

# GEOLOGY AND MINERAL RESOURCES MAP OF THE ELKHORN PEAK QUADRANGLE, BAKER COUNTY, OREGON

TIME ROCK CHART Millions of years TiPer Is



## EXPLANATION

Qal	Alluvium (Holocene and Pleistocene) — Unconsolidated, poorly sorted fluviatile deposits consisting of gravels, sand, and silt in channels and flood plains of modern drainage systems. Includes catastrophic flood debris in Goodrich Creek deposited after the failure of a small dam at Goodrich Lake in 1896
	Landslide deposits (Holocene and Pleistocene) — Unstratified, heterogeneous mixtures of soil and rock frag- ments resulting from bedrock failure on oversteepened slopes; typified by hummocky topography
Qgm	Glacial deposits (Holocene and Pleistocene) — Unconsolidated, unsorted accumulations of boulders, cobbles, and gravels deposited during glaciation. Includes well-preserved lateral and terminal moraines of Pine and Goodrich Creeks and talus deposits along cirque headwalls in Cougar Basin
QI	Fluviatile deposits (Pleistocene) — Unconsolidated, poorly sorted alluvial fan deposits consisting of a wide variety of rock types ranging from fine silt to boulders
KJbm	Bald Mountain Batholith (Lower Cretaceous-Upper Jurassic) — Mainly quartz diorite and diorite within the quadrangle. Elsewhere includes appreciable amounts of granodiorite. Rb-Sr and K-Ar dates for the batholith range from 134 to 159 m.y. (Armstrong and others, 1977; Fiebelkorn and others, 1982)
KJi	Quartz diorite (Lower Cretaceous-Upper Jurassic) — Lake Creek stock of Taubeneck (1957) composed mainly of an equigranular biotite-hornblende quartz diorite
KJm	Norite (Lower Cretaceous?-Upper Jurassic) — Early mafic phases of the Bald Mountain Batholith, whose mineralogy was modified subsequent to emplacement of the main quartz diorite mass. Includes the Willow Lake norite and Black Bear quartz gabbro of Taubeneck (1957). The Willow Lake norite is composed of layered and isotropic metanorite and hornblende metagabbro containing numerous xenoliths and screens of chert, argillite, and greenstone that have been converted to pyroxene hornfels (Taubeneck and Poldervaart, 1960). The Black Bear quartz gabbro is generally a dark-colored metanorite characterized by dark-green hornblende, actinolite, and plagioclase into which quartz has been introduced along narrow fractures (Taubeneck, 1957). Accessory minerals include tourmaline, biotite, and pyrite
d	<b>Dikes (Lower Cretaceous?-Upper Jurassic?)</b> — Dikes, chiefly equigranular microdiorites; includes andesite porphyry and equigranular quartz diorite, mostly altered. Dikes cut zones of disseminated pyrite in all pre- batholith rocks and in some instances are cut by quartz veins. Only the more pronounced dikes are shown. In some areas such as the north side of Elkhorn Peak, the dikes are so numerous that they form as much as 20 per- cent of the rock mass (Pardee, 1941). The width of mapped dikes is generally exaggerated for illustrative pur- poses. The dikes generally range from less than a foot to 100 ft in thickness and are usually narrow and discon- tinuous. The more continuous dikes are composite masses composed chiefly of andesite porphyry
	The five rock units below unit <b>d</b> in the Time-Rock Chart comprise two lithologically distinct as- semblages that are stratigraphically disrupted. The rock assemblages apparently were initially formed in distinctly different tectonic environments and were later juxtaposed during large-scale tec- tonic transport. The rock units include melange ( <b>Mz</b> ) and severely disrupted intrusive ( <b>TePi</b> ) and vol- canic and sedimentary ( <b>TePmv</b> ) rocks. The volcanic rocks formed in an island-arc environment, whereas the sedimentary rocks ( <b>TePer</b> , <b>Is</b> ) were deposited in generally quiescent deep-water basins (deep ocean floor or restricted marginal basins). Rocks of units <b>TePi</b> and <b>TePmv</b> are generally strongly cataclasized. The interpretation here is that units <b>TePi</b> and <b>TePmv</b> together appear to comprise a large-scale slab melange that contains little recognizable matrix. All contacts between rock units below unit d in the Time-Rock Chart are believed to be tectonic. The major boundary faults that sepa- rate the two assemblages vary along strike from low-angle, southward-dipping thrust faults to high- angle faults of uncertain nature.
mz	<b>Melange (pre-Upper Jurassic)</b> — Block melange comprised of irregularly distributed blocks of metagabbro, diorite, albite granite, keratophyre, massive chert, greenstone, limestone, calcareous argillite, foliated chloritemica schists, and serpentinite and serpentinized harzburgite. Individual blocks range up to 100 m in their longest dimension. Elongate zones of serpentinite up to 10 m across separate some of the blocks. Contact zones between blocks and serpentinites have locally been converted to zones of massive gray- to orange-colored talc schists up to 2 m in width. The areal distribution of the melange was mapped on the occurrence of talc schist float in poorly exposed areas
TPI	<b>Metamorphosed intrusive rocks (Triassic-Permian)</b> — Deformed and metamorphosed igneous complex com- posed mainly of equigranular epidiorite and subordinate quartz diorite, albite granite (sample J, Table 2), pyrox- enite, foliated gabbro, and amphibolite. Diorites are composed of andesine feldspar and green ophitic hornblende, while albite granites are made up of oligoclase feldspar and quartz. Most rocks in the unit are cut by closely spaced, randomly oriented, anastomosing microbreccia zones up to 2 in. in thickness. These rocks include pro- tocataclasites composed of granular, igneous-textured porphyroclasts that are randomly oriented in an isotropic matrix. Mylonite zones are less common than cataclasite zones. The porphyroclasts and occasionally the matrix are partially recrystallized to the greenschist-facies metamorphic mineral assemblages actinolite + epidote + chlorite + albite and epidote + chlorite + albite + quartz. Rare foliated metamorphic rocks within the complex in- clude amphibole schists that are cut by a fracture cleavage. Local recrystallization of the cataclasite and mylonite matrixes to randomly oriented masses of actinolite suggests two periods of metamorphism: an early period as- sociated with initial tectonic emplacement of the intrusives and a later phase related to recrystallization after the development of fracture cleavage and cataclasite textures. Age of the complex is presumed to be Permian and/or Triassic. A granodiorite in the Granite quadrangle has yielded a 243-m.y. lead-uranium age from zircons (Brooks and others, 1982). Unit is tectonically intercalated with sedimentary rocks ( <b>TePmv</b> ) as young as Late Triassic (Norian)
ΈΡmv	<b>Metamorphosed volcanic and sedimentary rocks (Late Triassic-Permian?)</b> — A sequence of interbedded and intercalated volcanic and sedimentary rocks, including calcareous argillites, sandstones, tuff breccias, keratophyre tuffs, dark-colored limestones, andesite, and basalt. Interbedded flow rocks include both andesite and basalt (samples C, G, H, and I, Table 2). A limestone lens in upper part of sequence contains the Late Triassic (Norian) conodonts <i>Epigondolella abneptis</i> subsp. B of Orchard and <i>Xaniognathus</i> sp. (Wardlaw, written com- munication, 1985; sample a, Table 3). Unit as mapped consists of thrust slices imbricated with metaintrusive rocks of unit <b>R</b> Pi. Contacts are generally marked by extensive cataclasite and mylonite zones that have nearly obliterated original igneous and sedimentary textures. Flame structures and rip-up clasts of sandstones in argil- lites indicate that the sediments had undergone soft-sediment deformation prior to development of cataclasites and mylonites. Cataclasite and mylonite zones occur throughout the unit, with nearly all of the unit being cut by narrow zones of microbreccias and subparallel sets of fracture cleavage. Local overturning of units is indicated by inverted relict graded beds. Imbricate thrusts are particularly well exposed on the north side of Pine Creek, where a 1,200-ft-thick section comprised mainly of interbedded tuff breccias, limestone, and calcareous argillite is in thrust contact with overlying and underlying slices of metadiorite ( <b>T</b> Pi)
TrPer	Elkhorn Ridge Argillite (Triassic, Permian, and pre-Permian?) — Deformed sedimentary complex com- posed mainly of dark-colored siliceous argillite, argillite, and chert. Unit includes black carbonaceous argillite, tuffaceous argillite characterized by small euhedral plagioclase crystals, ribbon chert, and limestone (mapped separately as unit ls), sandstone, and rare limestone-clast and chert-pebble conglomerates. Ribbon cherts are abundant and are particularly well exposed on the lower parts of Alder, Baboon, and Lake Creeks. Massive pur- ple-colored cherts are exposed at the head of Little Marble Creek. Ribbon cherts elsewhere in the Elkhorn Ridge Argillite have yielded Permian and Late Triassic microfossils (Dickinson and Thayer, 1978; Blome, verbal com- munication, 1985). Late Triassic (Karnian) radiolaria from chert float on the north slope of Elkhorn Peak include ?Corum sp., Pseudostylosphaerarsp., and Triassocampe sp. (Blome, written communication, 1986)
ls	Limestone (Triassic, Permian, and pre-Permian?) — Generally lensoid masses of light-gray to dark-blue high-calcium limestone, commonly converted to medium-grained crystalline marble that occurs as small de- tached blocks within enclosing black argillite. Presence of oolites and fusulinids is apparently indicative of shal- low-water marine origin and suggests that the limestone masses may be olistoliths (slide blocks) incorporated into the presumably deeper water facies represented by the argillite and chert. Age is based on fusulinids of Tethyan affinities (sample g, Table 3) (Coward, 1983; Nestell, 1983)

#### MAP SYMBOLS

	Contact — Approximately located
•	Fault — Bar and ball on downthrown side; dashed where approximate or inferred
· · ·	Thrust fault — Teeth on upper plate
	Quartz vein/mineralized fault zone
1 55	Strike and dip of bed or lava flow
*	Strike of vertical bed
, <i>A</i> 35	Strike and dip of foliation
*	Strike of vertical foliation
<sup>24</sup>	Mine or prospect location — Number corresponds to map number in Table 1
▲ <sup>D</sup>	Location of rock sample for which chemical data are presented in Table 2, Plate
F®	Fossil locality for which fossil data are presented in Table 3, Plate 2

#### MINERAL DEPOSITS

Narrow, discontinuous, northerly-striking quartz veins occur in the northern and eastern sec-tions of the quadrangle. The Mountain Belle and Hurdy Gurdy Mines are the only properties with known production from this type of vein, which generally contains free milling gold. The Mountain Belle vein attains a maximum width of 3 ft and consists of quartzose lenses in a sericitic gouge zone in argillite and quartz diorite. According to Pardee and Hewett (1914), the ratio of silver to gold in the Mountain Belle vein seldom exceeded 2:1, with the unoxidized ore of dense quartz occurring as lenses containing angular masses of fine pyrite, sericite, and fuchsite. Several narrow, easterly-striking quartz veins in the southern part of the quadrangle occur Several narrow, easterly-striking quartz veins in the southern part of the quadrangle occur along the margins of the metamorphosed intrusive mass that crosses the upper reaches of Lake, Baboon, and Alder Creeks. The veins are comprised of discontinuous gold-bearing quartz seams up to 2 ft in thickness that occur in sheared argillite along the major faults that separate Elkhorn Ridge Argillite (**RPer**) from metamorphosed intrusive and extrusive rocks (**RPi** and **RPmv**). The quartz seams are associated with zones of sheared serpentine, talc, and talc-carbonate rock as much as 20 ft thick. Several areas of disseminated pyrite occur within the quadrangle. These consist for the most part of discontinuous limonitized and bleached silicified zones that occur in all the prebatholith rocks. The most extensive zones in the central portion of the quadrangle are in the headwaters of Little Mill Creek and in the southeastern corner of the quadrangle near the heads of Salmon Creek and Mill Creek and in the southeastern corner of the quadrangle near the heads of Salmon Creek and Miners Creek. The Little Mill Creek zone occurs in silicified argillite and roughly parallels the northwesterly trace of the fault contact between Elkhorn Ridge Argillite (**TRPer**) and the metamorphosed intrusive rocks (**TRPi**). The Little Mill Creek zone is an elongate zone that is ap-proximately 2,000 ft long and 600 ft wide. Unaltered microdiorite dikes cut many of the dissemi-nated pyrite zones, indicating that mineralization predated emplacement of the dikes. Of 10 sam-ples from these zones, only two, ATB-19 (Little Mill Creek) and ATB-33 (Salmon Creek), showed detectable amounts of gold (40 and 65 ppb, respectively). The major mineral commodity produced in the quadrangle has been chemical-grade limestone mined on Baboon and Marble Creeks. The limestone occurs as lensoid masses of coarsely crystalline, high-purity marble (over 98 percent CaCO<sub>3</sub>) enclosed in chert and argillite. According to U.S. Bureau of Mines statistics, the past production from the quadrangle includes over 340,000 tons of lime valued at over \$7.35 million at the time of production.

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30 YEARS OF SERVICE	Funded in part by and the U.S. Geolog
	REFERENCES
Armstrong, R.L., Taubeneck, W.H., and Harocks and their Sr isotopic compositio letin, v. 88, no. 3, p. 397-411.	ales, P.O., 1977, Rb-Sr and K-Ar geoch n, Oregon, Washington, and Idaho: Geo
Brooks, H.C., Ferns, M.L., and Mullen, E.	.D., 1982, Geology and gold deposits n tment of Geology and Mineral Industri
Brooks, H.C, and Ramp, L., 1968, Gold and tries Bulletin 61, 337 p.	l silver in Oregon: Oregon Department
Coward, R.I., 1983, Structural geology, stra	atigraphy, and petrology of the Elkhorn Texas, Rice University doctoral disser
Dickinson, W.R., and Thayer, T.P., 1978, Pa and structure in the John Day inlier of paleogeography of the western Unit Calif., Society of Economic Paleontol	aleogeography and paleotectonic implic f central Oregon, <i>in</i> Howell, D.G., and I ed States: Pacific Coast Paleogeograp ogists and Mineralogists, Pacific Sectio
	Geological Survey Open-File Report 8
Lindgren, W., 1901, The gold belt of the Bl pt. 2, p. 551-776.	ue Mountains of Oregon: U.S. Geologic
Nestell, M.K., 1983, Permian foraminifer America. Abstracts with Programs,	
Pardee, J.T., 1941, Preliminary geologic m and Mineral Industries quadrangle n	
Pardee, J.T., and Hewett, D.F., 1914, Geolo Bureau of Mines and Geology, Miner	egy and mineral resources of the Sumpt al Resources of Oregon, v. 1, no. 6, p. 7
Palmer, A.R., 1983, The Decade of North A 504.	
Stimson, E.J., 1980, Geology and metam Eugene, Oreg., University of Oregon	
Swartley, A.M., 1914, Ore deposits of nort sources of Oregon, v. 1, no. 8, 229 p.	
Switek, M.J., Jr., 1967, Stratigraphic secti Oregon: Eugene, Oreg., University of	
Taubeneck, W.H., 1957, Geology of the E Geological Society of America Bullet	lkhorn Mountains, northeastern Oreg

2. G 3. P 4. E 5. E 6. N 7. C 8. N 9. D 0. S 1. E 2. H	Name Cumberland General Sherman, Deming Group Pearl	Sec.	T.(S.)			Geologic	Contrate descut-the		
2. G 3. P 4. E 5. E 6. N 7. C 8. N 9. D 0. S 1. E 2. H	Seneral Sherman, Deming Group	477	8	R.(E.)	(ft) 8,000	unit KJbm, KJm	Geologic description Altered zone in argilite screen between KJbm, KJm	Workings 300-ft caved adit	Production
3. P 4. E 5. E 6. N 7. C 8. N 9. D 0. S 1. E 2. H		17 16	8	38 38	7,040	KJbm, TePer, KJm	Quartz and epidote veinlets in argillite screen	400-ft crosscut with 100 ft of drift	None
4. E 5. E 6. N 7. C 8. N 9. D 0. S 1. E 2. H		16,27	8	38	6,600	TiPer	Small shear zones in argillite hornfels	About 300 ft of tunnels	None
6. N 7. C 8. N 9. D 0. S 1. B 2. H	Elkhorn Bonanza	16	8	38	6,560	KJbm	Narrow limonitic quartz vein strikes NE.	About 3,000 ft of workings	Unknown
7. C 8. N 9. D 0. S 1. E 2. H	Excuse, Cub	15	8	38	5,680	KJbm	1/2- to 21/2-ft thick shear zone with kidneys and streaks of quartz and sulfide strikes	Several hundred feet of workings	Small
7. C 8. N 9. D 0. S 1. E 2. H	1		0	20	1 200	KJbm	N, 22° E. and dips 55° W. Quartz seams in guartz diorite	Shallow shafts and short adits	None
8. M 9. D 0. S 1. E 2. H	Name unknown Chloride	14 24	8	38 37	4,300 5,680	RPer, KJbm	Quartz seams in quartz dome Quartz vein with galena, sphalerite, arsenopyrite, pyrite, chalcopyrite, and argentite strikes	Six tunnels with over 3,800 ft of workings	Small
9. D 0. S 1. E 2. H	Shohue	24	0	07	5,000	Ri el, Nooli	N. 45° - 50° E. and dips 55° - 75° S.		0.000
0. S 1. B 2. H	Aidnight, Highland-Maxwell Group	24	8	37	6,120	ħPer	2 <sup>1</sup> /z-ft-wide zone of sheared graphitic argillite with small quartz streaks strikes N. 80° W. and dips 75° S.	250-ft-drift adit	Unknown
0. S 1. B 2. H	Defender, Highland-Maxwell Group	19	8	38	6,000	TePer	Narrow east-west-trending shear in argillite hornfels	Short adits and discovery cuts	None
1. B 2. H	Shamrock, Highland-Maxwell Group	19	8	38	6,500	ħPer	10-in. quartz vein in argillite hornfels strikes due north	Short cuts	None
2. H	Brooklyn	19	8	38	7,000	ħPer	Narrow, east-west-striking quartz-cemented argillite breccia zones	About 250 ft in two adits; number of open cuts	None
H	fighland Vein,	19	8	38	6,400	TaPer	Persistent, well-defined vein of crushed and generally silicified argillite strikes from	Over 10,000 ft of workings on three main levels	Est. \$525,000
	lighland-Maxwell Group						N. 75° E. to N. 55° E. with nearly vertical dip. The vein reaches up to 28 ft in width and contains generally narrow ore shoots of pyrite, sphalerite, galena, arsenopyrite, chalcopyrite, and		
							tetrahedrite		
3. E	Bottom, Bottom Dollar	19	8	38	6,640	TaPer	Quartz vein with pyrite, galena, and sphalerite ranges from 8 in. to 5 ft in width, strikes N. 50° W. and dips 65° to 70° NE.	200-ft adit	None
4. N	lame unknown	19	8	38	6,960	KJbm	2-ft-wide iron-stained fracture zone strikes N. 65° E. and dips 80° SE.	Short adit	None
	Maxwell, Highland Maxwell Group	19	8	38	7,100	ħPer	Eastern extension of the Highland vein strikes N. 55° E.	Over 3,000 ft of workings	Est. \$100,000
6. N	Mountain Bell Vein,	20	8	38	7,600	TePer, KJbm	3-ft-wide breccia zone in and along contact between quartz diorite and argillite strikes	About 1,000 ft of workings in adits and cuts	Small
H	lighland-Maxwell Group				-		N. 30° E. and dips 80° SE. Vein contains sericitic gouge, quartz, pyrite, sericite, calcite, and fuchsite	Challenard	None
	Name unknown	20	8	38	8,440	KJi TEPor K li	Narrow limonitic shear zone	Shallow cut	None
	Mountain View, Highland-Maxwell Group	20	8	38	7,200	ħPer,KJi	1-ft zone of quartz stringers with nodular pyrite strikes N. 65° E. in chert hornfels	Shallow cuts	None
	Miners Hope, Denny Group	20	8	38	7,640	KJbm	Limonitic shear zone	Est. 600 ft workings in two caved adits	Unknown
	Aissouri Girl, Denny Group	20	8	38	7,800	KJbm	Narrow (4- to 6-in.) limonitic quartz veins with manganese oxides strike N. $10^\circE.$ and dip $50^\circW.$	Est. 200-ft caved adit	Unknown
1. C	Captain Jack, Denny Group	20	8	38	7,600	TrPer, KJi	2-ft-wide composite quartz vein strikes N. 35° E. and dips 90°	Est. 500-ft caved adit	Unknown
	Bonanza Queen, Denny Group	20	8	38	7,300	ħPer	In argiilite hornfels	Est. 300-ft caved adit	Unknown
	Blue Ledge, Baisley-Elkhorn Group	20	8	38	6,920	KJbm, TiPer	Shear zone strikes N. 60° E.	Small prospect pits	None
	Hurdy Gurdy Robbing Elkhorn Raislau Elkhorn Group	20	8	38	8,000	KJbm TPer K Ibm	2-ft limonitic quartz vein strikes N. 10° W. Western extension of the Elkhorn vein	Over 500 ft of workings Over 1,500 ft of workings	Est. \$80,000 Est. \$300,000
	Robbins-Elkhorn, Baisley-Elkhorn Group	20 21	8	38 38	7,000	ЋРег, KJbm KJbm, ЋРег	Western extension of the Eikhorn vein Composite quartz vein up to 10 ft wide strikes N. 60° E. and dips 85° W. Two ore shoots	Over 1,500 ft of workings Over 10,000 ft of workings	Est. \$300,000 Est. at over \$650,000
6. E	Baisley-Elkhorn	20,21	0	30	0,300	NJUIT, AFBI	composite quarz vein up to 10 tit wide strikes w. 60 E. and one so w. two ore shoots contain quartz, calcite, pyrite, sphalerite, galena, chalcopyrite, and occasional argentite	and report of normalige	201.0101010000,000
7. A	Accident, Baisley Elkhorn Group	20	8	38	6,680	KJbm, TePer	5-ft-wide zone of iron-stained quartz diorite and hornfels with 1-ft-wide zone of quartz	Cuts	Unknown
		1					gouge and manganese oxides; strikes N. 60° E.		A DESCRIPTION OF THE OWNER OWNER OF THE OWNER
	Tired Miner	20	8	38	7,200	TePer, KJbm	Zone containing narrow limonitic quartz stringers along contact	Two short adits	None
	Dolcoatte	21	8	38	6,800	ħPer	3-ft-wide silicified fracture zone in ribbon cherts strikes N. 10° E.	Est. 200-ft adit	None
	Delaware	21	8	38 38	6,040	TePer TePer, KJm	Narrow quartz vein in argillite hornfels In argillite hornfels	Est. 200-ft adit Prospect pits	None
	Name unknown Randall and McCord	22 19	8	38	6,000 7,000	TEPmv	Disseminated pyrite in greenstone and chert	Prospect pit	None
	Randall Group	30	8	38	8,400	TaPer, TaPi	Talc-carbonate zone with quartz and calcite stringers strikes N. 80° W. and dips 90°	Prospect pit	None
	Name unknown	28	8	38	6,080	TiPer,d	6-in. quartz vein in diorite dike	Prospect pit	None
5. L	eRoi?	31	8	38	7,360	TiPer	In black siliceous argillite and chert	200-ft adit	None
6. N	Name unknown	34	8	38	5,900	TAPmv	Disseminated pyrite in tuffaceous greenstones cut by diorite dikes	Caved adit	None
7. N	Name unknown	35	8	38	4,800	vmPaF	Narrow quartz vein in sheared greenstone	Caved adit	None
	Name unknown	35	8	38	4,880	TiPmv	1-ft-wide vein of broken, sugary quartz in sheared tuffaceous argillite strikes northerly	Prospect pits and shallow shafts	None
	Name unknown	35	8	38	4,560	TePmv, TePi	Narrow vuggy quartz vein with galena, pyrite, and chalcopyrite	Est. over 600 ft of workings in four adits	Unknown
27 G	Name unknown	5	9	38 38	7,400	Ter Terv, Teri	20-ft-wide zone of silicified iron-stained chert strikes N. 10° W. Discontinuous zone of disseminated pyrite in silicified metagabbro strikes N. 20° W.	Prospect pit Prospect pit	None
	Name unknown Name unknown	2	9	38	6,200 5,600	TRPmv	Discontinuous zones of silicified greenstones with disseminated pyrite extend N. 20° W. for several	Prospect pit and 25-ft adit	None
c. 1	varile criticiowit	2	5	50	3,000	RI IIIY	hundred feet	1 rospect pitale 20 radie	Hono
3. N	Name unknown	12	9	37	5,800	ħPer	Narrow discontinuous limonitic argillite breccia zones	Prospect pits	None
4. N	Name unknown	11	9	38	6,350	ħPer	1-ft-wide zone of quartz-cemented chert breccia	Prospect pit	None
	Name unknown	11	9	38	5,680	ħPer	Wide zone of iron-stained sheared chert and argillite	Prospect pits	None
	Name unknown	12	9	38	5,440	RPer .	Quartz stringers in iron-stained chert and argillite	Prospect pit	None
	Bear Hole	13	9	39	5,200	Te Per	10-in. limonitic breccia zone strikes N. 70° W.	200-ft adit 100-ft caved adit	None
	Famarack Group? Name unknown	18 18	9	38 38	5,360 5,720	Teper Teper, Is	N. 80° Wtrending zone of sheared argillite with brecciated quartz stringers N. 30° E. 75° Sstriking 5-in. quartz vein with manganese oxides in limestone. 85-ft-wide zone	Prospect pit	None
-, r		.0	9		0,120		of limonitic silicified chert lies immediately to the east		Berry Trad-
0. 0	Quarry Overview	16	9	38	6,850	TePer	Narrow vuggy quartz vein with manganese and iron oxides strikes NE.	Prospect pit	None
1. N	Marble Creek quarry	13,14	9	38	5,400	ls	High-calcium limestone pod	Quarry	Nearly \$8 million in lime an crushed limestone
2. N	Nameunknown	19	9	38	5,040	TePer	2-ft-wide brecciated quartz vein with free gold and pyrite in graphitic sheared argillite	140-ft adit with raise	Small
							strikes N. 80° W. and dips 75° N.		
3. 0	Golden Eagle	19	9	38	5,080	ΤεPer, ΤεPi	8- to 14-in, quartz vein strikes N. 60° - 80° E, and dips 40° - 50° S, in a broad zone of altered and sheared carbonaceous argillite and talcose ultramafic rocks	Several hundred feet of workings	Small
4. L	ake Creek prospect	19	9	38	5,480	TePer, TePi	and sneared caroonaceous arginite and taicose unramatic rocks 8- to 14-in, quartz vein strikes N. 60° - 80° E, and dips 40° - 50° S, in a broad zone of altered	Several hundred feet of workings	Small
L	and or on prosport	13	3		0,100	11 St, B 1	and sheared carbonaceous argillite and talcose ultramafic rocks		ANT CARTER
5. li	ron Mask?	19	9	38	5,200	TaPer	N. 20° - 30° Wtrending zone of brown jasperoid with chalcedonic quartz stringers	Two adits totaling about 300 ft	None
							extends for about 100 ft	<pre>interface.com/interface.com interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.com/interface.c</pre>	
6. E	Baboon Creek quarry	16,17, 20,21	9	38	6,000	ls	High-calcium limestone pod	Quarry	Production combined unde Creek quarry (51)
7. 5	St. Louis	20,21	9	38	5,600	TaPi, TaPer	8-in, guartz vein in 6-ft-wide talc-carbonate zone strikes N. 85° E. and dips 80° S.	Two caved adits est. at 700 ft of workings	Unknown
	Name unknown	21	9	38	6,240	TaPer	Ribs of silicified chert argillite breccia	Prospect pit	None
	Nameunknown	22	9	38	7,620	TePer	Narrow quartz vein in diorite dike	Prospect pit	None
0. F	Paymaster?	23	9	38	7,160	ħPg	Large area of silicified and chloritized argillite and greenstone with discontinuous veins and	Shallow prospect pits and a 35-ft shaft	None
	Name unknown	24	0	28	6 600	Oal EDa	stringers of chalcedony and quartz	200-ft caved adit	None
	Name unknown Deer Creek placers	24 25	9	38 37,38	6,600 4,600	Qal, ЋPg Qal	Greenstone beneath glacial cover Modern stream channel and scattered high bars	200-ft caved add Nearly the entire stretch of stream in the quadrangle	Small
- L	Deer Creek placers	20	9	57,30	4,000	Val	พบบบาทอาบนาทอานากอานาของนแอาอนากฐาามนี้ไอ	has been placer mined	serrinari
3. 1	Name unknown	29	9	38	5,200	ħPer,ħPi	20-ft-wide zone of sheared serpentine with talc seams and quartz	Propect pit	None
	Name unknown	29	9	38	5,000	TePer	Zone of iron-stained silicified ribbon chert	Prospect pits	None
	Name unknown	28	9	38	5,960	TePer	Zone of bleached, iron-stained chert extends northeasterly	Pits and short adit	None
	Nameunknown	26	9	38	6,440	ħPmv, d	Limonitic gouge in a porphyry dike Noth a tribing hence is a prophyry dike	Prospect pit	None
7. 0	Old Abe	26	9	38	6,580	TPi	North-striking breccia zones with quartz veins in silicified and chloritized limonitic albite granite	Several prospect pits and short adits	None
							REFERENCES		
							nerenences		
Linda	ren, W., 1901, The gold belt of the E	Blue Mo	untains of	f Oregon: U.	S. Geological Survey	22nd Annual Report, pt. 2, p. 551		ies, 1939, Oregon metal mines handbook: Oregon	Department of Geology a
-	e, J.T., and Hewett, D.F., 1914, G				Construction of the second		of Mines and Geology, Mineral 14-A (northeastern Oregon, east half), 125 p.		
	urces of Oregon, v. 1, no. 6, p. 7-12			200000		gen en gen ea out	<ol><li>Brooks, H.C., and Ramp, L., 1968, Gold and silver i</li></ol>		
. Swart	tley, A.M., 1914, Ore deposits of nor	theaster	rn Oregor	n: Oregon Bu	ureau of Mines and G	eology, Mineral Resources of Ore	gon, v. 1, no. 8, 229 p. 7. Oregon Department of Geology and Mineral Industri of Geology and Mineral Industries.	es, Mine-file reports: Unpublished reports and maps	filed at the Baker field o





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scale: Geology, v. 11, no. 9, p. 503-Ridge area, northeastern Oregon: f Mines and Geology, Mineral Re-Elkhorn Ridge area, Baker County, egon: Bald Mountain Batholith: Geological Society of America Bulletin, v. 68, no. 2, p. 181-238. Taubeneck, W.H., and Poldervaart, A., 1960, Geology of the Elkhorn Mountains, northeastern Oregon: Part 2, Willow Lake intrusion: Geological Society of America Bulletin, v. 71, no. 9, p. 1295-1321.







# SAMPLE LOCATION MAP OF THE ELKHORN PEAK QUADRANGLE, BAKER COUNTY, OREGON

1987



SAMPLING AND ANALYTICAL PROCEDURES

Dumps, prospect pits, and mineralized outcrops were selectively sampled during geologic mapping.
Samples marked by an asterisk are visually selected high-grade material taken from dumps on the
premise that such material represents the targeted mineralization. The other samples were collected
by random grab of material, including float. Time constraints did not permit the systematic collection
of truly representative samples. Properties about which there is little or no published information
were sampled in preference to currently active mines and well-known formerly productive properties.
Chemex Labs Ltd. (North Vancouver, B.C., Canada) crushed and ground the samples and provided
the data reported on Table 4. Gold was determined by fire assay/atomic absorption (AA) (10-g sample
with final volume of 5 ml). Mercury was determined by cold vapor AA (1-g sample treated with
$HNO_3$ and then HCl and made to a final volume of 100 ml). The other elements were determined as
follows: 0.5-g sample was digested with $HNO_3 + HCl$ (3:1), made to final volume of 25 ml, and
analyzed by induction-coupled plasma (ICP) emission spectrometry. The acids employed yielded
partial rather than total metals concentrations because of incomplete digestion. In particular, the
values reported for Al, Sb, Ba, Be, Ca, Cr, Ga, La, Mg, K, Na, Sr, Tl, Ti, W, and V are semiquantitative.
The values for the remaining 14 elements — Ag, As, Bi, Cd, Co, Cu, Fe, Mn, Mo, Ni, P, Pb, U, and
Zn — are essentially quantitative (per Chemex).
Quality-control check analyses were provided by Barringer Laboratories (Sparks, Nevada). Gold
was determined by fire assay/AA (30-g sample in 5 ml). Mercury was determined by cold vapor AA
(0.25-g sample, aqua regia digestion). The other elements were determined by AA after digestion of
a 2-g sample in aqua regia ( $HNO_3 + HCl$ , 1:3); final volume was 20 ml.

LISES	Or	RUCK 5	AMPI	220							-			
A1203	:	TiO <sub>2</sub>		Fe0		Fe203	;	MnO	:	Ca0	¦ ¦ MgO	¦ ¦ к <sub>2</sub> о	Na <sub>2</sub> 0	P205
19.99	ł	0.93	ļ	3.20	1	3.67	ļ	0.10	;	4.88	2.87	0.79	4.72	0.24
16.53	ļ	1.69		5.03	1	5.77		0.18	į	12.30	6.49	0.06	2.30	0.17
18.57	ļ	1.01	ļ	3.67	1	4.21	ļ	0.13	i	6.25	3.96	1.74	3.22	0.16
18.15	;	1.18	;	4.98		5.70	i	0.17		11.31	6.48	0.14	2.29	0.19
15.09		0.70	į	4.41	i	5.06	i	0.18		7.93	7.29	0.49	3.16	0.07
14.10	;	1.66	;	5.45		6.24	;	0.18		10.43	7.42	0.02	2.68	0.18
							;							
14.13	ł	0.96		4.62	;	5.29	i	0.17	;	10.59	6.56	0.04	2.60	0.10
17.46	1	1.15	1	4.55	:	5.21		0.19	;	9.33	4.43	0.00	4.31	0.21
18.13	1	1.21		4.97	;	5.69		0.15		9.92	4.24	1.56	3.36	0.70
13.79	;	0.61	ł	1.72	;	1.97	ł	0.07	;	2.56	0.65	0.10	4.48	0.11

	Age	Identification	Source
5	Late Triassic (early Norian)	Epigondolella abneptis subsp. B of Orchard; Xaniognathus sp.	Wardlaw, written communication, 1986
ia	Late Triassic (Karnian)	? <u>Corum</u> sp.; <u>Pseudostylosphaera</u> sp.; <u>Triassocampe</u> sp.	Blome, written communication, 1986
ls	Permian	<u>Schwagerina</u> sp.	Nestell, personal communication, 1986
ia	Paleozoic   (Pennsylvanian-   Permian)	? <u>Pseudoalbaillella</u> sp.	Blome, written communication, 1986
ia	Late Triassic (late Karnian- middle Norian)	<u>Capnodoce</u> sp.; ? <u>Corum</u> sp.; <u>Renzium</u> sp. cf. <u>R</u> . <u>webergorum</u> <u>Blome</u>	Blome, written communication, 1986
ia	Late Triassic (late Karnian- middle Norian)	Betraccium(?) <u>incohatum</u> Blome; ? <u>Canoptum</u> sp.; Triassocampe sp.	Blome, written communication, 1986
ia	Late Triassic (Karnian or Norian)	<u>Canoptum</u> sp.; <u>Sarla</u> sp.	Blome, written communication, 1986
ia	Late Triassic?	? <u>Xipha</u> sp.	Blome, written communication, 1986
İs	Permian (Guadalupian)	<u>Chusenella</u> sp.; <u>Neoschwagerina</u> sp.; <u>Pseudodoliolina</u> sp.; <u>Yabeina</u> sp.	Nestell, 1983 Coward, 1983
ds	Permian	<u>Schwagerina</u> sp.	Nestell, verbal communication, 1986
ia	Mesozoic (Triassic?)	? <u>Pseudostylosphaera</u> sp.	Blome, written communication, 1986

			lity		1	Geologi
Sample no. ;	1/4	Sec.	T.(S.)			unit
ATB-01 ¦	SW	======== ! 16	: 8		Rusty quartz	======================================
ATB-01	SE	16		38	Rusty quartz	KJbm
ATB-02	NE	15		38	Quartz, gouge with pyrite, sphalerite	KJbm
ATB-04	NE	114		38	Rusty quartz	KJbm
ATB-04	SE	24	8	37	Carbonaceous gouge with quartz	%Per
1	02			57	l	
ATB-06	SW	19	8	38	Rusty quartz breccia	FPer
ATB-07	NE	19	8	38	Rusty quartz	FPer
ATB-08	NW	20	8	38	Rusty quartz	KJbm
ATB-09	NE	20	8	38	Yuggy quartz	KJbm
ATB-10	NE	20	8	38	Limonitic gouge with quartz, pyrite	FPer
< I		1	1		1	
ATB-11	NE	20	8	38	Vuggy quartz with Mn, Fe oxides	FPer
ATB-12	NW	21	8	38	, Milky quartz	TPer
ATB-13	SE	30	8	38	Talc, calcite, quartz	ΈPi
ATB-14	NW	28	8	38	Milky quartz	TPer
ATB-15	SW	34	8	38	Disseminated pyrite	FPmv
4770-14	NTE	i 1 95		20	i I Miller success	TDarr
ATB-16   ATB-17	NE SE	35	8	38 38	<pre>Hilky quartz Vuggy quartz with pyrite, galena</pre>	TPmv
ATB-17	SE NW	5	9	38	Limonitic silicified chert	FPmv, T FPer
ATB-18	SE	1 2	9	38	Limonitic silicified chert	RPer
ATB-20	NE	1 4	9	38	Limonitic silicified chert	%Per
KID 20	NL	!				, AIGI
ATB-21	NE	3	9	38	Limonitic silicified metagabbro	<b>T</b> Pi
ATB-22	SW	2	9	38	Disseminated pyrite in silicified tuff	TePmv
ATB-23	SW	10	9	38	Limonitic chert breccia	FPer
ATB-24	SW	11	9	38	Quartz-cemented chert breccia	Ter
ATB-25	NE	11	9	38	Limonitic chert and argillite	FPer
1		;	:		1	1
ATB-26	SE	13	9	37	Heavy iron oxides	FPer
ATB-27	SE	18	9	38	Limestone	ls
ATB-28	SE	18	9	38	Limonitic silicified chert	FPer
ATB-29	SE	15	9	38	Vuggy quartz with Fe, Mn oxides	FPer
ATB-30	SE	19	9	38	; Jasperoid with heavy Fe oxides,	FPer
		1			chalcedony stringers	
ATB-31	SE	19	9	38	Limestone	ls
ATB-32	NE	21	9	38	Silicified chert	FPer TPer
ATB-33 ATB-34	SE NW	23 29	9	38 38	Rusty silicified chloritic tuffs	FPmv FPer, T
ATB-34 i	SE	29	9	38	<pre></pre>	Frer, F
AID-35	SE	1 29	1 9	00	, wasty argillite and gouge	RIGI
ATB-36	NE	28	9	38	Limonitic gouge	FPer
ATB-37	NE	28	9	38	Limonitic silicified chert	Frer Rer
ATB-38	SW	26	9	38	Limonitic gouge	d
ATB-39	SW	26	9	38	Limonitic silicified zone	TePmv

Table 5. SAMPLE DESCRIPTIONS AND LOCATIONS

							Table	6.	QUALII	Y-	CONTROL	(Q	C) DATA										
	Source	1	Au	ł	Hg	;	Ag	1	As	1	Bi	1	Cd	1	Cu	1	Мо	;	РЪ	1	Sb	1	Zn
Sample no.	data	;	(ppb)	!	(ppb)	;	(ppm)	!	(ppm)	!	(ppm)	!	(ppm)	!	(ppm)	!	(ppm)	;	(ppm)		(ppm)	!	(ppm)
ATB-02	Reported	:	<5	:	50	;	2.6	;	20	;	32	:	0.5	;	118	;	796	;	6	;	<10	;	20
	QC	1	11	ł	79	ł	3.0	ł	15	ł	34	ł	<1.0	ł	103	ł	670	ł	11	ł	<1	1	17
ATB-07	Reported	1	3,600	i	4,400	i	130.0	ł	9,120	i	22	i	<0.5	;	901	i	29	ł	>9,999	ł	460	1	470
	QC	1	3,219	Ì	2,214	;	304.8	i	12,800	Ì	26	i	4.0	Ì	840	i	36	Ì	27,200	Ì	390	ł	450
	1	1		ł		ł		ł		ł		ł		ł		ł		ł		ł		1	
ATB-10	Reported	;	320	ł	130	ł	1.6	ł	1,250	ł	<2	;	<0.5	ł	39	÷	4	ł	62	ł	<10	ł	40
1	QC	ł	362	ł	125	÷	1.9	ł	1,540	ł	<1	;	<1.0	ł	30	ł	6	ł	60	ł	1	ł	33
1		1		ł		ł		÷		ł		;		1		ł		ł		;		ł	
ATB-20	Reported	ł	<5	ł	60	ł	0.2	ł	<10	ł	<2	;	<0.5	ł	18	ł	3	ł	12	;	<10	ł	10
1	QC	;	2	ł	21	ł	<0.1	ł	4	ł	<1	ł	<1.0	ł	12	ł	1	ł	8	ł	<1	ł	10
1	1	;		;		ł		÷		ł		;		ł		÷		ł		ł		ł	
ATB-30	Reported	1	<5	;	60	ł	0.2	ł	<10	ł	<2	ł	4.5	ł	18	ł	<1	ł	<2	ł	<10	ł	860
1	QC	;	2	ł	125	ł	<0.1	ł	<2	ł	<1	;	1.0	ł	5	ł	<1	ł	3	ł	<1	;	820
1	}	1		ł		;		ł		ł		ł		ł		÷		ł		ł		ł	
ATB-33	Reported	ł	65	;	80	ł	1.0	ł	<10	;	<2	ł	<0.5	ł	730	;	2	ł	10	ł	<10	ł	10
-	QC	1	75	ł	75	;	0.7	ł	<2	;	1	ł	<1.0	ł	650	ł	<1	ł	6	ł	<1	ł	7

umple umber	Au (ppb)	Hg (ppb)	A1 (%)	Ag (ppm)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	K (%)	La (ppm)	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (ppm)	Pb (ppm)	Sb (ppm)	Sr (ppm)	Ti (%)	T1 (ppm)	U (ppm)
EB-01 EB-02%ጵ	40 <5	140	1.06 0.24	0.2	<10 20	50 20	<0.5 <0.5	<2 32	0.23 0.04	<0.5 0.5	13 24	218 68	491 118	4.20 7.72	<10 <10	0.02	<10 <10	0.39 0.06	174 40	4 796	0.04 <0.01	25 7	440	2	<10	9	<0.03	<10	<10
[B-02**	>10,000	63,000	0.24	>200.0	30	40	<0.5	28	6.24	>99.9	11	45	292	3.53	10	0.02	<10	0.02	425	22	<0.01	6	230	>9,999	50	<1	<0.01	<10	<10
CB-04***	1,050	1,400	0.03	4.4	10	<10	<0.5	2	9.00	7.0	1	159	16	0.47	20	<0.01	<10	0.01	729	4	<0.01	3	20	100	<10	<1	<0.01	<10	<10
CB-05	<5	350	1.21	1.0	10	410	<0.5	<2	1.71	2.5	15	73	94	3.80	10	0.48	20	1.47	1,002	16	0.01	47	510	34	<10	88	0.02	<10	<10
CB-06	2,750	9,000	0.12	>200.0	1,300	140	<0.5	<2	0.05	<0.5	1	103	89	2.90	<10	0.07	<10	0.01	32	7	<0.01	2	140	1,546	380	12	<0.01	<10	<10
B-07%	3,600	4,400	0.20	130.0	9,120	40	<0.5	22	0.02	<0.5	3	45	901	11.77	<10	0.19	<10	0.03	28	29	<0.01	1	410	>9,999	460	3	<0.01	<10	<10
CB-08%%	560	530	0.20	5.4	150	30	<0.5	<2	0.04	1.0	8	54	61	3.66	<10	0.18	<10	0.02	132	5	<0.01	10	460	178	<10	5	<0.01	<10	<10
B-09**	20	100	1.98	0.8	40	50	<0.5	2	0.28	<0.5	15	160	74	4.28	<10	0.06	<10	0.96	1,221	<1	0.03	43	520	110	<10	26	0.01	<10	<10
CB-10	320	130	0.60	1.6	1,250	20	<0.5	<2	0.17	<0.5	14	132	39	6.11	<10	0.34	<10	0.13	125	4	<0.01	27	810	62	<10	3	<0.01	<10	<10
B-11**	165	290	0.34	7.8	370	10	<0.5	4	0.02	0.5	10	237	196	4.62	<10	0.08	<10	0.03	249	6	<0.01	13	390	60	10	2	<0.01	<10	<10
B-12%%	<5	90	0.60	0.4	10	130	<0.5	2	0.24	<0.5	5	137	57	1.40	<10	0.13	<10	0.22	184	3	0.05	20	280	10	<10	50	0.08	<10	<10
B-13**	<5	60	0.46	0.2	20	<10	<0.5	<2	4.50	<0.5	24	486	16	1.55	10	<0.01	<10	2.72	496	<1	<0.01	413	100	16	<10	52	<0.01	<10	<10
B-14%* B-15	<5 <5	50 50	0.40 2.06	0.2	<10 10	<10 90	<0.5 <0.5	2 <2	0.08	<0.5 <0.5	5 18	296 38	7 97	0.79 5.46	<10 <10	<0.01 0.16	<10 10	0.47 1.82	174 653	<1 <1	0.01 0.02	22 13	140 930	8 12	<10 <10	1 13	0.02	<10 <10	<10 <10
			2100																										
8-16**	<5	50	0.69	0.2	30	10	<0.5	<2	0.10	<0.5	6	108	6	1.63	<10	0.01	<10	0.66	260	<1	<0.01	46	350	14	<10	6	<0.01	<10	<10
-17**	>10,000	340	0.96	96.0	110	<10	<0.5	10	4.00	1.5	16	403	15	2.13	10	<0.01	<10	1.52	558	<1	<0.01	196	220	3,716	<10	4	<0.01	<10	<10
-18	<5	70	0.25	0.2	<10	20	<0.5	<2	0.01	<0.5	2	38	20	0.76	<10	0.09	10	0.14	33	<1	<0.01	7	160	22	<10	4	<0.01	<10	<10
-19	40	60	0.28	0.4	<10	20	<0.5	2	<0.01	<0.5	1	37	10	0.67	<10	0.05	<10	0.11	36	<1	<0.01	4	120	14	<10	2	<0.01	<10	<10
-20	<5	60	0.28	0.2	<10	30	<0.5	<2	0.02	<0.5	2	43	18	1.71	<10	0.06	10	0.12	47	3	<0.01	8	440	12	<10	4	<0.01	<10	<10
-21	<5	50	1.36	0.4	<10	110	<0.5	<2	0.26	<0.5	6	80	69	4.84	<10	0.27	<10	0.85	549	<1	0.05	10	720	8	<10	30	0.33	<10	<10
-22	<5	50	0.96	0.4	10	40	<0.5	<2	0.14	<0.5	12	72	33	4.70	<10	0.26	<10	0.66	247	1	0.04	7	430	12	<10	9	0.26	<10	<10
-23	<5	80	1.45	0.4	<10	350	<0.5	<2	<0.01	0.5	4	43	332	11.49	<10	0.38	<10	0.19	53	<1	<0.01	11	540	12	<10	2	0.06	<10	<10
-24**	<5	60	0.38	0.2	10	100	<0.5	<2	0.01	<0.5	2	191	35	1.28	<10	0.14	10	0.02	28	2	<0.01	13	320	8	<10	18	<0.01	<10	<10
-25	<5	50	1.09	0.4	10	60	<0.5	<2	0.01	<0.5	5	122	61	1.74	<10	0.27	10	0.26	107	4	<0.01	12	320	10	<10	6	<0.01	<10	<10
-26	<5	60	0.54	0.6	<10	110	<0.5	<2	0.17	52.5	221	33	27	34.67	<10	0.10	10	0.16	6,354	<1	<0.01	270	2,450	<2	<10	17	<0.01	<10	10
·27	<5	40	0.29	0.4	20	100	<0.5	<2	22.30	1.5	8	3	7	0.41	40	0.13	<10	7.39	147	<1	<0.01	8	4,470	6	10	141	<0.01	<10	<10
-28	<5	40	0.45	0.2	<10	50	<0.5	2	0.06	<0.5	7	28	24	1.46	<10	0.11	<10	0.19	220	1	<0.01	11	330	10	<10	1	0.01	<10	<10
-29	10	50	0.84	0.6	10	50	<0.5	<2	0.12	<0.5	8	76	28	2.03	<10	0.10	<10	0.66	739	<1	<0.01	23	320	8	<10	4	<0.01	<10	<10
-30	<5	60	0.22	0.2	<10	90	<0.5	<2	0.14	4.5	14	86	18	38.33	<10	<0.01	<10	0.07	3,054	<1	<0.01	36	>9,999	<2	<10	29	<0.01	<10	<10
31	<5	30	0.01	0.6	20	100	<0.5	8	30.22	0.5	2	<1	9	0.12	60	<0.01	<10	0.14	19	2	<0.01	3	190	24	10	880	<0.01	<10	<10
-32	<5	40	0.12	0.2	<10	20	<0.5	<2	0.18	<0.5	1	34	13	0.65	<10	0.01	<10	0.03	116	<1	<0.01	4	310	6	<10	12	<0.01	<10	<10
-33	65	80	0.12	1.0	<10	10	<0.5	<2	0.10	<0.5	7	71	730	2.63	<10	0.05	<10	0.01	32	2	<0.01	3	210	10	<10	2	<0.01	<10	<10
34xxx	<5	40	0.65	0.4	60	10	<0.5	2	0.03	<0.5 0.5	29 15	766 116	26 133	1.66 6.71	<10 <10	<0.01 0.10	<10 <10	1.14 0.19	449 515	<1 4	<0.01 <0.01	359 12	100 240	12 12	<10 <10	2	<0.01 <0.01	<10 <10	<10 <10
35%%	<5	50	0.81	0.6	10	220	<0.5	<2	0.02	0.5	15	110	155	0.71	(10	0.10	(10	0.17	515	-	(0.01	12	240	12	(10	-	(0.01	(10	110
-36	<5	210	0.29	0.4	<10	40	<0.5	<2	0.02	0.5	3	33	44	5.38	<10	0.13	10	0.04	126	6	<0.01	10	1,240	10	<10	16	<0.01	<10	<10
-37%%	<5	50	0.33	0.2	10	40	<0.5	2	2.77	<0.5	5	20	18	0.95	10	0.07	<10	1.08	132	<1	<0.01	8	150	14	<10	8	<0.01	<10	<10
-38%	<5	40	0.41	0.4	10	30	<0.5	4	23.35	0.5	4	17	41	0.81	40	<0.01	<10	0.04	207	1	<0.01	10	370	14	10	116	0.08	<10	<10
-39	<5	40	1.12	0.4	<10	30	<0.5	<2	0.24	<0.5	4	22	7	2.51	<10	0.07	<10	0.89	361	1	0.01	4	380	8	<10	4	0.12	<10	<10

and indication of which results are semiquantitative and which are quantitative. \*\*\*Samples from mines and prospects listed in Table 1, Plate 1.



## **GMS-41**

Geology and Mineral Resources Map of the Elkhorn Peak Quadrangle, Baker County, Oregon By M.L. Ferns and others Plate 2

Funded in part by the USDA Forest Service and the U.S. Geological Survey (COGEOMAP)

v	W	Zn	Field
pm)	(ppm)	(ppm)	number
18	<10	20	EP-155
12	<10	20	EP-157
1	<10	>9,999	B-237
2	<10	70	B-243
86	<10	140	EP-177
68	<10	60	EP-151
15	<10	470	DA-11
35	<10	200	DA-02
72	<10	70	EP-131
30	<10	40	EP-110
50	10	40	51 110
21	<10	250	EP-112
27	<10	10	EP-113
17	<10	<10	EP-114
15	<10	<10	EP-108
72	<10	80	B-53
18	<10	10	EP-84
38	<10	310	EP-80
3	<10	10	B-75
2	<10	<10	B-59
3	<10	10	B-64
			<b>FR</b> 60
68	<10	30	EP-98
61	<10	10	EP-92
22	<10	70	EP-66
9	<10	30	EP-70
19	<10	40	EP-124
21	<10	3,670	EP-137
12	10	40	EP-172
9	<10	30	EP-133
22	<10	30	EP-165
23	<10	860	EP-96
4	10	<10	EP-26
4	<10	10	B-235
26	<10	10	EP-162
26	<10	10	EP-101
51	<10	110	EP-05
11	<10	70	EP-29
5	<10	10	EP-30
17	<10	20	EP-46
9	<10	30	EP-48