Base from U.S. Geological Survey, 1955

Geology generalized from Smith and others (1982)

SCALE 1:250 000

0 5 0 5 10 15 20 MILES
0 5 10 15 20 25 30 KILOMETERS

CONTOUR INTERVAL 200 FEET

TRUE NORTH
MAGNETIC NORTH
18°
APPROXIMATE MEAN DECLINATION, 1983

OREGON
QUADRANGLE LOCATION

MINERAL RESOURCE ASSESSMENT MAPS OF THE MEDFORD 1° BY 2° QUADRANGLE, OREGON-CALIFORNIA

By

D. A. Singer, N. J Page, J. G. Smith., R. J. Blakely, and M. G. Johnson

1983

EXPLANATION

- KNOWN NICKEL-BEARING LATERITE
- SERPENTINITE OR PERIDOTITE
- TECTONIZED HARZBURGITE
- C3 — COAL OR OIL SHALE DEPOSITS--See text for discussion of C1-C3

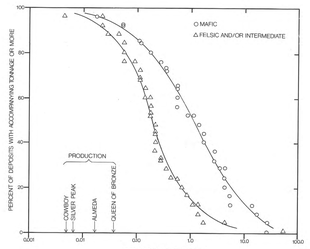

Figure 1.--Tonnages of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

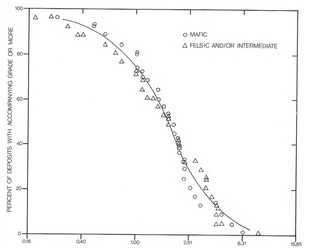

Figure 2.--Copper grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

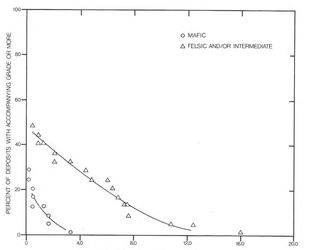

Figure 3.--Zinc grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

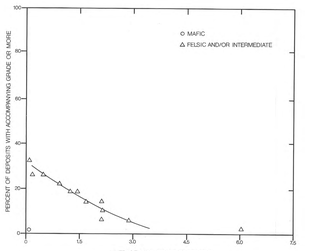

Figure 4.--Lead grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

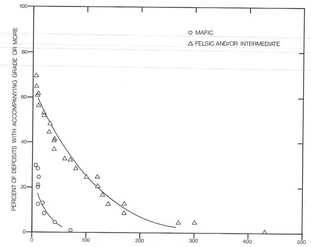

Figure 5.--Silver grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

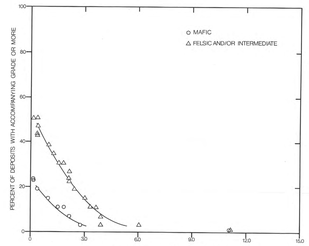

Figure 6.--Gold grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

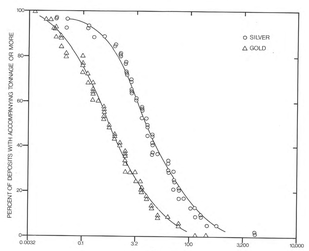

Figure 7.--Gold and silver content of Tertiary epithermal precious-metal deposits from Nevada and eastern California.

Figure 3.--Zinc grades of Mesozoic massive sulfide deposits classified by footwall composition of volcanic rocks.

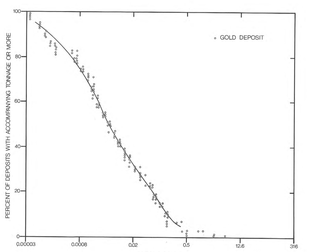

Figure 8.--Gold content of Paleozoic and Mesozoic deposits from the Medford 1° by 2° quadrangle.

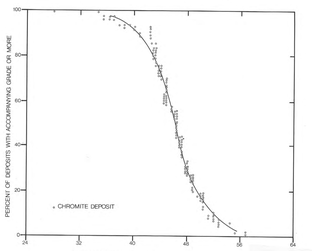

Figure 9.--Grades and tonnages of nickel-bearing laterite deposits.

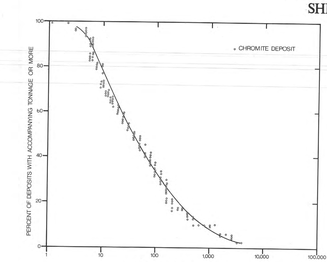

Figure 10.--Grades of podiform chromite deposits from southwestern Oregon.

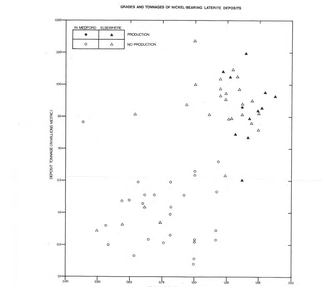

Figure 11.--Tonnages of podiform chromite deposits from southwestern Oregon.

Table 1.--Evidence bearing on the favorability of tracts for massive sulfide deposits in volcanic rocks

Tract	Geology	Interpreted aeromagnetics	Known deposits or occurrences; probable massive sulfides (≥ 1	Anomalous rock geochemistry[2] Number of samples	Elements[3]	Anomalous stream sediment geochemistry[2] Number of samples	Elements[3]
F1	Andesitic and dacitic flows, tuffs, and agglomerate	Surface rocks not anomaly source	1 occurrence	115	Zn, Pb, Ag, Hg, Bi, Cu (Mn, As, Mo, Co, B, W)	12	V, Cu (B, Mo)
F2	do	do	do	0	none	0	None
F3	do	Apparent buried pluton in vicinity	None	7	Ag, Zn, Mo, Cu, Pb (Hg)	6	(Zn, Mo_{ex}, Mn)
F4	do	do	None	3	(Hg)	6	None
F5	Rhyolitic to andesitic flows and tuffs	Buried pluton(?) near Silver Peak	Silver Peak, Almeda +9 occurrences	98	Cu, Mo, Ba, Mn, Sb, Hg, Ag, In (As, Pb, Ag, Zn, Co)	36	(Zn_{ex}, Ag, Zn, Cu_{ex}, Mn, Mo, Mo_{ex})
F6	Rhyodacite flows and tuffs	--	None	31	(Mn, Hg)	10	(Cu, Y_{ex}, V)
F7	Andesitic to dacitic flows and tuffs	Possible alteration in volcanics	(West Copper Creek) +5 occurrences	59	Co (As, Mo, Cu, Mn, Pb)	21	Cu (Co, Co_{ex}, Mo_{ex}, V, Ag)
F8	Andesitic flows and tuffs	--	(Copper Queen)	10	Hg, Cu, Zn (Mn, Ag, Co)	2	Mo_{ex}, Ag (Mo_{ex}, In_{ex}, B)
F9	Amphibolite granofels, schist, and gneiss	Buried pluton(?) southeast end	(Banfield, Bowlep) +1 occurrence	24	Hg, Cu, Zn, Ag, Mo (Ni, As, Mn, B, W, Co)	26	Cu_{ex}, Mo (In_{ex}, Cr_{ex}, Mo_{ex}, Co, Zn_{ex})
F10	Chlorite schist	--	(Squaw Creek Copper)	4	(Mn, Cu)	4	Cu_{ex}, Mo_{ex}, Ni_{ex}, Zn_{ex}, Co (Mo_{ex}, B, Ag)
F11	Dacitic to andesitic flows, breccias, and tuffs	Buried pluton(?) in vicinity	None	7	(Zn)	3	(Zn, Cu_{ex})
F12	Phyllonitic and schistose rocks; metabasalt and andesite	--	(Meadhead)	1	(Cu)	2	(Pb_{ex}, Co, Cu_{ex}, Zn_{ex}, B, Ag, Cu, Cu_{ex}, Mn)
M1	Pillow basalt, diabase dikes, and tuffaceous chert	--	Turner-Albright	2	(Mn, As, Hg, Hg, Ag, Co)	1	(Co, In, Cr_{ex}, Cu, Mn)
M2	Diabase, basalt, chert, gabbro, and serpentine	Mineralization(?) along west boundary	Cowboy, Queen of Bronze +6 occurrences	12	(Bi, Mn, Co)	15	Co, Cu_{ex} (Cu, Zn, Mn)
M3	Pillow basalt, diabase, dikes, gabbro, and chert	--	1 occurrence	12	Hg, Ag (Mn, Mn, Zn, Cu, Pb, B)	16	Zn, Zn_{ex}, Ag (Mn, B, Cu_{ex}, Mn, Cu_{ex}, Cu_{ex}, Mo_{ex})
M4	Basalt pillows & breccias, diabase dikes, and gabbro	Isolated areas of mineralization(?)	(Oak)	46	Mn, Ni, Cu, Co, As, Ba (A, In, Sn, Pb, Ag)	43	Cu_{ex}, Mn (Co, B, Cu)
M5	Gabbro, pillow basalt, and diabase dikes	--	None	1	(Ni, Co)	0	None

[1] Anomalous values: Pb ≥50 ppm; B ≥150 ppm; Ag ≥0.5 ppm; Sb ≥100 ppm; Hg ≥0.2 ppm; As ≥200 ppm; Cu ≥150 ppm; Zn ≥200 ppm; W ≥50 ppm; Mn ≥300 ppm; Co ≥100 ppm; Ni ≥ 1,000 ppm; Mo ≥15 ppm; Ba ≥7,000 ppm; Bi ≥10 ppm; Sn ≥10 ppm; Au ≥0.6 ppm.

[2] Subscript ex refers to the oxide residue of the stream sediment sample. Anomalous values: Co_{ex} ≥ 100ppm; As_{ex} ≥60 ppm; Zn_{ex} ≥700 ppm; Zn_{ex} ≥200 ppm; Co_{ex} ≥ 300 ppm; Cu ≥100 ppm; Cu_{ex} ≥ 700 ppm; Ag ≥0.6 ppm; Mo_{ex} ≥10 ppm; Mo ≥5 ppm; Pb_{ex} ≥100 ppm; Mn ≥7,000 ppm; V ≥300 ppm; B ≥150 ppm; Y_{ex} ≥200 ppm.

[3] Elements listed are significantly clustered at the 5-percent level unless in parentheses.

Table 2.--Evidence bearing on the favorability of tracts for epithermal precious metal vein and (or) mercury deposits

Tract	Mapped alteration[1]	Mapped felsic to intermediate intrusive rocks[2]	Known deposits or occurrences; Probable epithermal vein deposits (≥ 1	Anomalous rock geochemistry[3] Number of samples	Elements[4]	Anomalous stream-sediment geochemistry[5] Number of samples	Elements[6]
E1	--	None	None	4	Te, B (Hg)	3	None
E2	Yes[8]	Diorite[8]	Barron Mine (Buckpoint)	1	(Sn, Cu, As, Sb, Zn, As, Hg)	5	As_{ex}, Zn_{ex}, Mo_{ex} (Mn, Ag, Mo_{ex}, Zn)
E3	Yes	Felsic and intermediate	None	8	As (Ba, Sb, Mn, B, Pb, Hg)	10	As_{ex}, B (Cu_{ex}, Pb_{ex}, Mo_{ex}, Mo_{ex}, Te_{ex}, Zn)
E4	Yes	Intermediate	1 Mercury	2	(B)	1	(Pb_{ex}, As_{ex})
E5	Yes	Intermediate	None	64	Pb, Te, Mo (Ag, B)	19	As_{ex} (Ag, Pb_{ex}, Mn, Zn)
E6	Yes	Felsic and intermediate	At Sarena Mine	45	Hg, Sb, Zn, Ag, As, B (Au, Cu, Pb)	16	As_{ex}, Ag, Pb_{ex} (Mn, Zn, Mo_{ex}, Cu_{ex}, B, Te_{ex})
E7	Yes	Felsic	None	52	Pb, Te (Bi, Sn, Ba, As, Ag)	18	Mo_{ex}, Mn (Cu_{ex}, Cu_{ex}, Mo_{ex}, Mo_{ex}, Te_{ex})
E8	Yes	Felsic and intermediate	None	40	Mo (Sb, As, Hg)	14	(Mn, Pb_{ex}, Co, Mo_{ex}, B, Zn)
H1	Yes	None	2 Mercury	4	Hg, B (Pb)	6	As_{ex}, B (Mo_{ex}, Y_{ex})
H2	No	None	None	4	Hg (As, Mo)	4	None
H3	Yes	None	10 Mercury	16	Hg, B, Mo, As (W, Ba, Ag)	6	As_{ex}, Cu_{ex} (Mn, B, Cu_{ex}, Mo_{ex}, Te_{ex}, Mo)

[1] Source: J.G. Smith, (pers. commun., 1981).

[2] Source: J.G. Smith and others, 1982

[3] Anomalous values: Pb ≥50 ppm; B ≥150 ppm; Ag ≥0.5 ppm; Sb ≥100 ppm; Hg ≥0.2 ppm; As ≥200 ppm; Cu ≥150 ppm, Zn ≥200 ppm; Te ≥0.5 ppm; W ≥50 ppm.

[4] Subscript ex refers to the oxide residue of the stream sediment. Anomalous values: Zn_{ex} ≥700 ppm; Zn ≥200 ppm; Ag_{ex} ≥0.5 ppm; Pb_{ex} ≥ 150 ppm; Cu_{ex} ≥700 ppm; Cu ≥100 ppm; As_{ex} ≥60 ppm; Mo_{ex} ≥ 10 ppm; Mo ≥5 ppm; B ≥ 150 ppm; Te_{ex} ≥ 200ppm; Mn ≥ 7,000 ppm.

[5] Elements listed are significantly clustered at the 5-percent level unless in parentheses.

[6] Source: Callaghan and Buddington, 1938.

[7] Test of clustering was based on all Medford samples because some tract samples are not from volcanic rocks of the Western Cascade Range.

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