UNIVERSITY OF NEVADA RENO

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30 September 1983

NBMG OPEN-FILE REPORT 83-10

RESULTS OF GEOCHEMICAL SAMPLING WITHIN THE ELKO RESOURCE AREA, ELKO, EUREKA, LANDER COUNTIES, NEVADA (PORTIONS OF THE ELKO, McDERMITT, WELLS, AND WINNEMUCCA 2° SHEETS)

by Jo L. Bentz and J. V. Tingley

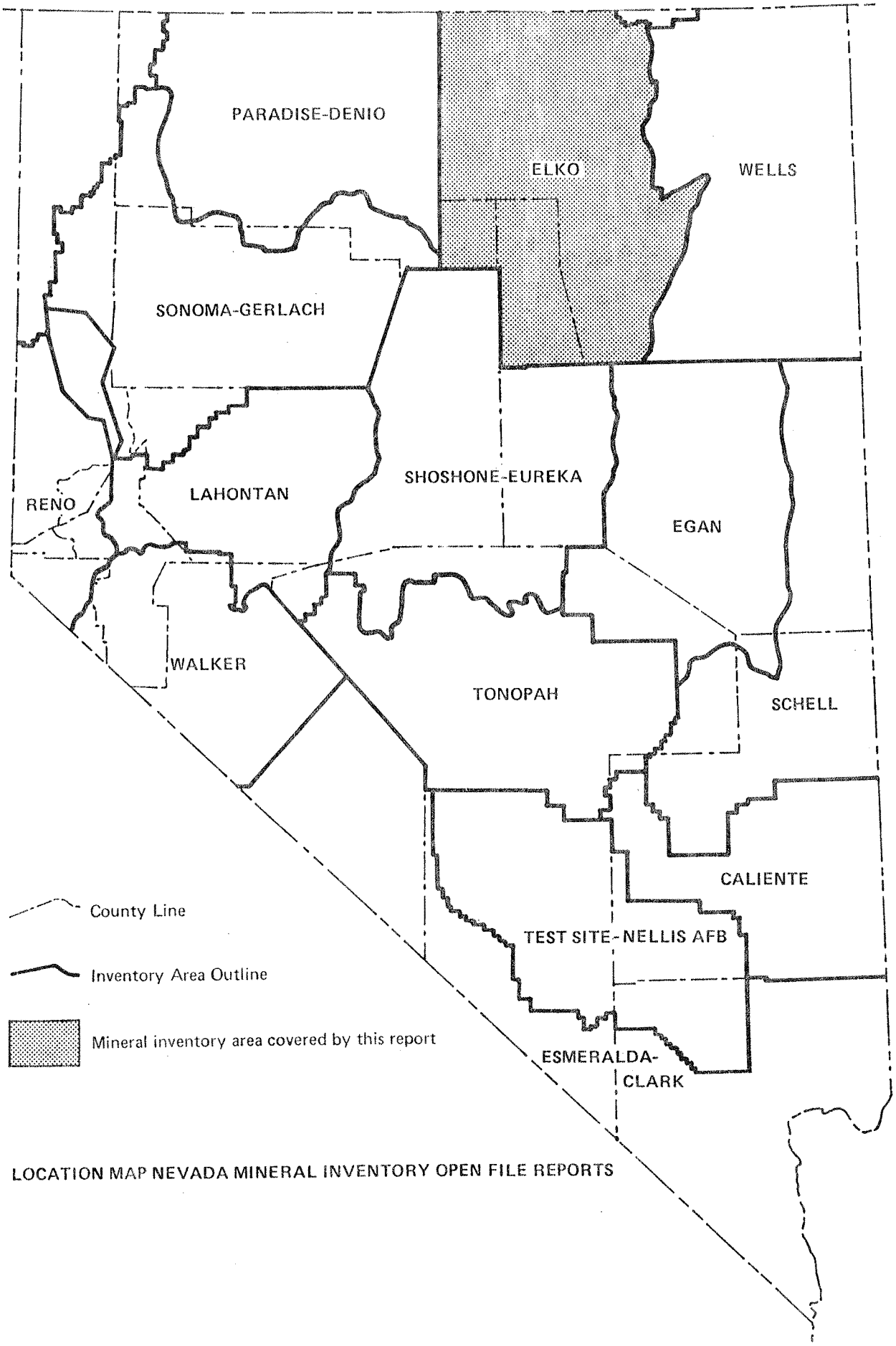
Samples collected by Nevada Bureau of Mines and Geology and analyzed by Branch of Exploration Research, United States Geological Survey, as part of the Mineral Inventory of the Elko Resource Area, under Bureau of Land Management Contract #YA-553-CT1-1058.

This information should be considered preliminary. It has not been edited or checked for completeness or accuracy.

See NBMG 83-9 for Inventory Report.

Photo Copy [redacted] analyses not complete. Will be added when received.

PURCHASE DATE: _____



LOCATION MAP NEVADA MINERAL INVENTORY OPEN FILE REPORTS

30 September 1983

Analysis complete except for:

#'s 654- 657
686- 688
1563-1569
1580-1595

Sheets with values for these samples will be added when they are received.

Sample Description

Sample Number	Location	Description
045	Quad: Franklin Lake SW 7 1/2' Sec: 18 T: 28N R: 58E UTM: 4463060 N 0629530 E Star Mine Harrison Pass District	Dump, grab. Garnet-epidote tactite from dump at adit on slope south of old camp.
046	Quad: Franklin Lake SW 7 1/2' Sec: 31? T: 29N R: 58E UTM: 4466960 N 0629080 E Valley View Group Harrison Pass District	Vein material, high-grade from dump, galena, sphalerite, CuOx, quartz.
047	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485480 N 0636950 E Battle Creek Mines Ruby Valley District	Dump, grab, white vein quartz with clots sphalerite, galena, some tremolite.
	Quad: Sec: T: R: UTM: N E	
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Sample Description

Sample Number	Location	Description
087	Quad: Jarbidge 15' Sec: 24 T: 45N R: 57E UTM: 4626470 N 0625500 E Batholith Mine Charleston District	Massive garnet tactite, banded along bedding, disseminated MoS_2, some pyrite.
088	Quad: Marys River Basin NW 7 1/2' Sec: 24 T: 44N R: 57E UTM: 4626480 N 0625490 E St. Elmo Mine Charleston District	Dump, vein material, quartz, pyrite, galena(?), arsenopyrite(?).
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
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	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
130A	Quad: Rodeo Creek NE 7 1/2' Sec: 14(?) T: 35N R: 50E UTM: 4528550 N 0556750 E Carlin Gold Mine Lynn District	Black carbonaceous ore (lower plate) with fracture coatings & veins (≈2 mm wide) of crystalline barite & calci Rock is silty. Collected from flagge ore pile in main open pit.
130B	Quad: Rodeo Creek NE 7 1/2' Sec: 14 T: 35N R: 50E UTM: 4528550 N 0556750 E Carlin Gold Mine Lynn District	Muddy, silty brown limestone with calcite & barite veins & oxidized lens of Fe-Ox gouge with black crystalline calcite. Collected from main open pit.
131A	Quad: Rodeo Creek NE 7 1/2' Sec: 4 T: 35N R: 50E UTM: 4532440 N 0533680 E Blue Star Mine Lynn District	Grey limey siltstone(transition group) with irregular veins & replacement po of malachite & chrysocolla. Also some clots of FeOxs.
131B	Quad: Rodeo Creek NE 7 1/2' Sec: 4 T: 35N R: 50E UTM: 4532440 N 0533680 E Blue Star Mine Lynn District	Grey-brown limey siltstone with green (arsenate?) coatings & opaline veinlet & coatings. Most of sample is from oxidized fissures of Fe-stained calci & clay.
132	Quad: Rodeo Creek NE 7 1/2' Sec: 10? T: 35N R: 50E UTM: 4530350 N 0555580 E Bullion - Monarch Mine Lynn District	Sample taken from hydrothermally altered fault zone adjacent to outline ore body. Rock is argillized & altered to Fe-Oxs & clay.
133	Quad: Schroeder Mtn. 7 1/2' Sec: 34? T: 34N R: 51E UTM: 4515200 N 0565750 E Maggie Creek Open Pit Mine Maggie Creek District	Altered, oxidized siltstone, limey siltstone & chert (upper plate) with calcite & barite veins & pods. Most of sample is from oxidized vertical fissure within open pit. FeOxs abundar *(see below)
134	Quad: Mineral Hill 15' Sec: 3 T: 26N R: 52E UTM: 4445200 N 0577200 E Mineral Hill Mine Mineral Hill District	Massive, milky white quartz vein & qu replaced limestone with clots of galer pyrite & fracture coatings & masses o malachite & azurite. Some yellowgreen ~~oxide ($FePO_4$?) & MnOx on quartz vein~~ also.
135	Quad: Mineral Hill 15' Sec: 10 T: 26N R: 52E UTM: 4444350 N 0577300 E Sample location 135 Mineral Hill District	Blue-grey, muddy siltstone, brecciate phyllitic in part. Some FeOxs & pods of white opaline silica. Sample take from 2' wide zone exposed in trench.
136	Quad: Scraper Springs 7 1/2' Sec: 3 T: 40N R: 47E UTM: 4579400 N 0528920 E Zun Claims Burner Hills District	Zunyite vein containing small specks Fe-Oxs which are concentrated on vein selvages. Small amount altered wallr (rhyolite) attached to vein.
	(Scraper Springs area)	* Some sulfides(?), jarosite(?) & unusua yellow, orange & pink oxides are pres in part of sample.

Sample Description

Sample Number	Location	Description
137A	Quad: Burner Hill 7 1/2' Sec: 4 T: 40N R: 47E UTM: 4582180 N 0528280 E Willow Claims Scrapper Sps Area Burner Hills District	A) Fe-Mn ore forming vuggy (cavity filling?) & boxwork masses.
137B	Quad: Burner Hills 7 1/2' Sec: 4 T: 40N R: 47E UTM: 4582180 N 0528280 E Willow Claims Scrapper Sps Area. Burner Hills District	B) Quartz vein in red chert, sheared appearance, milky white to vitreous, forming mottled (impure) veins 2" to 1/8" wide. Contains some oxidized pyrite.
138	Quad: Burner Hill 7 1/2' Sec: Unsurv. T: 41N R: 47E UTM: 4587920 N 0528800 E Sample location 138 & 139 Burner Hill District	Quartz vein & veinlets in grey siliceous, shaley siltstone & fine-grained quartzite. Quartz veinlets are open centered, fissure type. Cockade quartz cements silicified breccia fragments of host. Some FeOxs also.
	Quad: Sec: T: R: UTM: N E	
139	Quad: Burner Hills 7 1/2' Sec: Unsurv. T: 41N R: 47E UTM: 4587990 N 0528590 E Sample location 138 & 139 Burner Hills District	Milky white to vitreous crystalline quartz vein cementing breccia fragmen of black shale or fine-grained siltstone. Quartz veinlets also crosscut breccia frags & contain FeOx coated open spaces or vugs. Several "zones" of brecciation occur within breccia & quartz veins are crosscut by secondary veinlets & fractures.
	Quad: Sec: T: R: UTM: N E	
140	Quad: Burner Hills 7 1/2' Sec: 13? T: 41N R: 47E UTM: 4589200 N 0528830 E Silver Coin Prospect Burner Hills District	Pyrite-bearing, conglomeritic sandsto & propylitized intrusive (?) andesite Some heavily limonitic-stained fractures. Pyrite occurs as discrete med-grained cubes.
141	Quad: Burner Hills 7 1/2' Sec: Unsurv. T: 41N R: 47E UTM: 4589050 N 0529250 E Silver Queen claim group Burner Hills District	Sugary to glassy quartz vein & quartz cemented breccia with shale/siltstone conglomerate fragments. Some vein material is sheared or forms vuggy masses with pyrite in addition to FeOxs.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
142	Quad: Burner Hills 7 1/2' Sec: Unsurv. T: 41N R: 47E UTM: 4589980 N 0529290 E (Near) Mint Mine Burner Hills District	Light-green, altered (kaolinized) andesite, some breccia recemented with pyrite & fine-grained sulfides. Also unoxidized pyrite disseminated i andesite host. Abundant Fe-Mn oxs & fine, FeOx filled fractures.
	Quad: Sec: T: R: UTM: N E	
143	Quad: Burner Hills 7 1/2' Sec: Unsurv. T: 41N R: 47E UTM: 4590050 N 0529240 E Mint Mine Burner Hills District	Coarsely crystalline pyrite, galena, sphalerite, & chalcopyrite ore in a gangue of white to clear grey quartz, mostly occurring as breccia fragments within the quartz vein or as irregula masses within vein. Some gossany vugs in veins indication oxidation.
	Quad: Sec: T: R: UTM: N E	
144	Quad: Midas 7 1/2' Sec: 34 T: 39N R: 46E UTM: 4562820 N 0519400 E Esmeralda Mine Gold Circle District	Altered rhyolite(?)porphyry, grey in color with ovoid-shaped vesicles filled with quartz. Also some white calcite cemented breccia. Rocks are Fe-stained & contain some pyrite & dark siliceous veinlets.
	Quad: Sec: T: R: UTM: N E	
145	Quad: Midas 7 1/2' Sec: 27 T: 39N R: 46E UTM: 4563360 N 0519360 E Acme Group Gold Circle District	Altered, rhyolite with vescicles filled with purple quartz, some FeOxs after sulfides, brecciation & siliceo stockwork veinlets.
146	Quad: Midas 7 1/2' Sec: 21 T: 39N R: 46E UTM: 4565700 N 0518640 E Colorado Grande & Rex Mine Gold Circle District	Fine-grained, light grey rhyolite(?) or andesite(?) occur as frags in a silica-FeOx-gossan cemented breccia.
147	Quad: Midas 7 1/2' Sec: 21 T: 39N R: 46E UTM: 4565420 N 0518050 E Link Mine, St. Paul Mine Gold Circle District	Silicified breccia with altered volcanic frags & clots of pyrite & other sulfides (including arsenopyrit in a siliceous grey matrix, also some intermediate volcanic with ghosts & FeOxs after pyrite.

Sample Description

Sample Number	Location	Description
148	Quad: Midas 7 1/2' Sec: 21 T: 39N R: 46E UTM: 4565300 N 0517690 E Midas Mine Gold Circle District	Brecciated & fractured, bleached white rhyolite. Breccia & fracture zones filled & cemented by abundant FeOxs & some gossan after sulfides.
149	Quad: Midas 7 1/2' Sec: 21 T: 39N R: 46E UTM: 4564900 N 0517760 E Jackson Mine Gold Circle District	Bleached white, altered volcanic (rhyolite? andesite?) with stockworking of grey silica veinlets. Wider quartz veins (open centers) filled with FeOxs. Some quartz after
	Quad: Sec: T: R: UTM: N E	calcite(?) cementing open-spaced breccia. Pyrite ghosts in volcanic host & in vein material.
150	Quad: Carlin 15' Sec: 24 T: 32N R: 52E UTM: 4499460 N 0578650 E Deerhead Group Carlin District	Grey-green to brown shaley siltstone, fractured & brecciated. Breccia contains abundant FeOxs & crystalline barite in matrix. Fractured rock is coated with yellow oxides. (possibly
	Quad: Sec: T: R: UTM: N E	carnotite?)
151	Quad: Carlin 15' Sec: 27 T: 32N R: 52E UTM: 4497400 N 0575000 E Black Kettle Prospect Carlin District	Fine-grained, light-green, quartzite breccia cemented by vuggy FeOxs. Breccia contains strange, pink-orange colored aggregates of crystals(possib a uranium? mineral).
152	Quad: Carlin 15' Sec: 34 T: 32N R: 52E UTM: 4496750 N 0574700 E Black Kettle Claims Carlin District	Light-red, silty limestone breccia. Breccia is cemented by FeOxs, crystal line calcite & possibly some barite. Fragments show FeOx veinlets & brecci contains some open spaces.
153	Quad: Carlin 15' Sec: 34 T: 32N R: 51E UTM: 4496250 N 0565250 E Lyn #1 Claim Safford District	Purple-brown andesite (?), fine-grain with mafic? phenocrysts. Rock contai fracture coatings & irregular pods (vescicle fillings?) & lenses of dark green malachite & some chrysocolla.
	Quad: Sec: T: R: UTM: N E	Also some clots calcite & crystals of pyrite.

Sample Description

Sample Number	Location	Description
154	Quad: Scraper Springs 7 1/2' Sec: 7 T: 39N R: 47E UTM: 4568640 N 0523580 E Red Arrow Claims Gold Circle District	Hydrothermally altered rhyolite with quartz & sandine phenocrysts. Sample contains siliceous veining & opaline vug fillings & veins. Opaline material contains cinnabar. Also some marcasite.
	Quad: Sec: T: R: UTM: N E	
155 A	Quad: Scraper Springs 7 1/2' Sec: 13 T: 39N R: 46E UTM: 4567550 N 0523280 E Eastern Star Mine Gold Circle District	General Rock Description: Chalcedonic, banded fissure veins cutting silicified hydrothermal brecc Grey vein material possibly contains ceragerite or argentite, also possibl free gold . Breccia frags & matrix contain sulfides, most abundant is pyrite.
	Quad: Sec: T: R: UTM: N E	A) Fissure vein (quartz)
155B	Quad: Scraper Springs 7 1/2' Sec: 13 T: 39N R: 46E UTM: 4567550 N 0523280 E Eastern Star Mine Gold Circle District	B) Breccia with vein(quartz)
156	Quad: Mineral Hill 15' Sec: 14 T: 27N R: 52E UTM: 4452250 N 0579550 E Bruffeys Hot Spring Mineral Hill District	Silicified limestone? breccia, grey color, frags are small & banded & contained in opaline-type matrix. Breccia is cut by fine silica veinlet & contains lenses & coatings of light brown mineral, possibly barite or fluorite. May also contain cinnabar.
	Quad: Sec: T: R: UTM: N E	
157	Quad: Mineral Hill 15' Sec: 31 T: 27N R: 53E UTM: 4448400 N 0581750 E EE Claims Union District	Grey, silicified, dark grey, recrystallized dolomite & dolomite breccia wit some FeOxs. Rocks are cut by white crystalline barite veins. Breccia is cemented by barite also.
158	Quad: Mineral Hill 15' Sec: 7 T: 26N R: 53E UTM: 4444900 N 0581990 E Red Hills Claims Union District	Silicified, silty limestone or limest breccia, grey color. Breccia cemente & veined by FeOxs & barite. Also contains some crystals of pyrite. Some unusual yellow oxides may be after arsenic or Ag minerals.

Sample Description

Sample Number	Location	Description
159	Quad: Mineral Hill 15' Sec: 8 T: 27N R: 53E UTM: 4454450 N 0584500 E Hot Tuna #1 Claims Union District	Siliceous, hematitic gossan, yellow-brown, jaspery, some brecciated sampl Rock shows abundant limonite & radiat goethite crystals. Some barite cryst in vugs.
160	Quad: Robinson Mtn. 15' Sec: 16 T: 28N R: 53E UTM: 4462500 N 0585990 E Sam, Pat & Mic Claims Larrabee District	Brecciated, Fe-stained dolomite with botryoidal clots & vug fillings of azurite & malachite. Some Fe-Cu filled veinlets in random orientation
161	Quad: Robinson Mtn. 15' Sec: 34 T: 29N R: 53E UTM: 4467050 N 0586750 E Jak Claims Robinson Mtn. District	Grey-white, altered rhyolite intrusiv with ghosts & clots of oxidized sulfides?, now composed of Fe-Mn oxs.
162	Quad: Pine Valley 15' Sec: 20 T: 30N R: 53E UTM: 4480050 N 0583050 E Irene Claims Robinson Mtn. District	Barite vein. Mostly white barite with Fe-stained fractures but also include med.-grey barite with abundant sulfid mostly pyrite. Small amount gossan.
163A	Quad: Robinson Mtn. 15' Sec: 11 T: 29N R: 53E UTM: 4474250 N 0588025 E Dixie & Snow White Claims Robinson Mtn. District	Barite vein in Diamond Peak Fm.
163B	Quad: Robinson Mtn. 15' Sec: 2 T: 29N R: 53E UTM: 4474250 N 0588025 E Dixie & Snow White Claims Robinson Mtn. District	Fractured, hematitic-limonitic gossan with scattered crystals of barite.
164	Quad: Carlin 15' Sec: 9 T: 31N R: 51E UTM: 4492050 N 0564440 E Lost Claims Safford District	Altered andesite with clots, fracture coatings & veinlets of malachite, azurite, chalcopyrite, pyrite & bornite.
165	Quad: Carlin 15' Sec: 9 T: 31N R: 51E UTM: 4492450 N 0565200 E Humbolt Safford District	Sample is a mixture of altered andesi andesite breccia & calcite vein with clots malachite, bornite & oxidized pyrite. Also some quartz boxworks after calcite.
166	Quad: Beowawe 15' Sec: 18 T: 31N R: 51E UTM: 4491050 N 0561600 E Mastiff Claims Safford District	Highly altered, gossany andesite with clots & veins of white calcite. Rock possibly contains some oxidized pyrit Sample from altered zone in trench.

Sample Description

Sample Number	Location	Description
167	Quad: Beowawe 15' Sec: 17 T: 31N R: 51E UTM: 4490825 N 0563010 E Onondaga Mine Safford District	Gossan & silicified andesite breccia. Breccia is cemented with silica, Fe, calcite, barite & sulfides (mostly pyrite), including galena. Some altered green volcanic clasts in breccia also contain fine sulfides.
	Quad: Sec: T: R: UTM: N E	
168A	Quad: Carlin 15' Sec: 33/34 T: 31N R: 53E UTM: 4486700 N 0583150 E Bald Mountain Chief Railroad District	Hematitic & limonitic gossan & gossan cemented fine-pebble conglomerate with minor Cu-staining.
168B	Quad: Carlin 15' Sec: 33/34 T: 31N R: 53E UTM: 4486700 N 0583150 E Bald Mountain Chief Railroad District	Clay gouge with irregular clots of light blue turquoise. Also some fluorite noted.
169A	Quad: Carlin 15' Sec: 4 T: 30N R: 53E UTM: 4485650 N 0583300 E Blue Belle Mine Railroad District	White, vuggy quartz vein containing mineralized clots of galena, pyrite, bornite, chalcopyrite, CuOxs & Fe boxworks. Also altered wallrock(sed? Is?) replaced by similar suite of sulfides.
	Quad: Sec: T: R: UTM: N E	
169B	Quad: Carlin 15' Sec: 4 T: 30N R: 53E UTM: 4485650 N 0583300 E Blue Belle Mine Railroad District	Light blue-green limestone skarn with abundant malachite & clots & coatings of Fe after pyrite.
170	Quad: Carlin 15' Sec: 35 T: 30N R: 52E UTM: 4486850 N 0578850 E Pine Mountain Barite Railroad District	Oxidized clay gouge from fault zone. Material is extremely altered, bleach & limonite & hematite stained. Host is limestone & shale. Chip sample is taken from a 3' lateral horizon within fault zone.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
171	Quad: Carlin 15' Sec: 9 T: 30N R: 53E UTM: 4483750 N 0583175 E Sample location 171 & 172 Railroad District	Siliceous limonitic gossan & altered ls containing malachite, hemimorphite (minor) galena & cerrussite in irregular lenses & pods. Also some calcite vein material.
172	Quad: Carlin 15' Sec: 9 T: 30N R: 53E UTM: 4483800 N 0583200 E Sample location 171 & 172 Railroad District	Vitreous clear to grey, crystalline quartz vein with scattered vugs & gossany portions. Quartz vein contai pods of finely crystalline pyrite, chalcopyrite, galena, Cu Oxs, & possibly sphalerite & arsenopyrite. Unidentified mustard yellow oxide associated with gossan. (Possibly Sb?) Vein has sheared appearance.
	Quad: Sec: T: R: UTM: N E	
173	Quad: Carlin 15' Sec: 9 T: 30N R: 53E UTM: 4483900 N 0582900 E Grey Eagle Mine Railroad District	Garnet(red & green)-epidote-quartz-calcite skarn with minor flecks of scheelite observed when lamped.
174	Quad: Carlin 15' Sec: 9 T: 30N R: 53E UTM: 4484125 N 0583000 E Grey Eagle Mine Railroad District	Dense, fine-grained skarn ore containing abundant pods & lenses of pyrite, chalcopyrite, arsenopyrite & bornite. Also coarse greenish calcite with pod of sulfides. Rock contains small flec scheelite.
	Quad: Sec: T: R: UTM: N E	
175	Quad: Crescent Valley 15' Sec: 11 T: 29N R: 48E UTM: 4472150 N 0541100 E Hot Springs Point Beowawe District	Sample is from drill cuttings consist of dark grey, fine quartzite or chert with unoxidized pyrite on fracture surfaces & disseminated throughout rock. Some red oxides possibly after Hg.
	Quad: Sec: T: R: UTM: N E	
176	Quad: Beowawe 15' Sec: 6 T: 31N R: 49E UTM: 4492425 N 0542400 E Red Devil Mine Beowawe District	White, fine-grained quartzite & quart pebble conglomerate with fractures, joints & pore spaces filled with probable mercury mineral. Rock is silicified (or opalized) & shows some orange & yellow oxides probably after Fe.

Sample Description

Sample Number	Location	Description
177	Quad: Beowawe 15' Sec: 34 T: 32N R: 49E UTM: 4494250 N 0547375 E Bu Claims Beowawe District	Breccia containing small, angular fragments of chert & coarse-crystallin white barite. Barite, quartz & iron oxides cement breccia.
178	Quad: Beowawe 15' Sec: 34 T: 31N R: 50E UTM: 4485900 N 0557575 E Sample location 178 Safford District	Fine-grained, greenish-grey, altered andesite with some fine siliceous veining & abundant malachite & azurite along veins & fractures & pervading rock.
179A	Quad: Coal Mine Basin 7 1/2' Sec: 18 T: 38N R: 56E UTM: 4559080 N 0608360 E Garamendi Mine Coal Mine District	Dark-grey, fine-grained, silicified quartzite with gossany portions & vug Possibly contains minor fine-grained pyrite.
179B	Quad: Coal Mine Basin 7 1/2' Sec: 18 T: 38N R: 56E UTM: 4559080 N 0608360 E Garamendi Mine Coal Mine District	Sample consists of highly altered & bleached, punky white rock from clay altered gouge zone. Moderate amount of FeOxs.
180A	Quad: Coal Mine Basin 7 1/2' Sec: 19 T: 38N R: 56E UTM: 4559975 N 0608910 E Coal Canyon Mine Coal Mine District	Siliceous hematitic gossan with some botyoidal & boxwork structures. Also gossany breccia with possible fi sulfide minerals developed on fractur surfaces & in gossan. Rock very dens & may contain some barite. (Lee Hsu identified tiny crystals in vugs of gossan as barite).
	Quad: Sec: T: R: UTM: N E	
180B	Quad: Coal Mine Basin 7 1/2' Sec: 19 T: 38N R: 56E UTM: 4559975 N 0608910 E Coal Canyon Mine Coal Mine District	Silicified sedimentary breccia & fine crystalline grey quartz breccia. Sample was taken from silicified "jasperoid" rib outcroppping NW of Coal Canyon Mine trench.
181	Quad: Reed Station 7 1/2' Sec: 25 T: 38N R: 53E UTM: 4456580 N 0586900 E LAJ Claims Merrimac District	Limonitic gossan & altered, mottled ls. No obvious mineralization.
182	Quad: Reed Station 7 1/2' Sec: 35 T: 38N R: 53E UTM: 4555220 N 0585210 E Sample location 182 Merrimac District	Altered, Fe-stained, punky & gossany limestone containing replacement pods of galena with yellowish rims of anglesite.

Sample Description

Sample Number	Location	Description
183	Quad: Reed Station 7 1/2' Sec: 34 T: 38N R: 53E UTM: 4555065 N 0584780 E Monarch Mine Merrimac District	Dark grey ls & ls breccia with disseminated, unoxidized pyrite. Breccia is cemented by FeOxs & gossan. Some galena & hemimorphite in vugs & calcite veins.
184A	Quad: Singletree Creek 7 1/2' Sec: 3 T: 37N R: 53E UTM: 4552380 N 0583950 E Rip Van Winkle Mine Merrimac District	Bleached, argillized rhyo-dacitic volcanic rock with some lithic frags & fine siliceous veining. FeOxs are pervasive throughout sample.
184B	Quad: Singletree Creek 7 1/2' Sec: 3 T: 37N R: 53E UTM: 4552380 N 0583950 E Rip Van Winkle Mine Merrimac District	Brecciated, silicified & more highly altered volcanic rock. Also breccia containing fine pebble fragments of black siliceous sediments cemented by silica & gossany FeOxs.
185	Quad: Singletree Creek 7 1/2' Sec: 13 T: 37N R: 53E UTM: 4549680 N 0587260 E Magnetite Claims Merrimac District	Magnetite ore, mostly massive with some limonitic & gossany lenses & vugs. Ore contains crypto crystalline pods & coatings of malachite. Ore occurs within skarn & shows abundant blebs of quartz & FeOxs.
	Quad: Sec: T: R: UTM: N E	
186	Quad: Singletree Creek 7 1/2' Sec: 11 T: 37N R: 53E UTM: 4551640 N 0585970 E Sample location 186 Merrimac District	Most of sample consists of milky white quartz vein with abundant inclusions of gossan, chalcopyrite, pyrite, possibly tetrahedrite, & coatings of CuOxs. Part of sample is composed of limonitic gossan with cavities filled with hemimorphite.
	Quad: Sec: T: R: UTM: N E	
187	Quad: Singletree Creek 7 1/2' Sec: 14 T: 37N R: 53E UTM: 4550390 N 0586530 E Al Jo Claims Merrimac District	Dense, light green skarn with abundant malachite throughout & some scattered clots of oxidized pyrite & possibly other sulfides. Part of sample is cut by fine-grained igneous dike.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
188	Quad: Singletree Creek 7 1/2' Sec: 12 T: 37N R: 53E UTM: 4552100 N 0587440 E IM Claims Merrimac District	Bleached & Fe-stained quartz porphyry Rock is cut by vuggy, Fe-stained quartz veins & shows CuOxs on fractur surfaces. Oxidized pyrite occurs in clots. Much of sample is altered to sericite. Sb oxs reported but not observed in sample.
	Quad: Sec: T: R: UTM: N E	
189A	Quad: Reed Station 7 1/2' Sec: 36 T: 38N R: 53E UTM: 4554015 N 0586650 E Little J.W. Claims Merrimac District	Limonite & Manganese gossan, punky & banded in appearance. Some boxworks & small amount CuOxs.
189B	Quad: Reed Station 7 1/2' Sec: 36 T: 38N R: 53E UTM: 4554015 N 0586650 E Little J.W. Claims Merrimac District	Coarse white calcite vein & gossan. Also mineralized skarn with abundant CuOxs & sulfides & vug fillings of hemimorphite. Some sericite occurs on calcite vein selvages.
190	Quad: Reed Station 7 1/2' Sec: 36 T: 38N R: 53E UTM: 4554620 N 0587630 E Lone Wolf Mine Merrimac District	Dense, silicated, grey-green skarn. Rock contains clots of pyrite & chalcopyrite associated with CuOxs. Some siliceous & calcite veining & coarse pods of mica, garnet & epidote
	Quad: Sec: T: R: UTM: N E	One fleck scheelite noted when lamped
191A	Quad: Singletree Creek 7 1/2' Sec: 11 T: 37N R: 53E UTM: 4551120 N 0585640 E Lone Mountain Mine Merrimac District	Fe & Mn stained magnetite ore with vugs & fractures filled with malachit & chrysocolla. Vugs are gossany.
191B	Quad: Singletree Creek 7 1/2' Sec: 11 T: 37N R: 53E UTM: 4551120 N 0585640 E Lone Mountain Mine Merrimac District	Dense, silicated ls?. Light green color. Weak skarn. No obvious W mineralization when lamped.
192	Quad: Tuscarora 15' Sec: 3 T: 39N R: 51E UTM: 4573150 N 0564250 E Wakefield Group Tuscarora District	Propylitiized to bleached andesitic intrusive (?) with Fe-stained siliceo veinlets & vuggy quartz veins up to 1/2" in width. Most of sample contai unoxidized, fine grained pyrite in discrete euhderal crystals. Also som calcite vein.

Sample Description

Sample Number	Location	Description
193	Quad: Tuscarora 15' Sec: 4 T: 39N R: 51E UTM: 4572500 N 0562900 E Modoc Claims Tuscarora District	Translucent quartz vein, Fe-stained & vuggy, cutting altered andesitic volcanic(?). Some brecciation of vein material. Also some gossany portions (in host rock). Quartz vein shows "fish scale" structure & may be after calcite.
	Quad: Sec: T: R: UTM: N E	
194A	Quad: Mt. Blitzen 15' Sec: 7 T: 39N R: 51E UTM: 4571250 N 0559190 E Berry Creek Group Tuscarora District	Bleached, kaolinized andesite(?), heavily Fe-stained. Sample taken fro high-angle altered zone within open cut. Some Fe boxworks & possibly Hg mins.
194B	Quad: Mt. Blitzen 15' Sec: 7 T: 39N R: 51E UTM: 4571250 N 0559190 E Berry Creek Group Tuscarora District	Orange, silicified, andesite(?) breccia. Breccia is cemented by dark silica & crystalline cinnabar. Rebrecciation is evident & cinnabar also occurs in some of the altered frags & siliceous veins cutting frags.
	Quad: Sec: T: R: UTM: N E	
195	Quad: Mt. Blitzen 15' Sec: 8 T: 39N R: 51E UTM: 4571700 N 0562100 E Tuscarora District Great Eastern Lode Claims	Chalky white, argillized andesite(? possibly a rhyolite). Rock is cut by network of fine siliceous veining, is in part brecciated & contains abundan irregular clots of unoxidized pyrite and possibly arsenopyrite.
	Quad: Sec: T: R: UTM: N E	
196	Quad: Tuscarora 15' Sec: 34, 35 T: 40N R: 51E UTM: 4574200 N 0565450 E Grand Prize Mine Tuscarora District	Light green, propylitized(?) andesit with abundant clots & discrete crysta of pyrite disseminated throughout. Vuggy, Fe-stained, banded fissure veins of quartz cut a few samples.
197	Quad: Tuscarora 15' Sec: 35 T: 40N R: 51E UTM: 4575050 N 0565700 E Redrock Claims Tuscarora District	Bleached & heavily Fe-stained andesit intrusive(?). Feldspars altered to clays & chlorite but biotite appears relatively fresh. No obvious mineralization.

Sample Description

Sample Number	Location	Description
198	Quad: Tuscarora 15' Sec: 34 T: 40N R: 51E UTM: 4574600 N 0564050 E Commonwealth Mine Tuscarora District	Light green, altered (propylitized) andesite. Some calcite or quartz filled fractures with pyrite or pyrite scattered throughout rock. Rock coated by FeOxs. Possibly some hemimorphite also.
	Quad: Sec: T: R: UTM: N E	
199	Quad: Tuscarora 15' Sec: 34 T: 40N R: 51E UTM: 4574050 N 0564400 E North Belle Isle, Navajo MIne Tuscarora District	Light green, fine-grained, altered andesite with fractures filled with fine to coarse pyrite crystals. Calcite vein material & minor breccia zones cutting rock also contain pyrite
200	Quad: Mt. Blitzen 15' Sec: 7 T: 39N R: 51E UTM: 4571750 N 0560260 E Suprise Fraction Tuscarora District	Bleached, argillized rhyolitic(?) extrusive rock. Rock is brecciated along narrow zones, Fe-stained & cut by network of very fine quartz veinlet Some fine, oxidized pyrite & purple oxides which may represent Hg.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
257	Quad: Franklin Lake SW 7 1/2 ' Sec: 18 T: 28N R: 58E UTM: 4463150 N 0629570 E Star Mine Harrison Pass District	Dump, grab. (not analysed).
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
398	Quad: Battle Mtn. 15' Sec: 35 T: 32N R: 46E UTM: 4494850 N 0519125 E (Sample location 398) Lombardi Argenta District	Hydrothermal vein (FeOxs, clays) material from barite pit.
399	Quad: Cresent Valley 15' Sec: 11 T: 29N R: 48E UTM: 4472230 N 0541080 E Hot Springs Point Beowawe District	Hydrothermally altered volcanic with sulfur. Rock is altered to a mixture of silica, clays, Fe & MnOxs. Original texture is thoroughly obliterated. Rock is now leached, bleached & punky in texture.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
464	Quad: Lee 15' Sec: 34 T: 32N R: 56E UTM: 4496400 N 0614150 E Opal & Opal Annex Lee District	Grey, glassy vitrophyre. Some clays & calcite on weathered surfaces. Sample taken from radioactive area which measured 1000 c.p.s.
465	Quad: Lamoille 15' Sec: 33 T: 31N R: 58E UTM: 4487150 N 0631900 E American Beauty Mine Lee District	Vitreous grey to white, crystalline quartz vein with irregular lenses & pods of galena, sphalerite & a grey sulfide or sulfosalt not identified.
466	Quad: Izenhood Gap 7 1/2' Sec: 26 T: 36N R: 45E UTM: 4534720 N 0511760 E Izenhood Tin Izenhood District	Rhyolite porphyry with fracture fillings of intergrown specularite & wood tin (concentric cassiterite). A few small sprays of purple fluorite also noted.
467	Quad: Willow Creek Reservoir 7 1/2' Sec: 17 T: 38N R: 48E UTM: 4557820 N 0534940 E Rimrock Mine Ivanhoe District	Opalite & volcanic breccia containing irregular lenses & pods of cinnabar. Many chalcedony cavity fillings.
468	Quad: Willow Creek Reservoir 7 1/2' Sec: 25 T: 38N R: 47E UTM: 4554220 N 0532580 E Fox Mine Ivanhoe District	Grey & white banded or marly opal wit abundant cinnabar dispersed throughou
469	Quad: Squaw Valley Ranch 7 1/2' Sec: 35 T: 38N R: 47E UTM: 4553175 N 0531140 E Coleman Group Ivanhoe District	Opalite & opalized rhyolite containin abundant cinnabar in lenses & stringe
470	Quad: Willow Creek Reservoir SE 7 1/2' Sec: 32 T: 38N R: 48E UTM: 4552175 N 0536040 E Butte Mine Et. Al. Ivanhoe District	Cinnabar-rich opalite ore.
471	Quad: Oregon Canyon 7 1/2' Sec: 4 T: 39N R: 46E UTM: 4569980 N 0517620 E Sample location 471 & 472 Gold Circle District	Sample is described as silicified ash bed. Rock is Fe-stained & wholly composed of opaline to finely crystalline quartz which has replaced volcanic. Minor pyrite observed.
472	Quad: Oregon Canyon 7 1/2' Sec: 4 T: 39N R: 46E UTM: 4569980 N 0517620 E Sample locations 471 & 472 Gold Circle District	Orange-pink, clay-altered volcanic? & Fe-rich gossany breccia. Breccia contains many small vug fillings of white opaline silica.

Sample Description

Sample Number	Location	Description
473	Quad: Oregon Canyon 7 1/2' Sec: Unsurveyed T: 39N R: 46E UTM: 4568080 N 0516160 E Fairview Claims Gold Circle District	Altered andesitic(?) volcanic & Fe-stained, brecciated, cavernous (solution riddled?) quartz vein material.
474	Quad: Oregon Canyon 7 1/2' Sec: 16? T: 39N R: 46E UTM: 4567810 N 0517220 E Miners Gold Mine Gold Circle District	Siliciified & pyritized fine-grained volcanic rock. Some fine andesitic breccia also. Unoxidized, fine-grained pyrite disseminated throughout rock.
475	Quad: Oregon Canyon 7 1/2' Sec: 16? T: 39N R: 46E UTM: 4567020 N 0518200 E (Near) June Bell Mine Gold Circle District	Silicified & Fe-stained volcanic & fine volcanic breccia with fine-grain pyrite. Also vitreous grey-white quartz vein (some brecciated) & quartz veinlets.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
503	Quad: Dixie Flat 15' Sec: 36 T: 32N R: 53E UTM: 4496400 N 0588225 E Evans Mine Carlin District	Barite vein in dolomite.
504	Quad: Sherman Mtn. 15' Sec: 10 T: 26N R: 57E UTM: 4444700 N 0625500 E Judy Claims Cave Creek District	Barite vein in dolomite.
505	Quad: Mineral Hill 15' Sec: 20 T: 27N R: 53E UTM: 4450950 N 0584350 E Brown Sugar Union District	Barite vein in dolomite.
506	Quad: Railroad Pass 15' Sec: 27 T: 27N R: 53E UTM: 4449800 N 0587260 E Jeanne Marie Union District(?)	Barite vein in dolomite.
507	Quad: Mineral Hill 15' Sec: 19 T: 26N R: 53E UTM: 4441100 N 0581475 E Bear Mine Union District	Barite vein in dolomite.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
511	Quad: Beowawe 15' Sec: 17 T: 31N R: 51E UTM: 4490850 N 0563500 E Safford Canyon Mine Safford District	Barite vein.
512	Quad: Frenchie Creek 15' Sec: 10 T: 30N R: 50E UTM: 4481800 N 0556250 E White Knob Claims Beowawe District	Barite vein.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
522	Quad: Tuscarora 15' Sec: 17 T: 41N R: 53E UTM: 4589470 N 0581350 E Snow Canyon Burns Basin District	Bedded Barite.
523	Quad: Santa Renia Fields 7 1/2' Sec: 22 T: 37N R: 49E UTM: 4547100 N 0548080 E Rossi Mine Bootstrap District	Bedded Barite.
524	Quad: Santa Renia Fields 7 1/2' Sec: 27 T: 37N R: 49E UTM: 4544850 N 0548000 E Queen Lode Bootstrap District	Bedded Barite.
525	Quad: Dunphy 15' Sec: 24 T: 32N R: 46E UTM: 4488300 N 0522700 E Argenta Mine Argenta District	Bedded Barite.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
553	Quad: Snowstorm Mtn. 7 1/2' Sec: Unsurveyed T: 40N R: 44E UTM: 4578440 N 0500640 E First Creek Prospect Snowstorm Mtn. Area	Non-welded tuff, ash, FeOx-MnO on fracture surfaces, dull-green alteration mineral along fracture(?).
554	Quad: Snowstorm Mtn. 7 1/2' Sec: Unsurveyed T: 40N R: 44E UTM: 4576660 N 0503320 E Snowstorm Claims Snowstorm Mtn. Area	Mod. kaolinized, silicified rhyolite tuff, brecciated, quartz veining, FeOx-stained.
555	Quad: Snowstorm Mtn. 7 1/2' Sec: Unsurveyed T: 40N R: 44E UTM: 4576750 N 0503250 E Snow Claims Snowstorm Mtn. Area	Sample consists of silicified & Fe-stained rhyolite (some flow banded) & quartz vein breccia. Also some vuggy, Fe-stained quartz veins 1/4-1" in width, milky white to vitreous in appearance. No apparent sulfides.
	Quad: Sec: T: R: UTM: N E	
556	Quad: Battle Mtn. 15' Sec: 25 T: 33N R: 45E UTM: 4506420 N 0511250 E Snowstorm Mine North Battle Mtn. District	Silicified shale, chert, CuOx mineral hemimorphite, dull green oxides, possible Sb & As oxides.
557	Quad: Scraper Springs 7 1/2' Sec: 8 T: 40N R: 47E UTM: 4577580 N 0526720 E Rebel Claims ~~(southern) Burner Hills District~~ Scraper Springs Area	Silicified rhyolite breccia, hairline quartz veinlets, blue-black metallic mineral, possibly Ag sulfa-salt.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
654	Quad: Cortez 15' Sec: 34 T: 27N R: 47E UTM: 4446100 N 0528900 E Fox Tq. Mine Cortez District	Breccia of bleached mudstone, chert cemented with light blue to green mammillary turquoise & FeOx stained gossan. Turquoise also infills fractures.
655	Quad: Cortez 15' Sec: 34? T: 27N R: 47E UTM: 4446850 N 0528800 E White Horse Tq. Mine Cortez District	Altered shales/mudstones, FeOx-limoni stained, friable, interspersed w/FeOx stained subhedral gypsum. Some piece relatively denser than others.
656	Quad: Cortez 15' Sec: 5 T: 26N R: 48E UTM: 4444200 N 0534900 E Cortez Silver Mine Cortez District	Dirty, grey-brown siltstone breccia cemented with vuggy, euhedral quartz, FeOx-stained, galena/pyrite/chalcopyr grains & pods disseminated throughout cement. Minor CuOx staining rock surfaces, gossan boxworkings.
	Quad: Sec: T: R: UTM: N E	
657	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 47E UTM: 4449000 N 0532050 E Cortez Gold Mining Co. Cortez District	Pale purple to pinkish grey slightly calcareous silt/mudstone, white massi sometimes crystalline $CuCo_2$ infills fractures & coats surface. Minor FeO staining. MnO2 staining. Oxidized surface hematite.
	Quad: Sec: T: R: UTM: N E	This sample is probably from Gold Acres. It was collected from pieces which fell off a haul truck.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
686	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4450250 N 0535800 E Sample location 686 Cortez District	Malachite coats surface & fractures in iron stained gossan. Rock sheared vuggy, some boxworks.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
748	Quad: Mineral Hill 15' Sec: 3, 10 T: 26N R: 52E UTM: 4445200 N 0577200 E Mineral Hill Mine Mineral Hill District	Silicified Ls/dolomite, med-dark grey fractured, malachite coats surface, Sb(oxides, anglesite(?), Zn minerals(?) coating vugs, barite.
749	Quad: Mineral Hill 15' Sec: 29, 32 T: 27N R: 23E UTM: 4448550 N 0583800 E Sample location 749 Union District	Silicified greenish grey Ls/dolomite, FeOx stained gossan, banded, heavy.
750	Quad: Mineral Hill 15' Sec: 5(?) T: 26N R: 53E UTM: 4446450 N 0583750 E Bell Mine Complex Union District	Fe-Mg stained silicified Ls/dolomite, drusy quartz coating surface, disseminated barite(?), specular hematite, gossan, limonite.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1097	Quad: Marys River Basin NW 7 1/2' Sec: 13 T: 44N R: 57E UTM: 4617400 N 0625020 E Prunty Mine Charleston District	Sugary white quartz vein with pods & lense-shaped veins of pyrite, chalcopyrite & arsenopyrite. Also coarse white calcite (possibly some barite) vein with medium to coarse crystals of unoxidized & partially oxidized stibnite.* * According to Steve Brooks sample also contains pyrrhotite.
	Quad: Sec: T: R: UTM: N E	
1098	Quad: Marys River Basin NW 7 1/2' Sec: 13 T: 44N R: 57E UTM: 4617420 N 0625120 E Prunty Mine Charleston District	Translucent grey to white quartz vein some brecciated, containing abundant fine grained sulfides, mostly pyrite (minor chalcopyrite). Also small amount of altered wallrock.
1099	Quad: Mt. Velma 15' Sec: 14 T: 44N R: 57E UTM: 4618200 N 0624200 E Rescue Mine Charleston District	Glassy grey quartz vein material with some clots sulfides & CuOxs. Also som Fe-carbonate cemented quartz breccia.
1100	Quad: Rowland 15' Sec: 17 T: 45N R: 56E UTM: 4627300 N 0610100 E Tennessee Tungsten Mine Alder District	Very dense, dark-green tactite ore containing lenses of pyrite & chalcopyrite & bands of intergrown garnet crystals & molybdenum rossette Some rossettes in smokey grey quartz vein also. Small flecks powellite observed under black light.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1501	Quad: Scraper Springs 7 1/2' Sec: 13 T: 39N R: 46E UTM: 4567680 N 0523340 E (Near) Eastern Star Mine Gold Circle District	Platy, black carbonaceous shale.
1502	Quad: Willow Creek Reservoir SE 7 1/2' Sec: 6 T: 37N R: 48E UTM: 4551250 N 0533855 E Sample location 1502 & 1503 Ivanhoe District	Grey to cream colored opaline sinter. Some banding. Vugs coated & filled by FeOxs.
1503	Quad: Willow Creek Reservoir SE 7 1/2' Sec: 6 T: 37N R: 48E UTM: 4551115 N 0533820 E Sample location 1502 & 1503 Ivanhoe District	Red & yellow, hydrothermally altered breccia (volcanic?) & opaline with cinnabar.
1504	Quad: Carlin 15' Sec: 33 T: 32N R: 53E UTM: 4496200 N 0583900 E Rain Property (West) Carlin District	Barite rich jasperoid breccia. Some jarosite coats fractures. Rock is slightly vuggy & vugs are filled with drusy quartz. Sample taken from outcrop.
1505	Quad: Carlin 15' Sec: 33 T: 32N R: 53E UTM: 4496100 N 0583800 E Rain Property(West) Carlin District	Bleached tan to Fe-stained siltstone of Mississippian Webb Fm. Fracture planes developed at high angle to bedding are coated with specular hematite & FeOxs, & possibly some jarosite. Sample taken from floor of drill road.
	Quad: Sec: T: R: UTM: N E	
1506	Quad: Carlin 15' Sec: 33 T: 32N R: 53E UTM: 4496200 N 0583650 E Rain Property (West) Carlin District	Grey shale fragments from drill cuttings pile. Shale is slightly carbonaceous in part.
1507	Quad: Dixie Flats 15' Sec: 3 T: 31N R: 53E UTM: 4495950 N 0584650 E Rain Property (East) Carlin District	Brecciated, Fe-stained jasperoid breccia, FeOxs, barite & drusy quartz fills vugs & cements breccia. Sample collected from float on drill road.
1508	Quad: Pine Valley 15' Sec: 5,6,7,8 T: 28N R: 53E UTM: 4464100 N 0582560 E Jay Claims Larrabee District	Barite bearing gossan, punky & brecciated.

Sample Description

Sample Number	Location	Description
1509	Quad: Pine Valley 15' Sec: 5,6,7, 8 T: 28N R: 53E UTM: 4464100 N 0582560 E Jay Claims Larrabee District	Fe-rich jasperoid breccia. Sample was taken from resistant rib of jasperoid just below (to west) barite cut.
1510	Quad: Robinson Mtn. 15' Sec: 34 T: 29N R: 53E UTM: 4467050 N 0586800 E Jak Claims Robinson Mtn. District	Silicified & bleached rhyolite intrusive. Sample is sheared. Fractures are coated by limonite & hematite. Possibly contains minor sulfides.
1511	Quad: Robinson Mtn. 15' Sec: 34 T: 29N R: 53E UTM: 4467600 N 0586800 E Jak Claims Robinson Mtn. District	Medium to dark grey quartzite breccia Quartzite is very fine grained. FeOxs & silica cements breccia.
1512A	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448100 N 0543425 E Buckhorn Mine-south pit Buckhorn District	Bleached yellow to pink kaolininzed basalt(& seds) breccia from fault (or zone exposed in northwest end of smal open pit. Rock is punky & altered to kaolin, montmorillonite & FeOxs.
	Quad: Sec: T: R: UTM: N E	Abundant limonite and dark silica cement breccia.
1512B	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448100 N 0543425 E Buckhorn Mine - south pit Buckhorn District	White punky rock consisting of clays with some FeOxs & green & yellow oxides minerals developed on fracture Sample also taken from ore zone at north-west end of small open pit.
	Quad: Sec: T: R: UTM: N E	* Note - yellow - green oxide was X-ray but could not be identified because o its amorphous nature. Crushed rock under microscope reveals some microfossils indicating host is
	Quad: Sec: T: R: UTM: N E	a sediment possibly interbedded with basalt.
1513	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448100 N 0543425 E Buckhorn Mine - south pit Buckhorn District	Limonite & hematite laden clay altered gouge & breccia from south end of open pit.

Sample Description

Sample Number	Location	Description
1514	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448000 N 0543500 E Sample location 1514 Buckhorn District	Silicified, grey chert(?) breccia containing abundant unoxidized pyrite in fragments & in cement. Some green Fe PO_4 oxides on weathered surfaces. Sample is from dump of old undergroun workings.
	Quad: Sec: T: R: UTM: N E	
1515	Quad: Horse Creek Valley 15' Sec: 30? T: 27N R: 49E UTM: 4449200 N 0544150 E Sample location 1515 Buckhorn District	Translucent white to greenish, mottle opalite. Some banded chalcedony in vugs. Minor Fe-staining on weathered surfaces. Sample is from outcrop.
1516A	Quad: Horse Creek Valley 15' Sec: Unsurveyed T: 27N R: 49E UTM: 4451800 N 0544350 E Sample location 1516 Buckhorn District	Opalized breccia (or conglomerate) containing numerous, pebble-sized, angular fragments of sedimentary origin, including opalite. Matrix appears sandy. Drussy quartz forms veinlets and fills vugs. Outcrop sample.
	Quad: Sec: T: R: UTM: N E	
1516B	Quad: Horse Creek Valley 15' Sec: Unsurveyed T: 27N R: 49E UTM: 4451800 N 0544350 E Sample location 1516 Buckhorn District	Drill cuttings of: Altered green-brown rock, possibly once a basalt(?) which now contains small clots of sulfides & gossan zones. Rock is slightly magnetic & may contain pyrrhotite in addition to pyrite & possibly galena(?)
	Quad: Sec: T: R: UTM: N E	
1517A	Quad: Cortez 15' Sec: Unsurveyed T: 26N R: 48E UTM: 4444150 N 0538300 E Horse Canyon Drill Roads Cortez District	Dark grey cherty (silicified?) shale. Shale is carbonaceous. Sample is from pile of drill cuttings.
1517B	Quad: Cortez 15' Sec: Unsurveyed T: 26N R: 48E UTM: 4444150 N 0538300 E Horse Canyon Drill Roads Cortez District	Bleached & silicified fine-grained dike rock. Very minor Fe-staining.

Sample Description

Sample Number	Location	Description
1517C	Quad: Cortez 15' Sec: Unsurveyed T: 26N R: 48E UTM: 4444150 N 0538300 E Horse Canyon Drill Roads Cortez District	Flat grey, laminated siltstone & siltstone breccia. FeOxs coat beddin & fracture surfaces. Sample is from outcropping of Vinini Fm. jasperoid.
1518A	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4445400 N 0537250 E Horse Canyon Drill Roads Cortez District	Fe-stained & Fe-cemented breccia composed of small angular fragments o grey siltstone (Vinini Fm). Breccia in part silicified & vuggy.
1518B	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4445400 N 0537250 E Horse Canyon Drill Roads Cortez District	Silicified "jasperoid breccia" containing angular fragments of dark grey Vinini shale & siltstone. Red, crystalline jarosite coats open fractures. Some barite also noted.
1519	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4445950 N 0537300 E Horse Canyon Drill Roads Cortez District	Dark grey calcareous shale. Sample is from drill cuttings pile & contain fine disseminated sulfides.
1520	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4449400 N 0536150 E (Near) Berlin, Falconer Cortez District	Pyrite/chalcopyrite ore hosted by gre limestone & white calcite vein material. Also includes punky, limonitic gossan.
1521	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4449350 N 0536000 E (Near) Berlin, Falconer Cortez District	Pyrite, Chalcopyrite, galena & bornit occur in brecciated gouge material composed of grey limestone & white calcite vein. Minor FeOxs.
1522	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4448550 N 0536900 E Sample location 1522 Cortez District	Pyrite, galena, sphalerite ore occuring as fine-grained vein deposit Sample also contains small amount of pyrite bearing quartz porphyry. (Not enough to make B sample).
1523	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4447150 N 0536850 E (Near) Mill Canyon Mine Cortez District	Silicified, light grey quartz porphyr cut by white calcite veins & containi fine crystals of disseminated pyrite.
1524	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4446950 N 0536900 E Sample locations 1524 & 1525 Cortez District	Sample consists of grey crystalline pyritic limestone taken from drill cuttings.

Sample Description

Sample Number	Location	Description
1525	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4446000 N 0536900 E Sample location 1524 & 1525 Cortez District (Mill Canyon)	Calcite coated grey limestone & powdered carbonate. Minor sulfides mentioned infield description. Sample taken from drill cuttings pile
1526	Quad: Cortez 15' Sec: Unsurveyed T: 27N R: 48E UTM: 4446950 N 0536600 E Sample location 1526 Cortez District (Mill Canyon)	Silty grey to green colored limestone partially recrystallized & containing lenses & fracture coatings of oxidize & unoxidized pyrite. Part of sample is quite Fe-stained & brecciated.
1527	Quad: Frenchie Creek 15' Sec: 30 T: 29N R: 51E UTM: 4468550 N 0562700 E Modarelli Mine Modarelli-Frenchie Creek District	Massive magnetite-hematite ore replacing rhyodacite(?) (remnant plag crystals still visible). Abundant FeOxs coat ore & some limonitic gossan was also included in sample.
	Quad: Sec: T: R: UTM: N E	Sample taken from ore stockpile near crusher.
1528	Quad: Frenchie Creek 15' Sec: 30 T: 29N R: 51E UTM: 4468550 N 0562700 E Modarelli Mine Modarelli-Frenchie Creek District	Gossany, partially silicified & Fe-stained volcanic rock. Possibly some barite crystals in gossany portions. Sample taken from road cut near open pit.
1529	Quad: Frenchie Creek 15' Sec: 13 T: 29N R: 50E UTM: 4469800 N 0561350 E Unnamed Iron Modarelli-Frenchie Creek District	Massive magnetite-hematite ore(oxidiz Some barite crystals developed on fractures. Sample was taken from resistant outcrop.
1530	Quad: Frenchie Creek 15' Sec: 25 T: 29N R: 50E UTM: 4467200 N 0560250 E Frenchie Creek Prospect Modarelli-Frenchie Creek District	Bleached, silicified, Fe-stained & veined intermediate or silicic volcanic rock. Some relic feldspars, replaced by Fe, clay or leached, are visible. Minor pyrite observed.
1531	Quad: Frenchie Creek 15' Sec: 25 T: 29N R: 50E UTM: 4467350 N 0560350 E Frenchie-Creek Prospect Modarelli-Frenchie Creek District	Pyrrhotite(?) ore, now mostly oxidize to hematite. Metallic mineral occurs in a gangue or with veins of vuggy, rose quartz. Ore is silicified & slightly magnetic.
1532	Quad: Carlin 15' Sec: 33 T: 31N R: 53E UTM: 4486200 N 0584100 E Sun Mine Railroad District	Fe-rich gossan & brown calcite material (recrystallized ls?) with lenses & pods of chrysocolla & malachite. Possibly some hemimorphit also.

Sample Description

Sample Number	Location	Description
1533	Quad: Carlin 15' Sec: 4 T: 30N R: 53E UTM: 4485350 N 0583900 E Standing Elk Mine Railroad District	Gossany, bleached, silicated limeston (skarn) with irregular clots of galena, chalcopyrite, CuOxs, hemimorphite, bornite & pyrite. Dense Fe-stained samples contain veinlets & fractures coatings of scheelite.
	Quad: Sec: T: R: UTM: N E	
1534	Quad: Carlin 15' Sec: 4 T: 30N R: 53E UTM: 4485350 N 0583550 E Sylvania Mine Railroad District	Vein & skarn material containing abundant pyrite and CuOxs. Most of sample is Fe-rich & sheared.
1535	Quad: Carlin 15' Sec: 4 T: 30N R: 53E UTM: 4485400 N 0584200 E Tripoli Mine Railroad District	Silicified, vuggy, Fe-rich, vein ore (skarn) & gossan. Vugs filled by hemimorphite & banded malachite. Ore also contains small amount of galena, pyrite & possibly spahlerite.
1536	Quad: Dunphy 15' Sec: 12 T: 31N R: 48E UTM: 4491750 N 0540875 E Sansinena Mine Beowawe District	Bedded barite occurs in silty mudstone host. Sample is characterized by much limonitic alteration as it was collected within altered zone in barite pit.
1537A	Quad: Beowawe 15' Sec: 12 T: 32N R: 50E UTM: 4501600 N 0561200 E Sal Claims ~~Safford District~~ (Marys Mtn area)	Tan chert & cherty mudstone with hematite stained fractures & bedding surfaces.
1537B	Quad: ~~Beowawe~~ 15' Sec: 12 T: 32N R: 50E UTM: 4501600 N 0561200 E Sal Claims Safford District (Marys Mtn area)	Mudstone & cherty mudstone breccia with fracture surfaces & breccia cement containing euhedral, radiating crystals of green malachite, FeOxs also present on fractures.
1538	Quad: Beowawe 15' Sec: 20 T: 33N R: 50E UTM: 4508350 N 0562100 E Sample location 1538 & 1539 Marys Mtn. Area	Fractured & brecciated chert. Abundant FeOxs on weathered or fractured surfaces. Minor CuOxs on a few samples.
1539	Quad: Beowawe 15' Sec: 20 T: 33N R: 50E UTM: 4507950 N 0562100 E Sample location 1538 & 1539 Marys Mtn. Area	Sample consists of drill cuttings of black chert or cherty carbonaceous shale.

Sample Description

Sample Number	Location	Description
1547B	Quad: Schroeder Mtn. 7 1/2' Sec: 12 T: 34N R: 51E UTM: 4521420 N 0568980 E Queen Ann Mine Maggie Creek District	Grey crystalline barite with FeOxs. Some crystals form rosettes. Sample from ore pile under crusher.
1548A	Quad: Schoeder Mtn. 7 1/2' Sec: 25 T: 34N R: 51E UTM: 4517620 N 0567960 E Rainbow Property? Maggie Creek District	Sample consist of drill cuttings composed of black carbonaceous shale.
1548B	Quad: Schroeder Mtn. 7 1/2' Sec: 25 T: 34N R: 51E UTM: 4517620 N 0567960 E Rainbow Property? Maggie Creek District	Pink-beige calcareous siltstone cut b veins & veinlets of coarse crystallin milky white to grey colored calcite & minor quartz veinlets.
1549	Quad: Welches Canyon 7 1/2' Sec: 10 T: 34N R: 50E UTM: 4520400 N 0556920 E Mond Claims Maggie Creek District	White crystalline quartz veins & veinlets cut black siliceous shale. Fine disseminated pyrite occurs in host.
1550A	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531720 N 0581750 E Sample locations 1550 & 1570 Swales Mtn. District	Brecciated gouge material & skarn wit chrysocolla & limonite showing on surfaces.
1550B	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531720 N 0581750 E Sample location 1550 & 1570 Swales Mtn. District	Greenish, sugary, epidote-garnet skarn. No scheelite observed when lamped. Some crystals of specularite dispersed throughout the sample.
1551	Quad: Horse Creek Valley 15' Sec: 36 T: 27N R: 49E UTM: 4448100 N 0551150 E Sample location 1551 Buckhorn District	Black carbonaceous limestone with fine-grained disseminated sulfides. Fine calcite veins cut limestone. Sample is from pile of drill cuttings
1552A	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4448900 N 0550500 E Unnamed Prospect #1 Buckhorn District	Green, silty shale, altered to clays, coated by FeOxs & containing Fe-stain fractures of unidentified fiberous brown mineral. (Mn mineral?)
1552B	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4448900 N 0550500 E Unnamed Prospect #1 Buckhorn District	Siliceous, cherty grey to green siltstone & shale. Rocks are thin bedded, & Mn-stained. Fractures are filled with fiberous Mn mineral. Some pyrite noted.

Sample Description

Sample Number	Location	Description
1553A	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4449750 N 0550350 E Unnamed Prospect #2 Buckhorn District	Red & grey chert & cherty shale from drill cuttings pile below prospect.
1553B	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4449750 N 0550350 E Unnamed Prospect #2 Buckhorn District	Beige to pink opalite. Rock is banded, contains drusy lined vugs & shows clots & veins of Fe & clear silica.
1554A	Quad: Horse Creek Valley 15' Sec: 24? T: 27N R: 49E UTM: 4451300 N 0550400 E Shobar claims Buckhorn District	Beige chert breccia. Breccia fragmen are generally small. Matrix is siliceous & in part Fe-rich. Oxidize clots on surfaces may be after pyrite Sample taken from dump.
1554B	Quad: Horse Creek Valley 15' Sec: 24? T: 27N R: 49E UTM: 4451300 N 0550400 E Shobar claims Buckhorn District	Silicified Fe-stained chert breccia. This sample is more Fe-rich than A & was taken from resistant outcrop below dump.
1555	Quad: Cortez 15' Sec: Unsurveyed T: 26N R: 48E UTM: 4443550 N 0535200 E Cortez Metals Mine (Arctic Tunnel) Cortez District	Irregular shaped, somewhat vuggy, white quartz vein occurs in altered intrusive & quartzite host rocks. Sulfides are concentrated near veins & also occur as unoxidized crystals disseminated in host.
	Quad: Sec: T: R: UTM: N E	
1556	Quad: Cortez 15' Sec: Unsurveyed T: 47N R: 27N UTM: 4497000 N 0534100 E Cortez Au Mine Cortez District	Tan to grey colored, laminated, crystalline limestone. Rocks are cut by grey to white, crystalline calcite veins containing FeOxs possibly after pryite. Sample taken from ore stockpile at Cortez Gold Mine millsite.
	Quad: Sec: T: R: UTM: N E	
1557	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448300 N 0543425 E Buckhorn Mine - north pit Buckhorn District	Silicified andesite(basalt) breccia from north pit. Breccia contains angular fragments of kaolinized & silicified basalt & some sedimentary fragments cemented by grey amorphous silica.

Sample Description

Sample Number	Location	Description
1558	Quad: Horse Creek Valley 15' Sec: 30? T: 27N R: 49E UTM: 4448900 N 0543400 E Buckhorn Mine - north pit Buckhorn District	Explosion/hydrothermal breccia. Matr is sandy & porous. Rock contains fin ovoid sedimentary fragments. Rock is silicified, Fe stained & contains angular frags of seds & volcanic rock Feoxs occur on fractures & in matrix.
	Quad: Sec: T: R: UTM: N E	
1559	Quad: Rock Creek Ranch 7 1/2' Sec: 26 T: 37N R: 47E UTM: 4544500 N 0531500 E Silver Cloud Mine Ivanhoe District	Opalite with bands of cinnabar & meta-cinnabar. Also some bright yellow oxides possibly after mercury.
1560	Quad: Schroeder Mtn. 7 1/2' Sec: 35 T: 34N R: 51E UTM: 441550 N 0565300 E Gold Quarry Maggie Creek District	Upper plate, jasperoid breccia cemented by silica & Fe & containing fine pebble size fragments cut by silica veinlets. Some finely comminuted lenses cut through rock al
	Quad: Sec: T: R: UTM: N E	*Noted - sample collected by Hal Bonham, NBMG.
1561	Quad: Willow Creek Reservoir 7 1/2' Sec: 25 T: 38N R: 47E UTM: 4554700 N 0532000 E Governor Mine Ivanhoe District	Cream colored opalite with bands of cinnabar & oxidized cinnabar (red & black).
1562	Quad: Schroeder Mtn. 7 1/2' Sec: 34 T: 34N R: 51E UTM: 4515200 N 0565750 E Maggie Creek Open Pit Maggie Creek District	Silicified siltstone breccia. Rock fragments consist of fine laminated red siltstone, quartz vein(?) & possibly igneous(?) fragments. Small drusy quartz &/or jarosite lined vugs
	Quad: Sec: T: R: UTM: N E	occur in sample. Fragments show vitreous grey to clear stockwork veinlets.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1570	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531860 N 0581680 E Sample location 1550 & 1570 Swales Mtn. District	Dense, garnet-epidote skarn with irregular clots of specular hematite, chalcopyrite, pyrite & bornite in addition to abundant CuOxs on surface No scheelite observed when lamped.
1571A	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Hematitic-limonitic gossan. Vuggy with boxworks.
1571B	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Medium grey limestone with calcite veinlets & veins. Pyrite & chalcopyrite occurs in host & within veins.
1571C	Quad: Swales Mountain 7 1/'2 Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Light green, altered monzonitic intrusive with conspicuous clay-alter white plagioclase phenocrysts. Rock contains abundant fine-grained pyrite.
1572	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532320 N 0581285 E High Top Claims Swales Mtn. District	Hematitic, siliceous gossan. Gossan is vuggy & contains some remnant sulfides.
1573	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532640 N 0581500 E Gold Prospect #1 Swales Mtn. District	Greeenish, epidote skarn. Rock is fractured & contains pods & lenses of quartz & sulfides (pyrite & chalcopyrite). Small amount scheelit observed when lamped. FeOxs abundant
1574	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532680 N 0581550 E Gold Prospect #1 Swales Mtn. District	Funky gossan & brecciated quartz vein Some CuOxs noted on brecciated surfac No scheelite when lamped.
1575	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532550 N 0581480 E Gold Prospect #1 Swales Mtn. District	Cu-bearing skarn & gossan with vugs fillings of hemimorphite.
1576A	Quad: Swales Mountain 7 1/2' Sec: 6 T: 35N R: 53E UTM: 4532860 N 0580100 E Bad Apple Claims Swales Mtn. District	Dark grey siliceous mudstone/chert. Surfaces coated by CuOxs & FeOxs. Some small veinlets of malachite. Rock is slightly gossany.

Sample Description

Sample Number	Location	Description
1576B	Quad: Swales Mountain 7 1/2' Sec: 6 T: 35N R: 53E UTM: 4532860 N 0580100 E Bad Apple Claims Swales Mtn. District	Yellowish, highly altered granitic to quartz monzonitic intrusive (dike?) with coarse quartz & feldspar phenocrysts. Feldspars are completel kaolinized & groundmass is highly Fe-stained.
	Quad: Sec: T: R: UTM: N E	
1577	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584660 N 0583980 E Bell Mine (Generator Pit Jasperoid) Burns Basin District	Dark grey jasperoid with lenses & vugs filled with barite & FeOxs. Rock displays fine network of siliceous & barite filled veinlets.
1578A	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584500 N 0584100 E Bell Mine (Generator Pit) Burns Basin District	Yellow-pink altered shale & mudstone & fault gouge of same. Some limoniti veining & staining. Sample is from Generator Pit.
1578B	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584500 N 0584100 E Bell Mine (Generator Pit) Burns Basin District	Dark grey jasperoid & jasperoid brecc with drusy lined , Fe-stained, vuggy quartz veinlets. Jasperoid co contains scattered clusters of stibni needles, both oxidized & unoxidized. Sample is from Generator Pit.
	Quad: Sec: T: R: UTM: N E	
1579A	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4473670 N 0622100 E Sample site 1579 Gilbert Creek Area	Sheared, smokey to milky quartz vein material. Minor FeOxs & mica (pegmatitic) on selvages.
1579B	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4473670 N 0622100 E Sample site 1579 Gilbert Creek Area	Two mica bearing, granitic pegmatite dike or intrusive rock. Rock is medium to coarse grained, light colored, displays graphic & poikaliti textures & shows some Fe-staining possibly from weathered biotite. Some irregular "veins" of quartz & mi (white) cut rock.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1580	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4474325 N 0622850 E Sample site 1580 Gilbert Canyon Area	K-spar-quartz-white mica pegmatite with a few intergrown blue-green beryl & columbite - tantalite crystals.
1581	Quad: Jiggs 15' Sec: 21,22 T: 28N R: 57E UTM: 4460500 N 0622950 E Ruby Mtn. Zinc Claims Corral Creek Area	Recrystallized & partially silicated limestone. Mottled looking rock contains irregular pods of galena & Fe-stained vugs in recrystallized calcite. Hemimorphite & CuOxs occur in smaller amounts.
	Quad: Sec: T: R: UTM: N E	
1582	Quad: Jiggs 15' Sec: 21 T: 28N R: 57E UTM: 4460500 N 0623030 E Ruby Mtn. Zinc Claims Corral Creek Area	Fe-rich, vuggy gossan with abundant boxwork structures.
1583	Quad: Jiggs 15' Sec: 21 T: 28N R: 57E UTM: 4460650 N 0622320 E Ruby Mtn. Zinc Claims Corral Creek Area	Limonitic gossan with irregular clots & stringers of galena. Galena also occurs in clots up to 2" across in a light green skarn composed predominat of tremolite(?).
1584	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461490 N 0629090 E Sample site 1584 Harrison Pass District	Banded, quartz-rich, garnet-epidote-diopside skarn containing irregular quartz veins. Rocks also contains pyrite, CuOxs, magnetite & gossan. When lamped rock shows abundant coarse flecks scheelite.
	Quad: Sec: T: R: UTM: N E	
1585A	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461860 N 0629160 E Campbell? Prospect Harrison Pass District	White & green banded, epidote-calcite skarn/tactite. When lamped a few sma crystals illuminate a light green color(?), but no scheelite observed.
1585B	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461860 N 0629160 E Campbell? Prospect Harrison Pass District	Green-brown, crystalline, quartz-diopside-epidote tactite. Weakly banded & showing minor scheel when lamped.

Sample Description

Sample Number	Location	Description
1586	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461900 N 0629650 E Sample Site 1586 Harrison Pass District	Very dense, dark green garnet-diopsid skarn cut by sulfide - bearing quartz feldspar veins. Medium flecks scheelite occur within vein. Some CuOxs contained in skarn.
1587	Quad: Franklin Lake SW 7 1/2' Sec: 18 T: 28N R: 58E UTM: 4462540 N 0629500 E Lizzie Claims Harrison Pass District	Dense garnet-epidote-diopside-quartz skarn cut by quartz-feldspar veins up to 1/2" wide. Skarn & veins conta minor amounts of moly. Vitreous grey quartz vein shows abundant powellite when lamped (in one sample).
	Quad: Sec: T: R: UTM: N E	
1588	Quad: Tent Mountain 7 1/2' Sec: 31 T: 35N R: 60E UTM: 4526430 N 0647870 E Sample location 1588 Halleck District	Conglomerate with chert fragments (Diamond Peak Fm.). Conglomerate is silicified & has FeOxs on weathered surfaces & some fine, grey, siliceous veinlets.
1589A	Quad: Lake Mountain 7 1/2' Sec: Unsurveyed T: 38N R: 52E UTM: 4559875 N 0571670 E Stampede Mine Beaver District	Brecciated sheared siliceous sedimen (siltstone/quartzite) with minor deposits of light blue turquoise on fracture surfaces. Some very Fe-stained pieces have fine crystals of jarosite developed on fracture.
	Quad: Sec: T: R: UTM: N E	
1589B	Quad: Lake Mountain 7 1/2' Sec: Unsurveyed T: 38N R: 52E UTM: 4559875 N 0571670 E Stampede Mine Beaver District	Black carbonaceous shale.
1590	Quad: Mt. Blitzen 15' Sec: 21 T: 40N R: 50E UTM: 45776100 N 0556250 E Sample location 1590 Divide District	Altered andesite volcanic rock. Roc contains lithic fragments & shows flow banding. Feldspars are altered to clays. Mafics are oxidized. Fin grains oxidized pyrite occur through rock.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1591A	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580450 N 0554250 E Ruby Claims Divide District	Bleached, silicified rhyolite cut by vuggy, vitreous grey to white quartz veins. Veins contain clots of finely crystalline pyrite & possibly other sulfides. Veins are somewhat banded & contain fragments of altered wallro
	Quad: Sec: T: R: UTM: N E	
1591B	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580450 N 0554250 E Ruby Claims Divide District	Limonitic breccia cemented by gossan. Fragments in breccia include altered rhyolite (Fe-stained), quartz vein material, & barite(?) crystals.
1592A	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mine Divide District	Sugary white quartz vein. FeOxs on weathered surfaces but rock is devoid of impurities & very white. Sample collected to see if rock is possibly zunyite.*
	Quad: Sec: T: R: UTM: N E	* X-ray analysis of sample determined vein is pure quartz.
1592B	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Specularite(?) & pyrite occur as fine crystals along selvages of sugar white quartz vein & siliceous breccia composed of quartz cemented wallrock fragments.
1592C	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Siliceous rhyolite breccia with unoxidized, fine grained pyrite occurring in translucent grey quartz matrix and in altered rhyolite frags. Several generations of siliceous veining (stockworking) & brecciation
	Quad: Sec: T: R: UTM: N E	
1592D	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Siliceous breccia. Cement is vuggy, Fe-stained & composed of grey vitreou crystalline quartz. Fragments includ rhyolite & sedimentary lithologies (grey shale or chert). Pyrite occurs in quartz cement.

Sample Description

Sample Number	Location	Description
1593	Quad: Mt. Blitzen 15' Sec: 1 T: 40N R: 49E UTM: 4579700 N 0551000 E Sample location 1593 Rock Creek District	Dark grey, phenocryst-rich andesite with disseminated sulfides. Also siliceous breccia with abundant sulfides & cinnabar throughout.
1594	Quad: Mt. Blitzen 15' Sec: 12 T: 40N R: 49E UTM: 4578200 N 0550900 E Silver V Claims Rock Creek District	Pyrite is disseminated throughout siliceous breccia. Breccia is cemented by chalcedonic quartz. Frag in breccia are altered volcanic. The frags also contain some sulfides & secondary siliceous veinlets. Mercur oxides occur in vein material.
	Quad: Sec: T: R: UTM: N E	
1595	Quad: Mt. Blitzen 15' Sec: 13 T: 40N R: 49E UTM: 4576900 N 0551050 E Falcon Mine Rock Creek District	Vitreous grey, sugary quartz vein & siliceous breccia (vein breccia) with clots & fragments of fine-grained sulfides throughout. Breccia contain altered volcanic rock fragments.
	Quad: Sec: T: R: UTM: N E	Specularite & bornite also observed.
1596 A	Quad: Mt. Blitzen 15' Sec: 24 T: 40N R: 48E UTM: 4575950 N 0541900 E Rock Creek Prospect Rock Creek District	Silicified (opalized) fine-grained volcanic rock (rhyodacitic?) with masses & clots of cinnabar occurring on fracture surfaces & throughout hos
1596 B	Quad: Mt. Blitzen 15' Sec: 24 T: 40N R: 48E UTM: 4575950 N 0541900 E Rock Creek Prospect Rock Creek District	Well laminated, sugary white opalite. Fossil reed impressions found on bedding surfaces. Rock contains some "sprays" of cinnabar & are Fe-stained.
1597	Quad: Mt. Blitzen 15' Sec: 9 T: 41N R: 49E UTM: 4590400 N 0543250 E Good Hope Mine Good Hope District	Finely crystalline white to grey quartz vein & quartz vein breccia with small pods of sulfides (mostly pyrite). Vein material is Fe-stained brecciated & vuggy. Rock fragments caught in vein are altered volcanics.
1598 A	Quad: Mt. Blitzen 15' Sec: 2 T: 41N R: 49E UTM: 4591100 N 0546800 E Amazon Mine Good Hope District	Black carbonaceous shale, massive fracture habit, with thin discontinuou vugs filled with drusy quartz. Sulfides noted in field notes.

Sample Description

Sample Number	Location	Description
1598B	Quad: Mt. Blitzen 15' Sec: 2 T: 41N R: 49E UTM: 4591100 N 0546800 E Amazon Mine Good Hope District	Blue-green, clay altered rhyolite/dacite tuf White-feldspar phenocrysts completely altered to clays. Minor FeOxs on surfaces. Rocks smell like sulfides.
1599A	Quad: Mt. Blitzen 15' Sec: 18 T: 42N R: 51E UTM: 4598100 N 0559000 E Cornucopia Mine Cornucopia District	Quartz vein, vitreous grey, in altere andesite. Medium grained pyrite throughout host rock & in veins. Rock also cut by Fe-stained veins containing abundant pyrite. Some
	Quad: Sec: T: R: UTM: N E	vein material brecciated & Fe-stained
1599B	Quad: Mt. Blitzen 15' Sec: 19 T: 42N R: 51E UTM: 4598100 N 0559000 E Cornucopia Mine Cornucopia District	Brecciated, gossany quartz vein & Fe-stained & veined altered volcanic rock. Pyrite occurs in sugary white vein material.
1600	Quad: Wilson Reservoir 15' Sec: 18 T: 42N R: 51E UTM: 4598250 N 0559500 E Panther Group? Cornucopia District	Sugary white quartz vein, some brecciated & very Fe-stained. Hematite & limonite staining on shear & weathered surfaces. Some dark lense of sulfides (possibly silver minerals
	Quad: Sec: T: R: UTM: N E	occur in quartz vein.
1601 A	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	Dense, dark green tactite with irregular lenses of pyrite, chalcopyr sphalerite? & galena, all fine-grain & unoxidized. Also bleached, silicat limestone with CuOxs throughout.
1601B	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	White, bleached, silicified rhyolite with oxidized clots of fine-grained pyrite. Fe-replaced feldspars occur in matrix along with quartz & white mica phenocrysts.
1601 C	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	Dark, green-brown, crystalline skarn (garnet - diopside - calcite). Rock contains crystals of vitreous quartz with clots of pyrite or other sulfides.

Sample Description

Sample Number	Location	Description
1602	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580600 N 0554275 E Divide Mines Divide District	Sugary white quartz vein & breccia vein. Frgas in breccia vein are comprised of altered volcanic, sediments (?) & pyritic sediments. Veins mostly massive with scattered vugs filled with drusy quartz & are Fe-stained.
	Quad: Sec: T: R: UTM: N E	
1603	Quad: Mt. Blitzen 15' Sec: 16 T: 41N R: 49E UTM: 4588350 N 0542875 E Buckeye & Ohio Mine Good Hope District	Grey to white, sugary quartz vein with abundant prismatic & twinned crystals of arsenopyrite. Some vugs filled with terminated quartz. Small amount altered volcanic wallrock also included.
	Quad: Sec: T: R: UTM: N E	
1604	Quad: Rodeo Creek NE 7 1/2' Sec: 24 T: 35N R: 50E UTM: 4527380 N 0559220 E Sample location 1604 Lynn District	Pulverized, black, carbonaceous shale from drill cuttings pile. Possibly contains minor sulfides.
1605	Quad: Mahala Creek West 7 1/2' Sec: 7 T: 39N R: 54E UTM: 4571400 N 0589190 E Rock Claims Gance Creek Area	Grey & black slates, shales & quartzites, some CuOxs on weathered surfaces. Random black veinlets cut rock, & white yellow & green oxides occur on surfaces. Rock possibly co contains titanium or barium.
	Quad: Sec: T: R: UTM: N E	
1606	Quad: Mahala Creek West 7 1/2' Sec: 35 T: 40N R: 53E UTM: 4573080 N 0586450 E Ed Claims Gance Creek Area	Fe-stained shale & shale-quartzite breccia. Limonite & white crystallir barite on fracture surfaces.
1607	Quad: Mahala Creek West 7 1/2' Sec: 26 T: 40N R: 53E UTM: 4575260 N 0585420 E BB Claims (Black Beauty) Gance Creek Area	Lenses & pods of massive sulfides (mostly pyrite)* in vein with barite gangue or in black shale cut by quartz veins. Possibly ilmenite (Ti) also, although not observed witl hand lens. Shiny manganese masses common. *minor chalcopyrite.

Sample Description

Sample Number	Location	Description
1608	Quad: Franklin Lake SW 7 1/2' Sec: 6 T: 28N R: 58E UTM: 4466340 N 0629870 E Eddie Claims Harrison Pass District	Garnet-epidote-diopside skarn & vitreous white quartz vein. Sample contains some pyrite & chalcopyrite. Skarn shows scattered flecks scheelit when lamped.
1609A	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	Galena-sphalerite-pyrite-chalcopyrite ore in a quartz-tremolite skarn / tactite & in quartz-gossan vein material. Gossan shows minute luminescent flecks of scheelite when lamped.
	Quad: Sec: T: R: UTM: N E	
1609B	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	Sample mostly consists of boxwork gossan & quartz vein, some brecciated Gossan contains unoxidized pods of specular hematite between the boxwork & white aragonite or calcite veinlets & coatings. Also contains abundant minute specks of scheelite.
	Quad: Sec: T: R: UTM: N E	
1609C	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	White marble, granoblastic texture with oxidized clots of pyrite throughout. Unidentified yellow-brown platy mineral may be mica, Fe-stained calcite, or other mineral.
1610	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4484825 N 0637225 E Battle Creek Mines Ruby Valley District	Glassy grey to white, massive quartz-mica vein with abundant coarse books of white-mica (pegmatitic) & Fe-stain clots & zones due to the oxidation of pyrite.
1611A	Quad: Lamoille 15' Sec: 6 T: 30N R: 59E UTM: 4485500 N 0369050 E Sample location 1611 Ruby Valley District	Light green, white-mica-calcite-tremolite calc-silicate with abundant CuOxs & pyrite throughout. Also some limonitic rock with vugs filled with hemimorphite.
1611B	Quad: Lamoille 15' Sec: 6 T: 30N R: 59E UTM: 4485500 N 0369050 E Sample location 1611 Ruby Valley District	Massive brown sphalerite ore in a gangue of clear to vitreous grey quartz. Vein material. Minor galena.

Sample Description

Sample Number	Location	Description
1612	Quad: California Mtn. 7 1/2' Sec: 11 T: 40N R: 53E UTM: 4580880 N 0585250 E Sample location 1612 Burns Basin District	Grey jasperoid breccia & chert. Samp taken from resistant silicified outcrop & contains pods of barite & fracture surfaces coated by white & orange (Fe-stained) antimony oxides.
1613	Quad: California Mtn. 7 1/2' Sec: 11 T: 40N R: 53E UTM: 4581100 N 0585460 E Birds Eye Prospect Burns Basin District	Dark grey jasperoid with fracture fillings, bedding surface coatings, & scattered clots of oxidized & unoxidized stibnite.
1614	Quad: Bull Run 15' Sec: 5 T: 43N R: 52E UTM: 4611600 N 0570000 E Bull Run Mine Edgemont District	Massive, vitreous, grey-white quartz vein with gossany vug fillings & impure lenses of sulfides, not identified by hand lens, but visible as Fe-stained, pyrite-bearing, dark grey zones. Small amount galena observed in clots in quartz vein.
	Quad: Sec: T: R: UTM: N E	
1615	Quad: Bull Runs 15' Sec: 26 T: 44N R: 52E UTM: 4615000 N 0574800 E Aura King Mine Aura District	Massive, milky white quartz vein in limestone. Vein carries clots of pyrite & galena, in addition to minor CuOxs along fractures.
1616	Quad: Bull Run 15' Sec: 22 T: 44N R: 52E UTM: 4616975 N 0572950 E Blue Jacket Mine Aura District	Milky white quartz vein with inclusio of limestone country rock. Vein contains clots & lenses of pyrite, galena, tetrahedrite, sphalerite(?) & CuOxs. Gosssany (boxwork) vugs occur throughout.
	Quad: Sec: T: R: UTM: N E	
1617	Quad: Bull Run 15' Sec: 21 T: 44N R: 52E UTM: 4616750 N 0571300 E Sample location 1617 Edgemont District	Fractured, Fe-stained quartz vein, massive & milky white in appearance. Vein contains gossany inclusions & yellow-orange boxwork oxides possibly after tetrahedrite(?) or other sulfic
1618	Quad: Bull Run 15' Sec: 29 T: 44N R: 52E UTM: 4615450 N 0570950 E Burns Mine Edgemont District	Massive, milky white quartz vein & gossan with irregular mineralized zo of galena & pyrite, some areas oxidized completely to boxwork FeOxs. Some green anglesite(?) also noted.
		Dark streaks are dispersed sulfides Possibly contains silver minerals. Sample contains some scheelite & powellite.

Sample Description

Sample Number	Location	Description
1619	Quad: Bull Run 15' Sec: 28 T: 44N R: 52E UTM: 4615200 N 0572325 E California Mine Aura District	Quartzite (white, well-sorted) & quartz vein. Quartz vein contains irregular lenses of galena, sphalerit & possibly other sulfides.
1620	Quad: Bull Run 15' Sec: 26 T: 44N R: 52E UTM: 4614850 N 0575050 E Blue Jacket Creek Millsite Mine Aura District	White, Fe-stained quartz vein mostly brecciated & cemented by FeOxs, gossa & sulfides. Sulfides (galena, pyrite chalcopyrite, minor CuOxs) also occur in vein material. Sample taken from beneath crusher at millsite.
	Quad: Sec: T: R: UTM: N E	
1621	Quad: Bull Run 15' Sec: 26 T: 44N R: 52E UTM: 4614800 N 0575750 E Aura Queen Mine Aura District	Brecciated, weakly silicated limeston with minor pyrite. Brecciated rock very Fe-stained, probably contains pyrite & possibly cerussite.
1622	Quad: Bull Run 15' Sec: 25 T: 44N R: 52E UTM: 4614700 N 0577250 E Big Four Mine Aura District	Massive white quartz vein with clots pyrite, galena & sphalerite & coating of malachite & azurite. Some very brecciated gouge material (wallrock & vein) also.
1623	Quad: Bull Run 15' Sec: 19 T: 44N R: 53E UTM: 4615425 N 0579360 E Golden Eagle Mine Aura District	Pyritized calc-silicate. Beige color equigranular. No scheelite observed when lamped.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	045	046	047					087	088
Fe %(.05)	5	3	1					7	1.5
Mg %(.02)	1	5	.2					1.5	.7
Ca %(.05)	10	7	.05					10	5
Ti %(.002)	.07	.07	N					.2	.1
Mn(10)	G(5000)	1500	700					3000	1000
Ag(.5)	N	50	3					N	5
As(200)	N	N	N					N	N
Au(10)	N	N	N					N	N
B(10)	10	L	L					N	20
Ba(20)	50	200	1000					30	1000
Be(1)	100	2	2					1	L
Bi(10)	200	100	N					N	N
Cd(20)	N	100	500					N	N
Co(5)	5	20	20					N	15
Cr(10)	10	N	N					70	100
Cu(5)	5	1000	150					50	700
La(20)	N	N	N					30	N
Mo(5)	300	N	N					1000	N
Nb(20)	N	N	N					N	N
Ni(5)	5	15	7					30	50
Pb(10)	30	G(20000)	7000					50	50
Sb(100)	N	N	N					N	N
Sc(5)	5	L	N					10	5
Sn(10)	300	N	N					20	N
Sr(100)	L	L	N					L	100
V(10)	150	20	L					70	30
W(50)	1000	N	N					50	N
Y(10)	10	L	N					20	L
Zn(200)	200	G(10000)	G(10000)					L	N
Zr(10)	20	20	N					70	50
Th(100)	N	N	N					N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	130A	130B	131A	131B	132	133	134	135	136
Fe %(.05)	1	.7	1	5	5	3	1	1.5	.15
Mg %(.02)	5	3	3	1	.5	.2	3	.15	.02
Ca %(.05)	20	15	15	1.5	1	1.5	7	.5	.05
Ti %(.002)	.15	.15	.15	.3	.3	.15	.03	.07	.3
Mn(10)	300	700	700	1500	300	500	2000	10	50
Ag(.5)	2	1.5	7	3	1.5	1	300	5	1
As(200)	N	200	1000	2000	1500	1000	N	300	N
Au(10)	N	N	N	N	N	L	N	N	N
B(10)	100	70	L	15	300	200	N	50	10
Ba(20)	150	G5000	2000	1500	700	5000	30	70	30
Be(1)	L	L	10	1	1	L	N	N	N
Bi(10)	N	N	50	150	N	15	N	N	N
Cd(20)	N	N	100	N	N	N	L	N	N
Co(5)	5	15	100	200	10	10	N	N	N
Cr(10)	70	50	100	70	200	50	30	70	15
Cu(5)	100	20	G20000	7000	100	150	500	70	15
La(20)	20	20	30	30	50	20	L	N	20
Mo(5)	5	L	N	10	N	15	L	5	N
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	70	100	200	500	100	100	20	70	5
Pb(10)	100	1000	30	20	70	70	2000	50	20
Sb(100)	N	L	N	200	200	200	200	100	N
Sc(5)	7	5	10	20	10	7	N	N	L
Sn(10)	N	N	N	N	N	N	N	N	10
Sr(100)	200	500	300	100	150	200	N	150	L
V(10)	150	100	150	500	300	500	50	300	30
W(50)	N	N	N	L	N	N	N	N	N
Y(10)	30	20	70	100	30	30	N	15	N
Zn(200)	200	700	1000	1500	700	700	2000	700	N
Zr(10)	70	70	70	100	150	50	L	15	70
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	137A	137B	138	139	140	141	142	143	144
Fe %(.05)	5	1	.7	.5	5	2	10	7	2
Mg %(.02)	.2	L	.03	.03	.3	.15	.2	.02	.15
Ca %(.05)	1	L	.1	.07	.1	.07	.1	L	3
Ti %(.002)	.07	.003	.1	.07	.3	.07	.15	.01	.3
Mn(10)	G5000	1000	150	300	300	150	500	300	300
Ag(.5)	150	L	100	1000	30	150	10	1000	30
As(200)	N	N	5000	2000	3000	1000	3000	7000	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	20	50	30	20	100	20	10	N	L
Ba(20)	5000	200	1000	200	700	300	1000	300	700
Be(1)	1.5	N	N	N	1	L	2	N	3
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	L	500	N
Co(5)	200	5	5	N	5	L	7	5	N
Cr(10)	10	L	30	20	20	30	L	N	N
Cu(5)	500	15	30	100	20	200	100	1500	15
La(20)	L	L	L	N	20	20	L	N	30
Mo(5)	50	N	N	L	7	N	N	N	10
Nb(20)	N	N	N	N	N	N	N	N	L
Ni(5)	200	10	7	10	10	10	10	5	L
Pb(10)	30	10	30	1500	500	10000	1500	G20000	200
Sb(100)	N	N	L	700	100	100	200	700	N
Sc(5)	N	N	L	L	7	L	5	N	10
Sn(10)	N	N	N	15	N	N	N	L	N
Sr(100)	1000	N	L	N	N	N	N	N	N
V(10)	300	15	20	30	100	50	100	15	10
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	15	N	10	10	10	L	50
Zn(200)	N	N	N	N	200	1500	1500	G10000	N
Zr(10)	20	N	100	30	50	20	20	N	200
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	145	146	147	148	149	150	151	152	153
Fe %(.05)	7	7	1.5	7	1.5	10	1.5	.7	5
Mg %(.02)	.1	.05	.03	.1	.05	.15	.05	2	2
Ca %(.05)	.1	.1	L	.1	.07	.05	.07	15	5
Ti %(.002)	.3	.1	.3	.2	.2	.2	.15	.05	.5
Mn(10)	300	300	20	100	150	150	20	500	1000
Ag(.5)	3	50	15	3	200	2	.5	N	5
As(200)	N	N	N	N	N	N	N	N	N
Au(10)	N	N	N	N	L	N	N	N	N
B(10)	L	L	N	N	N	200	70	50	10
Ba(20)	1000	300	1000	1000	700	G5000	1000	500	700
Be(1)	5	7	2	5	5	1.5	1	N	L
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	150	N
Co(5)	L	10	L	L	L	7	5	5	20
Cr(10)	N	N	L	N	L	50	30	20	200
Cu(5)	10	20	7	5	10	50	20	30	7000
La(20)	20	N	50	30	30	L	20	L	30
Mo(5)	N	7	30	5	N	N	N	10	N
Nb(20)	20	L	20	L	L	L	L	N	L
Ni(5)	L	10	5	5	7	70	15	50	150
Pb(10)	70	50	50	30	30	20	20	20	30
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	15	5	N	7	5	10	L	L	15
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	L	150	N	N	N	200	500	200	500
V(10)	30	100	20	L	10	150	100	500	150
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	70	20	70	70	50	15	10	15	20
Zn(200)	200	L	N	700	N	500	N	200	N
Zr(10)	300	150	300	300	300	100	100	15	150
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	154	155A	155B	156	157	158	159	160	161
Fe %(.05)	3	.1	2	L	.05	.7	20	5	.5
Mg %(.02)	.03	.03	.07	.02	7	.07	.07	.2	.02
Ca %(.05)	.15	.05	.07	.1	.07	.05	.07	.5	.7
Ti %(.002)	.03	.01	.2	.1	.003	.03	.003	.07	.05
Mn(10)	100	30	100	L	500	30	150	100	500
Ag(.5)	.5	1500	150	2	.7	10	N	300	1
As(200)	N	N	N	N	N	N	N	7000	N
Au(10)	N	100	L	N	N	N	N	N	N
B(10)	30	10	30	L	N	30	N	100	20
Ba(20)	1500	100	1000	G5000	G5000	G5000	300	200	300
Be(1)	5	3	5	L	N	N	N	L	5
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	N	N	N	N	N	20	N
Cr(10)	20	N	10	N	L	15	N	10	N
Cu(5)	30	15	30	L	5	150	20	G20000	200
La(20)	L	L	L	L	L	L	L	L	20
Mo(5)	L	N	N	N	N	10	70	70	N
Nb(20)	L	N	L	N	N	N	N	N	L
Ni(5)	5	5	5	5	N	15	100	70	5
Pb(10)	30	50	50	30	30	200	2000	100	30
Sb(100)	100	N	100	N	N	L	N	L	N
Sc(5)	N	N	5	N	N	N	N	L	L
Sn(10)	10	N	N	N	N	N	N	N	N
Sr(100)	L	N	N	300	2000	N	N	100	100
V(10)	100	L	30	10	10	20	300	100	15
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	20	N	L	N	10	10	15
Zn(200)	200	N	N	N	N	L	1000	1000	N
Zr(10)	100	L	150	30	10	15	N	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	162	163A	163B	164	165	166	167	168A	168B
Fe %(.05)	1.5	5	10	1	1	3	10	20	1
Mg %(.02)	L	.07	.07	.2	.5	.7	.1	.1	.1
Ca %(.05)	L	.07	.1	.3	1.5	2	.5	.1	.15
Ti %(.002)	.002	.05	.1	.2	.3	.3	.2	.05	.15
Mn(10)	L	10	2000	500	500	500	G5000	5000	5000
Ag(.5) N	N	N	N	5	300	1	1000	20	5
As(200)	200	200	500	1000	N	N	1500	2000	L
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	15	30	70	20	50	50	N	10
Ba(20)	G5000	G5000	G5000	1000	500	1500	G5000	2000	2000
Be(1)	N	N	3	1.5	L	3	1.5	L	7
Bi(10)	N	N	N	L	N	N	20	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	70	70	7	7	50	70	N
Cr(10)	N	20	30	30	70	50	70	50	N
Cu(5)	30	70	70	15000	G20000	150	2000	1000	G20000
La(20)	N	L	N	20	20	20	L	N	500
Mo(5)	N	10	N	10	L	15	N	N	N
Nb(20)	N	N	N	N	N	L	N	N	N
Ni(5)	L	L	200	100	30	20	200	150	100
Pb(10)	50	100	30	100	70	30	500	30	200
Sb(100)	N	N	N	N	N	N	2000	L	N
Sc(5)	N	L	7	5	5	5	10	7	N
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	5000	1500	L	L	100	200	300	N	N
V(10)	10	50	70	50	100	100	30	100	50
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	N	L	20	10	15	15	15	15	100
Zn(200)	N	N	2000	N	N	N	500	3000	5000
Zr(10)	N	50	50	70	100	70	30	10	300
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	169A	169B	170	171	172	173	174	175	176
Fe %(.05)	3	3	2	7	3	7	7	3	.7
Mg %(.02)	.02	5	2	.07	.02	.5	3	.03	L
Ca %(.05)	.07	15	15	2	.7	15	10	.1	.07
Ti %(.002)	N	.02	.2	.01	L	.2	L	.03	.15
Mn(10)	20	1500	300	3000	500	5000	5000	200	30
Ag(.5)	500	200	1.5	10	300	10	1000	3	1.5
As(200)	1000	N	N	3000	G10000	N	N	N	200
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	N	N	N	L	N	150	10	20
Ba(20)	300	1000	G5000	1000	300	150	20	50	2000
Be(1)	N	L	L	1	L	2	1.5	1.5	N
Bi(10)	1000	10	10	10	500	30	G1000	10	N
Cd(20)	N	G500	N	G500	L	N	150	N	N
Co(5)	N	15	10	L	N	5	30	20	L
Cr(10)	L	10	70	L	10	50	10	30	20
Cu(5)	10000	20000	500	G20000	3000	700	G20000	300	30
La(20)	L	L	20	L	N	N	N	L	30
Mo(5)	150	N	N	20	150	70	N	10	5
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	L	5	50	L	5	10	1.0	50	5
Pb(10)	G20000	1000	100	5000	G20000	1500	1000	50	70
Sb(100)	1500	N	N	L	300	N	N	N	N
Sc(5)	N	N	5	5	5	7	N	N	L
Sn(10)	200	70	N	30	1000	100	100	N	N
Sr(100)	N	N	200	N	N	N	N	N	300
V(10)	N	10	200	15	30	50	L	20	100
W(50)	N	N	N	N	N	N	50	N	N
Y(10)	N	N	20	N	N	10	N	10	10
Zn(200)	500	G10000	300	G10000	2000	300	2000	N	N
Zr(10)	N	15	70	N	N	30	N	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	177	178	179A	179B	180A	180B	181	182	183
Fe %(.05)	.5	3	3	5	20	2	20	7	7
Mg %(.02)	.03	.07	.03	.3	.03	.03	.07	.03	.5
Ca %(.05)	.1	.2	.07	.7	.3	.07	.1	5	15
Ti %(.002)	.05	.3	.07	.5	.01	.015	.02	.003	.01
Mn(10)	3000	2000	15	500	500	150	500	500	1000
Ag(.5)	5	1500	5	L	3	3	N	2	N
As(200)	N	1500	N	N	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	70	150	70	70	N	50	50	N	N
Ba(20)	G5000	700	300	5000	5000	1000	500	200	1000
Be(1)	L	L	2	3	5	N	5	N	2
Bi(10)	N	200	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	100
Co(5)	L	150	N	5	5	L	N	N	L
Cr(10)	20	10	10	200	L	L	L	10	30
Cu(5)	30	20000	50	50	15	20	20	50	30
La(20)	20	50	L	50	N	N	20	20	20
Mo(5)	10	15	L	N	7	N	N	N	N
Nb(20)	N	N	N	L	N	N	N	N	N
Ni(5)	30	150	7	100	70	10	30	5	20
Pb(10)	30	200	2000	200	7000	10000	100	G20000	15000
Sb(100)	150	7000	N	150	N	N	N	N	N
Sc(5)	N	5	N	10	N	N	L	N	N
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	1000	150	N	L	200	N	N	100	150
V(10)	50	50	70	150	500	300	100	100	150
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	L	10	N	15	30	N	20	10	30
Zn(200)	N	300	700	1000	10000	700	5000	5000	10000
Zr(10)	30	100	N	200	N	10	N	N	N
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	184A	184B	185	186	187	188	189A	189B	190
Fe %(.05)	.7	7	G20	3	3	3	20	2	1.5
Mg %(.02)	.1	.1	1	.5	3	.05	.3	.7	5
Ca %(.05)	.5	.05	1	.1	15	.07	.5	3	15
Ti %(.002)	.15	.15	.07	.03	.1	.03	.05	.03	.15
Mn(10)	300	100	1500	1000	1500	70	200	2000	700
Ag(.5)	1	300	20	150	700	500	30	100	10
As(200)	N	3000	N	1500	1500	200	700	700	N
Au(10)	N	N	N	N	N	N	N	N	N.
B(10)	30	200	N	L	2000	20	N	10	200
Ba(20)	1500	200	100	50	500	300	300	50	150
Be(1)	2	1	3	L	1	2	L	L	L
Bi(10)N	N	N	150	700	700	G1000	15	L	150
Cd(20)	N	N	N	L	100	N	500	500	N
Co(5)	5	N	30	20	10	L	N	10	7
Cr(10)	L	10	20	10	50	L	10	20	30
Cu(5)	30	300	7000	10000	G20000	15000	7000	G20000	2000
La(20)	30	L	N	L	30	L	L	30	20
Mo(5)	N	N	10	10	N	20	30	70	N
Nb(20)	N	N	N	N	N	L	N	N	N
Ni(5)	5	L	10	10	20	15	5	5	20
Pb(10)	200	15000	70	1500	200	5000	10000	G20000	500
Sb(100)	N	700	N	L	N	150	300	200	N
Sc(5)	L	5	L	N	5	N	L	L	5
Sn(10)	N	15	200	100	50	70	N	L	70
Sr(100)	100	N	N	N	200	N	L	N	100
V(10)	30	20	20	70	50	30	50	70	30
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	10	10	15	10	15	50	L	10	15
Zn(200)	200	5000	1000	G10000	G10000	500	G10000	G10000	500
Zr(10)	70	70	N	15	50	30	30	15	50
Ti(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	191A	191B	192	193	194A	194B	195	196	197
Fe %(.05)	G20	3	2	3	5	7	.7	5	3
Mg %(.02)	.2	3	1	1	.1	.03	.03	1	.5
Ca %(.05)	.1	15	1	.2	.1	.05	L	1	2
Ti %(.002)	.01	.07	.3	.3	.5	.15	.3	.2	.5
Mn(10)	700	1500	700	1000	15	10	10	3000	300
Ag(.5)	200	5	1	20	N	N	30	500	L
As(200)	N	N	N	N	N	N	N	500	N
Au(10)N	N	N	N	N	N	N	N	30	N
B(10)	N	L	10	N	30	10	N	L	L
Ba(20)	L	700	1000	700	1000	500	1000	1000	1500
Be(1)	N	N	1	L	L	L	N	L	1
Bi(10)	70	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	30	L	7	20	N	N	N	10	7
Cr(10)	N	20	10	100	10	L	L	L	30
Cu(5)	10000	700	30	50	20	15	20	50	20
La(20)	N	N	30	L	20	L	20	L	30
Mo(5)	7	N	N	5	N	N	N	N	N
Nb(20)	N	N	N	N	L	N	N	N	N
Ni(5)	100	15	5	30	L	L	L	7	7
Pb(10)	30	50	50	100	30	30	30	150	50
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	N	5	7	10	10	5	7	5	7
Sn(10)	50	100	N	N	N	N	N	N	N
Sr(100)	N	150	200	200	N	150	200	150	1000
V(10)	70	70	100	100	70	50	30	50	100
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	10	20	15	15	20	10	10	10	15
Zn(200)	1500	1000	N	N	N	N	N	200	N
Zr(10)	N	30	50	50	300	50	70	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	198	199	200						
Fe %(.05)	3	1	3						
Mg %(.02)	.2	.05	.05						
Ca %(.05)	7	3	.07						
Ti %(.002)	.15	.1	.3						
Mn(10)	2000	1000	15						
Ag(.5)	2000	500	10						
As(200)	N	N	N						
Au(10)	L	N	N						
B(10)	L	N	N						
Ba(20)	700	500	1500						
Be(1)	2	N	N						
Bi(10)	N	N	N						
Cd(20)	N	N	N						
Co(5)	5	N	N						
Cr(10)	L	L	10						
Cu(5)	150	7	20						
La(20)	30	20	30						
Mo(5)	N	N	L						
Nb(20)	N	N	L						
Ni(5)	L	L	L						
Pb(10)	7000	700	30						
Sb(100)	200	N	N						
Sc(5)	L	N	7						
Sn(10)	N	N	N						
Sr(100)	300	150	300						
V(10)	20	10	70						
W(50)	N	N	N						
Y(10)	15	10	15						
Zn(200)	3000	L	N						
Zr(10)	70	70	150						
Th(100)	N	N	N						

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	464	465	466	467	468	469	470	471	472
Fe %(.05)	.7	.2	7	.15	.15	.05	.2	.3	15
Mg %(.02)	.05	1.5	.05	.02	L	.07	.05	.02	.03
Ca %(.05)	.2	5	.15	.07	.07	.05	.05	L	.05
Ti %(.002)	.2	.005	.05	.7	.5	G1	.3	.03	.07
Mn(10)	200	700	700	L	L	20	20	20	500
Ag(.5)	L	100	L	.7	.5	2	2	N	N
As(200)	200	N	N	200	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	15	N	50	N	50	70	10	N	N
Ba(20)	1000	G5000	200	300	300	1500	700	100	500
Be(1)	3	5	10	2	L	N	L	3	3
Bi(10)	N	15	N	N	N	N	N	N	N
Cd(20)	N	L	N	N	N	N	N	N	N
Co(5)	L	L	N	L	L	N	N	L	L
Cr(10)	10	L	N	10	10	L	10	L	10
Cu(5)	15	30	20	5	5	7	5	5	15
La(20)	30	20	20	N	L	L	20	L	L
Mo(5)	7	N	N	L	7	L	N	L	N
Nb(20)	L	N	20	20	30	50	20	N	L
Ni(5)	7	7	L	5	5	5	5	5	5
Pb(10)	50	G20000	1500	200	100	100	70	70	30
Sb(100)	N	N	100	N	N	N	N	N	N
Sc(5)	L	N	N	N	N	L	N	N	5
Sn(10)	N	15	G1000	50	15	30	N	N	N
Sr(100)	L	700	N	N	N	N	N	N	N
V(10)	15	L	20	20	70	50	30	15	L
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	100	10	N	N	N	N	20
Zn(200)	N	5000	L	N	N	N	N	N	1000
Zr(10)	200	N	150	200	300	500	100	30	100
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	473	474	475						
Fe %(.05)	.7	1	.7						
Mg %(.02)	.03	L	.02						
Ca %(.05)	.05	.1	.3						
Ti %(.002)	.05	.15	.1						
Mn(10)	100	30	70						
Ag(.5)	500	3	150						
As(200)	N	N	N						
Au(10)	15	N	1						
B(10)	N	L	N						
Ba(20)	300	1500	700						
Be(1)	10	2	3						
Bi(10)	N	N	N						
Cd(20)	N	N	N						
Co(5)	L	N	L						
Cr(10)	L	L	L						
Cu(5)	15	20	15						
La(20)	20	20	20						
Mo(5)	N	N	N						
Nb(20)	L	L	L						
Ni(5)	5	L	L						
Pb(10)	100	150	100						
Sb(100)	N	N	N						
Sc(5)	N	L	L						
Sn(10)	N	N	N						
Sr(100)	N	N	N						
V(10)	15	L	L						
W(50)	N	N	N						
Y(10)	20	50	30						
Zn(200)	N	N	N						
Zr(10)	100	300	300						
Th(100)	N	N	N						

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	501	502							
Fe % (.05)	.3	L							
Mg % (.02)	5	3							
Ca % (.05)	10	3							
Ti % (.002)	.005	.005							
Mn (10)	300	50							
Ag (.5)	5	N							
As (200)	N	N							
Au (10)	N	N							
B (10)	10	N							
Ba (20)	G5000	G5000							
Be (1)	N	N							
Bi (10)	N	N							
Cd (20)	300	N							
Co (5)	N	N							
Cr (10)	10	L							
Cu (5)	30	5							
La (20)	N	N							
Mo (5)	N	N							
Nb (20)	N	N							
Ni (5)	5	L							
Pb (10)	G20000	100							
Sb (100)	N	N							
Sc (5)	N	L							
Sn (10)	N	N							
Sr (100)	2000	5000							
V (10)	10	L							
W (50)	N	N							
Y (10)	10	10							
Zn (200)	G10000	N							
Zr (10)	N	10							
Th (100)	N	N							

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	503	504	505	506	507				
Fe %(.05)	.5	.05	.2	20	.05				
Mg %(.02)	7	3	2	.05	2				
Ca %(.05)	20	20	5	.05	3				
Ti %(.002)	.007	L	.02	.07	.007				
Mn(10)	700	100	70	70	150				
Ag(.5)	L	N	.5	N	N				
As(200)	N	N	N	500	N				
Au(10)	N	N	N	N	N				
B(10)	N	N	N	10	N				
Ba(20)	G5000	G5000	G5000	G5000	G5000				
Be(1)	N	N	N	L	N				
Bi(10)	N	N	N	N	N				
Cd(20)	N	N	N	N	N				
Co(5)	N	N	N	N	N				
Cr(10)	10	L	10	70	L				
Cu(5)	5	5	10	50	L				
La(20)	N	N	N	N	L				
Mo(5)	N	N	L	30	N				
Nb(20)	N	N	N	N	N				
Ni(5)	5	L	L	20	L				
Pb(10)	100	70	50	100	L				
Sb(100)	N	N	N	N	N				
Sc(5)	N	N	L	5	L				
Sn(10)	N	N	N	N	N				
Sr(100)	3000	5000	5000	5000	G5000				
V(10)	20	L	20	500	L				
W(50)	N	N	N	N	N				
Y(10)	10	10	10	10	10				
Zn(200)	N	N	N	500	N				
Zr(10)	L	N	15	30	L				
Th(100)	N	N	N	N	N				

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	511	512							
Fe % (.05)	10	N							
Mg % (.02)	.07	L							
Ca % (.05)	.05	L							
Ti % (.002)	.07	L							
Mn (10)	5000	N							
Ag (.5)	200	N							
As (200)	500	N							
Au (10)	N	N							
B (10)	15	N							
Ba (20)	G5000	G5000							
Be (1)	L	1							
Bi (10)	N	N							
Cd (20)	N	N							
Co (5)	150	N							
Cr (10)	30	L							
Cu (5)	1000	20							
La (20)	N	N							
Mo (5)	10	N							
Nb (20)	N	N							
Ni (5)	150	L							
Pb (10)	150	700							
Sb (100)	1000	N							
Sc (5)	7	L							
Sn (10)	N	N							
Sr (100)	5000	G 5000							
V (10)	20	70							
W (50)	N	N							
Y (10)	10	10							
Zn (200)	700	N							
Zr (10)	30	L							
Th (100)	N	N							

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	522	523	524	525					
Fe %(.05)	1.5	N	.7	.5					
Mg %(.02)	L	L	.2	.03					
Ca %(.05)	L	.05	.05	.05					
Ti %(.002)	.005	.002	.15	.03					
Mn(10)100	100]	N	Lq	10					
Ag(.5)	N	N	N	N					
As(200)	N	N	N	N					
Au(10)	N	N	N	N					
B(10)	N	N	70	L					
Ba(20)	G5000	G5000	G5000	G5000					
Be(1)	N	N	1	N					
Bi(10)	N	N	N	N					
Cd(20)	N	N	N	N					
Co(5)	N	N	N	N					
Cr(10)	10	N	50	15					
Cu(5)	15	L	50	30					
La(20)	N	50	50	L					
Mo(5)	7	N	L	N					
Nb(20)	N	N	N	N					
Ni(5)	L	L	L	L					
Pb(10)	L	L	10	N					
Sb(100)	N	N	N	N					
Sc(5)	L	N	L	L					
Sn(10)	N	N	N	N					
Sr(100)	5000	G5000	5000	2000					
V(10)	20	10	150	50					
W(50)	N	N	N	N					
Y(10)	10	10	10	10					
Zn(200)	N	N	N	N					
Zr(10)	L	10	70	10					
Th(100)	N	N	N	N					

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Sample Description

Sample Number	Location	Description
1540	Quad: Beowawe 15' Sec: 20 T: 33N R: 51E UTM: 4508750 N 0562850 E Marys Claims Marys Mtn. Area	Grey-brown shales & silty shales. Blocky fracture habit, some Fe & MnOxs on surfaces. Sample taken from exposed rock in road cut.
1541	Quad: Beowawe 15' Sec: 21 T: 33N R: 51E UTM: 4508700 N 0562950 E Marys Claims Marys Mtn. Area	Translucent grey barite vein, coarse crystals occurring with Fe & Mn Oxs. Sample taken from floor of terraced cut.
1542	Quad: Frenchie Creek 15' Sec: 23 T: 29N R: 50E UTM: 4466100 N 0559150 E Sample location 1542 Modarelli-Frenchie Creek District	Bleached, silicified & highly Fe stained and/or Fe-replaced volcanic (rhyolite?). Volcanic shows secondar veinlets of Fe. Part of sample consists of limonitic gossan.
1543	Quad: Frenchie Creek 15' Sec: 26 T: 29N R: 50E UTM: 4466950 N 0559350 E Sample location 1543 Modarelli-Frenchie Creek District	Fe-stained & veined, kaolinized volca rock (rhyolite?). Sample taken from shear zone marked by abundant limonit
1544	Quad: Frenchie Creek 15' Sec: 34 T: 29N R: 50E UTM: 4465700 N 0558210 E Big Pole Creek Prospect Modarelli-Frenchie Creek District	Magnetite ore, partially oxidized to hematite. Also smoky quartz gangue & vein with abundant jasper, hematite & limonite. Also some silicified volcanic host rock included.
1545	Quad: Frenchie Creek 15' Sec: 26 T: 29N R: 50E UTM: 4466700 N 0559300 E Sample location 1545 Modarelli-Frenchie Creek District	Rhyodacitic breccia. Breccia is silicified. Volcanic fragments are bleached & altered. Matrix & veinlet consist of FeOxs. Sample from outcrop. No sulfides observed.
1546A	Quad: Frenchie Creek 15' Sec: 13 T: 29N R: 50E UTM: 4470450 N 0560500 E Sample location 1545 Modarelli-Frenchie Creek District	Greenish altered volcanic rock(white altered plag crystals abundant). Rock is also replaced & coated by abundant FeOxs. FeOxs may be derived from alteration of mafics in host.
1546B	Quad: Frenchie Creek 15' Sec: 13 T: 29N R: 50E UTM: 4470450 N 0560500 E Sample location 1546 Modarelli-Frenchie Creek District	Pyrite, chalcopyrite & CuOxs occur in altered volcanic (dacitic?) rock. Some silicified breccia with sulfides & FeOxs also included.
1547A	Quad: Schroeder Mtn. 7 1/2' Sec: 12 T: 34N R: 51E UTM: 4521420 N 0568980 E Queen Ann Mine Maggie Creek District	Fe-rich shale & cherty shale from main open pit. Shale probably contains some barite.

Sample Description

Sample Number	Location	Description
1547B	Quad: Schroeder Mtn. 7 1/2' Sec: 12 T: 34N R: 51E UTM: 4521420 N 0568980 E Queen Ann Mine Maggie Creek District	Grey crystalline barite with FeOxs. Some crystals form rosettes. Sample from ore pile under crusher.
1548A	Quad: Schoeder Mtn. 7 1/2' Sec: 25 T: 34N R: 51E UTM: 4517620 N 0567960 E Rainbow Property? Maggie Creek District	Sample consist of drill cuttings composed of black carbonaceous shale.
1548B	Quad: Schroeder Mtn. 7 1/2' Sec: 25 T: 34N R: 51E UTM: 4517620 N 0567960 E Rainbow Property? Maggie Creek District	Pink-beige calcareous siltstone cut b veins & veinlets of coarse crystallin milky white to grey colored calcite & minor quartz veinlets.
1549	Quad: Welches Canyon 7 1/2' Sec: 10 T: 34N R: 50E UTM: 4520400 N 0556920 E Mond Claims Maggie Creek District	White crystalline quartz veins & veinlets cut black siliceous shale. Fine disseminated pyrite occurs in host.
1550A	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531720 N 0581750 E Sample locations 1550 & 1570 Swales Mtn. District	Brecciated gouge material & skarn wit chrysocolla & limonite showing on surfaces.
1550B	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531720 N 0581750 E Sample location 1550 & 1570 Swales Mtn. District	Greenish, sugary, epidote-garnet skarn. No scheelite observed when lamped. Some crystals of specularite dispersed throughout the sample.
1551	Quad: Horse Creek Valley 15' Sec: 36 T: 27N R: 49E UTM: 4448100 N 0551150 E Sample location 1551 Buckhorn District	Black carbonaceous limestone with fine-grained disseminated sulfides. Fine calcite veins cut limestone. Sample is from pile of drill cuttings
1552A	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4448900 N 0550500 E Unnamed Prospect #1 Buckhorn District	Green, silty shale, altered to clays, coated by FeOxs & containing Fe-stain fractures of unidentified fiberous brown mineral. (Mn mineral?)
1552B	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4448900 N 0550500 E Unnamed Prospect #1 Buckhorn District	Siliceous, cherty grey to green siltstone & shale. Rocks are thin bedded, & Mn-stained. Fractures are filled with fiberous Mn mineral. Some pyrite noted.

Sample Description

Sample Number	Location	Description
1553A	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4449750 N 0550350 E Unnamed Prospect #2 Buckhorn District	Red & grey chert & cherty shale from drill cuttings pile below prospect.
1553B	Quad: Horse Creek Valley 15' Sec: 25? T: 27N R: 49E UTM: 4449750 N 0550350 E Unnamed Prospect #2 Buckhorn District	Beige to pink opalite. Rock is banded, contains drusy lined vugs & shows clots & veins of Fe & clear silica.
1554A	Quad: Horse Creek Valley 15' Sec: 24? T: 27N R: 49E UTM: 4451300 N 0550400 E Shobar claims Buckhorn District	Beige chert breccia. Breccia fragmen are generally small. Matrix is siliceous & in part Fe-rich. Oxidize clots on surfaces may be after pyrite Sample taken from dump.
1554B	Quad: Horse Creek Valley 15' Sec: 24? T: 27N R: 49E UTM: 4451300 N 0550400 E Shobar claims Buckhorn District	Silicified Fe-stained chert breccia. This sample is more Fe-rich than A & was taken from resistant outcrop below dump.
1555	Quad: Cortez 15' Sec: Unsurveyed T: 26N R: 48E UTM: 4443550 N 0535200 E Cortez Metals Mine (Arctic Tunnel) Cortez District	Irregular shaped, somewhat vuggy, white quartz vein occurs in altered intrusive & quartzite host rocks. Sulfides are concentrated near veins & also occur as unoxidized crystals disseminated in host.
	Quad: Sec: T: R: UTM: N E	
1556	Quad: Cortez 15' Sec: Unsurveyed T: 47N R: 27N UTM: 4497000 N 0534100 E Cortez Au Mine Cortez District	Tan to grey colored, laminated, crystalline limestone. Rocks are cut by grey to white, crystalline calcite veins containing FeOxs possibly after pryite. Sample taken from ore stockpile at Cortez Gold Mine millsite.
	Quad: Sec: T: R: UTM: N E	
1557	Quad: Horse Creek Valley 15' Sec: 31 T: 27N R: 49E UTM: 4448300 N 0543425 E Buckhorn Mine - north pit Buckhorn District	Silicified andesite(basalt) breccia from north pit. Breccia contains angular fragments of kaolinized & silicified basalt & some sedimentary fragments cemented by grey amorphous silica.

Sample Description

Sample Number	Location	Description
1558	Quad: Horse Creek Valley 15' Sec: 30? T: 27N R: 49E UTM: 4448900 N 0543400 E Buckhorn Mine - north pit Buckhorn District	Explosion/hydrothermal breccia. Matr is sandy & porous. Rock contains fin ovoid sedimentary fragments. Rock is silicified, Fe stained & contains angular frags of seds & volcanic rock Feoxs occur on fractures & in matrix.
	Quad: Sec: T: R: UTM: N E	
1559	Quad: Rock Creek Ranch 7 1/2' Sec: 26 T: 37N R: 47E UTM: 4544500 N 0531500 E Silver Cloud Mine Ivanhoe District	Opalite with bands of cinnabar & meta-cinnabar. Also some bright yellow oxides possibly after mercury.
1560	Quad: Schroeder Mtn. 7 1/2' Sec: 35 T: 34N R: 51E UTM: 441550 N 0565300 E Gold Quarry Maggie Creek District	Upper plate, jasperoid breccia cemented by silica & Fe & containing fine pebble size fragments cut by silica veinlets. Some finely comminuted lenses cut through rock al
	Quad: Sec: T: R: UTM: N E	*Noted - sample collected by Hal Bonham, NBMG.
1561	Quad: Willow Creek Reservoir 7 1/2' Sec: 25 T: 38N R: 47E UTM: 4554700 N 0532000 E Governor Mine Ivanhoe District	Cream colored opalite with bands of cinnabar & oxidized cinnabar (red & black).
1562	Quad: Schroeder Mtn. 7 1/2' Sec: 34 T: 34N R: 51E UTM: 4515200 N 0565750 E Maggie Creek Open Pit Maggie Creek District	Silicified siltstone breccia. Rock fragments consist of fine laminated red siltstone, quartz vein(?) & possibly igneous(?) fragments. Small drusy quartz &/or jarosite lined vugs
	Quad: Sec: T: R: UTM: N E	occur in sample. Fragments show vitreous grey to clear stockwork veinlets.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1570	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4531860 N 0581680 E Sample location 1550 & 1570 Swales Mtn. District	Dense, garnet-epidote skarn with irregular clots of specular hematite, chalcopyrite, pyrite & bornite in addition to abundant CuOxs on surface No scheelite observed when lamped.
1571A	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Hematitic-limonitic gossan. Vuggy with boxworks.
1571B	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Medium grey limestone with calcite veinlets & veins. Pyrite & chalcopyrite occurs in host & within veins.
1571C	Quad: Swales Mountain 7 1/'2 Sec: 8 T: 35N R: 53E UTM: 4532240 N 0581260 E High Top Claims Swales Mtn. District	Light green, altered monzonitic intrusive with conspicuous clay-alter white plagioclase phenocrysts. Rock contains abundant fine-grained pyrite.
1572	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532320 N 0581285 E High Top Claims Swales Mtn. District	Hematitic, siliceous gossan. Gossan is vuggy & contains some remnant sulfides.
1573	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532640 N 0581500 E Gold Prospect #1 Swales Mtn. District	Greeenish, epidote skarn. Rock is fractured & contains pods & lenses of quartz & sulfides (pyrite & chalcopyrite). Small amount scheelit observed when lamped. FeOxs abundant
1574	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532680 N 0581550 E Gold Prospect #1 Swales Mtn. District	Funky gossan & brecciated quartz vein Some CuOxs noted on brecciated surfac No scheelite when lamped.
1575	Quad: Swales Mountain 7 1/2' Sec: 8 T: 35N R: 53E UTM: 4532550 N 0581480 E Gold Prospect #1 Swales Mtn. District	Cu-bearing skarn & gossan with vugs fillings of hemimorphite.
1576A	Quad: Swales Mountain 7 1/2' Sec: 6 T: 35N R: 53E UTM: 4532860 N 0580100 E Bad Apple Claims Swales Mtn. District	Dark grey siliceous mudstone/chert. Surfaces coated by CuOxs & FeOxs. Some small veinlets of malachite. Rock is slightly gossany.

Sample Description

Sample Number	Location	Description
1576B	Quad: Swales Mountain 7 1/2' Sec: 6 T: 35N R: 53E UTM: 4532860 N 0580100 E Bad Apple Claims Swales Mtn. District	Yellowish, highly altered granitic to quartz monzonitic intrusive (dike?) with coarse quartz & feldspar phenocrysts. Feldspars are completel kaolinized & groundmass is highly Fe-stained.
	Quad: Sec: T: R: UTM: N E	
1577	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584660 N 0583980 E Bell Mine (Generator Pit Jasperoid) Burns Basin District	Dark grey jasperoid with lenses & vugs filled with barite & FeOxs. Rock displays fine network of siliceous & barite filled veinlets.
1578A	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584500 N 0584100 E Bell Mine (Generator Pit) Burns Basin District	Yellow-pink altered shale & mudstone & fault gouge of same. Some limoniti veining & staining. Sample is from Generator Pit.
1578B	Quad: California Mtn. 7 1/2' Sec: 34 T: 41N R: 53E UTM: 4584500 N 0584100 E Bell Mine (Generator Pit) Burns Basin District	Dark grey jasperoid & jasperoid brecc with drusy lined , Fe-stained, vuggy quartz veinlets. Jasperoid co contains scattered clusters of stibni needles, both oxidized & unoxidized. Sample is from Generator Pit.
	Quad: Sec: T: R: UTM: N E	
1579A	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4473670 N 0622100 E Sample site 1579 Gilbert Creek Area	Sheared, smokey to milky quartz vein material. Minor FeOxs & mica (pegmatitic) on selvages.
1579B	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4473670 N 0622100 E Sample site 1579 Gilbert Creek Area	Two mica bearing, granitic pegmatite dike or intrusive rock. Rock is medium to coarse grained, light colored, displays graphic & poikaliti textures & shows some Fe-staining possibly from weathered biotite. Some irregular "veins" of quartz & mi (white) cut rock.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1580	Quad: Jiggs 15' Sec: 9 T: 29N R: 57E UTM: 4474325 N 0622850 E Sample site 1580 Gilbert Canyon Area	K-spar-quartz-white mica pegmatite with a few intergrown blue-green beryl & columbite - tantalite crystals.
1581	Quad: Jiggs 15' Sec: 21,22 T: 28N R: 57E UTM: 4460500 N 0622950 E Ruby Mtn. Zinc Claims Corral Creek Area	Recrystallized & partially silicated limestone. Mottled looking rock contains irregular pods of galena & Fe-stained vugs in recrystallized calcite. Hemimorphite & CuOxs occur in smaller amounts.
	Quad: Sec: T: R: UTM: N E	
1582	Quad: Jiggs 15' Sec: 21 T: 28N R: 57E UTM: 4460500 N 0623030 E Ruby Mtn. Zinc Claims Corral Creek Area	Fe-rich, vuggy gossan with abundant boxwork structures.
1583	Quad: Jiggs 15' Sec: 21 T: 28N R: 57E UTM: 4460650 N 0622320 E Ruby Mtn. Zinc Claims Corral Creek Area	Limonitic gossan with irregular clots & stringers of galena. Galena also occurs in clots up to 2" across in a light green skarn composed predominat of tremolite(?).
1584	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461490 N 0629090 E Sample site 1584 Harrison Pass District	Banded, quartz-rich, garnet-epidote-diopside skarn containing irregular quartz veins. Rocks also contains pyrite, CuOxs, magnetite & gossan. When lamped rock shows abundant coarse flecks scheelite.
	Quad: Sec: T: R: UTM: N E	
1585A	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461860 N 0629160 E Campbell? Prospect Harrison Pass District	White & green banded, epidote-calcite skarn/tactite. When lamped a few sma crystals illuminate a light green color(?), but no scheelite observed.
1585B	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461860 N 0629160 E Campbell? Prospect Harrison Pass District	Green-brown, crystalline, quartz-diopside-epidote tactite. Weakly banded & showing minor scheel when lamped.

Sample Description

Sample Number	Location	Description
1586	Quad: Franklin Lake SW 7 1/2' Sec: 19 T: 28N R: 58E UTM: 4461900 N 0629650 E Sample Site 1586 Harrison Pass District	Very dense, dark green garnet-diopsid skarn cut by sulfide - bearing quartz feldspar veins. Medium flecks scheelite occur within vein. Some CuOxs contained in skarn.
1587	Quad: Franklin Lake SW 7 1/2' Sec: 18 T: 28N R: 58E UTM: 4462540 N 0629500 E Lizzie Claims Harrison Pass District	Dense garnet-epidote-diopside-quartz skarn cut by quartz-feldspar veins up to 1/2" wide. Skarn & veins conta minor amounts of moly. Vitreous grey quartz vein shows abundant powellite when lamped (in one sample).
	Quad: Sec: T: R: UTM: N E	
1588	Quad: Tent Mountain 7 1/2' Sec: 31 T: 35N R: 60E UTM: 4526430 N 0647870 E Sample location 1588 Halleck District	Conglomerate with chert fragments (Diamond Peak Fm.). Conglomerate is silicified & has FeOxs on weathered surfaces & some fine, grey, siliceous veinlets.
1589A	Quad: Lake Mountain 7 1/2' Sec: Unsurveyed T: 38N R: 52E UTM: 4559875 N 0571670 E Stampede Mine Beaver District	Brecciated sheared siliceous sedimen (siltstone/quartzite) with minor deposits of light blue turquoise on fracture surfaces. Some very Fe-stained pieces have fine crystals of jarosite developed on fracture.
	Quad: Sec: T: R: UTM: N E	
1589B	Quad: Lake Mountain 7 1/2' Sec: Unsurveyed T: 38N R: 52E UTM: 4559875 N 0571670 E Stampede Mine Beaver District	Black carbonaceous shale.
1590	Quad: Mt. Blitzen 15' Sec: 21 T: 40N R: 50E UTM: 45776100 N 0556250 E Sample location 1590 Divide District	Altered andesite volcanic rock. Roc contains lithic fragments & shows flow banding. Feldspars are altered to clays. Mafics are oxidized. Fin grains oxidized pyrite occur through rock.
	Quad: Sec: T: R: UTM: N E	

Sample Description

Sample Number	Location	Description
1591A	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580450 N 0554250 E Ruby Claims Divide District	Bleached, silicified rhyolite cut by vuggy, vitreous grey to white quartz veins. Veins contain clots of finely crystalline pyrite & possibly other sulfides. Veins are somewhat banded & contain fragments of altered wallro
	Quad: Sec: T: R: UTM: N E	
1591B	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580450 N 0554250 E Ruby Claims Divide District	Limonitic breccia cemented by gossan. Fragments in breccia include altered rhyolite (Fe-stained), quartz vein material, & barite(?) crystals.
1592A	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mine Divide District	Sugary white quartz vein. FeOxs on weathered surfaces but rock is devoid of impurities & very white. Sample collected to see if rock is possibly zunyite.*
	Quad: Sec: T: R: UTM: N E	* X-ray analysis of sample determined vein is pure quartz.
1592B	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Specularite(?) & pyrite occur as fine crystals along selvages of sugar white quartz vein & siliceous breccia composed of quartz cemented wallrock fragments.
1592C	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Siliceous rhyolite breccia with unoxidized, fine grained pyrite occurring in translucent grey quartz matrix and in altered rhyolite frags. Several generations of siliceous veining (stockworking) & brecciation
	Quad: Sec: T: R: UTM: N E	
1592D	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580750 N 0554250 E Divide Mines Divide District	Siliceous breccia. Cement is vuggy, Fe-stained & composed of grey vitreou crystalline quartz. Fragments includ rhyolite & sedimentary lithologies (grey shale or chert). Pyrite occurs in quartz cement.

Sample Description

Sample Number	Location	Description
1593	Quad: Mt. Blitzen 15' Sec: 1 T: 40N R: 49E UTM: 4579700 N 0551000 E Sample location 1593 Rock Creek District	Dark grey, phenocryst-rich andesite with disseminated sulfides. Also siliceous breccia with abundant sulfides & cinnabar throughout.
1594	Quad: Mt. Blitzen 15' Sec: 12 T: 40N R: 49E UTM: 4578200 N 0550900 E Silver V Claims Rock Creek District	Pyrite is disseminated throughout siliceous breccia. Breccia is cemented by chalcedonic quartz. Frag in breccia are altered volcanic. The frags also contain some sulfides & secondary siliceous veinlets. Mercur oxides occur in vein material.
	Quad: Sec: T: R: UTM: N E	
1595	Quad: Mt. Blitzen 15' Sec: 13 T: 40N R: 49E UTM: 4576900 N 0551050 E Falcon Mine Rock Creek District	Vitreous grey, sugary quartz vein & siliceous breccia (vein breccia) with clots & fragments of fine-grained sulfides throughout. Breccia contain altered volcanic rock fragments.
	Quad: Sec: T: R: UTM: N E	Specularite & bornite also observed.
1596 A	Quad: Mt. Blitzen 15' Sec: 24 T: 40N R: 48E UTM: 4575950 N 0541900 E Rock Creek Prospect Rock Creek District	Silicified (opalized) fine-grained volcanic rock (rhyodacitic?) with masses & clots of cinnabar occurring on fracture surfaces & throughout hos
1596 B	Quad: Mt. Blitzen 15' Sec: 24 T: 40N R: 48E UTM: 4575950 N 0541900 E Rock Creek Prospect Rock Creek District	Well laminated, sugary white opalite. Fossil reed impressions found on bedding surfaces. Rock contains some "sprays" of cinnabar & are Fe-stained.
1597	Quad: Mt. Blitzen 15' Sec: 9 T: 41N R: 49E UTM: 4590400 N 0543250 E Good Hope Mine Good Hope District	Finely crystalline white to grey quartz vein & quartz vein breccia with small pods of sulfides (mostly pyrite). Vein material is Fe-stained brecciated & vuggy. Rock fragments caught in vein are altered volcanics.
1598 A	Quad: Mt. Blitzen 15' Sec: 2 T: 41N R: 49E UTM: 4591100 N 0546800 E Amazon Mine Good Hope District	Black carbonaceous shale, massive fracture habit, with thin discontinuou vugs filled with drusy quartz. Sulfides noted in field notes.

Sample Description

Sample Number	Location	Description
1598B	Quad: Mt. Blitzen 15' Sec: 2 T: 41N R: 49E UTM: 4591100 N 0546800 E Amazon Mine Good Hope District	Blue-green, clay altered rhyolite/dacite tuf White-feldspar phenocrysts completely altered to clays. Minor FeOxs on surfaces. Rocks smell like sulfides.
1599A	Quad: Mt. Blitzen 15' Sec: 18 T: 42N R: 51E UTM: 4598100 N 0559000 E Cornucopia Mine Cornucopia District	Quartz vein, vitreous grey, in altere andesite. Medium grained pyrite throughout host rock & in veins. Rock also cut by Fe-stained veins containing abundant pyrite. Some
	Quad: Sec: T: R: UTM: N E	vein material brecciated & Fe-stained
1599B	Quad: Mt. Blitzen 15' Sec: 19 T: 42N R: 51E UTM: 4598100 N 0559000 E Cornucopia Mine Cornucopia District	Brecciated, gossany quartz vein & Fe-stained & veined altered volcanic rock. Pyrite occurs in sugary white vein material.
1600	Quad: Wilson Reservoir 15' Sec: 18 T: 42N R: 51E UTM: 4598250 N 0559500 E Panther Group? Cornucopia District	Sugary white quartz vein, some brecciated & very Fe-stained. Hematite & limonite staining on shear & weathered surfaces. Some dark lense of sulfides (possibly silver minerals
	Quad: Sec: T: R: UTM: N E	occur in quartz vein.
1601 A	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	Dense, dark green tactite with irregular lenses of pyrite, chalcopyr sphalerite? & galena, all fine-grain & unoxidized. Also bleached, silicat limestone with CuOxs throughout.
1601B	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	White, bleached, silicified rhyolite with oxidized clots of fine-grained pyrite. Fe-replaced feldspars occur in matrix along with quartz & white mica phenocrysts.
1601 C	Quad: Mt. Blitzen 15' Sec: 1 T: 42N R: 51E UTM: 4600600 N 0567625 E Lime Mtn. District	Dark, green-brown, crystalline skarn (garnet - diopside - calcite). Rock contains crystals of vitreous quartz with clots of pyrite or other sulfides.

Sample Description

Sample Number	Location	Description
1602	Quad: Mt. Blitzen 15' Sec: 5 T: 40N R: 50E UTM: 4580600 N 0554275 E Divide Mines Divide District	Sugary white quartz vein & breccia vein. Frgas in breccia vein are comprised of altered volcanic, sediments (?) & pyritic sediments. Veins mostly massive with scattered vugs filled with drusy quartz & are Fe-stained.
	Quad: Sec: T: R: UTM: N E	
1603	Quad: Mt. Blitzen 15' Sec: 16 T: 41N R: 49E UTM: 4588350 N 0542875 E Buckeye & Ohio Mine Good Hope District	Grey to white, sugary quartz vein with abundant prismatic & twinned crystals of arsenopyrite. Some vugs filled with terminated quartz. Small amount altered volcanic wallrock also included.
	Quad: Sec: T: R: UTM: N E	
1604	Quad: Rodeo Creek NE 7 1/2' Sec: 24 T: 35N R: 50E UTM: 4527380 N 0559220 E Sample location 1604 Lynn District	Pulverized, black, carbonaceous shale from drill cuttings pile. Possibly contains minor sulfides.
1605	Quad: Mahala Creek West 7 1/2' Sec: 7 T: 39N R: 54E UTM: 4571400 N 0589190 E Rock Claims Gance Creek Area	Grey & black slates, shales & quartzites, some CuOxs on weathered surfaces. Random black veinlets cut rock, & white yellow & green oxides occur on surfaces. Rock possibly co contains titanium or barium.
	Quad: Sec: T: R: UTM: N E	
1606	Quad: Mahala Creek West 7 1/2' Sec: 35 T: 40N R: 53E UTM: 4573080 N 0586450 E Ed Claims Gance Creek Area	Fe-stained shale & shale-quartzite breccia. Limonite & white crystallir barite on fracture surfaces.
1607	Quad: Mahala Creek West 7 1/2' Sec: 26 T: 40N R: 53E UTM: 4575260 N 0585420 E BB Claims (Black Beauty) Gance Creek Area	Lenses & pods of massive sulfides (mostly pyrite)* in vein with barite gangue or in black shale cut by quartz veins. Possibly ilmenite (Ti) also, although not observed witl hand lens. Shiny manganese masses common. *minor chalcopyrite.

Sample Description

Sample Number	Location	Description
1608	Quad: Franklin Lake SW 7 1/2' Sec: 6 T: 28N R: 58E UTM: 4466340 N 0629870 E Eddie Claims Harrison Pass District	Garnet-epidote-diopside skarn & vitreous white quartz vein. Sample contains some pyrite & chalcopyrite. Skarn shows scattered flecks scheelit when lamped.
1609A	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	Galena-sphalerite-pyrite-chalcopyrite ore in a quartz-tremolite skarn / tactite & in quartz-gossan vein material. Gossan shows minute luminescent flecks of scheelite when lamped.
	Quad: Sec: T: R: UTM: N E	
1609B	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	Sample mostly consists of boxwork gossan & quartz vein, some brecciated Gossan contains unoxidized pods of specular hematite between the boxwork & white aragonite or calcite veinlets & coatings. Also contains abundant minute specks of scheelite.
	Quad: Sec: T: R: UTM: N E	
1609C	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4485400 N 0636625 E Battle Creek Mines Ruby Valley District	White marble, granoblastic texture with oxidized clots of pyrite throughout. Unidentified yellow-brown platy mineral may be mica, Fe-stained calcite, or other mineral.
1610	Quad: Lamoille 15' Sec: 1 T: 30N R: 58E UTM: 4484825 N 0637225 E Battle Creek Mines Ruby Valley District	Glassy grey to white, massive quartz-mica vein with abundant coarse books of white-mica (pegmatitic) & Fe-stain clots & zones due to the oxidation of pyrite.
1611A	Quad: Lamoille 15' Sec: 6 T: 30N R: 59E UTM: 4485500 N 0369050 E Sample location 1611 Ruby Valley District	Light green, white-mica-calcite-tremolite calc-silicate with abundant CuOxs & pyrite throughout. Also some limonitic rock with vugs filled with hemimorphite.
1611B	Quad: Lamoille 15' Sec: 6 T: 30N R: 59E UTM: 4485500 N 0369050 E Sample location 1611 Ruby Valley District	Massive brown sphalerite ore in a gangue of clear to vitreous grey quartz. Vein material. Minor galena.

Sample Description

Sample Number	Location	Description
1612	Quad: California Mtn. 7 1/2' Sec: 11 T: 40N R: 53E UTM: 4580880 N 0585250 E Sample location 1612 Burns Basin District	Grey jasperoid breccia & chert. Samp taken from resistant silicified outcrop & contains pods of barite & fracture surfaces coated by white & orange (Fe-stained) antimony oxides.
1613	Quad: California Mtn. 7 1/2' Sec: 11 T: 40N R: 53E UTM: 4581100 N 0585460 E Birds Eye Prospect Burns Basin District	Dark grey jasperoid with fracture fillings, bedding surface coatings, & scattered clots of oxidized & unoxidized stibnite.
1614	Quad: Bull Run 15' Sec: 5 T: 43N R: 52E UTM: 4611600 N 0570000 E Bull Run Mine Edgemont District	Massive, vitreous, grey-white quartz vein with gossany vug fillings & impure lenses of sulfides, not identified by hand lens, but visible as Fe-stained, pyrite-bearing, dark grey zones. Small amount galena observed in clots in quartz vein.
	Quad: Sec: T: R: UTM: N E	
1615	Quad: Bull Runs 15' Sec: 26 T: 44N R: 52E UTM: 4615000 N 0574800 E Aura King Mine Aura District	Massive, milky white quartz vein in limestone. Vein carries clots of pyrite & galena, in addition to minor CuOxs along fractures.
1616	Quad: Bull Run 15' Sec: 22 T: 44N R: 52E UTM: 4616975 N 0572950 E Blue Jacket Mine Aura District	Milky white quartz vein with inclusio of limestone country rock. Vein contains clots & lenses of pyrite, galena, tetrahedrite, sphalerite(?) & CuOxs. Gosssany (boxwork) vugs occur throughout.
	Quad: Sec: T: R: UTM: N E	
1617	Quad: Bull Run 15' Sec: 21 T: 44N R: 52E UTM: 4616750 N 0571300 E Sample location 1617 Edgemont District	Fractured, Fe-stained quartz vein, massive & milky white in appearance. Vein contains gossany inclusions & yellow-orange boxwork oxides possibly after tetrahedrite(?) or other sulfic
1618	Quad: Bull Run 15' Sec: 29 T: 44N R: 52E UTM: 4615450 N 0570950 E Burns Mine Edgemont District	Massive, milky white quartz vein & gossan with irregular mineralized zo of galena & pyrite, some areas oxidized completely to boxwork FeOxs. Some green anglesite(?) also noted.
		Dark streaks are dispersed sulfides Possibly contains silver minerals. Sample contains some scheelite & powellite.

Sample Description

Sample Number	Location	Description
1619	Quad: Bull Run 15' Sec: 28 T: 44N R: 52E UTM: 4615200 N 0572325 E California Mine Aura District	Quartzite (white, well-sorted) & quartz vein. Quartz vein contains irregular lenses of galena, sphalerit & possibly other sulfides.
1620	Quad: Bull Run 15' Sec: 26 T: 44N R: 52E UTM: 4614850 N 0575050 E Blue Jacket Creek Millsite Mine Aura District	White, Fe-stained quartz vein mostly brecciated & cemented by FeOxs, gossa & sulfides. Sulfides (galena, pyrite chalcopyrite, minor CuOxs) also occur in vein material. Sample taken from beneath crusher at millsite.
	Quad: Sec: T: R: UTM: N E	
1621	Quad: Bull Run 15' Sec: 26 T: 44N R: 52E UTM: 4614800 N 0575750 E Aura Queen Mine Aura District	Brecciated, weakly silicated limeston with minor pyrite. Brecciated rock very Fe-stained, probably contains pyrite & possibly cerussite.
1622	Quad: Bull Run 15' Sec: 25 T: 44N R: 52E UTM: 4614700 N 0577250 E Big Four Mine Aura District	Massive white quartz vein with clots pyrite, galena & sphalerite & coating of malachite & azurite. Some very brecciated gouge material (wallrock & vein) also.
1623	Quad: Bull Run 15' Sec: 19 T: 44N R: 53E UTM: 4615425 N 0579360 E Golden Eagle Mine Aura District	Pyritized calc-silicate. Beige color equigranular. No scheelite observed when lamped.
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	
	Quad: Sec: T: R: UTM: N E	

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	045	046	047					087	088
Fe %(.05)	5	3	1					7	1.5
Mg %(.02)	1	5	.2					1.5	.7
Ca %(.05)	10	7	.05					10	5
Ti %(.002)	.07	.07	N					.2	.1
Mn(10)	G(5000)	1500	700					3000	1000
Ag(.5)	N	50	3					N	5
As(200)	N	N	N					N	N
Au(10)	N	N	N					N	N
B(10)	10	L	L					N	20
Ba(20)	50	200	1000					30	1000
Be(1)	100	2	2					1	L
Bi(10)	200	100	N					N	N
Cd(20)	N	100	500					N	N
Co(5)	5	20	20					N	15
Cr(10)	10	N	N					70	100
Cu(5)	5	1000	150					50	700
La(20)	N	N	N					30	N
Mo(5)	300	N	N					1000	N
Nb(20)	N	N	N					N	N
Ni(5)	5	15	7					30	50
Pb(10)	30	G(20000)	7000					50	50
Sb(100)	N	N	N					N	N
Sc(5)	5	L	N					10	5
Sn(10)	300	N	N					20	N
Sr(100)	L	L	N					L	100
V(10)	150	20	L					70	30
W(50)	1000	N	N					50	N
Y(10)	10	L	N					20	L
Zn(200)	200	G(10000)	G(10000)					L	N
Zr(10)	20	20	N					70	50
Th(100)	N	N	N					N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	130A	130B	131A	131B	132	133	134	135	136
Fe %(.05)	1	.7	1	5	5	3	1	1.5	.15
Mg %(.02)	5	3	3	1	.5	.2	3	.15	.02
Ca %(.05)	20	15	15	1.5	1	1.5	7	.5	.05
Ti %(.002)	.15	.15	.15	.3	.3	.15	.03	.07	.3
Mn(10)	300	700	700	1500	300	500	2000	10	50
Ag(.5)	2	1.5	7	3	1.5	1	300	5	1
As(200)	N	200	1000	2000	1500	1000	N	300	N
Au(10)	N	N	N	N	N	L	N	N	N
B(10)	100	70	L	15	300	200	N	50	10
Ba(20)	150	G5000	2000	1500	700	5000	30	70	30
Be(1)	L	L	10	1	1	L	N	N	N
Bi(10)	N	N	50	150	N	15	N	N	N
Cd(20)	N	N	100	N	N	N	L	N	N
Co(5)	5	15	100	200	10	10	N	N	N
Cr(10)	70	50	100	70	200	50	30	70	15
Cu(5)	100	20	G20000	7000	100	150	500	70	15
La(20)	20	20	30	30	50	20	L	N	20
Mo(5)	5	L	N	10	N	15	L	5	N
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	70	100	200	500	100	100	20	70	5
Pb(10)	100	1000	30	20	70	70	2000	50	20
Sb(100)	N	L	N	200	200	200	200	100	N
Sc(5)	7	5	10	20	10	7	N	N	L
Sn(10)	N	N	N	N	N	N	N	N	10
Sr(100)	200	500	300	100	150	200	N	150	L
V(10)	150	100	150	500	300	500	50	300	30
W(50)	N	N	N	L	N	N	N	N	N
Y(10)	30	20	70	100	30	30	N	15	N
Zn(200)	200	700	1000	1500	700	700	2000	700	N
Zr(10)	70	70	70	100	150	50	L	15	70
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	137A	137B	138	139	140	141	142	143	144
Fe %(.05)	5	1	.7	.5	5	2	10	7	2
Mg %(.02)	.2	L	.03	.03	.3	.15	.2	.02	.15
Ca %(.05)	1	L	.1	.07	.1	.07	.1	L	3
Ti %(.002)	.07	.003	.1	.07	.3	.07	.15	.01	.3
Mn(10)	G5000	1000	150	300	300	150	500	300	300
Ag(.5)	150	L	100	1000	30	150	10	1000	30
As(200)	N	N	5000	2000	3000	1000	3000	7000	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	20	50	30	20	100	20	10	N	L
Ba(20)	5000	200	1000	200	700	300	1000	300	700
Be(1)	1.5	N	N	N	1	L	2	N	3
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	L	500	N
Co(5)	200	5	5	N	5	L	7	5	N
Cr(10)	10	L	30	20	20	30	L	N	N
Cu(5)	500	15	30	100	20	200	100	1500	15
La(20)	L	L	L	N	20	20	L	N	30
Mo(5)	50	N	N	L	7	N	N	N	10
Nb(20)	N	N	N	N	N	N	N	N	L
Ni(5)	200	10	7	10	10	10	10	5	L
Pb(10)	30	10	30	1500	500	10000	1500	G20000	200
Sb(100)	N	N	L	700	100	100	200	700	N
Sc(5)	N	N	L	L	7	L	5	N	10
Sn(10)	N	N	N	15	N	N	N	L	N
Sr(100)	1000	N	L	N	N	N	N	N	N
V(10)	300	15	20	30	100	50	100	15	10
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	15	N	10	10	10	L	50
Zn(200)	N	N	N	N	200	1500	1500	G10000	N
Zr(10)	20	N	100	30	50	20	20	N	200
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	145	146	147	148	149	150	151	152	153
Fe %(.05)	7	7	1.5	7	1.5	10	1.5	.7	5
Mg %(.02)	.1	.05	.03	.1	.05	.15	.05	2	2
Ca %(.05)	.1	.1	L	.1	.07	.05	.07	15	5
Ti %(.002)	.3	.1	.3	.2	.2	.2	.15	.05	.5
Mn(10)	300	300	20	100	150	150	20	500	1000
Ag(.5)	3	50	15	3	200	2	.5	N	5
As(200)	N	N	N	N	N	N	N	N	N
Au(10)	N	N	N	N	L	N	N	N	N
B(10)	L	L	N	N	N	200	70	50	10
Ba(20)	1000	300	1000	1000	700	G5000	1000	500	700
Be(1)	5	7	2	5	5	1.5	1	N	L
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	150	N
Co(5)	L	10	L	L	L	7	5	5	20
Cr(10)	N	N	L	N	L	50	30	20	200
Cu(5)	10	20	7	5	10	50	20	30	7000
La(20)	20	N	50	30	30	L	20	L	30
Mo(5)	N	7	30	5	N	N	N	10	N
Nb(20)	20	L	20	L	L	L	L	N	L
Ni(5)	L	10	5	5	7	70	15	50	150
Pb(10)	70	50	50	30	30	20	20	20	30
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	15	5	N	7	5	10	L	L	15
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	L	150	N	N	N	200	500	200	500
V(10)	30	100	20	L	10	150	100	500	150
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	70	20	70	70	50	15	10	15	20
Zn(200)	200	L	N	700	N	500	N	200	N
Zr(10)	300	150	300	300	300	100	100	15	150
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	154	155A	155B	156	157	158	159	160	161
Fe %(.05)	3	.1	2	L	.05	.7	20	5	.5
Mg %(.02)	.03	.03	.07	.02	7	.07	.07	.2	.02
Ca %(.05)	.15	.05	.07	.1	.07	.05	.07	.5	.7
Ti %(.002)	.03	.01	.2	.1	.003	.03	.003	.07	.05
Mn(10)	100	30	100	L	500	30	150	100	500
Ag(.5)	.5	1500	150	2	.7	10	N	300	1
As(200)	N	N	N	N	N	N	N	7000	N
Au(10)	N	100	L	N	N	N	N	N	N
B(10)	30	10	30	L	N	30	N	100	20
Ba(20)	1500	100	1000	G5000	G5000	G5000	300	200	300
Be(1)	5	3	5	L	N	N	N	L	5
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	N	N	N	N	N	20	N
Cr(10)	20	N	10	N	L	15	N	10	N
Cu(5)	30	15	30	L	5	150	20	G20000	200
La(20)	L	L	L	L	L	L	L	L	20
Mo(5)	L	N	N	N	N	10	70	70	N
Nb(20)	L	N	L	N	N	N	N	N	L
Ni(5)	5	5	5	5	N	15	100	70	5
Pb(10)	30	50	50	30	30	200	2000	100	30
Sb(100)	100	N	100	N	N	L	N	L	N
Sc(5)	N	N	5	N	N	N	N	L	L
Sn(10)	10	N	N	N	N	N	N	N	N
Sr(100)	L	N	N	300	2000	N	N	100	100
V(10)	100	L	30	10	10	20	300	100	15
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	20	N	L	N	10	10	15
Zn(200)	200	N	N	N	N	L	1000	1000	N
Zr(10)	100	L	150	30	10	15	N	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	162	163A	163B	164	165	166	167	168A	168B
Fe %(.05)	1.5	5	10	1	1	3	10	20	1
Mg %(.02)	L	.07	.07	.2	.5	.7	.1	.1	.1
Ca %(.05)	L	.07	.1	.3	1.5	2	.5	.1	.15
Ti %(.002)	.002	.05	.1	.2	.3	.3	.2	.05	.15
Mn(10)	L	10	2000	500	500	500	G5000	5000	5000
Ag(.5) N	N	N	N	5	300	1	1000	20	5
As(200)	200	200	500	1000	N	N	1500	2000	L
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	15	30	70	20	50	50	N	10
Ba(20)	G5000	G5000	G5000	1000	500	1500	G5000	2000	2000
Be(1)	N	N	3	1.5	L	3	1.5	L	7
Bi(10)	N	N	N	L	N	N	20	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	70	70	7	7	50	70	N
Cr(10)	N	20	30	30	70	50	70	50	N
Cu(5)	30	70	70	15000	G20000	150	2000	1000	G20000
La(20)	N	L	N	20	20	20	L	N	500
Mo(5)	N	10	N	10	L	15	N	N	N
Nb(20)	N	N	N	N	N	L	N	N	N
Ni(5)	L	L	200	100	30	20	200	150	100
Pb(10)	50	100	30	100	70	30	500	30	200
Sb(100)	N	N	N	N	N	N	2000	L	N
Sc(5)	N	L	7	5	5	5	10	7	N
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	5000	1500	L	L	100	200	300	N	N
V(10)	10	50	70	50	100	100	30	100	50
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	N	L	20	10	15	15	15	15	100
Zn(200)	N	N	2000	N	N	N	500	3000	5000
Zr(10)	N	50	50	70	100	70	30	10	300
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	169A	169B	170	171	172	173	174	175	176
Fe %(.05)	3	3	2	7	3	7	7	3	.7
Mg %(.02)	.02	5	2	.07	.02	.5	3	.03	L
Ca %(.05)	.07	15	15	2	.7	15	10	.1	.07
Ti %(.002)	N	.02	.2	.01	L	.2	L	.03	.15
Mn(10)	20	1500	300	3000	500	5000	5000	200	30
Ag(.5)	500	200	1.5	10	300	10	1000	3	1.5
As(200)	1000	N	N	3000	G10000	N	N	N	200
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	N	N	N	L	N	150	10	20
Ba(20)	300	1000	G5000	1000	300	150	20	50	2000
Be(1)	N	L	L	1	L	2	1.5	1.5	N
Bi(10)	1000	10	10	10	500	30	G1000	10	N
Cd(20)	N	G500	N	G500	L	N	150	N	N
Co(5)	N	15	10	L	N	5	30	20	L
Cr(10)	L	10	70	L	10	50	10	30	20
Cu(5)	10000	20000	500	G20000	3000	700	G20000	300	30
La(20)	L	L	20	L	N	N	N	L	30
Mo(5)	150	N	N	20	150	70	N	10	5
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	L	5	50	L	5	10	1.0	50	5
Pb(10)	G20000	1000	100	5000	G20000	1500	1000	50	70
Sb(100)	1500	N	N	L	300	N	N	N	N
Sc(5)	N	N	5	5	5	7	N	N	L
Sn(10)	200	70	N	30	1000	100	100	N	N
Sr(100)	N	N	200	N	N	N	N	N	300
V(10)	N	10	200	15	30	50	L	20	100
W(50)	N	N	N	N	N	N	50	N	N
Y(10)	N	N	20	N	N	10	N	10	10
Zn(200)	500	G10000	300	G10000	2000	300	2000	N	N
Zr(10)	N	15	70	N	N	30	N	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	177	178	179A	179B	180A	180B	181	182	183
Fe %(.05)	.5	3	3	5	20	2	20	7	7
Mg %(.02)	.03	.07	.03	.3	.03	.03	.07	.03	.5
Ca %(.05)	.1	.2	.07	.7	.3	.07	.1	5	15
Ti %(.002)	.05	.3	.07	.5	.01	.015	.02	.003	.01
Mn(10)	3000	2000	15	500	500	150	500	500	1000
Ag(.5)	5	1500	5	L	3	3	N	2	N
As(200)	N	1500	N	N	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	70	150	70	70	N	50	50	N	N
Ba(20)	G5000	700	300	5000	5000	1000	500	200	1000
Be(1)	L	L	2	3	5	N	5	N	2
Bi(10)	N	200	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	100
Co(5)	L	150	N	5	5	L	N	N	L
Cr(10)	20	10	10	200	L	L	L	10	30
Cu(5)	30	20000	50	50	15	20	20	50	30
La(20)	20	50	L	50	N	N	20	20	20
Mo(5)	10	15	L	N	7	N	N	N	N
Nb(20)	N	N	N	L	N	N	N	N	N
Ni(5)	30	150	7	100	70	10	30	5	20
Pb(10)	30	200	2000	200	7000	10000	100	G20000	15000
Sb(100)	150	7000	N	150	N	N	N	N	N
Sc(5)	N	5	N	10	N	N	L	N	N
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	1000	150	N	L	200	N	N	100	150
V(10)	50	50	70	150	500	300	100	100	150
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	L	10	N	15	30	N	20	10	30
Zn(200)	N	300	700	1000	10000	700	5000	5000	10000
Zr(10)	30	100	N	200	N	10	N	N	N
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	184A	184B	185	186	187	188	189A	189B	190
Fe %(.05)	.7	7	G20	3	3	3	20	2	1.5
Mg %(.02)	.1	.1	1	.5	3	.05	.3	.7	5
Ca %(.05)	.5	.05	1	.1	15	.07	.5	3	15
Ti %(.002)	.15	.15	.07	.03	.1	.03	.05	.03	.15
Mn(10)	300	100	1500	1000	1500	70	200	2000	700
Ag(.5)	1	300	20	150	700	500	30	100	10
As(200)	N	3000	N	1500	1500	200	700	700	N
Au(10)	N	N	N	N	N	N	N	N	N.
B(10)	30	200	N	L	2000	20	N	10	200
Ba(20)	1500	200	100	50	500	300	300	50	150
Be(1)	2	1	3	L	1	2	L	L	L
Bi(10)N	N	N	150	700	700	G1000	15	L	150
Cd(20)	N	N	N	L	100	N	500	500	N
Co(5)	5	N	30	20	10	L	N	10	7
Cr(10)	L	10	20	10	50	L	10	20	30
Cu(5)	30	300	7000	10000	G20000	15000	7000	G20000	2000
La(20)	30	L	N	L	30	L	L	30	20
Mo(5)	N	N	10	10	N	20	30	70	N
Nb(20)	N	N	N	N	N	L	N	N	N
Ni(5)	5	L	10	10	20	15	5	5	20
Pb(10)	200	15000	70	1500	200	5000	10000	G20000	500
Sb(100)	N	700	N	L	N	150	300	200	N
Sc(5)	L	5	L	N	5	N	L	L	5
Sn(10)	N	15	200	100	50	70	N	L	70
Sr(100)	100	N	N	N	200	N	L	N	100
V(10)	30	20	20	70	50	30	50	70	30
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	10	10	15	10	15	50	L	10	15
Zn(200)	200	5000	1000	G10000	G10000	500	G10000	G10000	500
Zr(10)	70	70	N	15	50	30	30	15	50
Ti(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	191A	191B	192	193	194A	194B	195	196	197
Fe %(.05)	G20	3	2	3	5	7	.7	5	3
Mg %(.02)	.2	3	1	1	.1	.03	.03	1	.5
Ca %(.05)	.1	15	1	.2	.1	.05	L	1	2
Ti %(.002)	.01	.07	.3	.3	.5	.15	.3	.2	.5
Mn(10)	700	1500	700	1000	15	10	10	3000	300
Ag(.5)	200	5	1	20	N	N	30	500	L
As(200)	N	N	N	N	N	N	N	500	N
Au(10)N	N	N	N	N	N	N	N	30	N
B(10)	N	L	10	N	30	10	N	L	L
Ba(20)	L	700	1000	700	1000	500	1000	1000	1500
Be(1)	N	N	1	L	L	L	N	L	1
Bi(10)	70	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	30	L	7	20	N	N	N	10	7
Cr(10)	N	20	10	100	10	L	L	L	30
Cu(5)	10000	700	30	50	20	15	20	50	20
La(20)	N	N	30	L	20	L	20	L	30
Mo(5)	7	N	N	5	N	N	N	N	N
Nb(20)	N	N	N	N	L	N	N	N	N
Ni(5)	100	15	5	30	L	L	L	7	7
Pb(10)	30	50	50	100	30	30	30	150	50
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	N	5	7	10	10	5	7	5	7
Sn(10)	50	100	N	N	N	N	N	N	N
Sr(100)	N	150	200	200	N	150	200	150	1000
V(10)	70	70	100	100	70	50	30	50	100
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	10	20	15	15	20	10	10	10	15
Zn(200)	1500	1000	N	N	N	N	N	200	N
Zr(10)	N	30	50	50	300	50	70	30	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	198	199	200						
Fe %(.05)	3	1	3						
Mg %(.02)	.2	.05	.05						
Ca %(.05)	7	3	.07						
Ti %(.002)	.15	.1	.3						
Mn(10)	2000	1000	15						
Ag(.5)	2000	500	10						
As(200)	N	N	N						
Au(10)	L	N	N						
B(10)	L	N	N						
Ba(20)	700	500	1500						
Be(1)	2	N	N						
Bi(10)	N	N	N						
Cd(20)	N	N	N						
Co(5)	5	N	N						
Cr(10)	L	L	10						
Cu(5)	150	7	20						
La(20)	30	20	30						
Mo(5)	N	N	L						
Nb(20)	N	N	L						
Ni(5)	L	L	L						
Pb(10)	7000	700	30						
Sb(100)	200	N	N						
Sc(5)	L	N	7						
Sn(10)	N	N	N						
Sr(100)	300	150	300						
V(10)	20	10	70						
W(50)	N	N	N						
Y(10)	15	10	15						
Zn(200)	3000	L	N						
Zr(10)	70	70	150						
Th(100)	N	N	N						

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	464	465	466	467	468	469	470	471	472
Fe %(.05)	.7	.2	7	.15	.15	.05	.2	.3	15
Mg %(.02)	.05	1.5	.05	.02	L	.07	.05	.02	.03
Ca %(.05)	.2	5	.15	.07	.07	.05	.05	L	.05
Ti %(.002)	.2	.005	.05	.7	.5	G1	.3	.03	.07
Mn(10)	200	700	700	L	L	20	20	20	500
Ag(.5)	L	100	L	.7	.5	2	2	N	N
As(200)	200	N	N	200	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	15	N	50	N	50	70	10	N	N
Ba(20)	1000	G5000	200	300	300	1500	700	100	500
Be(1)	3	5	10	2	L	N	L	3	3
Bi(10)	N	15	N	N	N	N	N	N	N
Cd(20)	N	L	N	N	N	N	N	N	N
Co(5)	L	L	N	L	L	N	N	L	L
Cr(10)	10	L	N	10	10	L	10	L	10
Cu(5)	15	30	20	5	5	7	5	5	15
La(20)	30	20	20	N	L	L	20	L	L
Mo(5)	7	N	N	L	7	L	N	L	N
Nb(20)	L	N	20	20	30	50	20	N	L
Ni(5)	7	7	L	5	5	5	5	5	5
Pb(10)	50	G20000	1500	200	100	100	70	70	30
Sb(100)	N	N	100	N	N	N	N	N	N
Sc(5)	L	N	N	N	N	L	N	N	5
Sn(10)	N	15	G1000	50	15	30	N	N	N
Sr(100)	L	700	N	N	N	N	N	N	N
V(10)	15	L	20	20	70	50	30	15	L
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	N	100	10	N	N	N	N	20
Zn(200)	N	5000	L	N	N	N	N	N	1000
Zr(10)	200	N	150	200	300	500	100	30	100
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	473	474	475						
Fe %(.05)	.7	1	.7						
Mg %(.02)	.03	L	.02						
Ca %(.05)	.05	.1	.3						
Ti %(.002)	.05	.15	.1						
Mn(10)	100	30	70						
Ag(.5)	500	3	150						
As(200)	N	N	N						
Au(10)	15	N	1						
B(10)	N	L	N						
Ba(20)	300	1500	700						
Be(1)	10	2	3						
Bi(10)	N	N	N						
Cd(20)	N	N	N						
Co(5)	L	N	L						
Cr(10)	L	L	L						
Cu(5)	15	20	15						
La(20)	20	20	20						
Mo(5)	N	N	N						
Nb(20)	L	L	L						
Ni(5)	5	L	L						
Pb(10)	100	150	100						
Sb(100)	N	N	N						
Sc(5)	N	L	L						
Sn(10)	N	N	N						
Sr(100)	N	N	N						
V(10)	15	L	L						
W(50)	N	N	N						
Y(10)	20	50	30						
Zn(200)	N	N	N						
Zr(10)	100	300	300						
Th(100)	N	N	N						

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	501	502							
Fe % (.05)	.3	L							
Mg % (.02)	5	3							
Ca % (.05)	10	3							
Ti % (.002)	.005	.005							
Mn (10)	300	50							
Ag (.5)	5	N							
As (200)	N	N							
Au (10)	N	N							
B (10)	10	N							
Ba (20)	G5000	G5000							
Be (1)	N	N							
Bi (10)	N	N							
Cd (20)	300	N							
Co (5)	N	N							
Cr (10)	10	L							
Cu (5)	30	5							
La (20)	N	N							
Mo (5)	N	N							
Nb (20)	N	N							
Ni (5)	5	L							
Pb (10)	G20000	100							
Sb (100)	N	N							
Sc (5)	N	L							
Sn (10)	N	N							
Sr (100)	2000	5000							
V (10)	10	L							
W (50)	N	N							
Y (10)	10	10							
Zn (200)	G10000	N							
Zr (10)	N	10							
Th (100)	N	N							

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	503	504	505	506	507				
Fe %(.05)	.5	.05	.2	20	.05				
Mg %(.02)	7	3	2	.05	2				
Ca %(.05)	20	20	5	.05	3				
Ti %(.002)	.007	L	.02	.07	.007				
Mn(10)	700	100	70	70	150				
Ag(.5)	L	N	.5	N	N				
As(200)	N	N	N	500	N				
Au(10)	N	N	N	N	N				
B(10)	N	N	N	10	N				
Ba(20)	G5000	G5000	G5000	G5000	G5000				
Be(1)	N	N	N	L	N				
Bi(10)	N	N	N	N	N				
Cd(20)	N	N	N	N	N				
Co(5)	N	N	N	N	N				
Cr(10)	10	L	10	70	L				
Cu(5)	5	5	10	50	L				
La(20)	N	N	N	N	L				
Mo(5)	N	N	L	30	N				
Nb(20)	N	N	N	N	N				
Ni(5)	5	L	L	20	L				
Pb(10)	100	70	50	100	L				
Sb(100)	N	N	N	N	N				
Sc(5)	N	N	L	5	L				
Sn(10)	N	N	N	N	N				
Sr(100)	3000	5000	5000	5000	G5000				
V(10)	20	L	20	500	L				
W(50)	N	N	N	N	N				
Y(10)	10	10	10	10	10				
Zn(200)	N	N	N	500	N				
Zr(10)	L	N	15	30	L				
Th(100)	N	N	N	N	N				

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	511	512							
Fe % (.05)	10	N							
Mg % (.02)	.07	L							
Ca % (.05)	.05	L							
Ti % (.002)	.07	L							
Mn (10)	5000	N							
Ag (.5)	200	N							
As (200)	500	N							
Au (10)	N	N							
B (10)	15	N							
Ba (20)	G5000	G5000							
Be (1)	L	1							
Bi (10)	N	N							
Cd (20)	N	N							
Co (5)	150	N							
Cr (10)	30	L							
Cu (5)	1000	20							
La (20)	N	N							
Mo (5)	10	N							
Nb (20)	N	N							
Ni (5)	150	L							
Pb (10)	150	700							
Sb (100)	1000	N							
Sc (5)	7	L							
Sn (10)	N	N							
Sr (100)	5000	G 5000							
V (10)	20	70							
W (50)	N	N							
Y (10)	10	10							
Zn (200)	700	N							
Zr (10)	30	L							
Th (100)	N	N							

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	522	523	524	525					
Fe %(.05)	1.5	N	.7	.5					
Mg %(.02)	L	L	.2	.03					
Ca %(.05)	L	.05	.05	.05					
Ti %(.002)	.005	.002	.15	.03					
Mn(10)100	100]	N	Lq	10					
Ag(.5)	N	N	N	N					
As(200)	N	N	N	N					
Au(10)	N	N	N	N					
B(10)	N	N	70	L					
Ba(20)	G5000	G5000	G5000	G5000					
Be(1)	N	N	1	N					
Bi(10)	N	N	N	N					
Cd(20)	N	N	N	N					
Co(5)	N	N	N	N					
Cr(10)	10	N	50	15					
Cu(5)	15	L	50	30					
La(20)	N	50	50	L					
Mo(5)	7	N	L	N					
Nb(20)	N	N	N	N					
Ni(5)	L	L	L	L					
Pb(10)	L	L	10	N					
Sb(100)	N	N	N	N					
Sc(5)	L	N	L	L					
Sn(10)	N	N	N	N					
Sr(100)	5000	G5000	5000	2000					
V(10)	20	10	150	50					
W(50)	N	N	N	N					
Y(10)	10	10	10	10					
Zn(200)	N	N	N	N					
Zr(10)	L	10	70	10					
Th(100)	N	N	N	N					

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	553	554	555	556	557				
Fe % (.05)	7	5	5	5	5				
Mg % (.02)	1	.05	.03	.05	.3				
Ca % (.05)	3	.1	.07	.3	.07				
Ti % (.002)	.5	.3	.1	.05	.3				
Mn (10)	G5000	300	150	500	100				
Ag (.5)	N	3	50	1000	5				
As (200)	N	N	N	500	500				
Au (10)	N	N	N	N	N				
B (10)	N	10	10	100	15				
Ba (20)	5000	1500	700	200	1500				
Be (1)	5	3	5	L	1				
Bi (10)	N	N	N	N	N				
Cd (20)	N	N	N	L	N				
Co (5)	30	N	5	L	N				
Cr (10)	N	N	N	70	L				
Cu (5)	30	20	10	5000	10				
La (20)	30	N	L	30	30				
Mo (5)	10	N	N	200	L				
Nb (20)	N	L	L	N	L				
Ni (5)	L	L	5	70	L				
Pb (10)	500	200	20	G20000	50				
Sb (100)	N	N	N	5000	L				
Sc (5)	20	7	5	5	7				
Sn (10)	20	N	N	150	1				
Sr (100)	300	N	N	300	200				
V (10)	100	L	15	1000	70				
W (50)	N	N	N	N	N				
Y (10)	30	30	20	70	10				
Zn (200)	L	N	300	1000	N				
Zr (10)	150	300	100	20	150				
Th (100)	N	N	N	N	N				

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1097	1098	1099	1100					
Fe %(.05)	2	7	.7	7					
Mg %(.02)	.5	.7	.15	1.5					
Ca %(.05)	7	2	5	10					
Ti %(.002)	.03	.05	.03	.1					
Mn(10)	2000	1000	700	5000					
Ag(.5)	10	10	5	N					
As(200)	G10000	G10000	L	N					
Au(10)	N	N	N	N					
B(10)	10	150	30	70					
Ba(20)	150	100	150	150					
Be(1)	N	L	N	2					
Bi(10)	G1000	70	300	L					
Cd(20)	N	N	N	N					
Co(5)	7	5	L	50					
Cr(10)	15	30	30	30					
Cu(5)	5000	150	700	500					
La(20)	30	N	L	N					
Mo(5)	N	N	N	1000					
Nb(20)	N	N	N	N					
Ni(5)	—	20	20	15					
Pb(10)	1000	500	30	15					
Sb(100)	10000	200	N	N					
Sc(5)	L	5	N	5					
Sn(10)	N	N	N	15					
Sr(100)	200	100	N	N					
V(10)	10	30	15	70					
W(50)	N	N	N	N					
Y(10)	N	10	N	15					
Zn(200)	500	300	N	N					
Zr(10)	N	15	10	20					
Th(100)	N	N	N	N					

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1501	1502	1503	1504	1505	1506	1507	1508	1509
Fe %(.05)	.5	.15	5	5	7	1.5	1	15	10
Mg %(.02)	.05	.03	.02	L	.15	.5	.03	.03	.03
Ca %(.05)	1.5	1	1	L	.07	..5	.07	.05	.07
Ti %(.002)	.2	.15	.7	.005	.2	.5	.15	.01	.2
Mn(10)	100	150	150	10	10	20	L	1000	200
Ag(.5)	.5	.7	L	N	N	N	1	N	N
As(200)	N	N	N	1500	700	N	1500	2000	500
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	15	N	N	300	300	20	N	N
Ba(20)	500	500	500	G5000	5000	3000	G5000	G5000	3000
Be(1)	3	1	N	N	N	L	N	5	N
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	L	N	N	N	L	L	N	L
Cr(10)	N	L	L	L	70	70	20	20	20
Cu(5)	15	5	30	10	30	50	15	50	15
La(20)	20	20	30	N	L	30	L	N	L
Mo(5)	L	L	L	N	N	N	N	N	N
Nb(20)	L	L	L	N	L	L	N	N	L
Ni(5)	5	5	L	L	7	15	5	20	15
Pb(10)	20	20	30	20	30	30	30	70	150
Sb(100)	N	N	N	N	N	N	150	N	N
Sc(5)	5	N	10	N	5	7	L	L	N
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	N	N	500	1500	200	150	700	1000	N
V(10)	50	20	300	70	500	300	70	50	100
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	15	N	10	N	10	20	L	N	10
Zn(200)	N	N	N	N	N	N	N	10000	700
Zr(10)	100	70	150	N	100	100	50	N	70
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1510	1511	1512A	1512B	1513	1514	1515	1516A	1516B
Fe %(.05)	1	.7	10	7	20	3	.1	.07	7
Mg %(.02)	.02	.03	.1	.1	.05	.05	.05	.02	2
Ca %(.05)	.05	.1	.1	1.5	.15	.07	.1	.1	5
Ti %(.002)	.07	.1	.5	G1	.3	.5	.03	.2	1
Mn(10)	70	10	150	100	2000	70	10	70	1000
Ag(.5)	N	10	70	10	10	50	N	10	N
As(200)	N	N	2000	1000	1500	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	50	50	N	N	N	N	10	20	N
Ba(20)	300	500	300	500	700	2000	100	500	700
Be(1)	3	N	N	L	10	N	1	1.5	N
Bi(10)	N	10	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	5	L	70	L	L	N	20
Cr(10)	15	50	30	30	30	20	L	10	30
Cu(5)	7	100	100	30	100	30	5	7	15
La(20)	20	L	N	20	N	N	N	L	20
Mo(5)	L	L	100	50	100	50	N	N	N
Nb(20)	L	N	L	L	N	N	N	N	L
Ni(5)	5	5	L	L	20	5	5	5	5
Pb(10)	30	1000	150	100	70	70	30	50	30
Sb(100)	N	N	100	100	300	100	N	500	N
Sc(5)	L	N	10	20	30	7	N	N	20
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	N	500	N	N	200	N	N	N	500
V(10)	15	50	200	200	300	150	15	15	300
W(50)	N	N	N	L	N	N	N	N	N
Y(10)	10	L	20	30	50	10	N	N	30
Zn(200)	N	N	N	N	300	N	N	N	N
Zr(10)	50	100	100	300	20	70	10	70	100
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1517A	1517B	1517C	1518A	1518B	1519	1520	1521	1522
Fe %(.05)	.7	.3	1.5	3	1.5	1.5	10	3	10
Mg %(.02)	.2	.07	.2	.15	.1	3	5	5	.05
Ca %(.05)	.3	.05	.07	.1	.1	15	15	15	.15
Ti %(.002)	.2	.7	.2	.2	.2	.2	.05	.05	.05
Mn(10)	150	L	10	100	50	700	5000	5000	500
Ag(.5)	N	N	N	1.5	N	N	150	700	700
As(200)	300	700	500	1000	500	N	G10000	3000	G10000
Au(10)	N	N	N	N	N	N	N	N	15
B(10)	100	30	100	100	100	150	N	N	10
Ba(20)	150	200	700	500	500	150	2000	L	70
Be(1)	L	1	2	2	1.5	1	N	N	1.5
Bi(10)	N	N	N	N	N	N	70	N	N
Cd(20)	N	N	N	N	N	N	500	150	G500
Co(5)	5	5	5	5	N	7	N	N	N
Cr(10)	20	300	30	50	20	70	10	15	L
Cu(5)	20	20	20	70	7	10	150	500	1000
La(20)	20	30	20	20	20	20	L	L	20
Mo(5)	15	L	15	10	7	N	N	5	N
Nb(20)	N	L	N	L	N	N	N	N	N
Ni(5)	30	10	30	50	10	20	5	15	L
Pb(10)	50	20	30	50	30	30	7000	20000	G20000
Sb(100)	L	N	N	150	500	N	200	1500	10000
Sc(5)	L	10	L	7	N	10	L	L	L
Sn(10)	N	N	N	N	N	N	N	300	15
Sr(100)	N	N	100	L	N	300	150	100	N
V(10)	300	200	50	300	30	50	100	50	15
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	20	20	20	L	20	20	10	10
Zn(200)	200	N	N	200	N	N	N	G10000	10000
Zr(10)	100	70	150	100	50	50	10	15	20
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1523	1524	1525	1526	1527	1528	1529	1530	1531
Fe %(.05)	.3	.5	.7	10	20	15	20	5	20
Mg %(.02)	.5	.2	2	2	.15	.1	.07	.05	.1
Ca %(.05)	3	20	20	7	1	1	.1	.15	.5
Ti %(.002)	.07	.15	.2	.1	.02	.15	.1	.5	.3
Mn(10)	2000	300	700	5000	1500	700	300	1500	500
Ag(.5)	7	N	N	N	N	3	N	3	1
As(200)	N	N	N	N	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	100	50	N	N	N	N	50	15	N
Ba(20)	150	30	50	30	500	500	700	700	700
Be(1)	2	L	L	15	2	2	1	3	L
Bi(10)	N	N	N	N	N	N	N	N	100
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	N	N	N	10	70	50	30	L	30
Cr(10)	N	50	70	30	20	N	15	30	N
Cu(5)	5	L	20	300	150	30	20	50	500
La(20)	20	20	20	N	70	50	100	50	50
Mo(5)	N	N	N	5	N	N	N	N	N
Nb(20)	N	N	N	N	N	N	N	L	N
Ni(5)	L	5	10	20	150	50	100	15	50
Pb(10)	200	50	20	20	30	200	20	200	150
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	L	L	L	L	N	L	N	5	N
Sn(10)	N	N	N	N	10	50	30	N	N
Sr(100)	100	700	700	150	N	150	500	300	N
V(10)	L	30	50	300	500	300	700	150	700
W(50) N	N	N	N	150	N	N	N	N	N
Y(10)	20	20	20	15	50	15	50	20	70
Zn(200)	G10000	N	N	N	2000	200	N	500	N
Zr(10)	20	30	30	30	N	30	N	200	10
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1532	1533	1534	1535	1536	1537A	1537B	1538	1539
Fe %(.05)	20	3	15	15	3	3	3	.7	1
Mg %(.02)	.1	.5	.5	.02	.07	.05	.07	.05	.15
Ca %(.05)	.7	1.5	3	1	.2	.07	.07	.2	.3
Ti %(.002)	.03	.007	.015	.02	.03	.1	.2	.07	.15
Mn(10)	G5000	G5000	G5000	1500	150	50	20	30	70
Ag(.5)	100	300	300	500	2	N	100	3	7
As(200)	500	N	300	700	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	10	N	N	30	150	150	70	150
Ba(20)	2000	500	500	3000	G5000	G5000	5000	700	700
Be(1)	5	1	30	15	3	N	L	L	L
Bi(10)	100	300	G1000	300	N	N	N	N	L
Cd(20)	N	G500	100	500	N	N	N	N	N
Co(5)	100	30	5	10	5	L	15	N	7
Cr(10)	N	L	15	N	10	50	30	50	100
Cu(5)	G20000	20000	G20000	G20000	500	300	G20000	700	500
La(20)	N	N	G1000	L	L	L	L	L	20
Mo(5)	100	100	100	50	N	N	30	15	50
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	10	5	70	7	50	20	100	10	150
Pb(10)	150	G20000	1500	5000	100	50	150	30	100
Sb(100)	N	N	N	L	N	N	N	N	N
Sc(5)	L	N	15	L	L	L	5	L	5
Sn(10)	200	150	100	N	N	N	N	N	N
Sr(100)	N	N	N	N	2000	1500	500	150	150
V(10)	15	L	20	10	50	300	300	2000	3000
W(50)	70	L	70	N	N	N	N	N	N
Y(10)	L	L	500	30	20	N	10	15	50
Zn(200)	2000	G10000	5000	G10000	500	300	500	N	5000
Zr(10)	L	N	N	N	N	50	50	30	50
Th(100)	N	N	N	N	N	N	N	N	N

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Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1540	1541	1542	1543	1544	1545	1546A	1546B	1547A
Fe %(.05)	2	.3	3	3	20	15	3	5	15
Mg %(.02)	1.5	.03	.1	.3	.1	.7	.5	1	.2
Ca %(.05)	1.5	L	.2	2	3	3	2	.7	.7
Ti %(.002)	.3	.02	.5	.7	.3	.3	.5	.5	.1
Mn(10)	300	70	1000	1500	700	5000	1000	500	5000
Ag(.5)	1	L	N	N	10	N	300	1000	L
As(200)	N	N	N	N	N	N	N	N	200
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	200	L	150	100	10	50	20	15	50
Ba(20)	700	G5000	1000	1000	2000	700	700	5000	G5000
Be(1)	1.5	N	1.5	2	3	2	1	1	7
Bi(10)	L	N	N	N	N	N	L	L	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	10	N	10	7	30	10	30	50	5
Cr(10)	70	L	70	30	20	15	100	70	30
Cu(5)	150	50	30	20	30	70	7000	G20000	300
La(20)	30	L	30	30	500	30	30	50	20
Mo(5)	50	N	N	N	N	L	L	7	N
Nb(20)	N	N	L	L	N	N	L	N	N
Ni(5)	100	L	20	10	70	15	150	100	70
Pb(10)	50	N	10	50	1500	30	30	70	1500
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	10	N	7	7	10	7	10	7	5
Sn(10)	N	N	N	N	15	N	N	L	N
Sr(100)	L	500	300	500	100	300	300	200	150
V(10)	150	10	100	150	700	100	150	150	300
W(50)	N	N	N	N	N	N	N	N	70
Y(10)	20	L	20	20	100	30	20	10	50
Zn(200)	N	N	N	500	7000	N	N	N	1000
Zr(10)	100	L	200	300	50	70	200	100	15
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
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1548B
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1547B	1548A	1549	1550A	1550B	1551	1552A	1552B	1553A
Fe %(.05)	10	1.5	.3	15	7	.5	10	7	1
Mg %(.02)	.1	.5	1	1.5	2	2	1	.2	.5
Ca %(.05)	1	.7	5	5	15	15	.7	.07	.05
Ti %(.002)	.03	.2	.1	.15	.3	.07	.3	.1	.3
Mn(10)	150	100	150	5000	3000	150	G5000	G5000	70
Ag(.5)	N	L	5	200	N	3	N	N	1
As(200)	N	N	N	N	N	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	200	70	N	N	70	300	100	300
Ba(20)	G5000	1000	150	700	300	300	2000	700	500
Be(1)	L	L	N	2	N	N	5	1.5	L
Bi(10)	N	N	N	50	20	N	N	N	N
Cd(20)	N	N	N	100	N	N	N	N	N
Co(5)	L	7	5	500	5	N	50	70	L
Cr(10)	L	50	30	70	70	100	20	10	70
Cu(5)	70	70	20	G20000	300	50	500	200	50
La(20)	20	20	20	L	20	20	30	20	20
Mo(5)	10	20	L	N	N	10	N	5	N
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	7	50	20	200	20	70	70	70	20
Pb(10)	1000	30	30	300	30	20	1500	70	20
Sb(100)	N	N	N	N	N	N	N	N	N
Sc(5)	L	5	L	5	7	L	15	5	5
Sn(10)	N	N	N	20	70	N	N	N	N
Sr(100)	3000	N	L	N	L	200	L	N	N
V(10)	150	700	300	200	300	700	500	100	300
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	N	15	15	15	30	20	50	20	15
Zn(200)	N	N	500	G10000	1000	700	N	N	N
Zr(10)	15	50	150	50	100	30	50	30	70
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1548B								
Fe % (.05)	.7								
Mg % (.02)	2								
Ca % (.05)	15								
Ti % (.002)	.2								
Mn (10)	300								
Ag (.5)	.7								
As (200)	300								
Au (10)	N								
B (10)	70								
Ba (20)	200								
Be (1)	L								
Bi (10)	N								
Cd (20)	N								
Co (5)	5								
Cr (10)	30								
Cu (5)	30								
La (20)	20								
Mo (5)	7								
Nb (20)	N								
Ni (5)	20								
Pb (10)	30								
Sb (100)	200								
Sc (5)	5								
Sn (10)	N								
Sr (100)	N								
V (10)	100								
W (50)	N								
Y (10)	15								
Zn (200)	N								
Zr (10)	100								
Th (100)	N								

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1553A	1553B	1554A	1554B	1555	1556	1557	1558	1559
Fe %(.05)	1	5	2	3	5	1.5	5	3	L
Mg %(.02)	.5	.02	.07	.05	1	2	.05	.05	L
Ca %(.05)	.05	.07	.07	.15	1.5	10	.07	.07	.05
Ti %(.002)	.3	.2	.07	.15	.3	.2	.3	.2	.3
Mn(10)	70	20	70	150	1000	200	10	70	30
Ag(.5)	1	L	5	N	700	10	30	700	2
As(200)	N	N	N	N	1000	L	200	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	300	50	70	20	70	100	N	N	20
Ba(20)	500	200	300	500	50	700	300	300	70
Be(1)	L	N	L	N	1	L	N	N	1
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	L	N	N	N	N
Co(5)	L	N	5	L	15	L	N	N	L
Cr(10)	70	20	20	20	200	70	20	30	L
Cu(5)	50	30	30	50	300	30	20	30	5
La(20)	20	20	L	L	20	20	20	N	20
Mo(5)	N	N	N	L	15	5	20	300	7
Nb(20)	N	N	N	N	N	N	N	N	30
Ni(5)	20	5	20	7	70	20	L	5	L
Pb(10)	20	50	10	50	3000	30	30	15	15
Sb(100)	N	N	N	N	1500	100	N	L	N
Sc(5)	5	L	L	N	10	7	10	7	L
Sn(10)	N	N	N	N	10	N	N	N	20
Sr(100)	N	N	N	L	N	150	300	300	N
V(10)	300	50	150	150	100	150	150	150	15
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	15	15	L	N	10	15	L	N	L
Zn(200)	N	N	N	N	5000	N	N	N	N
Zr(10)	70	70	20	15	50	100	50	30	300
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1560	1561	1562						
Fe %(.05)	.3	.2	2						
Mg %(.02)	.05	.1	.3						
Ca %(.05)	.1	.3	1						
Ti %(.002)	.3	.7	.1						
Mn(10)	70	15	500						
Ag(.5)	100	2	7						
As(200)	N	N	1500						
Au(10)	N	N	10						
B(10)	20	100	100						
Ba(20)	G5000	1500	100						
Be(1)	N	N	5						
Bi(10)	L	N	15						
Cd(20)	N	N	300						
Co(5)	L	L	100						
Cr(10)	20	20	50						
Cu(5)	20	5	100						
La(20)	20	L	20						
Mo(5)	5	N	L						
Nb(20)	L	50	N						
Ni(5)	15	10	500						
Pb(10)	1500	10	100						
Sb(100)	700	N	1500						
Sc(5)	L	L	5						
Sn(10)	30	20	L						
Sr(100)	100	N	N						
V(10)	200	30	300						
W(50)	N	N	150						
Y(10)	L	L	20						
Zn(200)	N	N	3000						
Zr(10)	70	300	30						
Th(100)	N	N	N						

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1570	1571A	1571B	1571C	1572	1573	1574	1575	1576A
Fe %(.05)	10	20	3	2	G20	7	7	10	10
Mg %(.02)	1	.15	5	1	.3	.7	.15	.7	.1
Ca %(.05)	15	.15	15	.2	.05	15	.3	10	1
Ti %(.002)	.2	.05	.2	.5	.02	.15	.015	.3	.05
Mn(10)	2000	300	2000	700	1000	5000	500	5000	200
Ag(.5)	100	150	2	3	N	300	300	50	70
As(200)	N	1000	N	N	N	N	300	N	1000
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	N	N	10	N	10	15	10	N
Ba(20)	150	500	1000	2000	1000	150	150	150	2000
Be(1)	N	L	L	1	N	L	3	1.5	3
Bi(10)	N	N	N	N	N	1000	G1000	30	1000
Cd(20)	N	100	N	N	300	G500	200	200	N
Co(5)	30	N	7	7	10	100	15	30	50
Cr(10)	50	20	30	20	20	L	20	50	50
Cu(5)	10000	1000	50	20	700	7000	5000	15000	G20000
La(20)	N	N	20	30	N	100	N	N	G1000
Mo(5)	N	30	15	N	10	N	50	N	150
Nb(20)	N	N	N	L	N	L	N	L	N
Ni(5)	100	20	30	10	30	30	5	50	300
Pb(10)	50	G20000	300	1500	100	700	1500	70	70
Sb(100)	N	300	N	N	N	N	300	N	N
Sc(5)	5	5	7	5	N	L	L	7	5
Sn(10)	30	N	L	L	20	30	N	10	70
Sr(100)	N	N	500	150	N	700	N	N	L
V(10)	100	200	100	100	100	150	100	150	700
W(50)	N	N	N	N	N	70	100	N	N
Y(10)	15	15	20	15	L	20	L	20	70
Zn(200)	5000	G10000	700	1000	G10000	G10000	G10000	G10000	1000
Zr(10)	30	20	50	70	N	150	15	50	10
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1576B	1577	1578A	1578B	1579A	1579B			
Fe %(.05)	1	.3	3	.5	.1	.3			
Mg %(.02)	.07	.07	.7	.1	L	.03			
Ca %(.05)	.1	.2	.15	.07	.05	.3			
Ti %(.002)	.3	.05	.5	.07	.003	.05			
Mn(10)	500	50	150	L	L	150			
Ag(.5)	3	.5	L	3	N	L			
As(200)	N	N	200	200	N	N			
Au(10)	N	N	N	N	N	N			
B(10)	N	20	200	50	N	N			
Ba(20)	G5000	G5000	700	300	L	100			
Be(1)	1.5	1	2	L	3	10			
Bi(10)	L	N	N	N	N	N			
Cd(20)	N	N	N	N	N	N			
Co(5)	7	N	7	N	N	N			
Cr(10)	L	30	70	30	L	10			
Cu(5)	500	30	30	20	15	20			
La(20)	50	20	30	20	N	L			
Mo(5)	15	15	10	N	N	N			
Nb(20)	L	N	L	N	N	20			
Ni(5)	50	15	30	10	L	5			
Pb(10)	70	300	50	100	50	70			
Sb(100)	N	500	200	5000	N	N			
Sc(5)	L	N	10	N	N	L			
Sn(10)	L	N	N	N	N	20			
Sr(100)	150	150	N	N	N	N			
V(10)	100	70	200	30	10	10			
W(50)	N	N	N	N	N	N			
Y(10)	15	10	15	N	N	50			
Zn(200)	N	N	700	N	N	N			
Zr(10)	100	20	70	15	L	15			
Th(100)	N	N	N	N	N	N			

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1580	1581	1582	1583	1584	1585A	1585B	1586	1587
Fe %(.05)	.3	.7	G20	1.5	7	1.5	3	3	3
Mg %(.02)	.05	.2	.3	5	1.5	1.5	1.5	2	.7
Ca %(.05)	.2	10	.1	5	15	20	10	7	10
Ti %(.002)	.02	.02	.015	.01	.03	.15	.1	.03	.07
Mn(10)	150	300	500	1000	1500	1000	5000	5000	G5000
Ag(.5)	L	15	5	300	70	N	N	7	70
As(200)	N	N	N	N	N	N	300	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	N	N	N	N	30	N	10	N
Ba(20)	150	5000	700	700	70	20	100	20	70
Be(1)	30	L	N	5	7	7	30	30	5
Bi(10)	N	10	N	100	100	50	30	150	500
Cd(20)	N	N	70	300	G500	N	N	N	N
Co(5)	N	L	L	30	7	7	7	7	5
Cr(10)	N	N	L	L	L	30	20	15	15
Cu(5)	7	1000	10000	1000	3000	15	10	5000	50
La(20)	20	L	N	N	N	20	20	N	L
Mo(5)	N	7	10	20	15	50	N	100	7
Nb(20)	20	L	N	N	N	N	N	N	N
Ni(5)	L	10	50	15	7	10	5	L	L
Pb(10)	70	G20000	1000	G20000	2000	200	100	150	1500
Sb(100)	N	N	N	100	N	N	N	N	N
Sc(5)	N	N	N	N	L	5	10	L	L
Sn(10)	20	L	N	70	30	30	200	150	500
Sr(100)	N	3000	N	100	L	300	300	N	N
V(10)	10	15	10	20	50	30	100	70	100
W(50)	N	N	N	N	700	70	N	300	N
Y(10)	L	L	L	N	20	20	20	15	20
Zn(200)	N	1000	10000	G10000	G10000	N	1000	1000	L
Zr(10)	15	10	N	10	20	30	70	10	20
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Added JAN 3 84

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1588	1589A	1589B	1590	1591A	1591B	1592A	1592B	1592C
Fe %(.05)	.1	1.5	.5	.3	.3	5	L	.05	.1
Mg %(.02)	.05	.07	.1	.2	.1	.15	.03	.15	.2
Ca %(.05)	.07	.05	L	.05	L	L	L	L	L
Ti %(.002)	.015	.015	.02	.05	.01	.015	N	.03	.07
Mn(10)	70	50	L	300	30	700	15	15	10
Ag(.5)	2	7	7	3	700	30	7	2000	7
As(200)	N	N	N	N	1500	2000	300	1500	700
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	30	50	50	N	N	N	N	L	N
Ba(20)	1500	700	300	1500	5000	G5000	300	300	1500
Be(1)	N	N	N	N	L	5	N	L	L
Bi(10)	N	N	N	N	N	N	N	N	N
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	L	N	N	N	N	7	N	N	N
Cr(10)	20	50	100	L	L	L	10	20	20
Cu(5)	10	1000	1000	L	15	15	N	20	7
La(20)	L	20	20	30	L	20	N	L	20
Mo(5)	N	10	50	N	N	N	N	N	N
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	L	30	50	L	L	20	10	L	L
Pb(10)	50	30	50	70	70	100	20	70	30
Sb(100)	N	N	N	N	700	700	N	1500	N
Sc(5)	L	L	5	5	N	L	N	N	L
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	N	150	N	150	N	300	N	N	L
V(10)	20	700	1000	L	L	L	N	10	15
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	N	50	30	15	N	10	N	N	L
Zn(200)	N	300	N	N	N	500	N	N	N
Zr(10)	15	20	30	100	15	50	N	50	30
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Added

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1592D	1593	1594	1595					
Fe %(.05)	.3	2	.5	.5					
Mg %(.02)	.1	.5	.1	.07					
Ca %(.05)	L	.5	L	L					
Ti %(.002)	.07	.1	.07	.05					
Mn(10)	L	150	10	L					
Ag(.5)	70	N	150	100					
As(200)	7000	N	10000	5000					
Au(10)	N	N	N	N					
B(10)	N	N	N	N					
Ba(20)	2000	1000	300	300					
Be(1)	L	L	N	1					
Bi(10)	N	N	N	N					
Cd(20)	N	N	N	N					
Co(5)	N	5	N	L					
Cr(10)	50	20	20	20					
Cu(5)	30	10	30	15					
La(20)	20	20	20	20					
Mo(5)	N	N	70	10					
Nb(20)	N	N	N	N					
Ni(5)	L	L	L	5					
Pb(10)	70	30	20	100					
Sb(100)	300	N	500	200					
Sc(5)	L	5	5	L					
Sn(10)	N	N	N	N					
Sr(100)	200	500	N	L					
V(10)	L	30	15	15					
W(50)	N	N	N	N					
Y(10)	10	10	L	N					
Zn(200)	N	N	N	N					
Zr(10)	70	50	50	20					
Th(100)	N	N	N	N					

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

added

Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1596A	1596B	1597	1598A	1598B	1599A	1599B	1600	1601A
Fe %(.05)	7	.5	.7	.5	1.5	5	.5	.7	7
Mg %(.02)	.07	L	.05	.03	.2	.2	.07	.05	3
Ca %(.05)	.1	.05	.05	L	.07	.2	.07	.07	15
Ti %(.002)	.15	.015	.05	.1	.3	.5	.1	.05	.07
Mn(10)	10	50	10	10	30	1500	70	100	700
Ag(.5)	N	L	200	5	2	300	1000	1000	70
As(200)	1500	N	5000	N	1000	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	10	N	N	L	L	10	N	N	N
Ba(20)	500	300	500	150	2000	500	2000	1000	1000
Be(1)	1	1.5	2	L	L	L	2	1	N
Bi(10)	N	N	N	N	N	N	N	N	G1000
Cd(20)	N	N	N	N	N	N	N	N	500
Co(5)	N	N	N	L	N	10	N	N	15
Cr(10)	20	N	N	10	10	30	L	L	30
Cu(5)	30	15	15	10	5	20	20	20	20000
La(20)	20	L	L	L	20	20	20	L	N
Mo(5)	50	15	7	7	N	N	N	N	N
Nb(20)	N	N	N	N	N	L	N	N	N
Ni(5)	5	L	L	L	L	7	7	7	70
Pb(10)	30	20	20	20	30	30	100	70	70
Sb(100)	200	N	200	N	150	N	L	150	300
Sc(5)	L	N	N	N	5	15	L	L	L
Sn(10)	N	N	N	N	N	N	N	N	100
Sr(100)	150	N	N	N	N	N	L	100	300
V(10)	100	15	30	70	100	150	70	30	70
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	20	L	N	N	10	15	L	N	L
Zn(200)	N	N	N	N	N	N	N	N	G10000
Zr(10)	100	L	L	30	150	150	30	10	30
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element — Sample Number

	1601B	1601C	1602	1603	1604	1605	1606	1607	1608
Fe %(.05)	.3	5	.7	1	2	.7	5	7	5
Mg %(.02)	.3	3	.1	.05	3	.1	.2	1.5	2
Ca %(.05)	.3	5	.05	.1	G20	.1	.1	5	10
Ti %(.002)	.07	.7	.07	.07	.5	.07	.15	.015	.15
Mn(10)	100	1000	20	15	300	10	70	1500	G5000
Ag(.5)	.5	N	5	1000	3	1	3	N	N
As(200)	N	N	2000	3000	L	N	N	N	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	70	N	N	N	100	70	50	L	N
Ba(20)	300	1000	500	200	2000	700	5000	2000	L
Be(1)	3	N	1.5	1.5	N	1	L	L	5
Bi(10)	N	N	N	N	N	N	N	N	30
Cd(20)	N	N	N	N	N	N	N	N	N
Co(5)	L	20	N	5	5	L	5	7	10
Cr(10)	N	100	10	L	70	20	30	10	20
Cu(5)	20	30	15	20	30	150	30	30	15
La(20)	L	L	L	L	20	L	20	N	N
Mo(5)	N	N	30	7	20	5	5	N	N
Nb(20)	N	N	N	N	N	N	N	N	N
Ni(5)	5	50	7	5	70	10	20	10	15
Pb(10)	30	30	30	20	70	30	100	20	50
Sb(100)	N	L	L	1500	150	N	N	N	N
Sc(5)	N	20	N	N	7	L	5	N	5
Sn(10)	15	N	N	N	N	N	N	N	100
Sr(100)	N	300	L	N	200	L	L	N	300
V(10)	L	150	50	20	700	150	70	50	100
W(50)	N	N	N	N	N	N	N	N	70
Y(10)	10	30	N	N	50	10	10	10	15
Zn(200)	N	N	N	N	N	N	N	700	L
Zr(10)	50	100	30	20	200	70	300	N	50
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
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Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1609A	1609B	1609C	1610	1611A	1611B	1612	1613	1614
Fe %(.05)	3	5	.7	.3	2	2	.2	.2	1
Mg %(.02)	5	2	2	.07	.5	.3	.05	.07	.03
Ca %(.05)	10	7	20	.1	10	1.5	7	1	.1
Ti %(.002)	.015	.005	.1	.03	.05	.007	.03	.05	.07
Mn(10)	3000	1500	500	100	3000	700	150	10	300
Ag(.5)	70	100	L	2	50	7	3	7	20
As(200)	N	N	N	N	N	N	N	300	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	N	N	N	N	N	10	20	30
Ba(20)	2000	2000	2000	100	G5000	3000	G5000	G5000	500
Be(1)	7	5	N	5	15	L	N	L	N
Bi(10)	500	500	N	N	300	L	N	N	N
Cd(20)	G500	150	N	N	N	G500	N	N	N
Co(5)	20	10	N	N	30	30	N	N	L
Cr(10)	L	10	30	10	10	10	20	15	10
Cu(5)	70	200	20	15	5000	150	20	30	30
La(20)	N	L	N	N	L	L	30	100	L
Mo(5)	N	N	N	N	N	N	N	N	N
Nb(20)	N	N	N	L	20	N	N	N	N
Ni(5)	15	5	7	5	30	20	20	15	10
Pb(10)	G20000	G20000	500	50	20000	15000	150	50	1500
Sb(100)	N	N	N	N	N	N	5000	G10000	1000
Sc(5)	N	N	N	L	N	N	N	N	N
Sn(10)	20	20	N	20	15	N	N	N	N
Sr(100)	150	N	300	L	150	150	300	300	N
V(10)	10	10	15	15	20	15	150	30	20
W(50)	N	N	N	N	N	N	N	N	N
Y(10)	N	N	L	10	N	N	70	10	L
Zn(200)	G10000	G10000	N	N	G10000	G10000	1500	N	N
Zr(10)	N	N	20	30	N	N	15	50	100
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Semi-Quantitative Spectrographic Analysis

Element	Sample Number								
	1615	1616	1617	1618	1619	1620	1621	1622	1623
Fe %(.05)	10	5	.7	10	1.5	7	7	.7	3
Mg %(.02)	1.5	.05	.03	1	.7	.07	.5	.07	1
Ca %(.05)	5	.05	L	2	.7	.07	10	.07	2
Ti %(.002)	.002	.05	.02	.002	.2	.05	.1	.1	.5
Mn(10)	500	70	10	100	300	30	1000	L	500
Ag(.5)	70	500	20	1000	500	1000	10	1000	7
As(200)	1000	10000	700	1000	200	1500	N	L	N
Au(10)	N	N	N	N	N	N	N	N	N
B(10)	N	30	10	N	10	30	10	70	150
Ba(20)	100	150	50	100	1500	200	500	150	500
Be(1)	N	L	L	N	L	L	L	L	L
Bi(10)	N	50	N	150	N	50	N	N	N
Cd(20)	150	G500	N	150	N	G500	N	N	N
Co(5)	5	7	5	7	5	5	5	L	10
Cr(10)	10	15	10	30	10	10	30	70	50
Cu(5)	300	1000	50	50	20	500	150	1000	30
La(20)	N	N	N	N	N	L	L	20	20
Mo(5)	50	N	N	N	N	N	N	N	N
Nb(20)	N	N	N	N	N	N	L	N	L
Ni(5)	15	15	7	70	15	7	20	15	30
Pb(10)	15000	G20000	2000	G20000	G20000	G20000	700	5000	100
Sb(100)	300	1500	300	700	100	1500	N	700	N
Sc(5)	N	L	N	N	L	L	5	L	7
Sn(10)	N	N	N	N	N	N	N	N	N
Sr(100)	N	N	N	N	N	N	150	N	300
V(10)	70	20	15	70	30	30	150	70	150
W(50)	N	N	N	300	70	N	N	N	N
Y(10)	L	N	N	N	N	N	15	L	15
Zn(200)	7000	G10000	500	10000	10000	G10000	200	500	N
Zr(10)	N	15	10	L	15	15	30	30	100
Th(100)	N	N	N	N	N	N	N	N	N

Analysis by Branch Exploration Research, U.S. Geol. Survey, Denver, Colorado
Fe, Mg, Ti reported in %, all other elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown.

Atomic-Adsorbtion Analysis

lement

Sample Number

83 10

	045	046	047	049	050	052	054	056	057
As (5)	6	3	3	650	30	G(1000)	10	7	90
Au (.05)	N(.05)	N(.05)	L(.05)	N(.05)	1.00	1.00	L(.05)	1.00	1000
Sb (1)	3	25	2	G(200)	5	200	1	1	5
Zn (5)	150	G(2000)	G(2000)	50	G(2000)	G(2000)	30	10	30

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown. N = not detected at limit of detection. < detected, but below value shown

added
10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	082	083	084	085	086	087	088	089	090
As (5)	20	25	25	8	3	6	G(1000)	15	4
Au (.05)	1.00	4.50	L(.05)	10.0	.85	L(.05)	4.50	L(.05)	L(.05)
Sb (1)	1	1	5	N(1)	N(1)	N(1)	G(200)	L(1)	N(1)
Zn (5)	20	40	20	10	20	150	20	30	30

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown. N = not detected at limit of detection. < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-1C

	130A	130B	131A	131B	132	133	134	135	136
As (5)	100	G200	G200	G200	G200	G200	45	G	75
Au (.05)									
Sb (1)	10	44	18	G100	G100	G100	G100	G100	2
Zn (5)	G200	G200	G200	G200	G200	G200	G200	G200	10

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

8310

	137A	137B	138	139	140	141	142	143	144
As (5)	G200	15	G200	G200	G200	G200	G200	G200	75
Au (.05)									
Sb (1)	3	N(1)	60	G100	73	65	G100	G100	5
Zn (5)	G200	20	10	50	G200	G200	G200	G200	100

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado

All elements reported in ppm.

Lower limits of determination are in parentheses.

G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown. 10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	145	146	147	148	149	150	151	152	153
As (5)	90	90	25	15	25	140	75	35	10
Au (.05)									
Sb (1)	3	20	2	4	2	1	15	22	N(1)
Zn (5)	G200	120	40	40	60	G200	45	G200	40

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
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10-29-84

Atomic-Adsorbtion Analysis

lement

Sample Number

83-10

	154	156	157	158	159	160	161	162	163 A
As (5)	140	5	15	80	G200	G200	10	G200	G200
Au (.05)									
Sb (1)	55	2	2	60	35	41	N(1)	69	24
Zn (5)	G200	L(5)	70	G200	G200	G200	10	70	80

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	163 B	164	165	166	167	168A	168B	169A	169B
As (5)	G200	G200	15	70	G200	G200	150	G200	85
Au (.05)									
Sb (1)	6	6	N(1)	2	G100	57	12	G100	5
Zn (5)	G200	50	15	25	G200	G200	G200	G200	G200

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements [illegible] in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	170	171	172	173	174	175	176	177	178
As (5)	70	G200	G200	30	10	200	200	85	G200
Au (.05)									
Sb (1)	5	47	G100	N(1)	1	27	N(1)	96	G100
Zn (5)	G200	G200	G200	G200	G200	50	35	95	G200

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown N = not detected at limit of detection < detected, but below value sh

10-29-84

Atomic-Adsorbtion Analysis

lement

Sample Number

83-10

	179A	179B	180A	180B	181	182	183	184A	184B
As (5)	L(5)	N(5)	190	10	15	60	80	L(5)	G200
Au (.05)									
Sb (1)	2	1	1	N(1)	N(1)	10	3	N(1)	G100
Zn (5)	G200	G200	G200	G200	G200	G200	G200	200	G200

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-1C

	185	186	187	188	189A	189B	190	191A	191B
As (5)	10	G200	G200	G200	G200	G200	70	85	20
Au (.05)									
Sb (1)	N(1)	58	15	100	G100	G100	24	1	2
Zn (5)	G200	G200	G200	G200	G200	G200	G200	G200	G200

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

lement

Sample Number

83-10

	192	193	194A	194B	195	196	197	198	199
As (5)	50	80	80	90	20	G200	10	110	90
Au (.05)									
Sb (1)	1	5	3	3	2	24	1	G100	23
Zn (5)	95	110	10	5	5	190	60	G200	G200

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado

All elements reported in ppm.

Lower limits of determination are in parentheses.

G = greater than value shown. N = not detected at limit of detection. < detected, but below value shown. 10-29-84

Atomic-Adsorbtion Analysis

lement

Sample Number

83-1

	200	201	202	203	204	206	207A	207B	208
As (5)	100	3	30		150	70	450	75	150
Au (.05)		N(.05)	N(.05)		N(.05)	N(.05)	3.00	N(.05)	N(.05)
Sb (1)	3	N(1)	15		G(200)	140	G200	80	G(200)
Zn (5)	5	60	80		G(2000)	G(2000)	G(2000)	G(2000)	1000

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado

All elements [illegible] in ppm.

Lower limits of determination are in parentheses.

G = greater than value shown. N = not detected at limit of detection. < detected but below value shown

10-29-84

Atomic-Adsorbtion Analysis

lement

Sample Number

8310

	398	399	400	401A	401B	401C	402	403	404
As (5)	25	200		N(5)	20	20	10	5	N(5)
Au (.05)	N(.05)	.10		N(.05)	N(.05)	.05	.27	.75	.15
Sb (1)	8	38		3	N(1)	N(1)	5	16	3
Zn (5)				50	145	35	2.5	70	20
Hg(.2)				.10					

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, nd = not detected at limit of detection, < detected, but below ...

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	501	502	503	504	505	506	507	508	509
As (5)	N	N	10	N	15	200	N	N	5
Au (.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)
Sb (1)	5	N	6	N	4	N	N	1	1
Zn (5)	G1000	40	35	45	N(5)	400	20	N	20

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	510	511	512	513	514	515	516	517	518
As (5)	N(5)	210	5	5	5	N	40	N	80
Au (.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	.05	N(.05)	N(.05)
Sb (1)	N(1)	600	5	N	1	1	85	8	31
Zn (5)	30	380	5	N(5)	N	15	220	230	680

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado

All elements [illegible]rted in ppm.

Lower limits of determination are in parentheses.

G = greater than value shown, N = not detected at limit of detection, < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-11

	519	520	521	522	523	524	525	526	527
As (5)	15	15	5	L(5)	N	5	N	10	5
Au (.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)
Sb (1)	10	230	1	N	2	N	N	N	18
Zn (5)	G1000	200	25	5	N	N	N	250	10

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown. N = not detected at limit of detection. < detected, but below value shown.

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	555	556	557	558	559	560	561	562	563
As (5)	35		G200	N(5)	G200	75	40	N(5)	N(5)
Au (.05)				N(.05)	L(.05)	.10	N(.05)	N(.05)	N(.05
Sb (1)	N(1)		6	N(1)	24	9	10	N(1)	N(1)
Zn (5)	G200		5	10	75	40	30	80	65

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than upper limit of detection; N = not detected at lower limit of detection

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

8340

	648A	648B	649	650	651	652	653	654	655
As (5)	N(5)	5	5		20				
Au (.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	N(.05)	L(.05)	L(.05)	.20
Sb (1)	4	N(1)	N(1)	N(1)	10	N(1)	8	N(1)	20
Zn (5)	850	45	5	10	45	35	80	800	300
Hg(.2)	.25				.05				

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown. N = not detected at limit of detection. < detected, but below value shown

10-29-84

Atomic-Adsorbtion Analysis

Element — Sample Number

83-10

	656	657	658	659	660A	660B	661A	661B	662A
As (5)	400	55	45	50	30	5	5	35	20
Au (.05)	50	N(.05)	N(.05)	57.50	.05	N(.05)	N(.05)	L(.05)	N(.05)
Sb (1)	G(1000)	15	N(.05)	25	100	25	2	460	N(1)
Zn (5)	1160	60	G(2000)	35	75	80	200	G(2000)	45
Hg(.2)			.55					.45	

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown. N = not detected at limit of detection

10-29-84

Atomic-Adsorbtion Analysis

Element | Sample Number 83-10

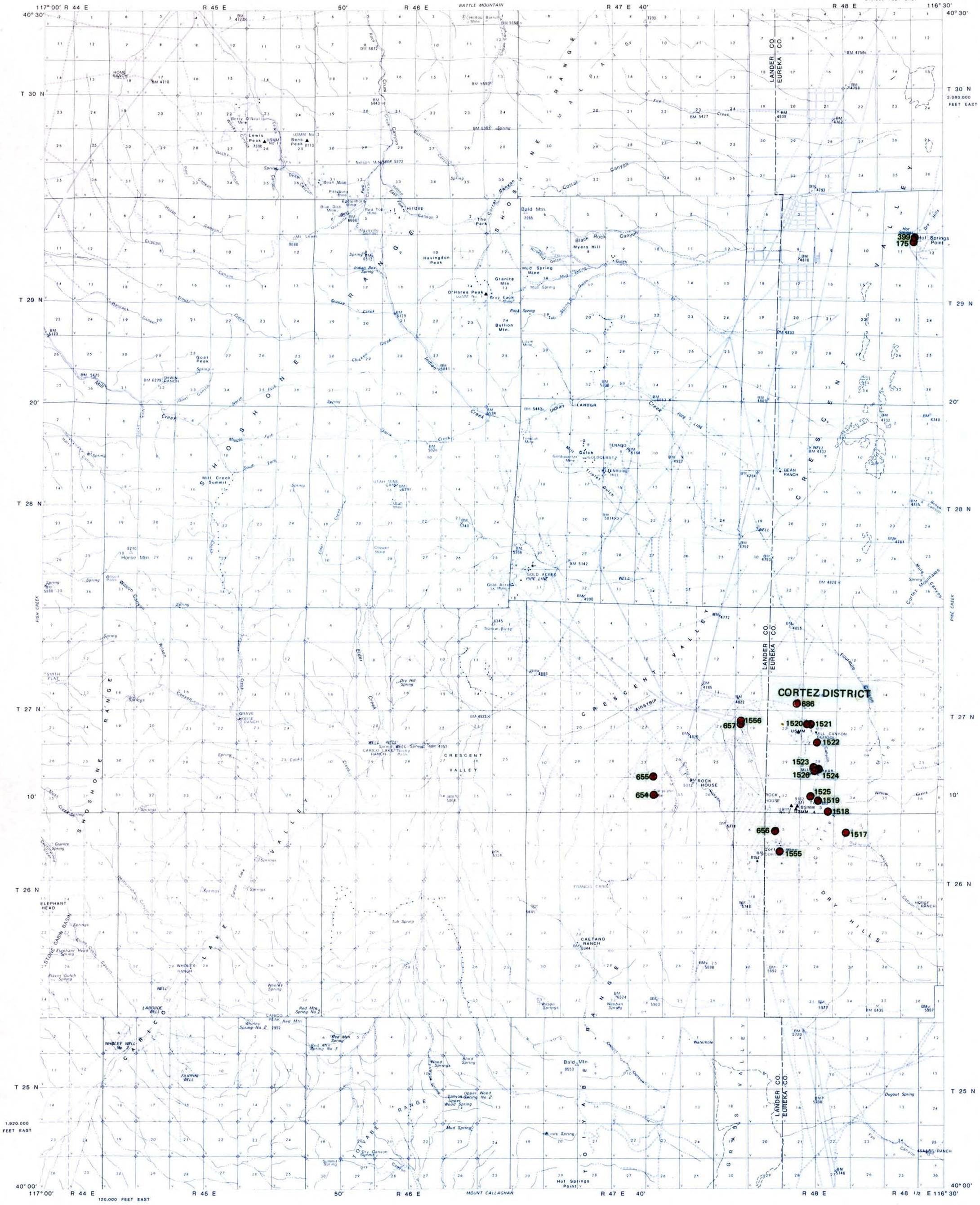
Element	Sample Number 83-10								
	1623								
As (5)	130								
Au (.05)									
Sb (1)	6								
Zn (5)	20								

Analysis by Branch Exploration Geochemistry, U.S. Geol. Survey, Denver, Colorado
All elements reported in ppm.
Lower limits of determination are in parentheses.
G = greater than value shown N = not detected at limit of detection; = detected, but below value shown 10-29-84

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CRESCENT VALLEY, NEVADA

30 MINUTE SERIES



SOURCE MATERIAL DATA

A A (A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
A A (D) State Highway Maps

SCALE: 1" = 1 MILE

REVISIONS	
PLANIMETRY	
STATUS	

ALL WEATHER ROAD
PRIMITIVE ROAD
SEASONAL ROAD
TRAIL

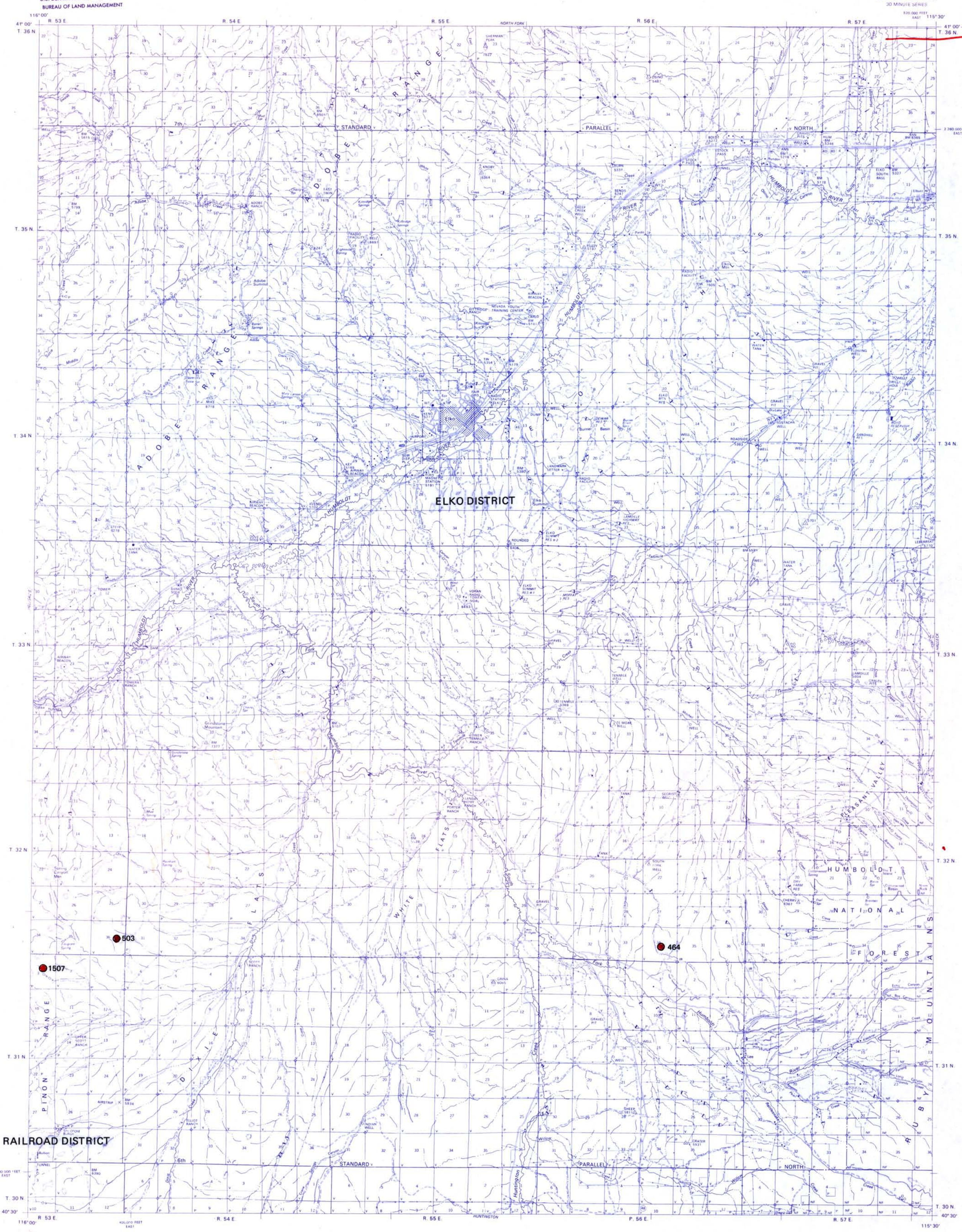
CRESCENT VALLEY, NEVADA
40-116-3
1977

NBMG 83-9+10A

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ELKO, NEVADA

30 MINUTE SERIES



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps
Source Material Updated With Photography 1965

SCALE: 1" = 1 MILE

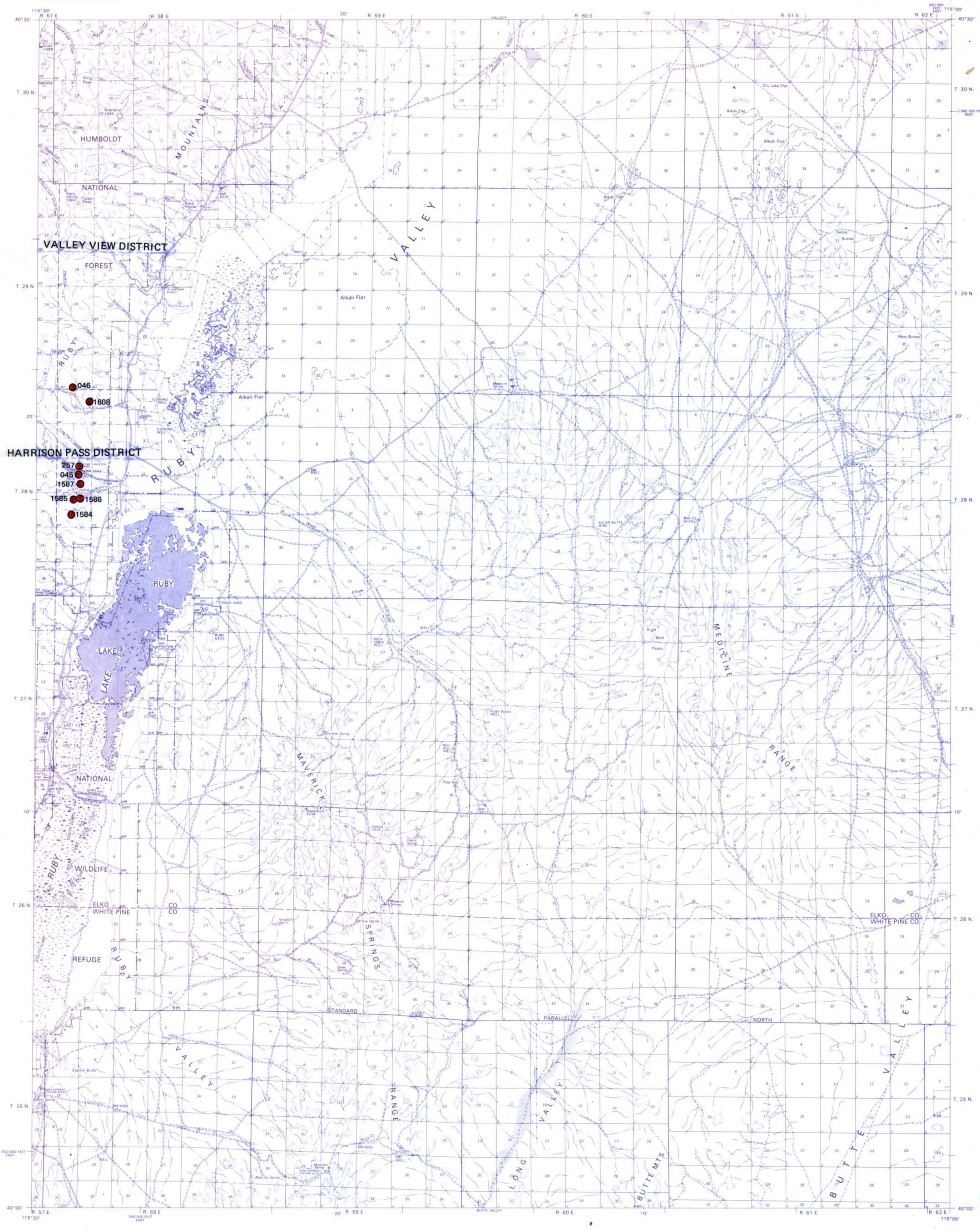
REVISIONS	
PLANIMETRY	
STATUS	

ELKO, NEVADA
40-115-4
1970

NBMG 83-9+10B

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FRANKLIN LAKE, NEVADA
30 MINUTE SERIES



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps
* Source Material Updated With Photography 1968

SCALE: 1" = 1 MILE

REVISIONS
PLANIMETRY
STATUS

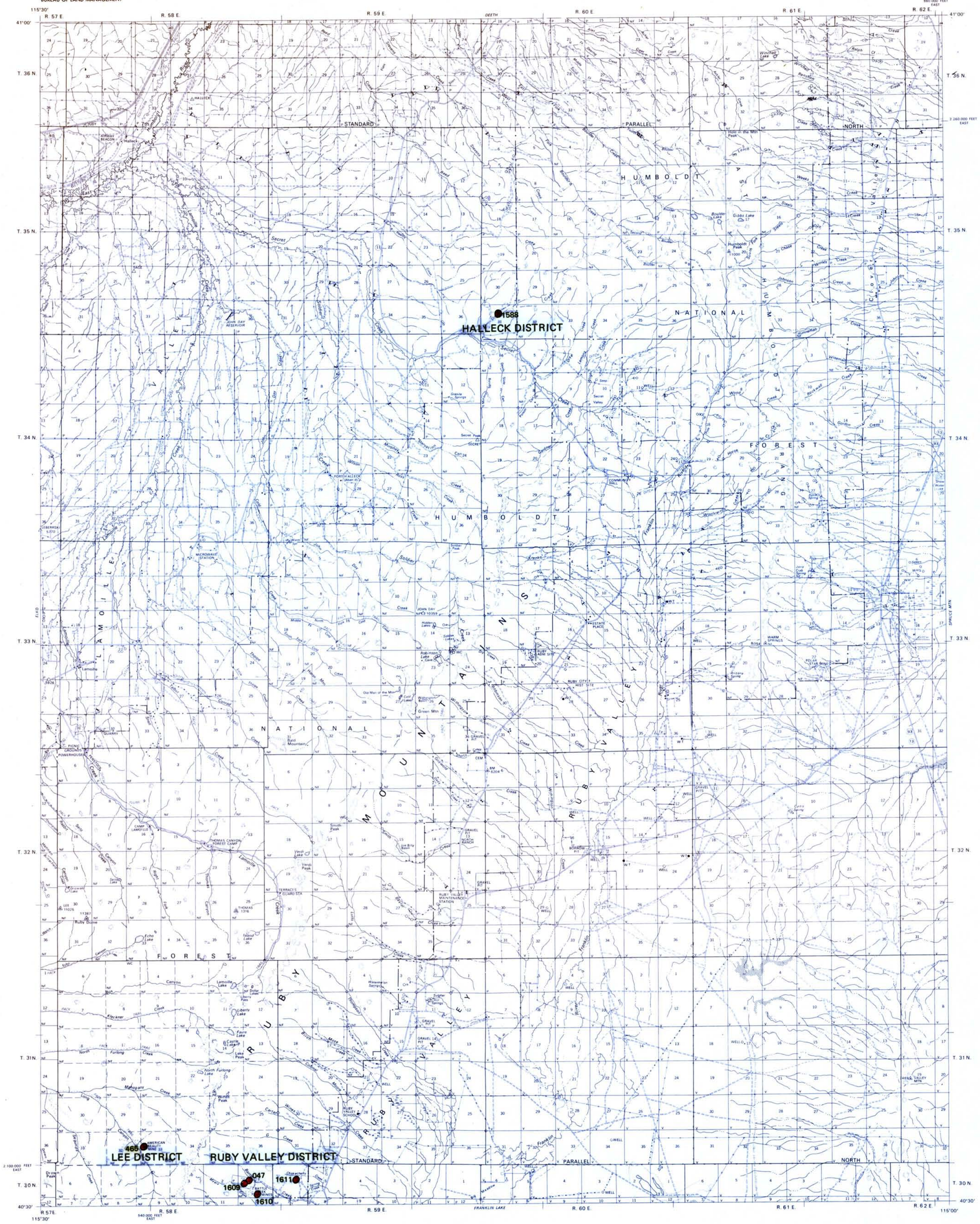
LEGEND
ALL WEATHER ROAD
PRIMITIVE ROAD
SEASONAL ROAD
TRAIL

FRANKLIN LAKE, NEVADA
40-115.3
1972

NBMG 83-9710C

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HALLECK, NEVADA
30 MINUTE SERIES



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps

Source Material Updated With Photography 1965 - 1969

SCALE: 1" = 1 MILE

REVISIONS	
PLANIMETRY	
STATUS	

HALLECK, NEVADA
40-115-1
1970

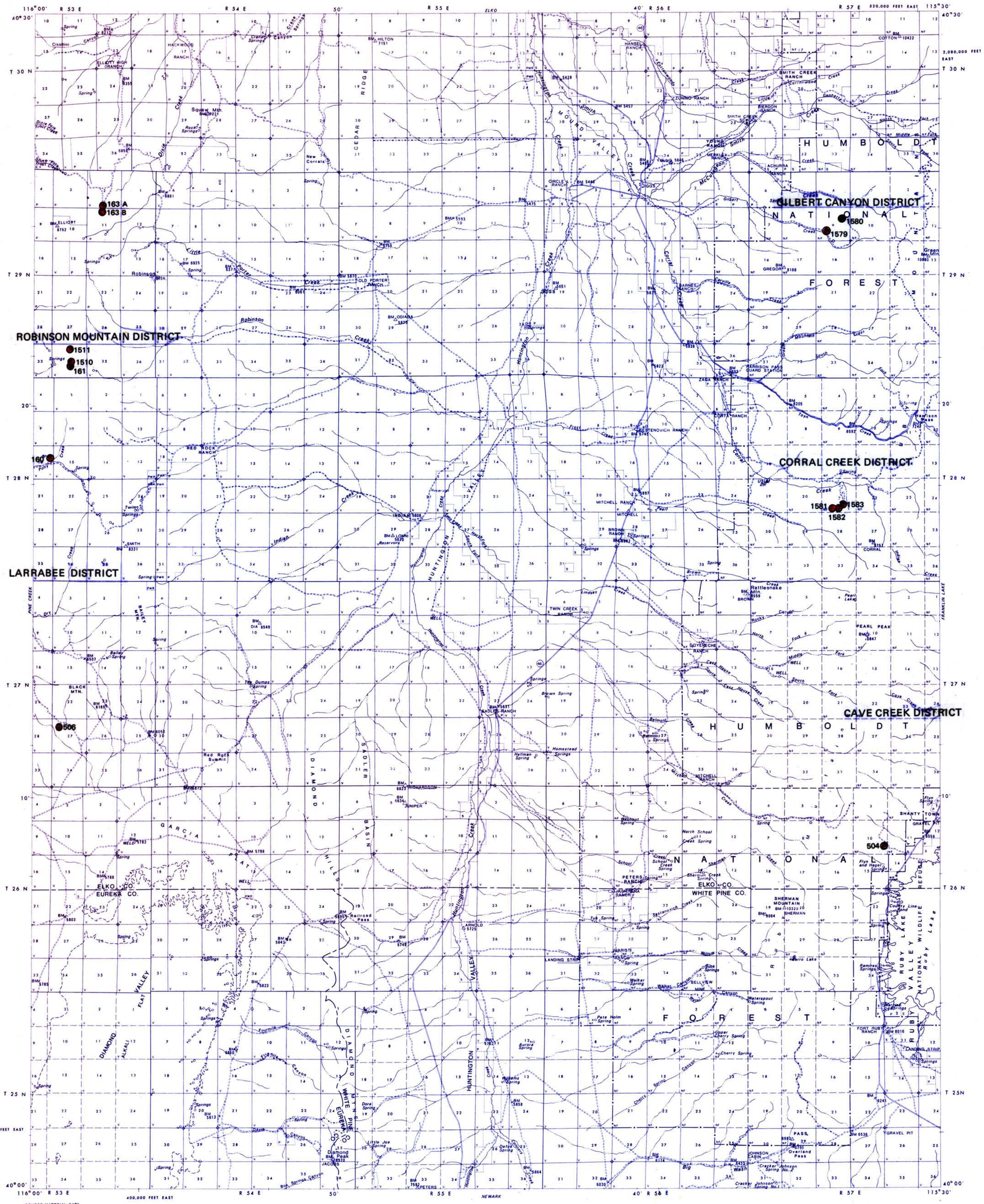
NBMG 83-9+10 D

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

HUNTINGTON, NEVADA

30 MINUTE SERIES



SOURCE MATERIAL DATA

A	A
A	A

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps

SCALE: 1" = 1 MILE

1 ½ 0 1 2 3mi.

REVISIONS

PLANIMETRY

STATUS

ALL WEATHER ROAD

SEASONAL ROAD

PRIMITIVE ROAD

TRAIL

HUNTINGTON, NEVADA

40-115-4

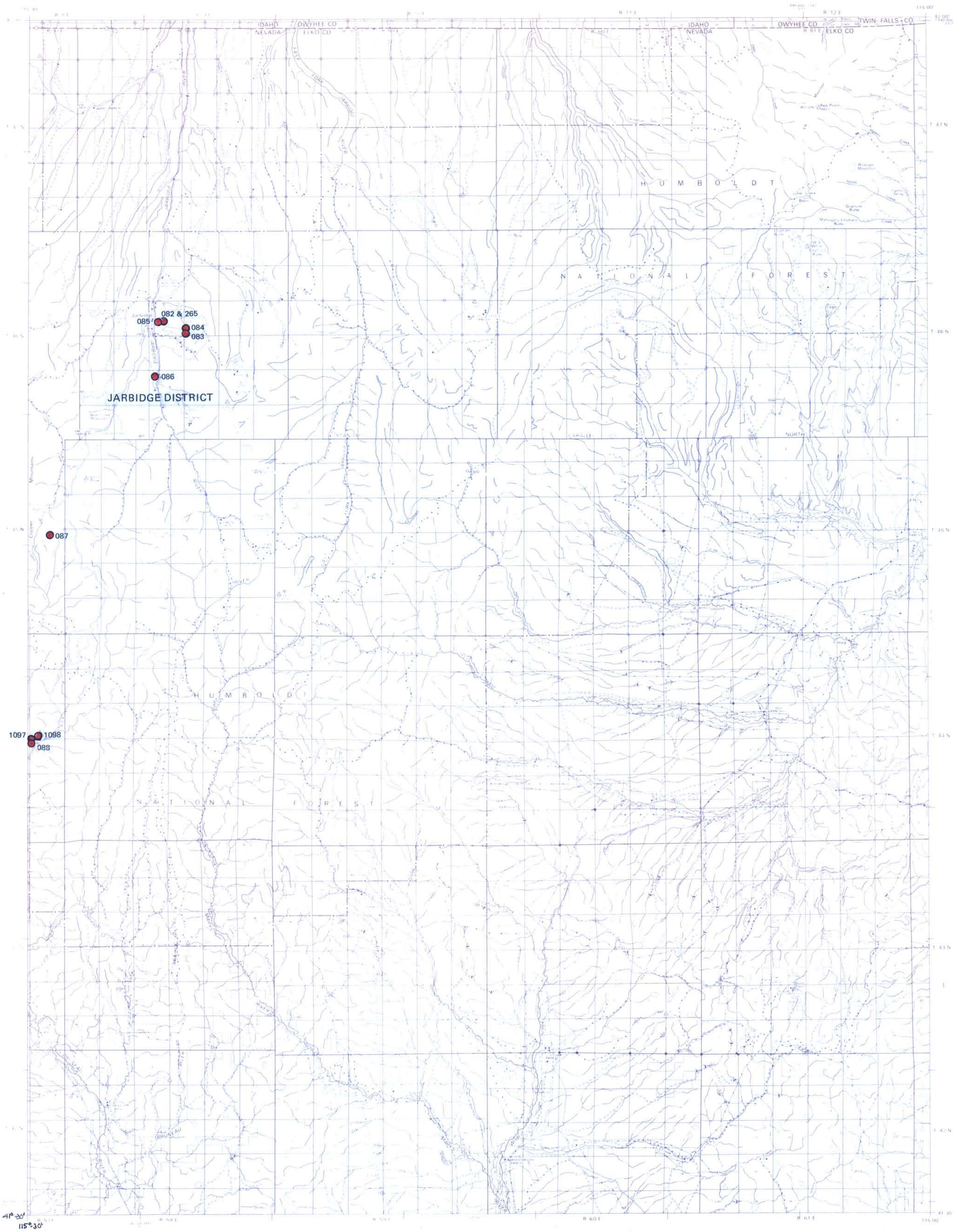
1977

NBMG 83-9410

E

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JARBIDGE, NEVADA



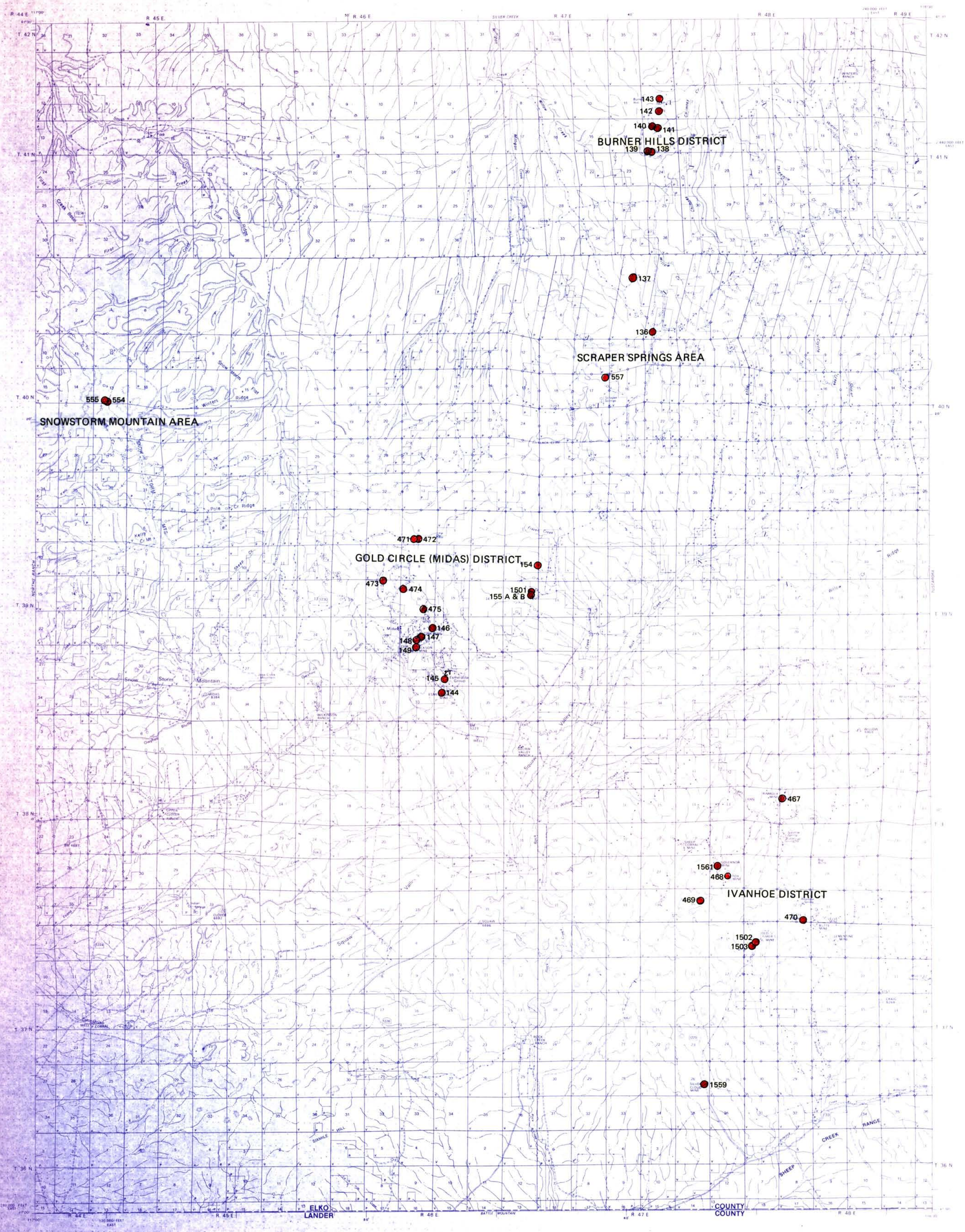
JARBIDGE, NEVADA

1969

NBMG 83-9-10
F

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MIDAS, NEVADA



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps

(B) U.S.F.S. Quad Maps

(C) B.L.M. Compilation

Source Material Updated With Photography

SCALE: 1" = 1 MILE

REVISIONS

PLANIMETRY

STATUS

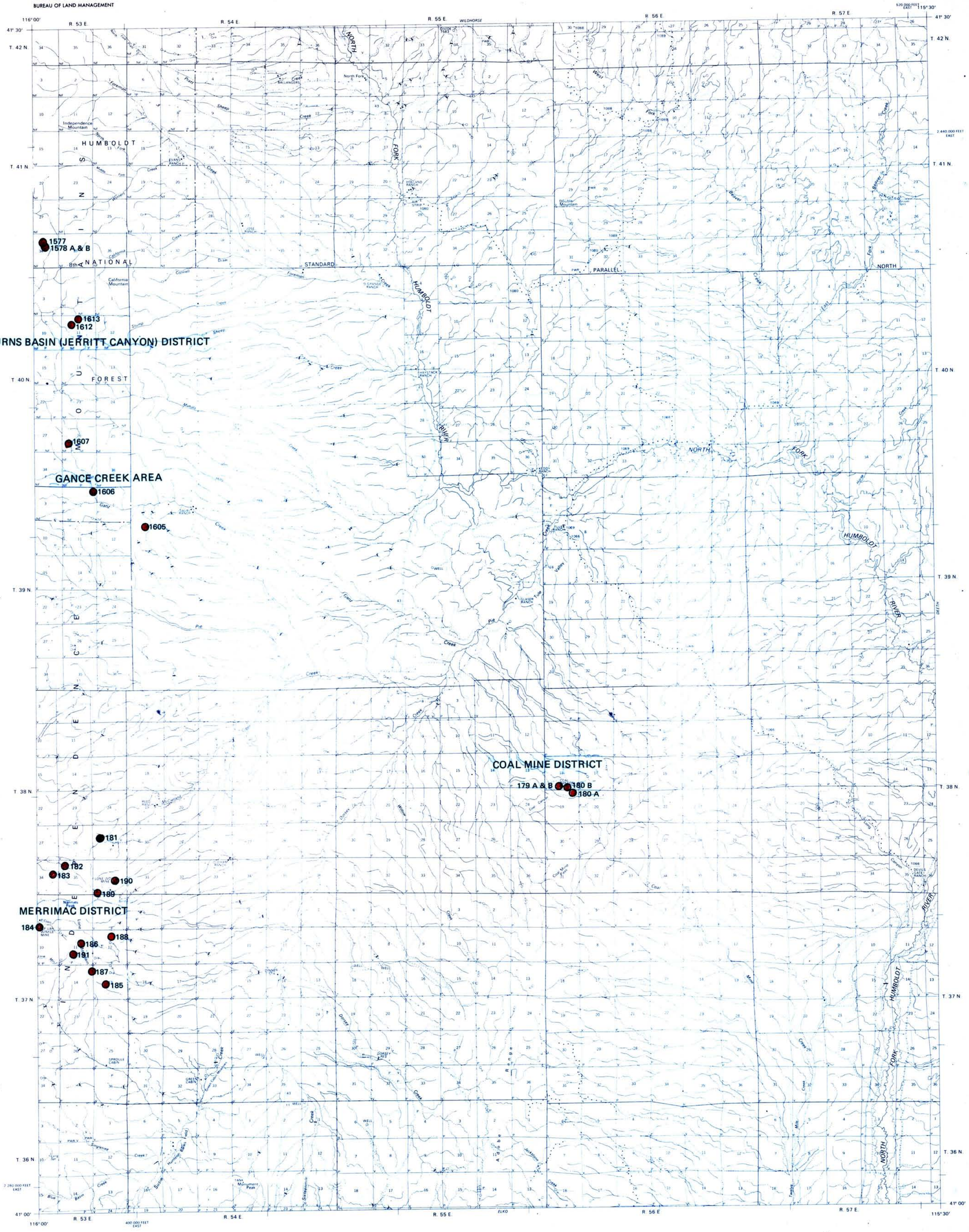
MIDAS, NEVADA

1977

NBMG 83-9+10
G

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NORTH FORK, NEVADA
30 MINUTE SERIES



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps

Source Material Updated With Photography 1967

SCALE: 1" = 1 MILE

REVISIONS
PLANIMETRY
STATUS

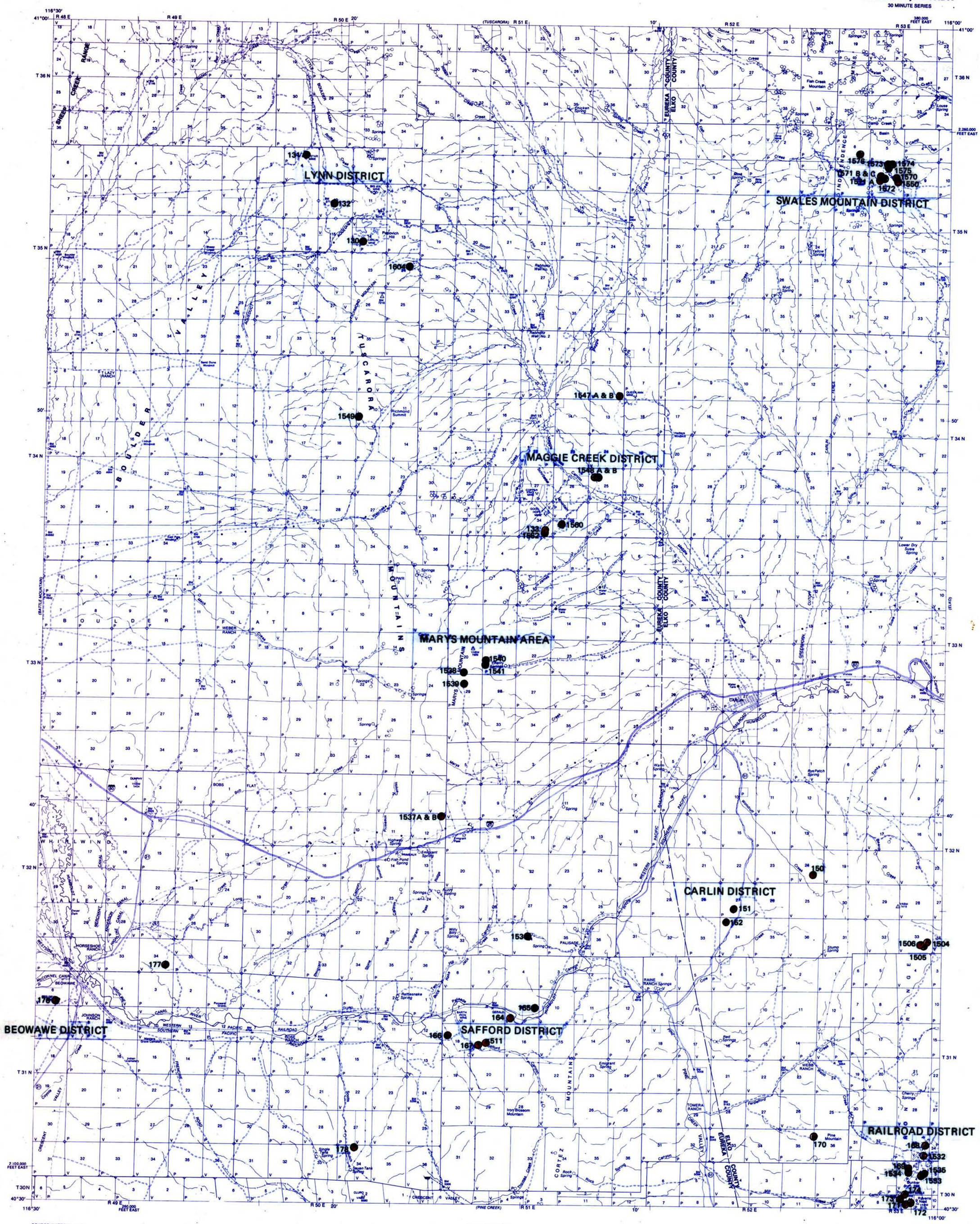
NORTH FORK, NEVADA
41-115-3
1970

NBMG 83-9410 H

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PALISADE, NEVADA

30 MINUTE SERIES



SOURCE MATERIAL DATA

A	A
A	A

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps

SCALE: 1" = 1 MILE

REVISIONS
PLANIMETRY
STATUS

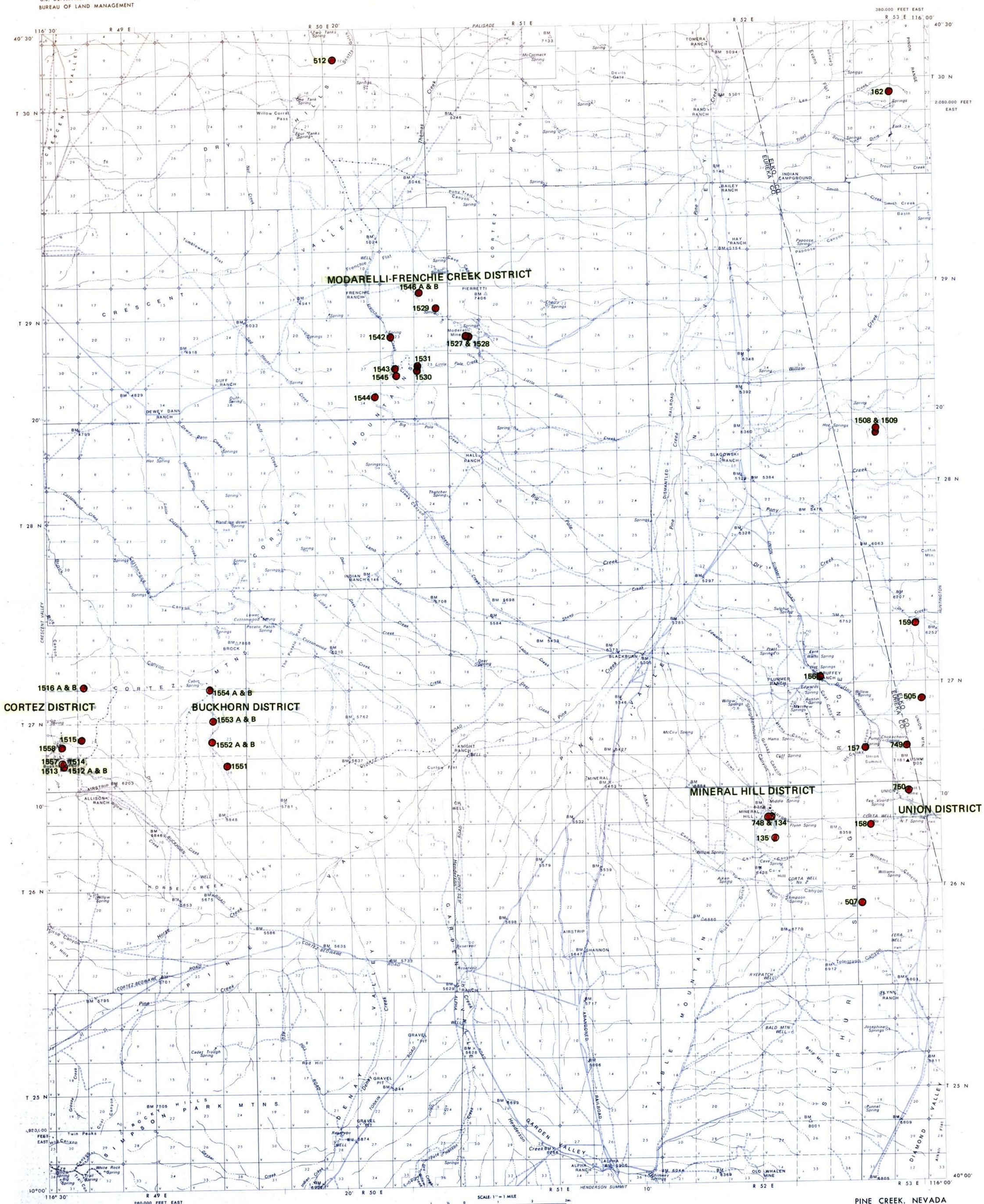
ALL WEATHER ROAD
SEASONAL ROAD
PRIMITIVE ROAD
TRAIL

PALISADE, NEVADA
40-116-1
1978

NBMG 83-9+10I

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PINE CREEK, NEVADA
30 MINUTE SERIES

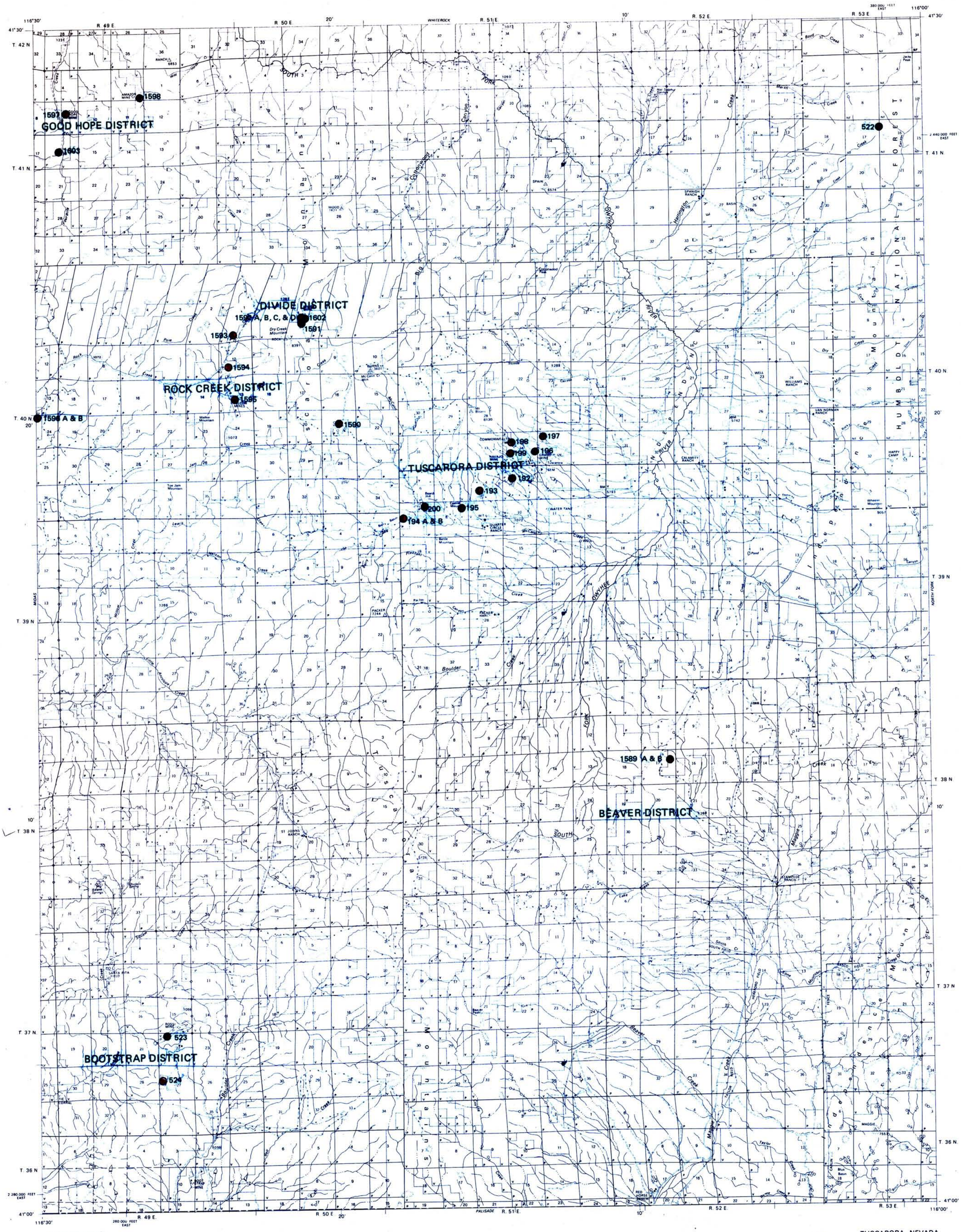


PINE CREEK, NEVADA
40-116-2
1977

NBMG 83-9410 J

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

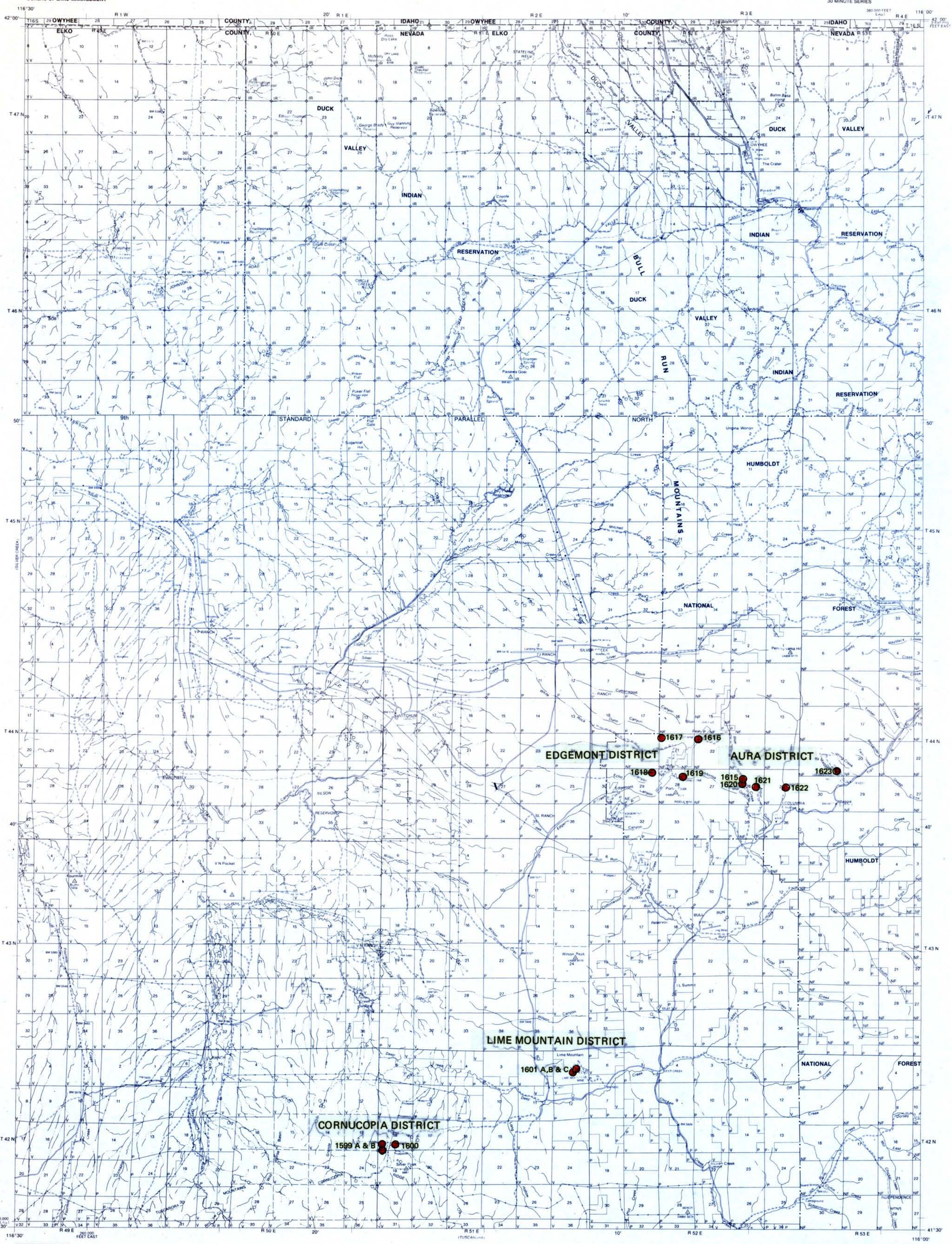
TUSCARORA, NEVADA
30' MINUTE SERIES


GOOD HOPE DISTRICT
DIVIDE DISTRICT
ROCK CREEK DISTRICT
TUSCARORA DISTRICT
BEAVER DISTRICT
BOOTSTRAP DISTRICT
1597
1598
1603
522
1592 A, B, C, & D
1602
1591
1593
1594
1595
1596 A & B
1590
197
198
199
196
192
193
200
195
194 A & B
1589 A & B
523
524
R. 49 E.
R. 50 E.
R. 51 E.
R. 52 E.
R. 53 E.
T. 42 N.
T. 41 N.
T. 40 N.
T. 39 N.
T. 38 N.
T. 37 N.
T. 36 N.
116°30'
116°00'
41°30'
41°00'
20'
10'
380 000 FEET EAST
2 440 000 FEET EAST
2 280 000 FEET EAST
280 000 FEET EAST
WHITEROCK
PALISADE
SOUTH FORK
NORTH FORK
DIXIE VALLEY
INDEPENDENCE
HUMBOLDT NATIONAL FOREST
Tuscarora Mountains
Independence Mountains
Pilot Mountains
Dixie Valley
Dixie Creek
Beaver Creek
Maggie Creek
Boulder Creek
Little Antelope Creek
Squaw Creek
Cottonwood Canyon
Big Cottonwood Canyon
Harrington Canyon
Marsh Creek
Boyd Creek
Bull Creek
Dry Creek
Mill Creek
Burns Basin
Rock Creek
Pole Creek
Lewis Creek
Willow Creek
Toe Jam Creek
Jack Creek
Taylor Canyon
Taylor Creek
Boulder Canyon
Boulder Creek
Bell Canyon
Bell Creek
Lake Creek
Cottonwood Peak
Dry Creek Mountain
Walker Mountain
Toe Jam Mountain
Battle Mountain
Beard Hill
Packer Peak
Boulder Peak
Beaver Peak
Wheeler Mountain
Jacks Peak
Hot Springs
Chicken Spring
Santa Rita Field
Hereford Field
Taylor Field
Rasco Field
Maggie Field
Carlin Field
Blue Basin
Maggie
Stampede Ranch
Williams Ranch
Van Norman Ranch
Calamity Ranch
Happy Camp
Spanish Ranch
Spain
Wood
Ranch
Amazon Mine
Good Hope Mine
Commonwealth Mine
Navajo Mine
Grand Prize Mine
Quarter Circle Ranch
Packer Ranch
St Johns Ranch
Red Horse Ranch
Root Mine
Bootstrap Mine
Rock Mine
Water Tank
Well
Pond
Tank
Corral
Fence
Cross Well
Lone Mountain
South Field
Cr
Dry Creek
Maggie Creek
Taylor Creek
Boulder Creek
Squaw Creek
Little Antelope Creek
Pole Creek
Rock Creek
Lewis Creek
Willow Creek
Toe Jam Creek
Jack Creek
Bell Creek
Lake Creek
Boyd Creek
Bull Creek
Dry Creek
Mill Creek
Marsh Creek
Harrington Canyon
Cottonwood Canyon
Big Cottonwood Canyon
Taylor Canyon
Boulder Canyon
Burns Basin
Cottonwood Creek
Big Cottonwood Creek
Beaver

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

WHITEROCK, NEVADA-IDAHO

30 MINUTE SERIES



SOURCE MATERIAL DATA

A A (A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
A A (D) State Highway Maps

SCALE: 1" = 1 MILE

REVISIONS	
PLANIMETRY	
STATUS	

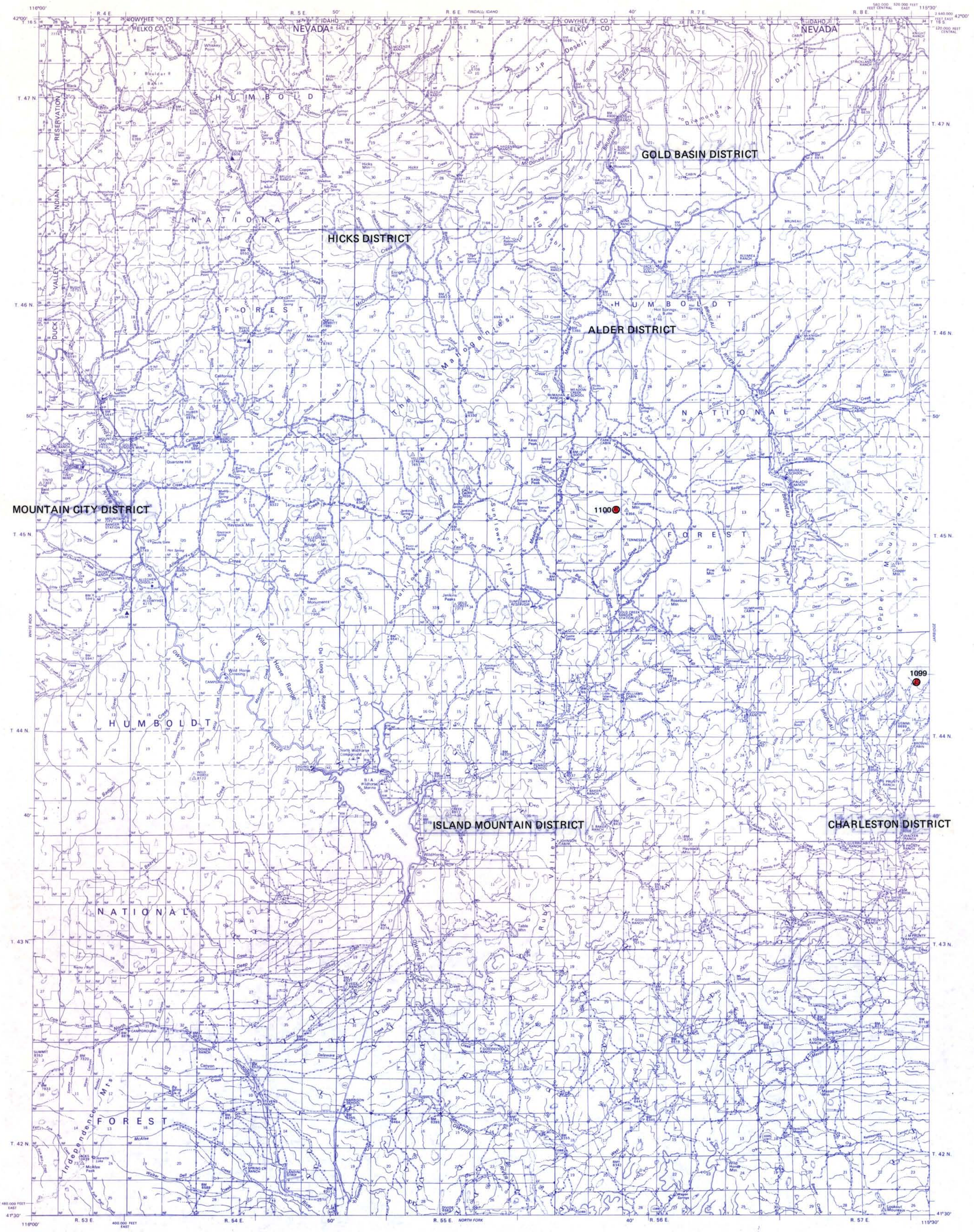
ALL WEATHER ROAD
PRIMITIVE ROAD
SEASONAL ROAD
TRAIL

WHITEROCK, NEVADA-IDAHO
41-116-1
1978

NBMG 83-9+10L

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

WILD HORSE, NEVADA
30 MINUTE SERIES



SOURCE MATERIAL DATA

(A) U.S.G.S. Quad Maps
(B) U.S.F.S. Quad Maps
(C) B.L.M. Compilation
(D) State Highway Maps
Source Material Updated With Photography 1967

SCALE: 1" = 1 MILE

REVISIONS
PLANIMETRY
STATUS

WILD HORSE, NEVADA
41-115-4
1970 S/2
1972 N/2

NBMG 83-9710M