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Updated database and mine locations for
metallic mineral districts and mines of the
Black Hills,
South Dakota and Wyoming

by

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Open-File Report 95-66

OF-95-66-A Discussion (paper copy)
OF-95-66-B Database (2 diskettes)

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DISCUSSION

1,084 mines in 80 metallic mineral districts have been located and classified by deposit type in the Black Hills of South Dakota and Wyoming. This publication includes the locations of the mines in digital format and a database containing updated mine and location information used by the authors for a series of publications on the mineral deposits and resource potential of the Black Hills (DeWitt, Redden, and others, 1986; DeWitt, Buscher, and others, 1987a-z; DeWitt, Redden, and others, 1989; DeWitt and Wilson, 1990; Wilson and DeWitt, 1990, 1992, in press). The information herein supersedes all previous versions.

Mine Locations

Locations of the mines and outlines of the large open-pit mines were digitized from 1:24,000-scale maps (DeWitt, Buscher, and others, 1987a-z), and from data transferred from aerial photographs to those maps, using the U.S. Geological Survey's in-house software, GSMAP¹ (Selner and Taylor, 1993). These data are provided in GSMAP format and may be readily imported into other digital mapping and Geographic Information System (i.e., ARC/Info) programs.

There are three maps: (1) main map area, (2) Bear Lodge area, and (3) Edgemont area. To plot the mine location maps, GSMAP requires a minimum of four files indicated by the following extensions: .LSF, .NDX, .PRJ, and .PLT. Data files for the main map area are named 9BIGSORT.*; files for the Bear Lodge area are named 9BEAR.*; and files for the Edgemont area are named 9EDGE.*. In addition, .NOD and .RU files are required for the main map area. Only the locations (unnumbered and unlabeled) are shown on the maps. New symbols were added to GSMAP's standard symbol set; consequently, CONFIG9.SYM is also included on the release disk. See GSMAP documentation (Selner and Taylor, 1993) for further instructions.

Mine Information

Mine information is provided in several different formats, including ASCII, for easy import into virtually any database the user may choose. The data were compiled in Paradox 3.5 and exported to the various other database programs. Data files begin with "1084MINE." followed by a two- or three-letter extension. The extension (e.g., ".ASC") indicates the database with which the file should be used. Paradox version 3.0 or 3.5 users should use the .DB file, Lotus 1-2-3 version 2.0 the .WKS, DBase version 3.0 the .DBF, Quattro version 2.0 the .WKQ, Excel version 3.0 the .XLS; other programs may require the ASCII file .ASC. All data in the ASCII file are supplied in quote and comma delimited fields for easy import into virtually any other database the user may choose. The data may be imported to the Apple Macintosh through Excel version 3.0. README.WP is a copy of this text for WordPerfect 5.1; README.TXT is the same text in ASCII format.

¹GSMAP is available from U.S. Geological Survey Books and Open Files Service Section, P.O. Box 25425, Denver Federal Center, Denver, CO 80225. (For information, call 1-800-USA-MAPS.)

STRUCTURE OF DATABASE

Structure of database file 1084MINE.ASC if imported to Paradox 3.0 or 3.5

Field types: N numeric field
 A alphanumeric field, number of spaces

Existing Field-#	Suggested Name for Field-#	Field Type and Length	¹ Partial Explanation
Field-1	No.	N	No. on Wilson and DeWitt, in press
Field-2	Type	A6	
Field-3	Mine Name	A36	
Field-4	District	A17	
Field-5	Quadrangle	A18	
Field-6	Sec	N	section numbers 1-36
Field-7	Twp	A3	township, north (N) or south (S)
Field-8	Rng	A3	range, west (W) or east (E)
Field-9	DD latitude	N	shown to 5 decimal places
Field-10	DD longitude	N	shown to 5 decimal places
Field-11	DMS latitude	A14	
Field-12	DMS longitude	A15	
Field-13	S	A1	Y indicates there are synonyms
Field-14	Synonyms	A64	
Field-15	Company	A24	
Field-16	MRDS#1	A7	
Field-17	MRDS#2	A7	
Field-18	IC-7688	A8	entry number
Field-19	S&G	A4	page number, p000
Field-20	IC-7069	A4	page number, p000
Field-21	IC-7112	A4	page number, p000
Field-22	IC-7707	A4	entry number
Field-23	IC-8278	A3	page number, p000
Field-24	B-427	A4	page number, p000

¹Full explanation of replacement field types are on the following page.

EXPLANATION OF FIELD NAMES

Full explanation of suggested replacement field names

No. is the mine number. In general, these increase from northwest to southeast. Integers 1-1083, except for A108 and B108 (entered as 108 and 108.5 in the database).

Type is the deposit type as defined by DeWitt, Redden, and others (1986) on the accompanying table of deposit types (table 1) and as classified by Wilson and DeWitt (in press).

Mine Name is the common or preferred name of a mine. An = symbol indicates that the mine name is abbreviated as shown on the 7 1/2-minute map series (DeWitt, Buscher, and others, 1987a-z). A descriptor in brackets [] indicates that the mine had more than one opening plotted on the map. Each opening is given its own mine identification number.

District is the name assigned by the authors to the metallic mining district. This name may not be the same as has been commonly used for conventional and historical mining districts in the Black Hills.

Quadrangle is the 7 1/2-minute topographic map on which the mine is located.

Sec, Twp, and Rng are the locations by Section, Township, and Range of the mines as determined by the authors and plotted on 7 1/2-minute series maps of DeWitt, Buscher, and others (1987a-z).

DD latitude is the latitude in decimal degrees North, shown to five decimal places.

DD longitude is the longitude in decimal degrees West, shown to five decimal places.

DMS latitude is the latitude in degrees, minutes, seconds, North.

DMS longitude is the longitude in degrees, minutes, seconds, West.

S stands for synonyms, Y indicates that there are synonyms listed in the next entry.

Synonyms include any alternate mine names or spellings that were found in the literature or on maps (both published and unpublished). Claim names are used as synonyms only if it could be verified that the mine is on or immediately adjacent to the claim. Names that appear to be used synonymously with an owner or operator are noted in the next listing, Company.

Company is the name used in the literature for the company that owned or owns, operated or operates the mine.

MRDS#1 is the primary entry for the mine in the U.S. Geological Survey's Mineral Resource Database System.

MRDS#2 is a secondary entry for the mine in the U.S. Geological Survey's Mineral Resource Database System.

The remaining entries are bibliographic references for the individual mines. Page numbers (p) or site numbers (letter prefix) are given if the reference contains information about the specific deposit.

IC-7688: U.S. Bureau of Mines, 1954, Black Hills mineral atlas, South Dakota (Part 1): U.S. Bureau of Mines Information Circular IC-7688, 123 p.

S&G: Shapiro, L.H., and Gries, J.P., 1970, Ore deposits in rocks of Paleozoic and Tertiary age of the northern Black Hills, South Dakota: U.S. Geological Survey Open-File Report 70-300, 235 p.

IC-7069: Gardner, E.D., 1939, Tin deposits of the Black Hills, South Dakota: U.S. Bureau of Mines Information Circular IC-7069, 78 p.

IC-7112: Guiteras, J.R., 1940, Mining of feldspar and associated minerals in the southern Black Hills of South Dakota: U.S. Bureau of Mines Information Circular IC-7112, 104 p.

IC-7707: U.S. Bureau of Mines, 1955, Black Hills mineral atlas, South Dakota (Part 2): U.S. Bureau of Mines Information Circular IC-7707, 208 p.

IC-8278: Harrier, C.M., 1966, Iron resources of South Dakota: U.S. Bureau of Mines Information Circular IC-8278, 145 p.

B-427: Allsman, P.T., 1940, Reconnaissance of gold-mining districts in the Black Hills, South Dakota: U.S. Bureau of Mines Bulletin 427, 146 p.

Table 1. Deposit Types: Abbreviated description of deposit types used for Field-2. Detailed descriptions of the deposit types are in DeWitt, Redden, and others (1986).

A:	Archean(?) and Early Proterozoic taconite iron formation
B:	Early Proterozoic uranium-gold quartz-pebble conglomerate
C:	Early Proterozoic gold-silver syngenetic stratiform
D:	Early Proterozoic gold-silver vein
E:	Early Proterozoic potassium feldspar pegmatite
F:	Early Proterozoic tin-tungsten pegmatite
G:	Early Proterozoic lithium pegmatite
H:	Early Proterozoic potassium feldspar-mica pegmatite
I:	Early Proterozoic mica pegmatite
J:	Early Proterozoic beryllium pegmatite
K:	Early Proterozoic mica or iron stratiform syngenetic
L:	Cambrian gold and silica paleoplacer
M:	Paleozoic high-calcium limestone
O:	Cretaceous roll-front uranium
P:	Quaternary bog iron
Q:	Quaternary and Tertiary gold or tin placer
R:	Cambrian residual iron
S:	Tertiary base-metal-rich vein or replacement
T:	Tertiary precious-metal-rich vein or replacement
U:	Tertiary base-metal porphyry
V:	Tertiary precious-metal porphyry
W:	Tertiary thorium-rich disseminated or carbonatite
X:	Tertiary rare-earth-element disseminated or carbonatite
Y:	Tertiary precious-metal-rich disseminated or carbonatite
Z:	Phanerozoic base- or precious-metal-rich vein
² Mn:	Phanerozoic manganese vein or bedded

²Not included as deposit type in DeWitt, Redden, and others (1986).

ERRATA

Changes since OF93-523 and I-2445

On OF93-523 (Wilson and DeWitt, 1992):

Latitude (lat) and Longitude (long) of the 5 open pit mines are given for the approximate center of the pit, rounded to the nearest second.

No. B108 (on map), 108.5 (in database):			
	Richmond Hill Pit	44 22 49 N	103 51 28 W
		44.38028	103.85778
No. 133	Annie Creek Pit	44 20 42 N	103 50 56 W
		44.345	103.84889
No. 181	Golden Reward Pit	44 19 52 N	103 48 17 W
		44.33111	103.80472
No. 228	Homestake Open Cut	44 21 24 N	103 45 54 W
		44.35667	103.765
No. 273	Gilt Edge Pit	44 19 43 N	103 40 16 W
		44.32861	103.67111

Although technically not deposits, Iron Hill Drainage Tunnel (No. 89) and Oro Hondo Ventilation shaft (No. 244) are plotted on the map as deposit types T and C, respectively, the same as the deposits they access. These are shown in brackets [] in the database.

No. 108: Richmond Hill Pit was inadvertently left off earlier versions of our databases and maps. It is entered in databases as 108.5 (for sorting purposes) and labeled on maps as B108. Old Ironsides, formerly labeled 108, remains 108 in databases but is now shown as A108 on maps.

No. 128: Golden Bottle--latitude 44 21 20.330 N (44.35565) and longitude 103 51 17.149 W (103.85476) were added to database.

No. 320 and 321: Latitude and long are reversed. The correct numbers are:

320	Negro Gulch	44 9 29.265 N,	103 45 34.301 W	or	44.15813,	103.75953
321	Montana	44 9 34.623 N,	103 44 38.901 W	or	44.15962,	103.74414

No. 360: Fairview: Change the deposit type to D. Change district to Tigerville.

No. 498 and No. 501: entries were reversed on old versions of database. No. 498 should be Lucky Boy in Keystone district; No. 501 is Holy Terror in Holy Terror district:

498	Lucky Boy	2	02S	06E	43 53 47.761N	103 24.59.839W
					43.89660	103.41662
501	Holy Terror	9	02S	06E	43 53 50.006N	103 25 15.530W
					43.89722	103.42098

No. 625: Sylvanite should be on Custer quadrangle.

No. 767: Rainbow No. 3 should be Tip Top district.

On map I-2445 (Wilson and DeWitt, in press):

No. 578, Sky Lode, should be in Park district, not in Berne district.

Nos. 585 and 586, both Unnamed, should be in Berne district, not in Oreville.

No. 609, Poppy, is a very tiny outlier to Harney Peak district.

No. 787, White Mica, should be in Calamity Peak district, not in Beecher or Custer.

REFERENCES CITED

- DeWitt, Ed, Buscher, David, Wilson, Anna Burack, and Johnson, Tom, 1987a, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Sundance Northwest 7 1/2 minute quadrangle, Black Hills, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-A, scale 1:24,000.
- _____ 1987b, Map of mines, prospects, and patented claims, and classification of mineral deposits in the southern one-third of the Tinton Northeast 7 1/2 minute quadrangle and the northern two-thirds of the Old Baldy Mountain 7 1/2 minute quadrangle, Black Hills, Wyoming and South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-B, scale 1:24,000.
- _____ 1987c, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Spearfish 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-C, scale 1:24,000.
- _____ 1987d, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Savoy 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-D, scale 1:24,000.
- _____ 1987e, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Lead 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-E, scale 1:24,000.
- _____ 1987f, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Deadwood South 7 1/2 minute quadrangle and the western one-third of the Deadman Mountain 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-F, scale 1:24,000.
- _____ 1987g, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Minnesota Ridge 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-G, scale 1:24,000.
- _____ 1987h, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Rochford 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-H, scale 1:24,000.
- _____ 1987i, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Silver City 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-I, scale 1:24,000.
- _____ 1987j, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Hill City 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-J, scale 1:24,000.
- _____ 1987k, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Mount Rushmore 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-K, scale 1:24,000.

- _____ 1987l, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Berne 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-L, scale 1:24,000.
- _____ 1987m, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Custer 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-M, scale 1:24,000.
- _____ 1987n, Map of mines, prospects, and patented claims, and classification of mineral deposits in the northern one-half of the Iron Mountain 7 1/2 minute quadrangle and the northern one-half of the Hayward 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-N, scale 1:24,000.
- _____ 1987o, Map of mines, prospects, and patented claims and classification of mineral deposits in the Fourmile 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-O, scale 1:24,000.
- _____ 1987p, Map showing location of mines, prospects, and patented claims, and classification of mineral deposits in the Custer 7 1/2 minute quadrangle and the northern one-half of the Pringle 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1978-P, scale 1:24,000.
- _____ 1987q, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Maurice 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-A, one plate, scale 1:24,000.
- _____ 1987r, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Deadwood North 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-B, one plate, scale 1:24,000.
- _____ 1987s, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Nahant 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-C, one plate, scale 1:24,000.
- _____ 1987t, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Nemo 7 1/2 minute quadrangle and the western one-third of the Piedmont 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-D, one plate, scale 1:24,000.
- _____ 1987u, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Deerfield 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-E, one plate, scale 1:24,000.
- _____ 1987v, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Pactola Dam 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-F, one plate, scale 1:24,000.
- _____ 1987w, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Medicine Mountain 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-G, one plate, scale 1:24,000.

- _____ 1987x, Map of mines, prospects, and patented claims, and classification of mineral deposits in the Rockerville 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-H, one plate, scale 1:24,000.
- _____ 1987y, Map of mines, prospects, and classification of mineral deposits in the Edgemont Northeast 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-I, one plate, scale 1:24,000.
- _____ 1987z, Map of mines, prospects, and classification of mineral deposits in the Flint Hill 7 1/2 minute quadrangle, Black Hills, South Dakota: U.S. Geological Survey Open-File Report 87-261-J, one plate, scale 1:24,000.
- DeWitt, Ed, Redden, J. A., Wilson, Anna Burack, and Buscher, David, 1986, Mineral resource potential and geology of the Black Hills National Forest, South Dakota and Wyoming: U.S. Geological Survey Bulletin 1580, 135 p.
- DeWitt, Ed, Redden, J. A., Buscher, David, and Wilson, Anna Burack, 1989, Geologic map and sections of the Black Hills area, South Dakota and Wyoming: U.S. Geological Survey Miscellaneous Investigations Series Map I-1910, scale 1:250,000.
- DeWitt, Ed, and Wilson, A.B., 1990, Metallic mineral districts and mines of the northern Black Hills, South Dakota and Wyoming, *in* Paterson, C.J., and Lisenbee, A.L., eds., *Metallogeny of gold in the Black Hills, South Dakota*: Society of Economic Geology Guidebook Series, v. 7, p. 20-30.
- Selner, G.I., and Taylor, R.B., 1993, System 9, GSMAP, and other programs for the IBM PC and compatible microcomputers, to assist workers in the earth sciences: U.S. Geological Survey Open-File Report 93-511, 363 p., 2 diskettes.
- Wilson, A.B., and DeWitt, Ed, 1990, Database for metallic mineral districts and mines of the northern Black Hills, South Dakota and Wyoming: U.S. Geological Survey Open-File Report 90-0424A (Program Documentation) and 90-0424B (Database and Documentation Diskette), 15 p., 1 diskette.
- _____ 1992, Database for metallic mineral districts and mines of the Black Hills, South Dakota and Wyoming: U.S. Geological Survey Open-File Report 92-523A,B (Database and Documentation Diskette), 7 p., two 1.44 Mb diskettes.
- _____ *in press*, Map of metallic mineral districts and mines in the Black Hills, South Dakota and Wyoming: U.S. Geological Survey Miscellaneous Investigations Series Map I-2445, scale 1:100,000.