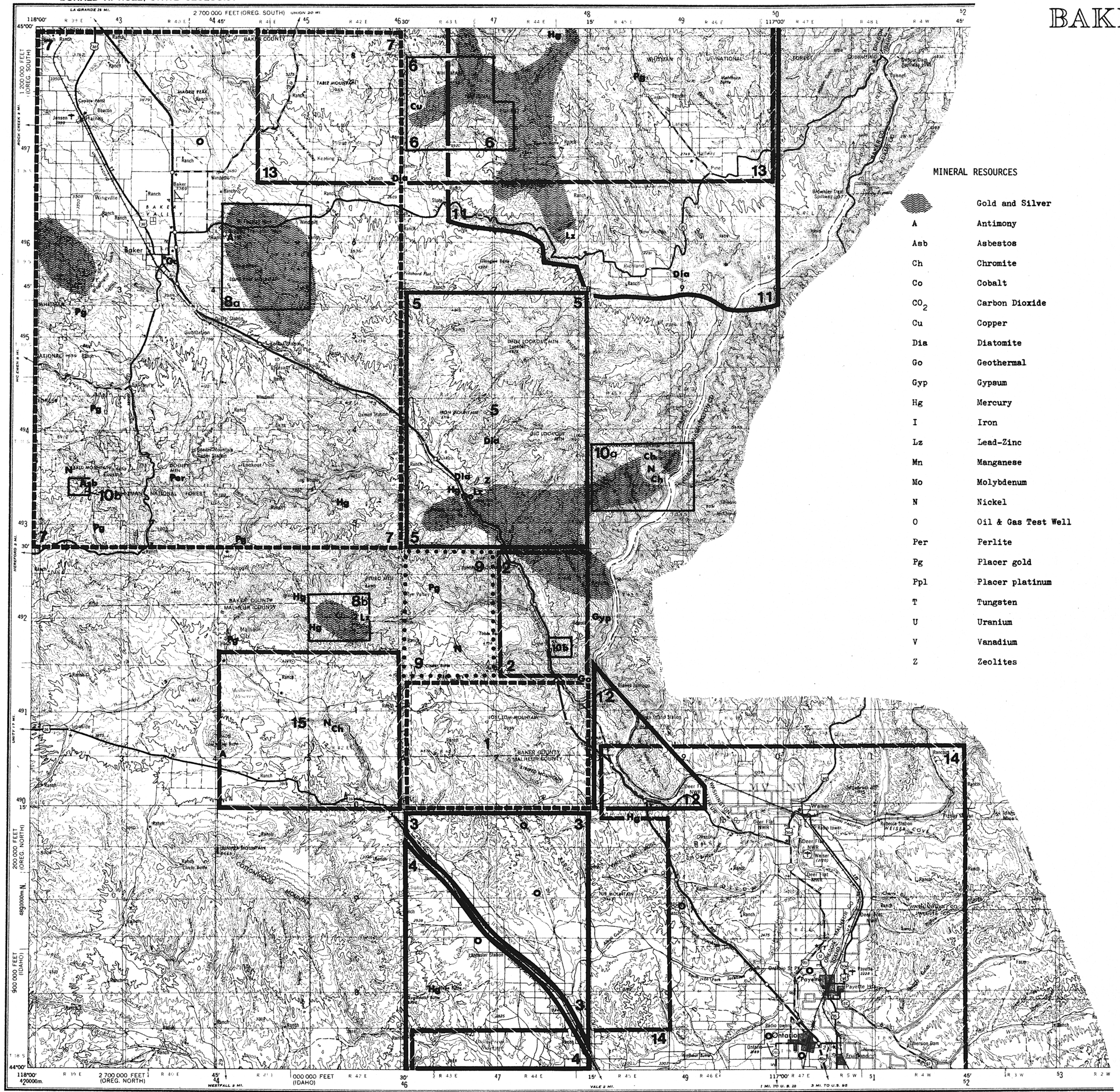
STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

MINERAL RESOURCE MAP AND INDEX OF GEOLOGIC MAPPING (before 1960)
of the
BAKER AMS SHEET

OPEN FILE REPORT 79-4a



MINERAL RESOURCES

(pattern)	Gold and Silver
A	Antimony
Asb	Asbestos
Ch	Chromite
Co	Cobalt
CO_2	Carbon Dioxide
Cu	Copper
Dia	Diatomite
Go	Geothermal
Gyp	Gypsum
Hg	Mercury
I	Iron
Lz	Lead-Zinc
Mn	Manganese
Mo	Molybdenum
N	Nickel
O	Oil & Gas Test Well
Per	Perlite
Pg	Placer gold
Ppl	Placer platinum
T	Tungsten
U	Uranium
V	Vanadium
Z	Zeolites

1. Beeson, J.H., 1955, Geology of the southern half of the Huntington Quadrangle, Oregon: University of Oregon master's thesis, 79 p., unpublished.

2. Berry, N.J., Jr., 1956, Geology of the northeast quarter of the Huntington Quadrangle, Oregon: University of Oregon master's thesis, 78 p., unpublished, map scale 1:62,500.

3. Calkins, J.A., 1954, The geology of the northeastern half of the Jamieson Quadrangle, Oregon: University of Oregon master's thesis, 72 p., unpublished, map scale 1:62,500.

4. Carlat, J.E., 1954, The geology of the southwest portion of the Jamieson Quadrangle, Malheur County, Oregon: University of Oregon master's thesis, 86 p., unpublished.

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8. Gilluly, James, Reed, J.C., and Park, C.F., 1933, Some mining districts of eastern Oregon: U.S. Geological Survey Bulletin 846-A, 8a 1:63,000 ±, 8b 1:31,000 ±.

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10. Moore, B.N., 1937, Nonmetallic mineral resources of eastern Oregon: U.S. Geological Survey Bulletin 875, map scales, 10a 1:46,800 ±, 10b 1:10,000 ±.

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12. Spiller, Jason, 1958, Geology of part of the Olds Ferry Quadrangle, Oregon: University of Oregon master's thesis, 84 p., unpublished, map scale 1:62,500.

13. Wagner, N.S., 1955, Summary of the Wallowa Mountains geology, Oregon: Oregon Department of Geology and Mineral Industries, The Ore Bin, v. 17, no. 5, p. 31-35, map scale 1:285,000 ±.

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15. Wolff, Ernest, 1959, The geology of the upper Willow Creek - Cow Creek valley area of northern Malheur County, Oregon: University of Oregon master's thesis, 93 p., unpublished, map scale 1:62,500.

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V502, EDITION 3

Prepared by the U. S. Army Topographic Command (BEPM), Washington, D. C. Compiled in 1956 by photogrammetric methods from aerial photographs taken 1953. Photographs field annotated 1955. Revised in 1974 by the U. S. Geological Survey from aerial photographs taken 1973.

Area covered by dashed light-blue pattern is subject to controlled inundation

100,000-foot grids based on Idaho coordinate system, west zone and Oregon coordinate system, north and south zones

Location of geodetic control established by government agencies is shown on corresponding 1:250,000-scale Geodetic Control Diagram

LEGEND

Figures in red denote approximate distances in miles between stars

POPULATED PLACES
Over 500,000 — LOS ANGELES
100,000 to 500,000 — OMAHA
25,000 to 100,000 — GALVESTON
5,000 to 25,000 — Durango
1,000 to 5,000 — Grand Coulee
Less than 1,000 — Sun Valley

RAILROADS — Single track / Double or Multiple
Standard gauge
Narrow gauge

BOUNDARIES
International
State
County
Park or reservation

ROADS
Primary, all-weather, hard surface
Secondary, all-weather, hard surface
Light-duty, all-weather, hard or improved surface
Fair or dry weather, unimproved surface
Trail
Interchange
Route markers: Interstate, U.S., State

Landplane airport
Landing area
Dry lake
Orchard
Woods-brushwood

Landmark: School; Church; Other
Mine
Spot elevation in feet
Marsh or swamp
Intermittent or dry stream
Power line

Scale 1:250,000
20 Statute Miles
30 Kilometres
15 Nautical Miles

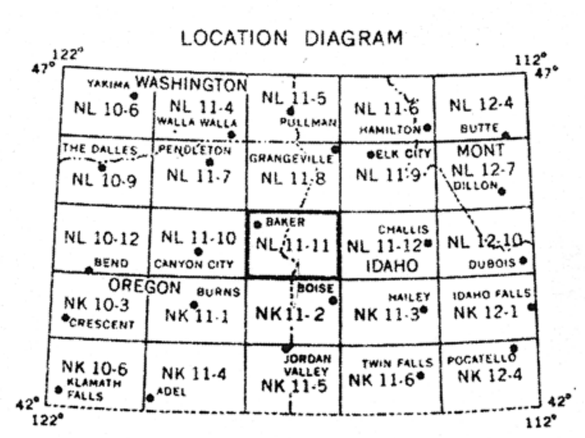
CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METRE UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 11

1970 MAGNETIC DECLINATION FROM TRUE NORTH VARIES FROM 19½° (350 MILS) EASTERLY FOR THE CENTER OF THE WEST EDGE TO 19° (340 MILS) EASTERLY FOR THE CENTER OF THE EAST EDGE

LOCATION DIAGRAM

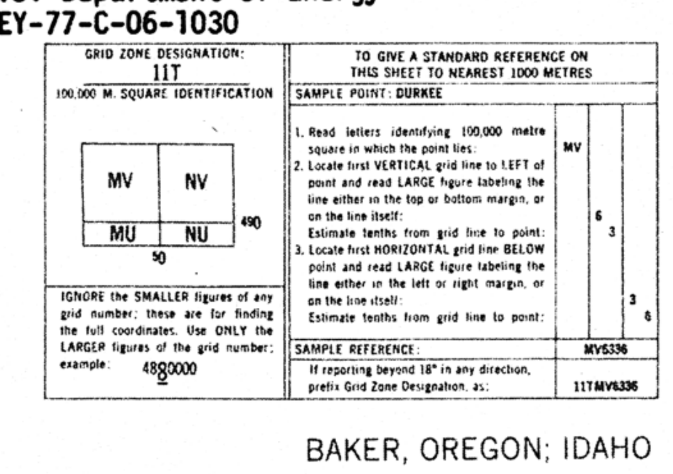


Prepared for Rockwell Hanford Operations
A Prime Contractor to the U.S. Department of Energy
Under Contract Number EY-77-C-06-1030

SECTIONIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

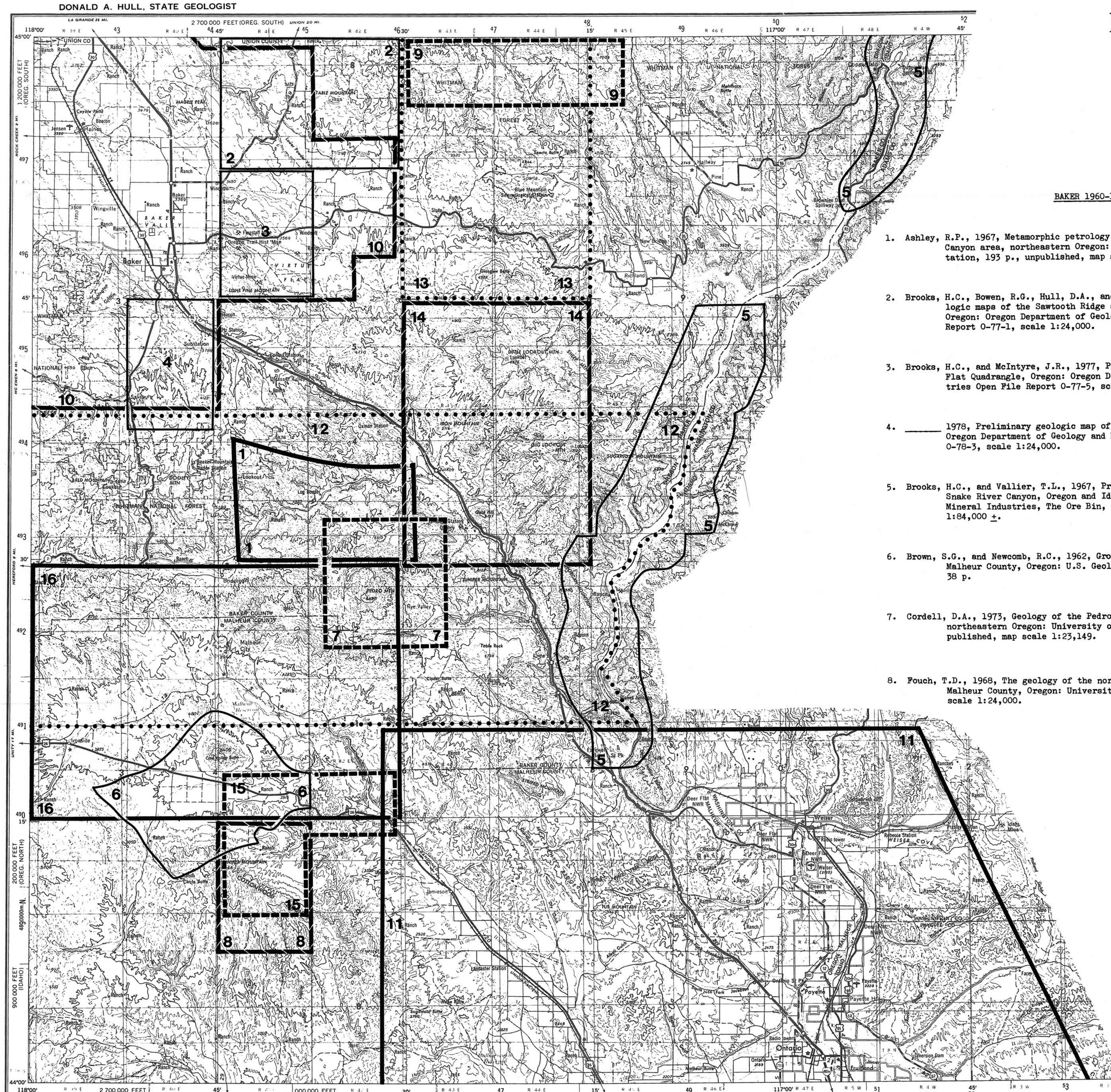


BAKER, OREGON; IDAHO
1955
REVISED 1974

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

INDEX OF GEOLOGIC MAPPING (1960-1979)
of the
BAKER AMS SHEET

OPEN FILE REPORT 79-4b



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1. Ashley, R.P., 1967, Metamorphic petrology and structure of the Burnt River Canyon area, northeastern Oregon: Stanford University doctoral dissertation, 193 p., unpublished, map scale 1:21,000.

2. Brooks, H.C., Bowen, R.G., Hull, D.A., and Hammit, R.W., 1977, Preliminary geologic maps of the Sawtooth Ridge and Keating Northwest Quadrangles, Oregon: Oregon Department of Geology and Mineral Industries Open File Report O-77-1, scale 1:24,000.

3. Brooks, H.C., and McIntyre, J.R., 1977, Preliminary geologic map of the Virtue Flat Quadrangle, Oregon: Oregon Department of Geology and Mineral Industries Open File Report O-77-5, scale 1:24,000.

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8. Fouch, T.D., 1968, The geology of the northwest quarter of the Brogan Quadrangle, Malheur County, Oregon: University of Oregon master's thesis, 62 p., map scale 1:24,000.

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10. Lystrom, D.J., Nees, W.L., and Hampton, E.R., 1967, Ground water of Baker Valley, Baker County, Oregon: U.S. Geological Survey Atlas HA-242, scale 1:96,000.

11. Newton, V.C., Jr., and Corcoran, R.E., 1963, Petroleum geology of the western Snake River Basin, Oregon-Idaho: Oregon Department of Geology and Mineral Industries Oil and Gas Investigations 1, 67 p., map scale 1:250,000.

12. Price, Don, 1967, Ground-water reconnaissance in the Burnt River Valley area, Oregon: U.S. Geological Survey Water-Supply Paper 1839-I, 27 p., map scale 1:250,000.

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Prepared for Rockwell Hanford Operations
A Prime Contractor to the U.S. Department of Energy
Under Contract Number EY-77-C-06-1030

Compiled by Steven H. Hollis

V502, EDITION 3

Prepared by the U. S. Army Topographic Command (BEPM), Washington, D. C. Compiled in 1956 by photogrammetric methods from aerial photographs taken 1953. Photographs field annotated 1955. Revised in 1974 by the U. S. Geological Survey from aerial photographs taken 1973.

100,000-foot grids based on Idaho coordinate system, west zone and Oregon coordinate system, north and south zones

Location of geodetic control established by government agencies is shown on corresponding 1:250,000-scale Geodetic Control Diagram

Prepared and Published by the Cartographic Section of the Department of Geology and Mineral Industries C. A. Schumacher, Chief Cartographer

LEGEND

Figures in red denote approximate distances in miles between stars

POPULATED PLACES		ROADS	
Over 500,000	LOS ANGELES	Primary, all-weather, hard surface	
100,000 to 500,000	OMAHA	Secondary, all-weather, hard surface	
25,000 to 100,000	GALVESTON	Light-duty, all-weather, hard or improved surface	
5,000 to 25,000	Durango	Fair or dry weather, unimproved surface	
1,000 to 5,000	Grand Coulee	Trail	
Less than 1,000	Sun Valley	Interchange	
RAILROADS	Single track / Double or Multiple	Route markers: Interstate, U.S., State	
Standard gauge		Landplane airport	Landmark: School; Church; Other
Narrow gauge		Landing area	Mine
BOUNDARIES		Dry lake	Spot elevation in feet .221
International		Orchard	Marsh or swamp
State		Woods-brushwood	Intermittent or dry stream
County			Power line
Park or reservation			

Scale 1:250,000

20 Statute Miles · 30 Kilometres · 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METRE UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 11

1970 MAGNETIC DECLINATION FROM TRUE NORTH VARIES FROM 19½° (350 MILS) EASTERLY FOR THE CENTER OF THE WEST EDGE TO 19° (340 MILS) EASTERLY FOR THE CENTER OF THE EAST EDGE

LOCATION DIAGRAM

NL 10-6 (Yakima, WASHINGTON)	NL 11-4 (Walla Walla)	NL 11-5 (Pullman)	NL 11-6 (Hamilton)	NL 12-4 (Butte)
NL 10-9 (The Dalles)	NL 11-7 (Pendleton)	NL 11-8 (Grangeville)	NL 11-9 (Elk City)	NL 12-7 (MONT, Dillon)
NL 10-12 (Bend)	NL 11-10 (Canyon City)	NL 11-11 (Baker)	NL 11-12 (Challis, IDAHO)	NL 12-10 (Dubois)
NK 10-3 (Crescent, OREGON)	NK 11-1 (Burns)	NK 11-2 (Boise)	NK 11-3 (Hailey)	NK 12-1 (Idaho Falls)
NK 10-6 (Klamath Falls)	NK 11-4 (Adel)	NK 11-5 (Jordan Valley)	NK 11-6 (Twin Falls)	NK 12-4 (Pocatello)

SECTIONIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

GRID ZONE DESIGNATION: 11T
100 000 M. SQUARE IDENTIFICATION: MV NV / MU NU

IGNORE the SMALLER figures of any grid number; these are for finding the full coordinates. Use ONLY the LARGER figures of the grid number; example: 4880000

TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 1000 METRES

SAMPLE POINT: DURKEE

1. Read letters identifying 100,000 metre square in which the point lies: MV
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figure labeling the line either in the top or bottom margin, or on the line itself: 6. Estimate tenths from grid line to point: 3
3. Locate first HORIZONTAL grid line BELOW point and read LARGE figure labeling the line either in the left or right margin, or on the line itself: 3. Estimate tenths from grid line to point: 6

SAMPLE REFERENCE: MV6336

If reporting beyond 18° in any direction, prefix Grid Zone Designation, as: 11TMV6336

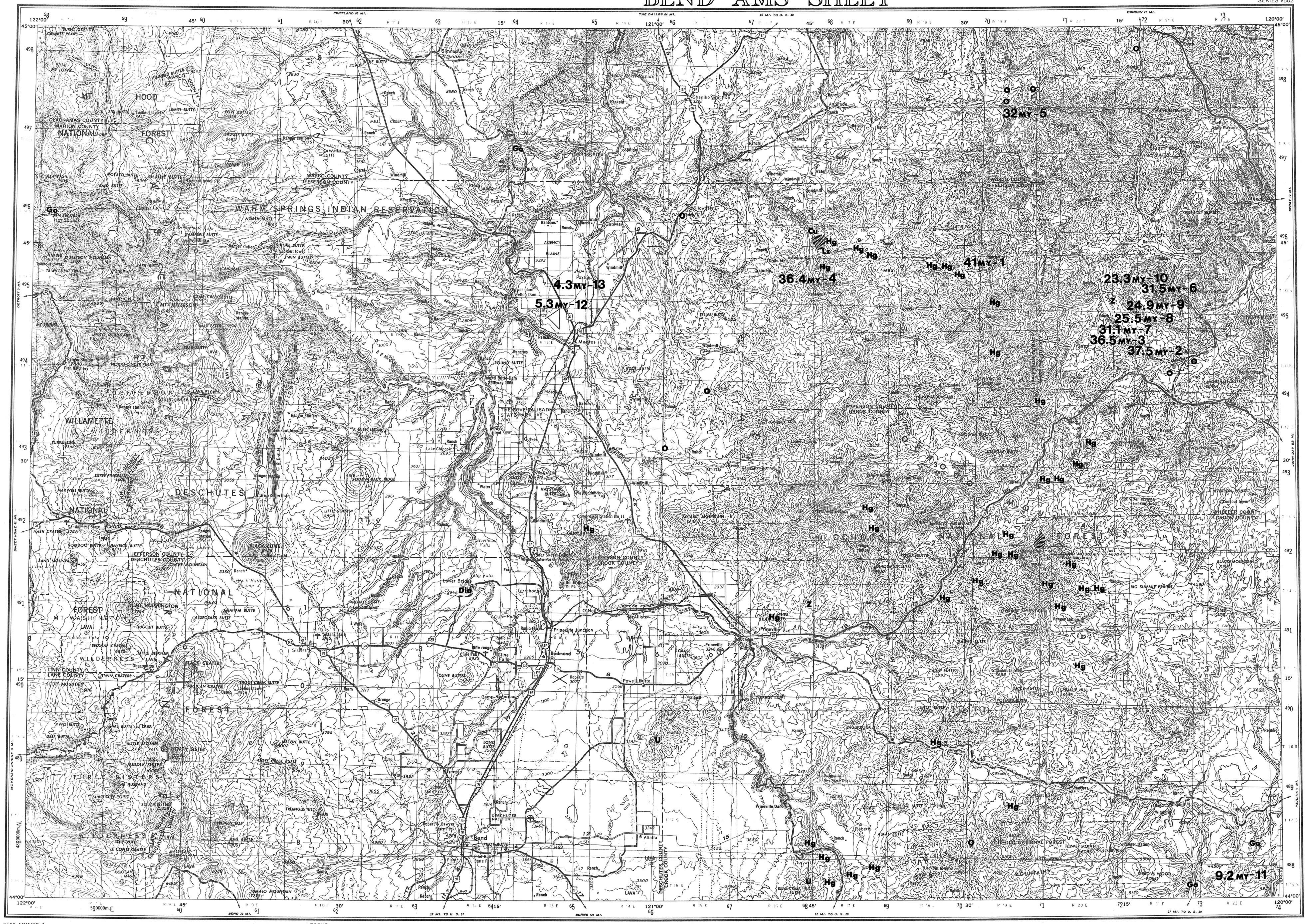
BAKER, OREGON; IDAHO
1955
REVISED 1974

OPEN FILE REPORT 79-4c

MINERAL RESOURCE MAP
of the
BEND AMS SHEET

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

NL 10-12
SERIES V502



MINERAL RESOURCES

Symbol	Resource
(symbol)	Gold and Silver
A	Antimony
Asb	Asbestos
Ch	Chromite
Co	Cobalt
CO_2	Carbon Dioxide
Cu	Copper
Dia	Diatomite
Go	Geothermal
Gyp	Gypsum
Hg	Mercury
I	Iron
Lz	Lead-Zinc
Mn	Manganese
Mo	Molybdenum
N	Nickel
O	Oil & Gas Test Well
Per	Perlite
Pg	Placer gold
Ppl	Placer platinum
T	Tungsten
U	Uranium
V	Vanadium
Z	Zeolites

RADIOMETRIC AGE DETERMINATIONS

	Age	Reference	Rock Type
1.	41 my	Swanson and Robinson (1968)	Porphyritic rhyolite
2.	37.5 my	Evernden et al. (1964) Clarno Fm.	Pyroxene andesite
3.	36.5 my	Evernden et al. (1964) Clarno Fm.	Bentonitic claystone
4.	36.4 my	Evernden et al. (1964) John Day Fm.	Welded tuff
5.	32 my	Evernden and James (1964) John Day Fm.	Bentonite bed, tuff
6.	31.5 my	Evernden et al. (1964) John Day Fm.	Tuff
7.	31.1 my	Evernden et al. (1964) John Day Fm.	Tuff
8.	25.5 my	Evernden et al. (1964) John Day Fm.	Tuff
9.	24.9 my	Evernden et al. (1964) John Day Fm.	Tuff
10.	23.3 my	Evernden et al. (1964) John Day Fm.	Tuff
11.	9.2 my	Enlows and Davenport (1971) Danforth Fm.	Ignimbrite
12.	5.3 my	Evernden and James (1964) Deschutes Fm.	Tuff
13.	4.3 my	Evernden and James (1964) Deschutes Fm.	Tuff

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Evernden, J.F., and James, G.T., 1964, Potassium-argon dates and Tertiary floras of North America: American Journal of Science, v. 262, p. 945-974.

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Compiled by Steven H. Hollis

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Location of geodetic control established by government agencies is shown corresponding 1:250,000-scale Geodetic Control Diagram

Prepared and Published by the Cartographic Section of the Department of Geology and Mineral Industries
C. A. Schumacher, Chief Cartographer

LEGEND

Figures in red denote approximate distances in miles between stars

POPULATED PLACES
- Over 500,000 — LOS ANGELES
- 100,000 to 500,000 — OMAHA
- 25,000 to 100,000 — GALVESTON
- 5,000 to 25,000 — Laramie
- 1,000 to 5,000 — Grand Coulee
- Less than 1,000 — Sun Valley

RAILROADS (Single track / Double or Multiple)
- Standard gauge
- Narrow gauge

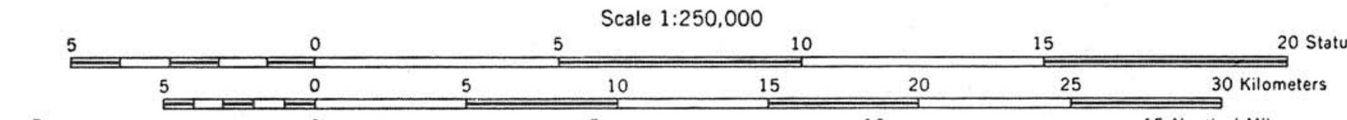
BOUNDARIES
- International
- State
- County
- Park or reservation

- Landplane airport
- Landing area
- Seaplane airport
- Seaplane anchorage
- Woods-brushwood

ROADS
- Primary, all-weather, hard surface
- Secondary, all-weather, hard surface
- Light-duty, all-weather, hard or improved surface
- Fair or dry weather, unimproved surface
- Trail
- Interchange

Route markers: Interstate, U.S., State
- Landmarks: School; Church; Other
- Mine
- Spot elevation in feet .221
- Marsh or swamp
- Intermittent or dry stream
- Power line

Scale 1:250,000

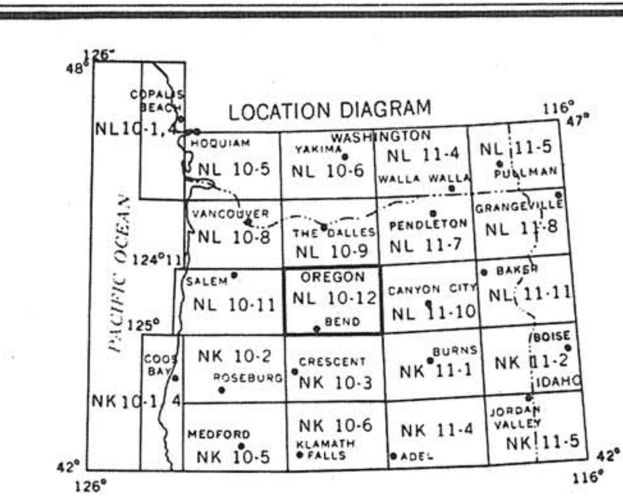


CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METER UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 10

1970 MAGNETIC DECLINATION FROM TRUE NORTH VARIES FROM 20° (360 MILS) EASTERLY FOR THE CENTER OF THE WEST EDGE TO 19½° (350 MILS) EASTERLY FOR THE CENTER OF THE EAST EDGE



SECTIONIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

GRID ZONE DESIGNATION: 10T
100,000 M SQUARE IDENTIFICATION

EE	FE	GE
ED	FD	GD

IGNORE the SMALLER figures of any grid number; these are for finding the full coordinates. Use ONLY the LARGER figure of the grid number. example 4880000

TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 1000 METERS

SAMPLE POINT SOUTH JUNCTION

1. Read letters identifying 100,000 meter square in which the point lies. — FE
2. Locate first VERTICAL grid line to LEFT of point and read LARGE figure labeling the line either in the top or bottom margin or on the line itself. Estimate tenths from grid line to point. — 5 2
3. Locate first HORIZONTAL grid line BELOW point and read LARGE figure labeling the line either in the left or right margin, or on the line itself. Estimate tenths from grid line to point. — 6 8

SAMPLE REFERENCE — FE5268

If reporting beyond 18° in any direction, prefix Grid Zone Designation as: 10TFE5268

BEND, OREGON
1955
REVISED 1971

OPEN FILE REPORT 79-4d

INDEX OF GEOLOGIC MAPPING (before 1960)
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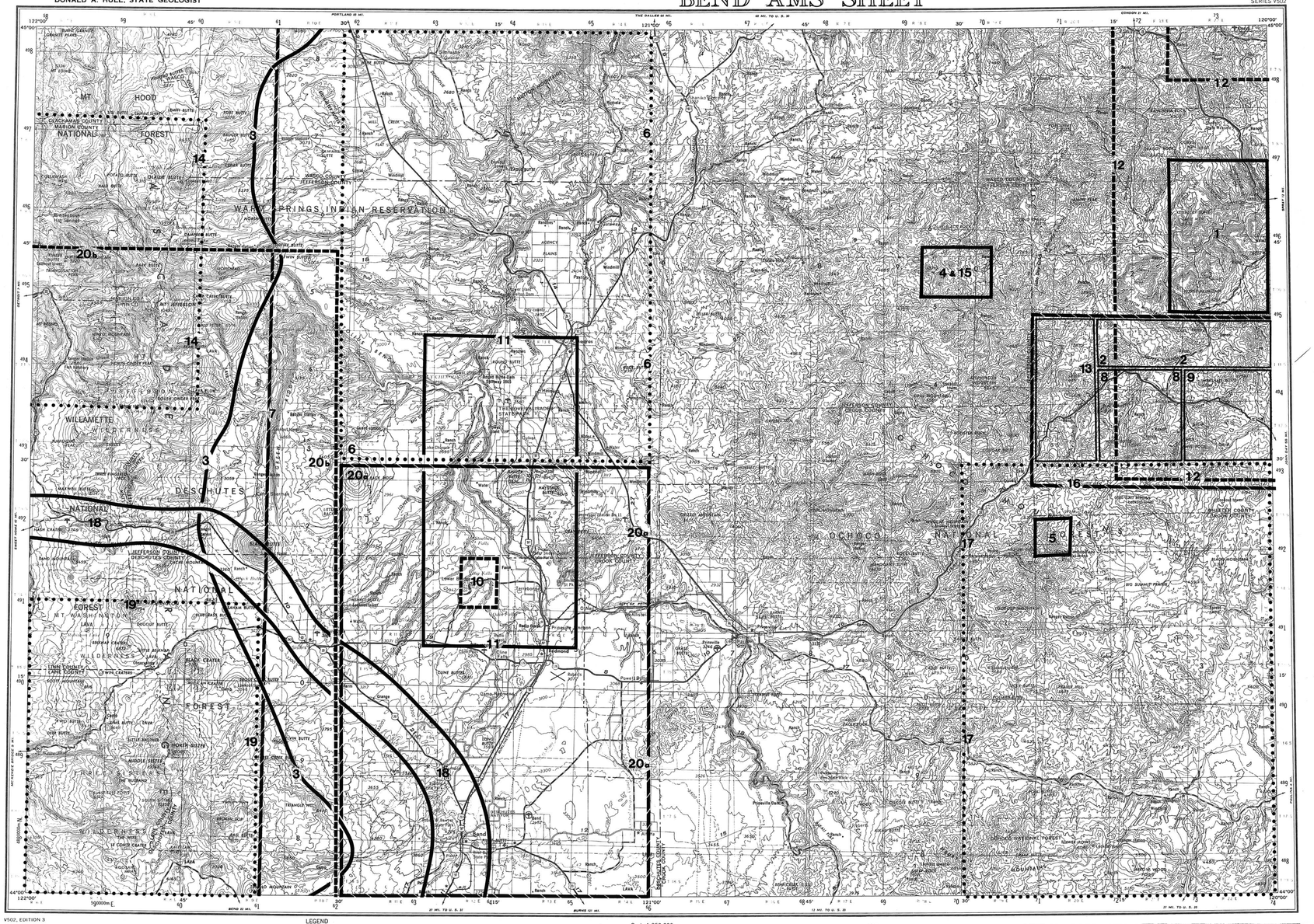
STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

NL 10-12
SERIES V502



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100,000 to 500,000 — OMAHA
25,000 to 100,000 — GALVESTON
5,000 to 25,000 — Lacombe
1,000 to 5,000 — Grand Coulee
Less than 1,000 — Sun Valley

RAILROADS
Standard gauge, Single track, Double or Multiple
Narrow gauge

BOUNDARIES
International
State
County
Park or reservation

ROADS
Primary, all-weather, hard surface
Secondary, all-weather, hard surface
Light-duty,all-weather,hard or improved surface
Fair or dry weather, unimproved surface
Trail
Interchange
Route markers: Interstate, U.S., State
Landmarks: School; Church; Other
Mine
Spot elevation in feet
Marsh or swamp
Intermittent or dry stream
Power line

Landslide airport
Landing area
Seaplane airport
Seaplane anchorage
Woods-brushwood

Scale 1:250,000

5 0 5 10 15 20 Statute Miles
5 0 5 10 20 25 30 Kilometers
5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METER UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 10

1970 MAGNETIC DECLINATION FROM TRUE NORTH VARIES FROM 20° (180 MILS) EASTERLY FOR THE CENTER OF THE WEST EDGE TO 19½° (350 MILS) EASTERLY FOR THE CENTER OF THE EAST EDGE

LOCATION DIAGRAM

SECTIONIZED TOWNSHIP

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

BEND, OREGON
1955
REVISED 1971

BEND QUADRANGLE PRE-1960

1. Bedford, J.W., 1954, Geology of the Horse Mountain area, Mitchell Quadrangle, Oregon: Oregon State University master's thesis, 90 p., unpublished, map scale 1:42,240.

2. Bowers, H.E., 1953, Geology of the Tony Butte area and vicinity: Oregon State University master's thesis, 152 p., unpublished, map scale 1:62,500.

3. Callaghan, E., and Buddington, A.F., 1938, Metalliferous mineral deposits of the Cascade Range in Oregon: U.S. Geological Survey Bulletin 893, map scale 1:500,000.

4. Gilbert, J.E., 1958, Horse Heaven mine, Jefferson County, Oregon: Oregon Department of Geology and Mineral Industries, The Ore Bin, v. 20, no. 3, p. 25-29, map scale 1:21,000 ±.

5. Gilluly, James, Reed, J.C., and Park, C.F., 1933, Some mining districts of eastern Oregon: U.S. Geological Survey Bulletin 846-A.

6. Hodge, E.T., 1940, Geologic map of the Madras Quadrangle, Oregon: Oregon State College Monographs, Studies in Geology no. 1, scale 1:125,000.

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Prepared for Rockwell Hanford Operations
A Prime Contractor to the U.S. Department of Energy
Under Contract Number EY-77-C-06-1030

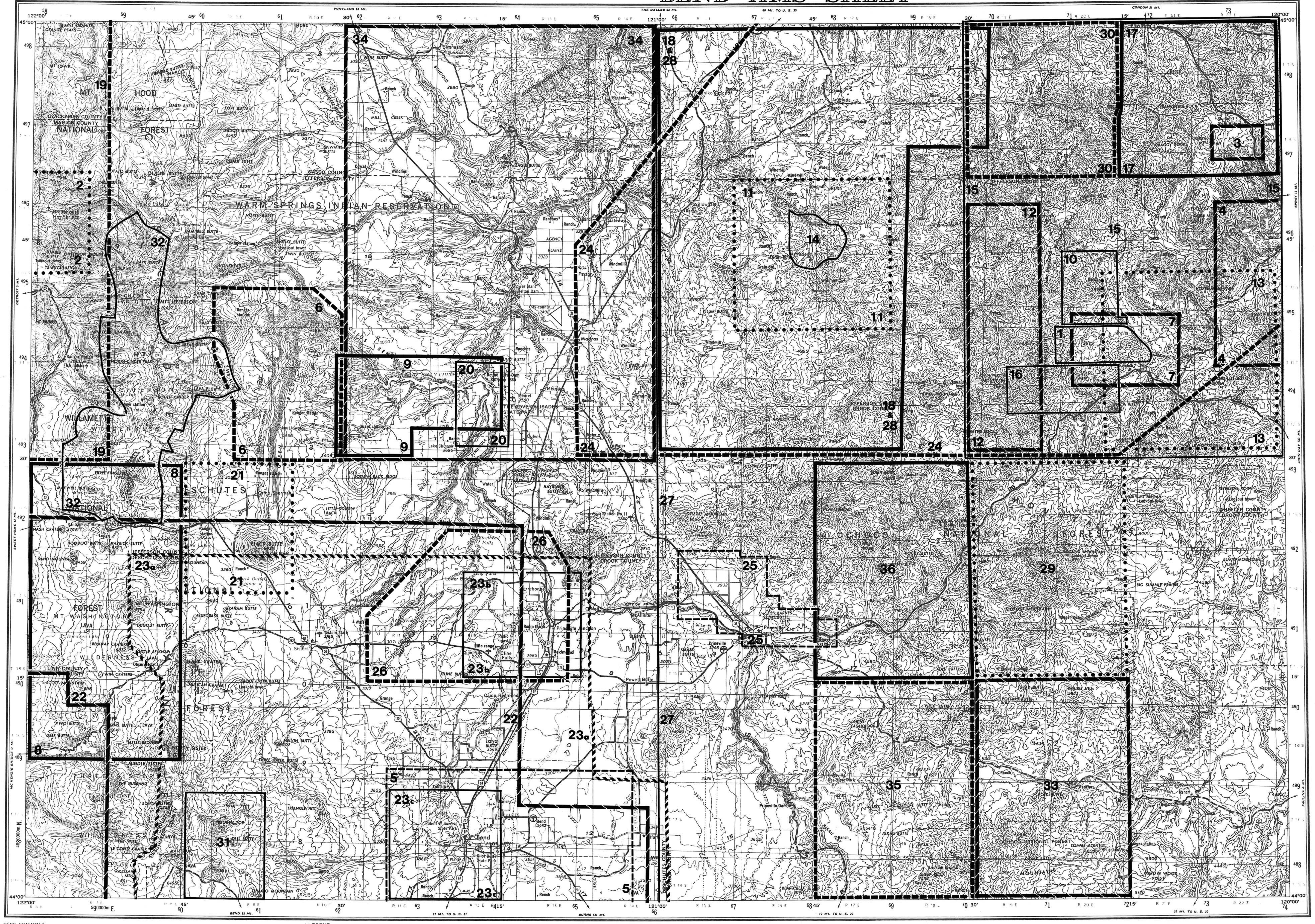
Compiled by Steven H. Hollis

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

INDEX OF GEOLOGIC MAPPING (1960-1979) of the BEND AMS SHEET

OPEN FILE REPORT 79-4e

NL 10-12
SERIES V502



V502, EDITION 3

Prepared by the U.S. Army Topographic Command (BEART), Washington, D.C. Compiled in 1955 by photogrammetric methods and from aerial photographs taken 1953. Photographs field annotated 1955. Revised by the U.S. Geological Survey 1971.

Location of geodetic control established by government agencies is shown corresponding 1:250,000-scale Geodetic Control Diagram

Prepared and Published by the Cartographic Section of the Department of Geology and Mineral Industries
C. A. Schumacher, Chief Cartographer

Scale 1:250,000

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

BEND, OREGON
1955
REVISED 1971

BEND 1960-1979

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Compiled by Steven H. Hollis

Prepared for Rockwell Hanford Operations
A Prime Contractor to the U.S. Department of Energy
Under Contract Number EY-77-C-06-1030

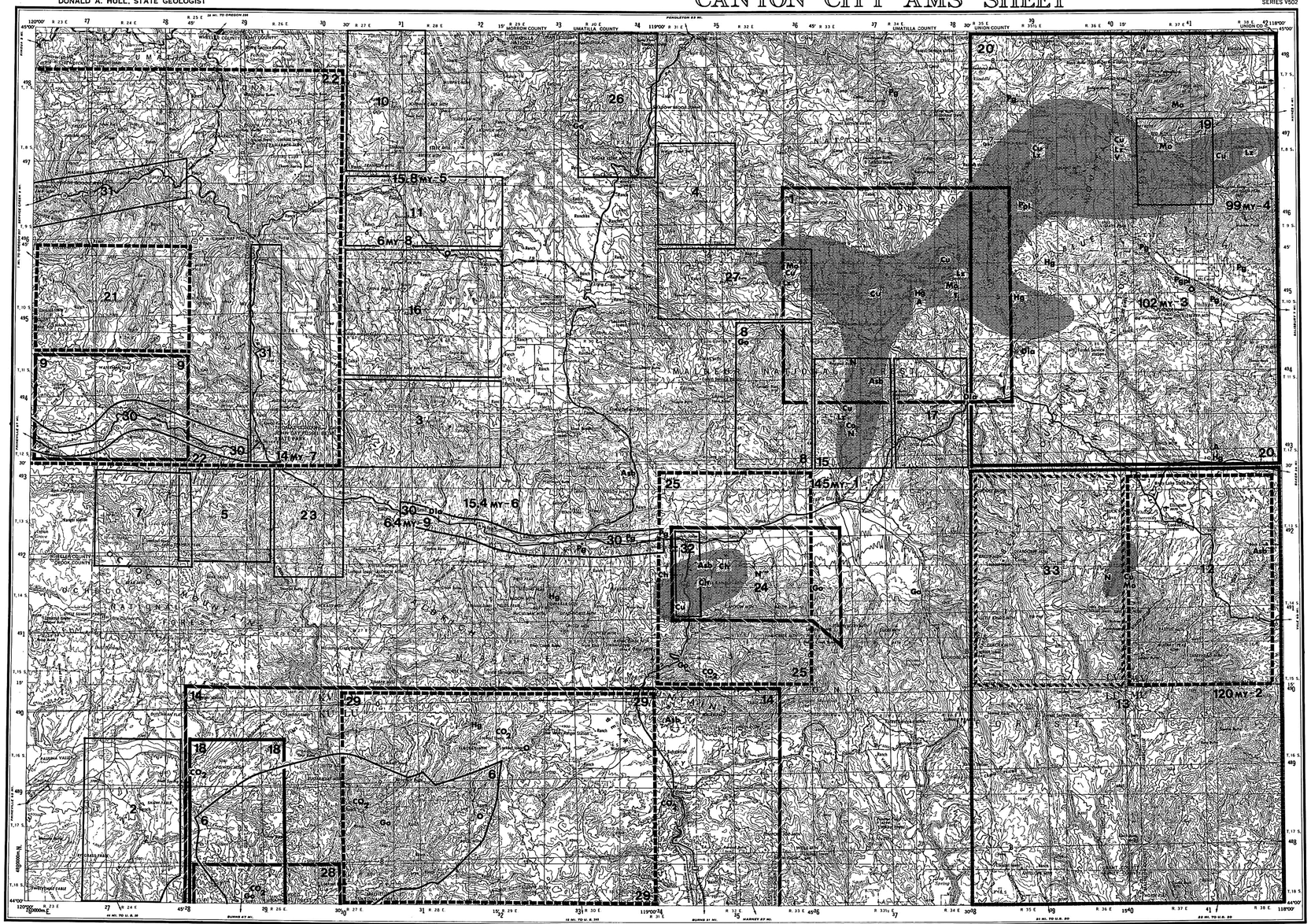
MINERAL RESOURCE MAP AND INDEX OF GEOLOGIC MAPPING (before 1960)

of the

CANYON CITY AMS SHEET

NL 11-10
SERIES V502

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST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Canyon City
Prairie City
Dayville
Mount Vernon
Monument
Long Creek
Seneca
Burns
Harney Basin
Malheur Lake
Silvies River
Crane Creek
Izee
Bates
Austin
Sumpter
Baker
Unity
Whitney
Granite
Sparta
Richland
Halfway
Pine Valley
Cornucopia
Oxbow
Huntington
Brownlee Reservoir
Weiser
Ontario
Vale
Nyssa
Adrian
Jordan Valley
Owyhee
Rome
Grand Ronde
Wallowa
Enterprise
Joseph
Lostine
Wallowa Lake
Hells Canyon
Imnaha
Snake River
Grande Ronde River
Powder River
Burnt River
Malheur River
Owyhee River
Wallowa River
Wallowa Mts.
Elkhorn Mts.
Greenhorn Mts.
Strawberry Mts.
Aldrich Mts.
Ochoco Mts.
Blue Mts.
Keating
Durkee
Huntington
Olds Ferry
Ironside
Juntura
Drewsey
Crane
Riley
Hines
Burns
Silvies
Seneca
Izee
Dayville
Mount Vernon
Monument
Long Creek
Prairie City
Canyon City

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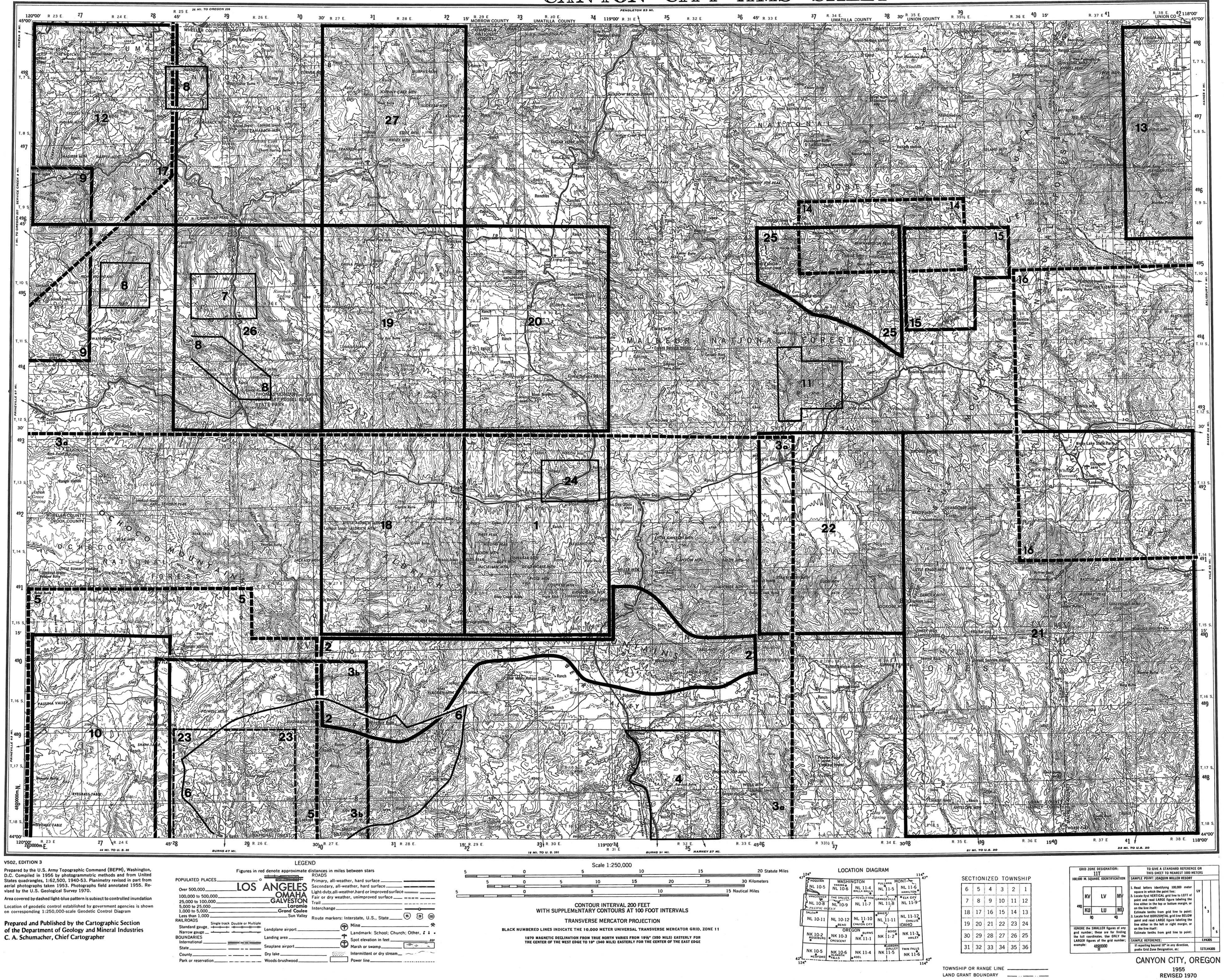
of the
CANYON CITY AMS SHEET

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

OPEN FILE REPORT 79-4g

NL 11-10
SERIES V502



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Quadrangle map

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Walker, G.W., 1977, Geologic map of Oregon east of the 121st meridian: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-902, in cooperation with Oregon Department of Geology and Mineral Industries, scale 1:500,000.

Prepared for Rockwell Hanford Operations
A Prime Contractor to the U.S. Department of Energy
Under Contract Number EY-77-C-06-1030

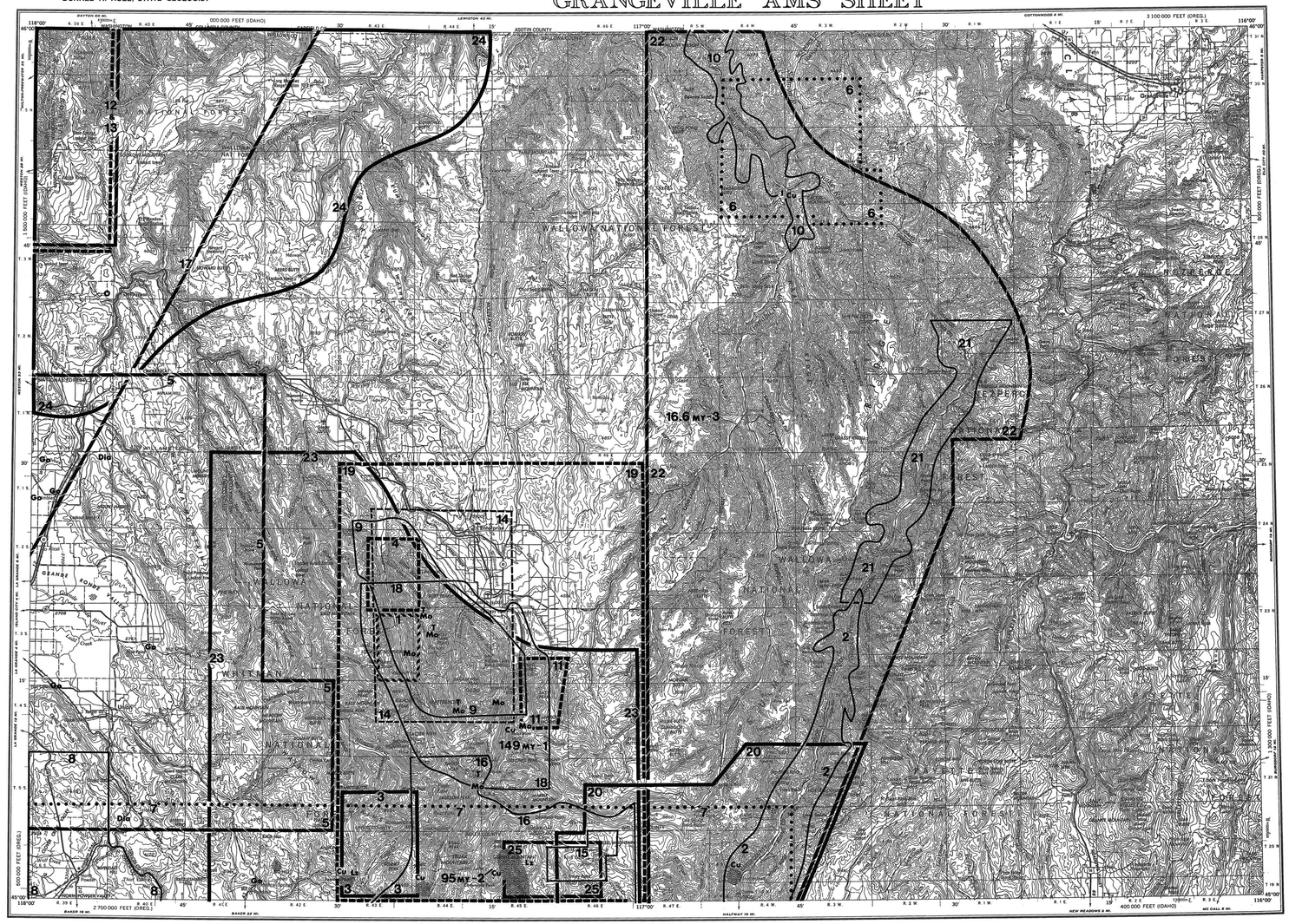
Compiled by Steven H. Hollis

MINERAL RESOURCE MAP AND INDEX OF GEOLOGIC MAPPING
of the
GRANGEVILLE AMS SHEET

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

OPEN FILE REPORT 79-4h

NL 11-8



Prepared by the Army Map Service (ESCS3d), Corps of Engineers, U.S. Army, Washington, D.C. Compiled in 1956 by photogrammetric methods and from USGS quadrangles, 1:125,000, 1938. Horizontal and vertical control by USCS, USC&GS, USFS and USCE. Photography field annotated 1955. Limited revision by U.S. Geological Survey 1963.

100,000-foot grids based on Oregon coordinate system, north zone and Idaho coordinate system, west zone

10,000-meter Universal Transverse Mercator grid ticks, zone 11

Prepared and Published by the Cartographic Section
of the Department of Geology and Mineral Industries
C. A. Schumacher, Chief Cartographer

LEGEND

ROAD DATA 1955 PARTIALLY REVISED 1962
Figures in red denote approximate distances in miles between stars

POPULATED PLACES
Over 500,000 — LOS ANGELES
100,000 to 500,000 — OMAHA
25,000 to 100,000 — GALVESTON
5,000 to 25,000 — Laramie
1,000 to 5,000 — Grand Coulee
Under 1,000 — Sun Valley

RAILROADS
Standard gauge, Single track Double or Multiple
Narrow gauge
BOUNDARIES
International
State
County
Park or reservation

ROADS
Hard surface, heavy duty — 2 LANES / 4 LANES
More than two lanes wide
Two lanes wide; Federal route marker
More than two lanes wide
More than two lanes wide; State route marker
Two lanes wide; State route marker
Improved light duty
Unimproved dirt
Trail

Landing area
Seaplane airport
Seaplane anchorage
Woods-brushwood

Landmarks: School; Church; Other, ∠ ↓ •
Horizontal control point
Spot elevation in feet
Marsh or swamp
Intermittent or dry stream
Power line

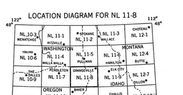
Scale 1:250,000

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 15 Nautical Miles

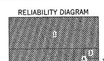
CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION

1955 MAGNETIC DECLINATION FOR THIS SHEET VARIES FROM 20°00' EASTERLY FOR THE CENTER OF THE WEST EDGE TO 19°00' EASTERLY FOR THE CENTER OF THE EAST EDGE. MEAN ANNUAL CHANGE IS 0°05' WESTERLY.

LOCATION DIAGRAM FOR NL 11-8



RELIABILITY DIAGRAM



A Medium scale topographic map,photogrammetric, 1944.
1 Stereocompiled from 1953 aerial photography
2 Stereocompiled from 1954 aerial photography
3 Planimetry revised from 1953 aerial photography
4 Planimetry revised from 1954 aerial photography

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

SECTIONIZED TOWNSHIP

6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	

GRANGEVILLE, IDAHO; OREG; WASH.
1955
LIMITED REVISION 1963

MINERAL RESOURCES

	Gold and Silver
A	Antimony
Asb	Asbestos
Ch	Chromite
Co	Cobalt
CO_2	Carbon Dioxide
Cu	Copper
Dia	Diatomite
Go	Geothermal
Gyp	Gypsum
Hg	Mercury
I	Iron
Ls	Lead-Zinc
Mn	Manganese
Mo	Molybdenum
N	Nickel
O	Oil & Gas Test Well
Per	Perlite
Pg	Placer gold
Ppl	Placer platinum
T	Tungsten
U	Uranium
V	Vanadium
Z	Zeolites

RADIOMETRIC AGE DETERMINATIONS

	Age	Reference	Rock Type
1.	149 my	Taubeneck (1962) Wallowa Batholith	Granite
2.	95 my	Taubeneck (1962) Wallowa Batholith	Cordierite tronjhjemite
3.	16.6 my	Watkins and Baksi (1960) Picture Gorge Basalt	Basalt

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Compiled by Steven H. Hollis

MINERAL RESOURCE MAP AND INDEX OF GEOLOGIC MAPPING
of the
PENDLETON AMS SHEET

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

OPEN FILE REPORT 79-41

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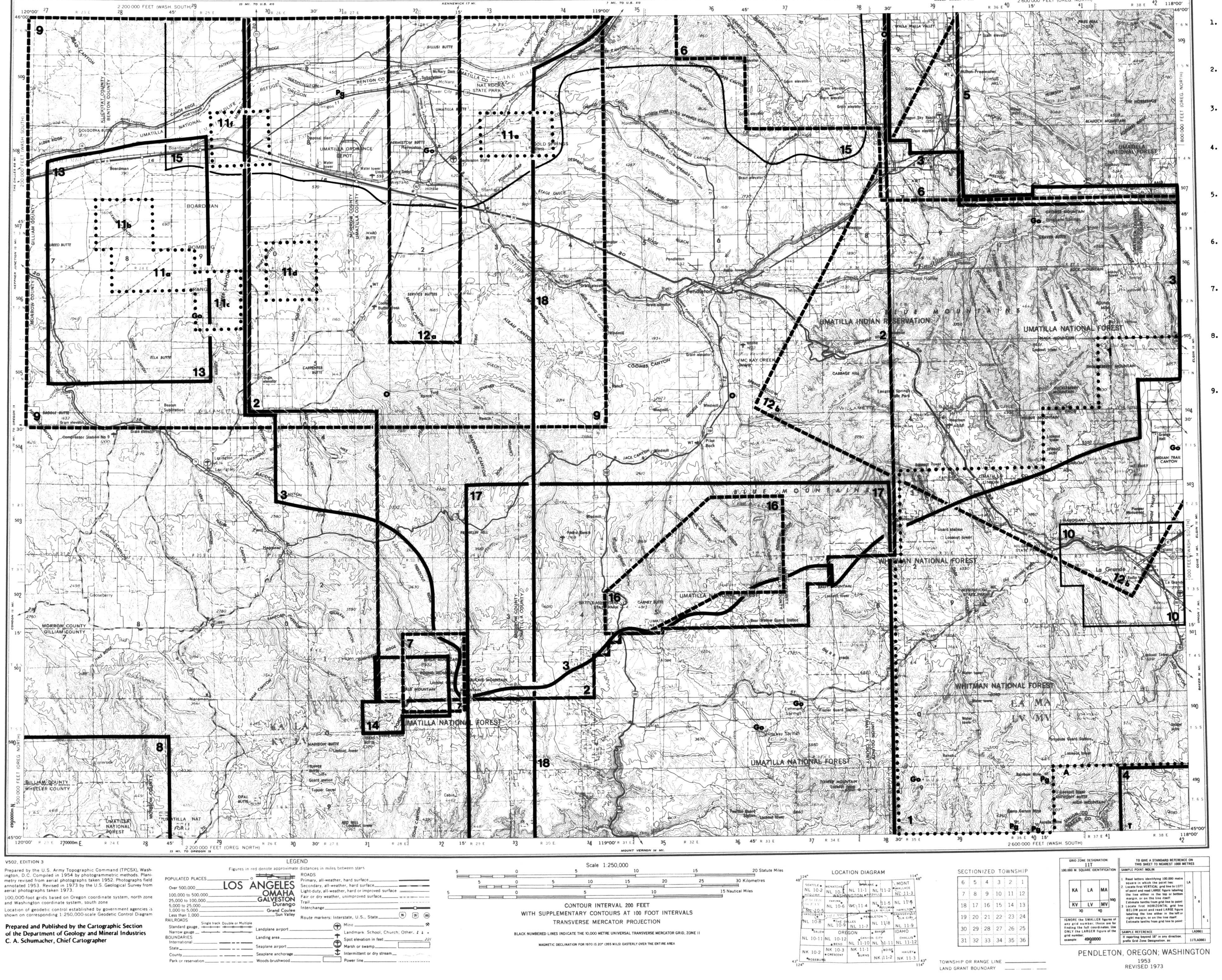

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MINERAL RESOURCES

	Gold and Silver
A	Antimony
Asb	Asbestos
Ch	Chromite
Co	Cobalt
CO_2	Carbon Dioxide
Cu	Copper
Dia	Diatomite
Go	Geothermal
Gyp	Gypsum
Hg	Mercury
I	Iron
Lz	Lead-Zinc
Mn	Manganese
Mo	Molybdenum
N	Nickel
O	Oil & Gas Test Well
Per	Perlite
Pg	Placer gold
Ppl	Placer platinum
T	Tungsten
U	Uranium
V	Vanadium
Z	Zeolites

Quadrangle Map

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STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

MINERAL RESOURCE MAP AND INDEX OF GEOLOGIC MAPPING of
THE DALLES AMS SHEET

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RADIOMETRIC AGE DETERMINATIONS

	Age	Reference	Rock Type
1.	11.6 my	Wise (1969) Still Creek Intrusion	Porphyritic diorite
2.	8 my	Bikerman (1970) Laurel Hill Pluton	Quartz diorite
3.	8.4 my	Bikerman (1970) Laurel Hill Pluton	Quartz diorite
4.	7 my	Wise (1969) Rhododendron Fm.	Andesite clast in breccia bed
5.	7 my	Wise (1969)	Porphyritic andesite
6.	5.8 my	Wise (1969) Zigzag Mtn. lavas	Porphyritic hypersthene andesite
7.	5.5 my	Wise (1969)	Olivine-augite andesite
8.	5 my	Bikerman (1970)	Andesite
9.	4.1 my	Wise (1969) Gunsight Butte sequence	Pyroxene andesite
10.	3.2 my	Wise (1969) Gunsight Butte sequence	Porphyritic pyroxene andesite
11.	3 my	Wise (1969) Gunsight Butte sequence	Platy aphanitic andesite

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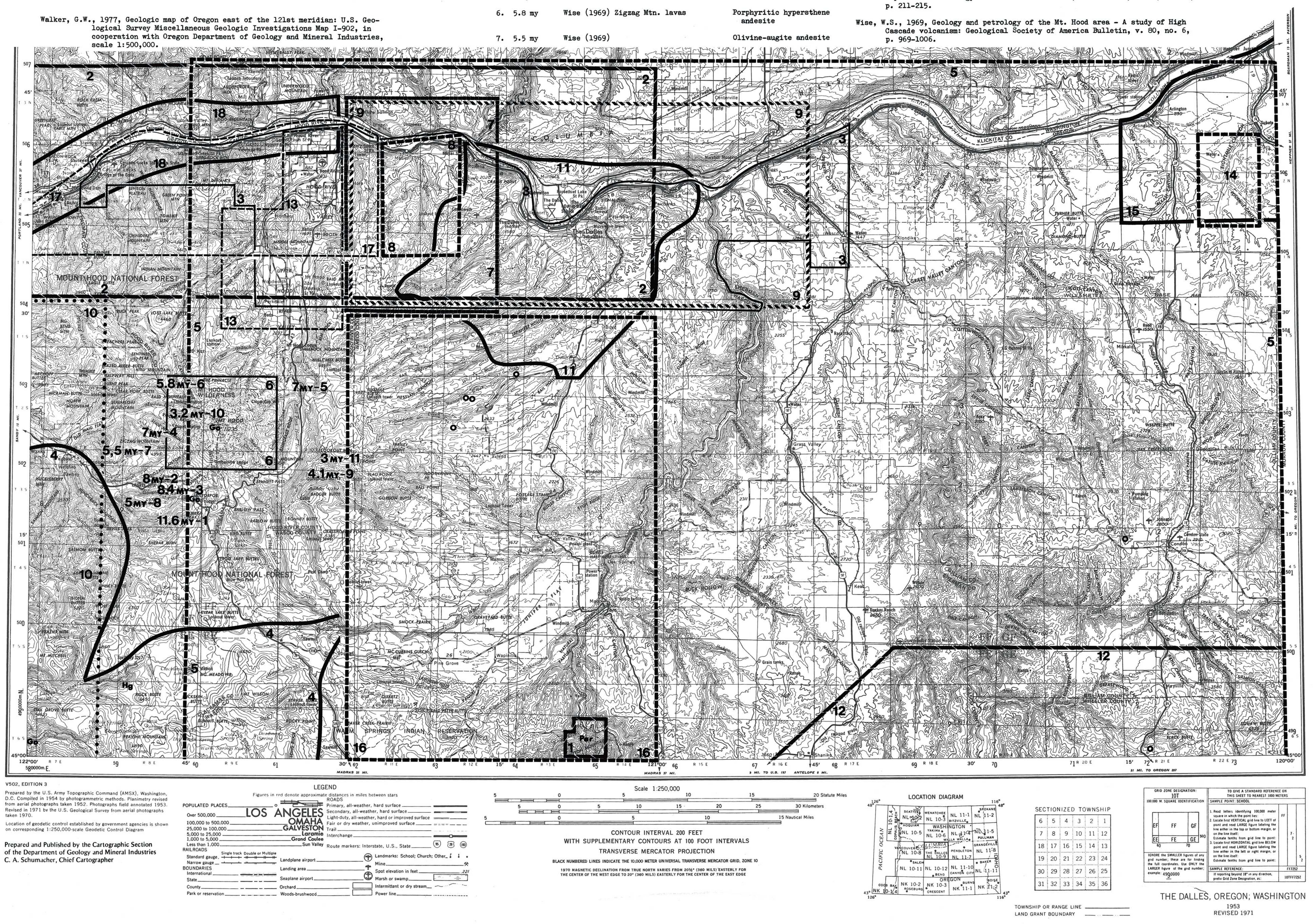

MINERAL RESOURCES

(symbol)	Gold and Silver
A	Antimony
Asb	Asbestos
Ch	Chromite
Co	Cobalt
CO_2	Carbon Dioxide
Cu	Copper
Dia	Diatomite
Go	Geothermal
Gyp	Gypsum
Hg	Mercury
I	Iron
Lz	Lead-Zinc
Mn	Manganese
Mo	Molybdenum
N	Nickel
O	Oil & Gas Test Well
Per	Perlite
Pg	Placer gold
Ppl	Placer platinum
T	Tungsten
U	Uranium
V	Vanadium
Z	Zeolites

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