

U.S. GEOLOGICAL SURVEY CIRCULAR 858—C



# **Preliminary Metallogenic Map of North America: A Listing of Deposits by Commodity**



# Preliminary Metallogenic Map of North America: A Listing of Deposits by Commodity

*By Michael P. Lee, Philip W. Guild, and Paul G. Schruben*

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U.S. GEOLOGICAL SURVEY CIRCULAR 858-C

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## A Listing of Deposits by Commodity

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### ABSTRACT

The 4,215 ore deposits shown on the Preliminary Metallogenic Map of North America and contained in the Metallogenic Map file have been sorted by their principal (first-listed) commodities and grouped into metallic and nonmetallic categories. Deposit listings for 56 individual metals and minerals have been assembled using the data base and are arranged alphabetically by country, political subdivision (for the larger countries), and deposit name. Map numbers, major and minor constituents, geographic coordinates, and a geologic code are given for each deposit; additionally, the relative size and deposit class have been derived from the code and are listed separately.

The frequencies of individual commodities and commodity groups by type, geographic distribution, and geologic occurrence are summarized in tables, and the relationships of associated commodities to principal commodities in the data base are emphasized in both tables and brief texts.

In all, 49 metals and minerals are listed as principal (first or only) commodities and 7 more are shown as "major" but not principal commodities. (Commodities listed as "minor" in the data base were not sorted or tabulated separately.) Metals, divided into six subgroups, predominate over nonmetallic minerals by a ratio of about 7 to 1, although in terms of quantities and value the disparity is not so great. Within the metals group, the ranking according to frequency is as follows: base, precious, iron and alloying, other (antimony, beryllium, and others), nuclear-fuel, and light metals.

The most frequently occurring commodity in the Metallogenic Map file is gold. Copper is ranked second, both in number of occurrences and as the principal commodity in deposits. Silver is ranked third in frequency of occurrence; lead and zinc are ranked fourth and fifth, respectively. Iron, ranked sixth in frequency of occurrence as a major commodity, is the third most reported principal commodity in the data base, ahead of silver (ranked fourth), lead (ranked fifth), and zinc (ranked sixth).

### INTRODUCTION

This circular is the third in a series of listings, all pertaining to data originally presented on the

Preliminary Metallogenic Map of North America<sup>1</sup> (North American Metallogenic Map Committee, 1981). The 4,215 deposits shown on the Metallogenic Map are identified by name, metal and (or) mineral content, location, and certain other characteristics. In USGS Circular 858-A (Guild, 1981a), the deposits are arranged alphabetically by country and, for the larger countries (Canada, Mexico, and the United States), by political subdivision. Within each country (or political subdivision), the deposits are further sorted *sequentially* by map number as it appears on the Metallogenic Map. In Circular 858-B (Guild, 1981b), the lists of deposits are again sorted alphabetically by country and political subdivision, but then *alphabetically* by deposit name instead of map number as in the first circular.<sup>2</sup> To make the Metallogenic Map file data base more readily available and useful to those with interests in specific mineral commodities, the deposits are grouped here according to their principal mineral commodity and are arranged alphabetically by country, political subdivision, and deposit name.

The Metallogenic Map file is a computerized mineral-resource data file consisting of records that represent the 4,215 mineral deposits appearing on the North American Metallogenic Map. The file was originally designed as an editing device to aid in compilation of the map. More re-

<sup>1</sup>Hereafter referred to as the "Metallogenic Map" and, in the case of the data base, as the "Metallogenic Map file."

<sup>2</sup>As corrections have been made to a few entries in the Metallogenic Map file, and as certain records have been amended by addition of new data elements, the information presented in this circular varies in minor ways from that contained in the previous ones (858-A and 858-B).

Country/ State code	Map number	Deposit/district name	Deposit size <sup>1</sup>	Geologic class <sup>1</sup>	Commodities		Coordinates		Geologic deposit code
					Major	Minor	Lat.	Long	
USVA	12	AUSTINVILLE-IVANHOE DISTRICT	A	DSTR	ZN PB	AG	N36 51	W080 57	7C1A10A3+

<sup>1</sup>Derived from the "geologic deposit code"; all other data elements shown in the listings are directly from the Metallogenic Map file (Guild, 1981a, 1981b).

FIGURE 1.—Sample deposit record from listing in this circular. For each of the 49 principal commodities (see table 1), deposits are listed alphabetically by country/State code and deposit/district name. Field codes are described by the tables in Appendix A.

cently, it has found increasing use as a stand-alone, multipurpose geologic data file from which various listings can be derived, as in this circular. At the heart of the data base is the geologic deposit code. For each record, this code describes alphanumerically what the map symbols display graphically about the geologic characteristics of individual mineral deposits and districts. The records themselves contain five principal elements in addition to the geologic deposit code; to assist the user, two additional elements have been retrieved from the deposit code and listed separately in this circular (fig. 1).

The first section of this report discusses how the commodity lists of deposits are organized. Deposits are grouped according to the first "major" commodity listed in their Metallogenic Map file records. The second section contains brief descriptions of the types of information reported for each of the deposits. (Abbreviations used to describe deposit entries are found in Appendix A at the end of this report.) The next section sets forth some limitations in the data base with which the user should be familiar. The last section before the directories of deposits contains selected summary information about the distribution of deposits by country, principal metal and mineral contents, geologic deposit types, and sizes.

The deposit listings are divided into two major sections corresponding to the two major commodity groups (metals and nonmetallic minerals). Because several metals or minerals occur together in many deposits, a cross-referencing system is used so that each deposit is listed only once in this report.

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## CLASSIFICATION OF DEPOSITS BY MINERAL COMMODITY AND COMMODITY GROUPS

Fifty-six metals and minerals are shown as present in the deposits depicted on the Metallogenic Map. Of these, 49 occur either alone or as the first-listed (principal) commodity; the other 7 are not "principal" commodities.<sup>3</sup> These metals and minerals are classified, as shown in table 1, into two broad commodity groups: metals (which includes six subgroups) and nonmetallic minerals. Many deposits contain several mineral commodities. The ordering of the elements (or minerals) as they appear in the "major" and "minor" commodities field (see fig. 1) reflects the relative physical abundance or, for precious metals, the value (decreasing from left to right) of these commodities in the deposit.

The deposits are arranged in groups on the basis of the first element (or mineral) in the major commodity field.<sup>4</sup> As shown in figure 1, the Austinville-Ivanhoe district, Virginia (USVA 12) has zinc (Zn) reported as the first commodity in the major commodities field and lead (Pb) as the second. This deposit is therefore cited in the zinc commodity list. There are other deposits that contain zinc as a major, but not the principal, com-

<sup>3</sup>Actually 58 commodities appear in the Metallogenic Map file. However two of these, lanthanum (LA) and scandium (SC), are not the principal commodity in either the "major" or "minor" commodity fields. Both appear as "minor" but not the first-listed commodities in two records; lanthanum in a niobium deposit (CAQB 228) and scandium in a fluorite deposit (USMT 38). As a consequence, neither commodity is listed in the commodity indexing system used throughout this report.

<sup>4</sup>For those deposits without major commodities reported, minor commodities are used instead.

modity. Notable examples include the Sullivan mine, Canada (CABC 329), and San Francisco del Oro, Mexico (MXCH 182), where zinc is recovered as a coproduct—see listing for “Lead.” Still other deposits contain zinc as a minor commodity; one of the better known examples in the data base is the Ducktown district, Tennessee (USTN 16—listed under “Iron Sulfide”).

TABLE 1.—*Classification of mineral deposits by principal commodity*<sup>1</sup>

- 1/ Modified from Brooks (1965, p. 2), McDivitt and Manners (1974, p. 14), and Lefond (1983).
- 2/ Iron and its alloying metals.
- 3/ Chiefly valuable for sulfur and, therefore, distinguished from ore used for iron metal.
- 4/ Includes platinum, palladium, and unspecified platinoid metals.
- 5/ Reported as "major," but not principal commodity in at least one deposit.
- 6/ Not specified.
- 7/ Includes sillimanite and andalusite.
- 8/ Mineralogic nature not specified; includes halite, mirabilite, trona, and unspecified sodium salts.

[illegible]

<sup>1</sup>Commodity associations shown cannot be expected for all deposits.

<sup>2</sup>See table 1.

<sup>3</sup>Chiefly valuable for sulfur and, therefore, distinguished from ore used for iron metal.

<sup>4</sup>Includes platinum (PT), palladium (PD), and unspecified platinoid metals (PTD) in deposits.

major commodity. Using the cross-indexing system, the user would find that lead would also be found in deposits of seven other principal<sup>5</sup> major commodities, among them iron sulfide, copper, zinc, gold, silver, barite, and fluorite, and that zinc would also be found in deposits of iron sulfide, copper, lead, gold, silver, tungsten, and barite.

The matrix in figure 2 has been assembled to aid in searching for lists of deposits containing specific commodities or groups of commodities. It shows the association between metals and minerals for deposits and districts in the Metallogenic Map file. This matrix indicates, for example, that zinc is associated with ferrous, base, precious, and "other" (minor) metals and several nonmetallic minerals. Because exact elemental associations among deposits are contingent upon a variety of geologic factors, not all of the associations shown in the matrix can be expected for all deposits in the listings. To illustrate, in the Cornwall iron deposit, Pennsylvania (USPA 5), copper, cobalt, and gold are reported to be associated. This deposit is a skarn or greisen type; the same mineral assemblage should not be expected of another iron deposit of a differing genetic background, for example, a banded-iron (sedimentary) deposit.

## EXPLANATION OF HEADINGS FOR DEPOSIT LISTINGS

The eight headings on the deposit lists (fig. 1) that form the bulk of this report are discussed below. Detailed explanations of the abbreviations used and the geologic deposit code are explained in Appendix A.

*Country/State code.*—The geographic location of each deposit is indicated by a four-letter abbrevi-

viation (see table A-1 of Appendix A). The first two letters designate the country and the second two, for the larger nations, smaller political subdivisions such as States or Provinces.

*Map number.*—Deposits are identified by numbers to permit cross-referencing between the Metallogenic Map and the data base. Numbers are sequential within political units, although some have been omitted and some deposits have an additional designation of "A" or "B."

*Deposit/district name.*—The most commonly used name of the mineral deposit, district, mine, prospect, claim, or occurrence is reported. Synonyms are indicated in parentheses. Terms such as "district," "area," "mine," or "prospect" are added to many names to give additional information.

*Deposit size.*—The relative size of the deposit, district, or area being described is indicated as large, medium, or small. With few exceptions, the limits between the size categories are in terms of metric tons of the substance(s) contained before exploitation; thus, past production plus remaining reserves have been added to arrive at a size category. Deposits of multicommodity ores, such as lead-zinc-silver-gold-copper, were categorized by summing the base-metal contents and adding precious-metal values. (Precious metals have fluctuated greatly in price, and this adds to the uncertainty of deposit-size classification.) The definitions for these size categories are somewhat arbitrary; uncertainties in both production and reserves (resources) information preclude exact assignment of some deposits to a size category. Large is designated by "A," medium by "B," and small by "C." Size classes are quantified in table A-4 of Appendix A.

*Geologic class.*—Eleven categories have been used to show the general geologic nature of the mineral deposits (see table A-5 of Appendix A). Most deposits can be assigned rather confidently to one or another of the classes, but problems arise for some. Examples include the manto deposits, partly vein (crosscutting), partly replacement of favorable beds (strata-bound). These have been designated "deposits of irregular or indefinite shape." Where both primary and secondary deposits exist (e.g., gold-bearing veins and placers), the primary type is emphasized. If, however, the primary concentration was fairly weak, the deposits are designated by the class that provided the bulk of production.

<sup>5</sup>For the purposes of this report, "principal" deposits are those deposits in which the metal, mineral, or element in question is the first-listed commodity in the major, or, if no major commodity is present, in the minor commodities field (see fig. 1).

FIGURE 2.—Matrix showing commodity association as listed in the Metallogenic Map file (Guild, 1981a, 1981b). Principal metal and (or) mineral contents of deposits are shown by numbers in shaded squares.<sup>1</sup> Deposits containing the metal or mineral as a subordinate constituent are shown by numbers only. Numbers in italics refer to commodities not reported as "principal" (see table 1).



**Major and minor commodities.**—One or more of the 58 metals or minerals contained in deposits are listed in order of abundance from left to right. Most commodities are shown by standard chemical symbols, although some abbreviations have been used (see fig. 2). The distinction between “major” and “minor” is arbitrary; provision was made for up to five commodities in each category. In general, “minor” designates metals or minerals that may be, but are not necessarily, recovered as byproducts. If only minor commodities are shown, the deposit is probably uneconomic.

**Latitude and longitude (coordinates).**—Latitude and longitude are expressed in degrees and minutes (location precision is the nearest minute). An asterisk following the longitude indicates that the coordinates cited are chosen arbitrarily to represent a mineral district.

**Geologic deposit code.**—The geologic deposit code is an abbreviated description of the geologic characteristics of the deposit. It consists of a string of numbers and letters in a fixed order, providing information on six areas of interest (fig. 3). The first field contains an alphanumeric code denoting the principal metal or mineral content of the deposit. (Fifty-four metal/mineral combinations contained in deposits are possible—

see table A-2 of Appendix A). The digits (if any) following the first field describe the depositional environment and (or) the nature of igneous intrusive rocks associated with the ore (see table A-3 of Appendix A). The next (second) letter appearing in the code denotes the size of the deposit (see table A-4 of Appendix A). This second letter completes the minimum description for any deposit. The second number field in the code denotes the geologic class to which the deposit is assigned (see table A-5 of Appendix A). The letter that follows in the next field indicates how the deposit has been represented on the Metallogenic Map. Deposits are shown on the map using the standard deposit symbol, as outlines of mineralized areas (districts), or as a combination of the two (see table A-6 of Appendix A). The final digit in the code gives the age of mineralization for deposits located in one of four major geologic provinces in North America (see table A-7 of Appendix A<sup>6</sup>). Thus, the digits have different significance in different regions of the map (see fig. 4).

<sup>6</sup>Chronostratigraphic names and age estimates are those of the North American Metallogenic Map Committee (1981).

Deposit/district name: Cornwall mine, Pennsylvania, USA (USPA 5)					
Geologic deposit code: 2D16A3A7					
2D Metal/mineral content	16 Geologic environment	A Deposit size	3 Geologic class	A Deposit/district representation	7 Age of mineralization
Field name	Deposit code		Explanation		Appendix table
Metal/mineral content <sup>1</sup>	2D		Fe(mgn <sup>2</sup> )Cu		A-2
Geologic environment	316		Gabbroic rocks (including diabase) associated with miogeosynclinal sedimentary rocks		A-3
Deposit size <sup>1</sup>	A		Large deposit—tonnage in excess of 100 million metric tons of iron ore		A-4
Geologic class	3		Skarn or greisen deposit		A-5
Deposit/district representation	A		Standard deposit symbol		A-6
Age of mineralization	7		Mesozoic <sup>4</sup>		A-7

<sup>1</sup>Data field required for every deposit in the Metallogenic Map file. Remaining fields are equal.

<sup>2</sup>Magnetite-bearing.

<sup>3</sup>Odd numbers refer to host rock, even numbers to the intrusive, if any.

<sup>4</sup>Age-of-mineralization codes are different for the four major geologic provinces.

FIGURE 3.—Example of an alphanumeric code used to describe geologic characteristics. Codes are described by the tables in Appendix A.

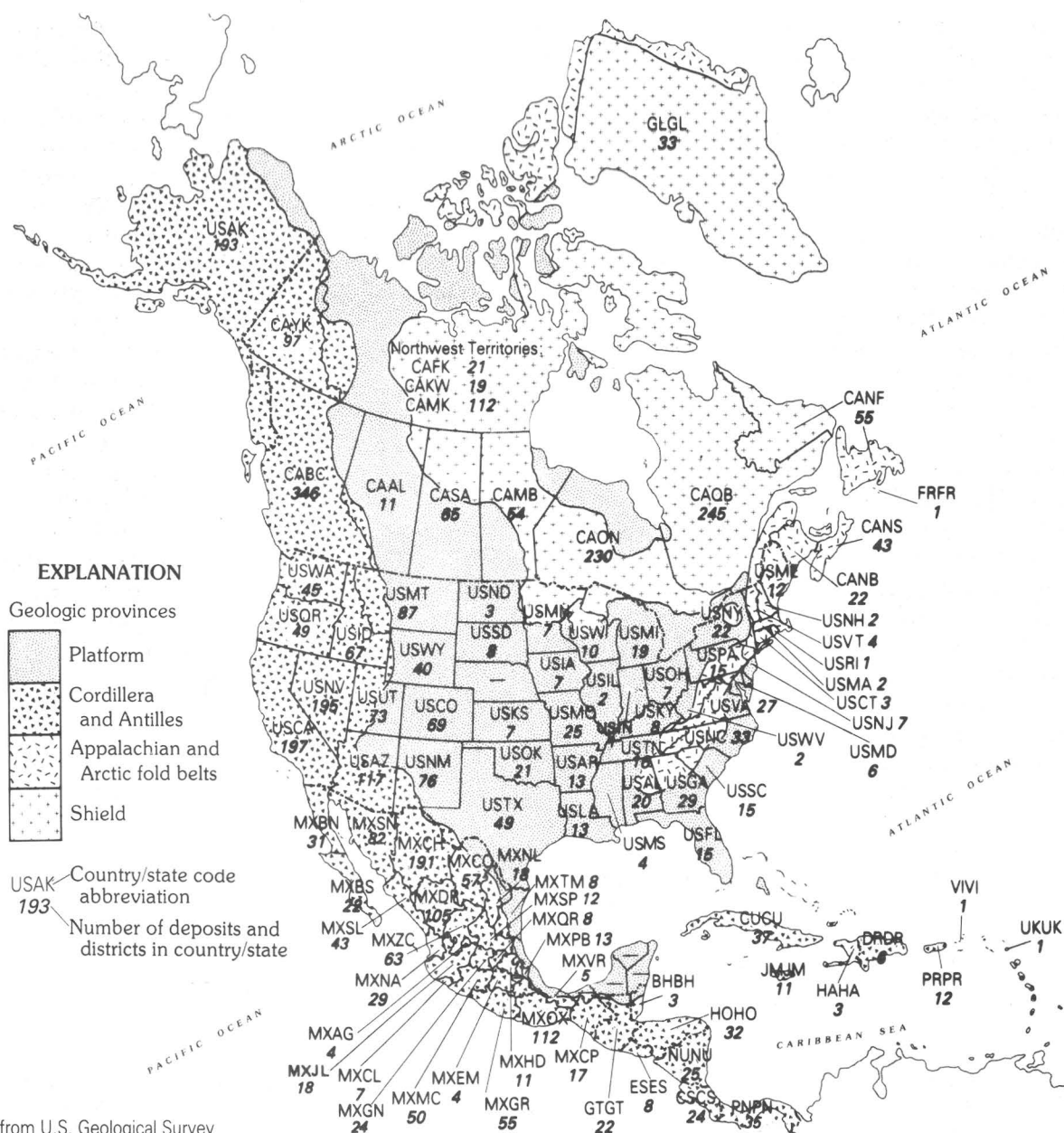


FIGURE 4.—Major geologic provinces and the distribution of mineral deposits in North America by country and political subdivision. Country and political subdivision abbreviations are from table A-1 of Appendix A. Numbers in italics denote the number of mineral deposits in each political unit. Geologic provinces are generalized from King (1959).

## LIMITATIONS TO THE USE OF THE DATA BASE

Most computerized data bases have limitations that curtail their usefulness in some applications. For the Metallogenic Map file, the more noteworthy are as follows:

1. Because the file was originally conceived as an editing device, it contains records for only those deposits and districts incorporated on the

map, whose scale, 1:5,000,000 (6,400 mi<sup>2</sup>/in<sup>2</sup>), requires enormous simplification. The result is that much mineral-resource information has been left out. The well-known concentration, for geological reasons, of numerous and varied ore deposits in localized areas exacerbates the problem; hence, only a small fraction of the total known ore occurrences can be represented graphically, and a few major deposits had to be omitted entirely. However, a large percentage of the total resources

of many commodities is contained in only a relatively few major concentrations (Singer and DeYoung, 1980), so the file probably does represent most of the ore known at the time of compilation;

2. Resources identified since completion of the map compilation (ca. 1980) are not in the file. Two factors are involved: (a) discovery of ore in areas not previously known through continuing and vigorous exploration efforts, and (b) reevaluation of reserves/resources in areas already known. The latter, in particular, has been strongly influenced by economic factors of escalating prices for some commodities (e.g., gold and silver) and technologic advances in mining and treatment of low-grade ores.

3. The mineral deposits and districts listed in this report are shown without regard to their status of exploitation; occurrences may be active, exhausted, or with known reserves but currently undeveloped. Most deposits contain ore-grade material (although some may not be economic because of location or other impediments to their exploitation), but some below-grade and unevaluated occurrences have been included because of their metallogenic significance.

4. As stated earlier, many of the deposits contain multiple mineral commodities. The ordering of the elements (or minerals) as they appear in the commodity fields reflects the relative physical abundance of reported metals and minerals in the

deposits rather than the market value of these commodities, except for the precious metals—gold, silver, and platinum-group elements—which have been ordered according to their relative market values; and

5. The recoverability of material from deposits and districts listed in this data base is subject to the unique physical properties of individual deposits as well as to other factors that have not been addressed in this report. Thus, the deposits and districts cited herein should be interpreted as resources in the geologic sense rather than potential sources of supply.

For these reasons, the Metallogenic Map file does not constitute a *current* data base in the strictest sense as do some of the others maintained by the USGS (U.S. Geological Survey, 1984).

### SELECTED SUMMARY INFORMATION ON MINERAL DEPOSITS AND OCCURRENCES

Several general aspects of the distribution of mineral resources in North America, as recorded in the Metallogenic Map file, are summarized below:

Table 2 shows the distribution of deposits by the commodity groups shown in table 1. As a commodity group, the number of deposits and occurrences for metals exceeds the number reported for non-metallic minerals. Overall, commodities classi-

TABLE 2.—Number of mineral deposits and occurrences in the Metallogenic Map file for each commodity group

[Numbers in parentheses denote ranking of commodity group. Source of data: Guild, 1981a and b]

Commodity group	Number of occurrences in data base	Number of principal deposits (records)
<b>Metals:</b>		
Ferrous metals-----	1,155 (3)	855 (3)
Base metals-----	2,198 (1)	1,087 (1)
Light metals-----	158 (7)	112 (7)
Precious metals-----	1,872 (2)	1,065 (2)
Nuclear fuels-----	263 (6)	207 (6)
Other metals-----	503 (5)	377 (5)
Total-----	6,149	3,703
Nonmetallic minerals-----	562 (4)	512 (4)
Total-----		4,215

fied as base metals are the most frequently cited in the data base, followed by precious metals, iron and its alloying metals, nonmetallic minerals, other metals (antimony, beryllium, and others), nuclear-fuel metals, and light metals.

The large disparity between the number of deposits and occurrences of metallic minerals in the data base and the number for nonmetallic minerals can be attributed to two factors: (1) the common industrial materials, such as limestone, sand and gravel, clay, and others are not included, and (2) many nonmetallic minerals, notably the evap-

orites, occur in extensive basins and generally consist of several or many deposits and mines but, for the purposes of the map, are represented by district symbols and only one or a few records in the Metallogenic Map file.

The highest ranked mineral commodities in terms of both occurrence and as principal commodity in deposits are those traditionally sought owing to their importance to industrial society. Of the five top-ranked commodities (table 3), three are base metals (copper, lead, and zinc) and two are precious metals (gold and silver). The most

TABLE 3.—*Number of mineral deposits and occurrences in the Metallogenic Map file for each commodity*

[Numbers in parentheses denote ranking of commodity. Source of data: Guild, 1981a and b]

Commodity <sup>1/</sup>	Number of occurrences in data base	Number of principal deposits (records)
Gold (AU)-----	983 (1)	770 (1)
Copper (CU)-----	907 (2)	614 (2)
Silver (AG)-----	881 (3)	293 (4)
Lead (PB)-----	622 (4)	216 (5)
Zinc (ZN)-----	607 (5)	207 (6)
Iron (FE)-----	430 (6)	393 (3)
Uranium (U)-----	222 (7)	197 (7)
Manganese (MN)-----	205 (8)	193 (8)
Molybdenum (MU)-----	182 (9)	86 (11)
Tungsten (W)-----	164 (10)	142 (9)
Iron sulfide (FES) <sup>2/</sup> -----	117 (11)	41 (21)
Titanium (TI)-----	110 (12)	67 (17)
Nickel (NI)-----	106 (13)	69 (15T)
Mercury (HG)-----	102 (14)	96 (10)
Barite (BA)-----	92 (15)	70 (14)
Gypsum (GYP)-----	80 (16)	79 (12)
Fluorite (F)-----	79 (17)	72 (13)
Antimony (SB)-----	77 (18)	69 (15T)
Chromium (CR)-----	65 (19)	62 (18)
Tin (SN)-----	62 (20)	50 (19)
Halite (HAL)-----	53 (21)	49 (20)
Phosphorus (P)-----	44 (22)	34 (25T)
Thorium (TH)-----	41 (23)	10 (33T)
Asbestos (ASB)-----	39 (24)	39 (22)
Sulphur (S)-----	35 (25T)	34 (25T)
Lithium (LI)-----	35 (25T)	35 (23T)
Talc (TLC)-----	35 (25T)	35 (23T)
Rare-earth elements (REE) <sup>3/</sup> -----	33 (28)	6 (37)
Graphite (GRF)-----	31 (29)	31 (27)
Niobium (NB)-----	29 (30)	19 (29T)
Vanadium (V)-----	26 (32)	9 (35T)
Aluminum (AL)-----	27 (31)	26 (28)
Cobalt (CO)-----	24 (33)	2 (41T)

Footnotes at end of table.

TABLE 3.—Number of mineral deposits and occurrences in the Metallogenic Map file for each commodity—Continued

Commodity <sup>1/</sup>	Number of occurrences in data base	Number of principal deposits (records)
Magnesium (MG)-----	21 (34)	19 (29T)
Potassium (K)-----	20 (35T)	16 (32)
Beryllium (BE)-----	20 (35T)	10 (33T)
Boron (B)-----	18 (37)	18 (31)
Mirabilite (MBL)-----	14 (38)	14 (32)
Cadmium (CD)-----	11 (39)	--6/
Kyanite group (KYN) <sup>4/</sup> -----	10 (40)	9 (35T)
Platinum-group elements <sup>5/</sup> ---	8 (41T)	2 (41T)
Tantalum (TA)-----	8 (41T)	--6/
Bismuth (BI)-----	7 (43)	--6/
Arsenic (AS)-----	6 (44T)	--6/
Sodium (NA) <sup>7/</sup> -----	5 (46)	5 (38)
Strontium (SR)-----	6 (44T)	4 (39)
Pyrophyllite (PYF)-----	3 (47T)	3 (40)
Trona (TRONA)-----	2 (49T)	2 (41T)
Selenium (SE)-----	3 (47T)	--6/
Zirconium (ZR)-----	2 (49T)	1 (44T)
Cesium (CS)-----	1 (51T)	--6/
Cryolite (CRYOLITE)-----	1 (51T)	1 (44T)
Diamond (DIA)-----	1 (51T)	1 (44T)
Tellurium (TE)-----	1 (51T)	--6/
Total-----		4,215

<sup>1/</sup> Unless otherwise specified, standard chemical symbols are indicated in parentheses, except that all letters are in upper case.

<sup>2/</sup> Chiefly valuable for sulfur and therefore distinguished from ore used for iron metal.

<sup>3/</sup> Not specified.

<sup>4/</sup> Includes sillimanite and andalusite.

<sup>5/</sup> Includes platinum (PT), palladium (PD), and unspecified platinoid metals (PTD) in deposits.

<sup>6/</sup> Does not occur as a principal commodity in the Metallogenic Map file.

<sup>7/</sup> Mineralogic nature not specified; probably halite.

frequently occurring commodity in the data base is gold, at least in part because it has always been eagerly sought and is easily recognized and because its high unit-value has not required an elaborate infrastructure to make its recovery and marketing profitable from small operations. It is listed as a major commodity in 983 deposits and is reported as the principal commodity in 770 deposits. Copper is ranked second, both in number of occurrences—907—and as the principal commodity in deposits—614. Silver is ranked third in frequency of occurrence; lead and zinc are ranked fourth and fifth, respectively. Iron, ranked sixth

in frequency of occurrence as a major commodity, is the third most reported principal commodity in the data base, ahead of silver (ranked fourth), lead (ranked fifth), and zinc (ranked sixth).

Commodities with intermediate and low ranks shown in table 3 are mostly nonmetallic minerals. These commodities are widely found in extensive basins and mining districts in North America. Notable examples include gypsum, halite, sulfur, talc, magnesium, potash, boron, mirabilite, and sodium. The low rank of other commodities in the data base can be attributed to the lack of known favorable host rocks in North America or to the

TABLE 4.—*Number of mineral deposits in the Metallogenic Map file per unit area*

[Source of data: Guild, 1981a and b]

Country/subdivision <sup>1/</sup>	Number of deposits	Area (sq km) <sup>2/</sup>	Deposits per sq km
Canada-----	1,320	9,970,000	.0001
Mexico-----	998	1,970,000	.0005
United States:			
Alaska-----	193	1,520,000	.0001
Conterminous States-----	1,450	7,820,000	.0002
Total-----	1,643	9,340,000	.0002
Central America:			
Belize-----	3	23,000	.0001
Costa Rica-----	24	50,700	.0005
El Salvador-----	8	21,400	.0004
Guatemala-----	22	109,000	.0002
Honduras-----	32	112,000	.0003
Nicaragua-----	25	128,000	.0002
Panama-----	35	75,600	.0005
Total-----	149	520,000	.0003
Caribbean Basin:			
Antigua-----	1	280	.004
British Virgin Islands---	1	153	.007
Cuba-----	37	114,000	.0003
Dominican Republic-----	6	48,700	.0001
Haiti-----	3	27,700	.0001
Jamaica-----	11	11,000	.001
Puerto Rico-----	12	8,870	.001
Total-----	71	211,000	.0003
French Possessions-----	1	241	.004
Greenland-----	33	342,000 <sup>3/</sup>	.0001

<sup>1/</sup> Countries and political subdivisions are from table A-1 of Appendix A.<sup>2/</sup> Source: Houghton Mifflin Company (1979). Figures may not add up to totals due to rounding.<sup>3/</sup> Coastland and coastal islands not covered by ice sheet. Actual surface area 2,180,000 sq km.

concentration of certain mineral commodities, as stated earlier, in a few relatively large deposits.

Table 4 shows the distribution of deposits by country and region, the areas of these, and the density of deposits per unit area. The three largest countries (in terms of surface area) contain the largest number of deposits. Canada, the United States, and Mexico represent 95 percent of the surface area of the North American continent (excluding that part of Greenland covered by ice) and account for 94 percent of the deposits in the data base. The U.S. has 1,643 of the 4,215 deposits; Canada, 1,320 deposits; and Mexico, 998. For each of the commodity subgroups, the distribution of deposits by country is shown in table 5. In figure 4 the number of deposits per country and, if applicable, per subdivision, is shown graphically in relation to the major geologic provinces used for cod-

ing of mineralization ages (see table A-7 of Appendix A).

Many inferences might be drawn from these tables and the figure, but the reader is cautioned that these may be invalid for a variety of reasons. For example, as discussed briefly above, the map scale requires condensation of data where many deposits are closely spaced; conversely, in areas that would otherwise be "blank," even insignificant occurrences can, and have been, plotted on the map and recorded in the file. Thus, the density of deposits per unit area, which ranges over more than an order of magnitude (table 4), does not reflect the true importance of a given region in terms of its mineral resources. Additionally, the size categorization of deposits (table A-4 of Appendix A) sets only limits; thus, "large" and "small" have no bounds and cannot be equated

from one record to another. Table 6 shows the distribution of mineral deposits and occurrences by size category.

A third drawback to direct comparison of the data relates in part to the geologic classes of the deposits, shown in table 7. The geologic class to a considerable extent determines the area that individual ore accumulations occupy and hence their manner of representation and their numbers of records in the data base. Thus, chemical deposits, chiefly iron formations and phosphorites, and evaporite deposits are most commonly shown by district symbols which may incorporate dozens or even hundreds of mine sites. Similarly, the areas of strata-bound disseminated deposits, chiefly base-metal deposits (loosely of the "Mississippi Valley" type) and nuclear fuels may contain hundreds of individual deposits. The vein deposits, the most numerous type shown, almost certainly

contain only a fraction of the ore present in deposits of the stockwork category, which includes the well-known porphyry ores and the mantos.

Another aspect of the geographic distribution of the deposits is their relationship to the geologic provinces shown on figure 4 (and much more clearly on the Metallogenic Map itself). By far the greatest number are in the Cordillera, which reflects the preponderance of vein, stockwork, skarn or greisen, and other igneous-associated types (generally shown by standard deposit symbols) in this province as contrasted with the preferred localization of extensive sediment-hosted (chemical, evaporite, and strata-bound disseminated) deposits in the Platform province. The Shield, especially its southern margin, contains the next greatest concentration of deposits of igneous association plus many iron formations. The apparent scarcity of deposits in the northern, more isolated

TABLE 5.—Geographic distribution of mineral deposits in the Metallogenic Map file by commodity group<sup>1</sup>

[Source of data: Guild, 1981a and b]

Country/subdivision <sup>2/</sup>	Metals						Nonmetallic minerals	Total
	Ferrous	Base	Light	Precious	Nuclear	Other		
Canada-----	293	461	10	264	65	83	144	1,320
Mexico-----	224	264	19	299	7	97	88	998
United States:								
Alaska-----	18	54	--	97	2	12	6	193
Conterminous states-----	263	251	71	312	132	177	248	1,450
Total-----	281	305	71	409	134	189	254	1,643
Central America:								
Belize-----	--	1	--	1	--	--	1	3
Costa Rica-----	6	9	1	6	--	--	2	24
El Salvador-----	--	1	--	6	--	--	1	8
Guatemala-----	5	9	--	3	--	1	4	22
Honduras-----	2	2	--	26	--	2	--	32
Nicaragua-----	1	1	--	21	--	2	--	25
Panama-----	5	6	4	20	--	--	--	35
Total-----	19	29	5	83	--	5	8	149
Caribbean Basin:								
Antigua-----	--	--	--	--	--	--	1	1
British Virgin Islands---	--	1	--	--	--	--	--	1
Cuba-----	18	10	--	6	--	1	2	37
Dominican Republic-----	2	1	2	1	--	--	--	6
Haiti-----	1	1	1	--	--	--	--	3
Jamaica-----	2	4	4	--	--	--	1	11
Puerto Rico-----	5	4	--	3	--	--	--	12
Total-----	28	21	7	10	--	1	4	71
French Possessions <sup>3/</sup> -----	--	1	--	--	--	--	--	1
Greenland-----	10	6	--	--	1	2	14	33
Total-----	855	1,087	112	1,065	207	377	512	4,215

<sup>1/</sup> According to the classification of deposits by principal commodity shown in table 1.

<sup>2/</sup> Countries and political subdivisions are from table A-1 of Appendix A.

<sup>3/</sup> Saint Pierre and Miquelon.



TABLE 6.—*Distribution of mineral deposits in the Metallogenic Map file by size category*

[Size categories are not the same for all commodities. Source of data: Guild, 1981a and b]

Commodity <sup>1/</sup>	Deposit size category <sup>2/</sup>				Total <sup>3/</sup>
	Large	Medium	Small	Not reported	
Gold (AU)-----	9	94	667	--	770
Copper (CU)-----	43	121	449	2	614
Iron (FE)-----	72	112	209	--	393
Silver (AG)-----	13	45	235	--	293
Lead (PB)-----	18	33	165	--	216
Zinc (ZN)-----	34	56	117	--	207
Uranium (U)-----	14	52	131	--	197
Manganese (MN)-----	4	20	169	--	193
Tungsten (W)-----	9	26	107	--	142
Mercury (HG)-----	6	20	70	--	96
Molybdenum (MO)-----	4	26	56	--	86
Gypsum (GYP)-----	11	34	31	3	79
Fluorite (F)-----	10	19	43	--	72
Barite (BA)-----	6	18	46	--	70
Antimony (SB)-----	--	9	60	--	69
Nickel (NI)-----	5	21	43	--	69
Titanium (TI)-----	3	17	47	--	67
Chromium (CR)-----	5	18	39	--	62
Tin (SN)-----	--	6	44	--	50
Halite (HAL)-----	9	16	--	24	49
Iron sulfide (FES) <sup>4/</sup> -----	4	13	24	--	41
Asbestos (ASB)-----	4	15	20	--	39
Talc (TLC)-----	1	6	28	--	35
Phosphorus (P)-----	3	17	14	--	34
Sulfur (S)-----	11	13	10	--	34
Graphite (GRF)-----	1	6	24	--	31
Lithium (LI)-----	3	14	13	--	30
Aluminum (AL)-----	3	13	3	--	26
Magnesium (MG)-----	4	4	11	--	19
Niobium (NB)-----	5	5	9	--	19
Boron (B)-----	2	5	11	--	18
Potash (K)-----	4	3	--	9	16
Mirabilite (MBL)-----	2	11	1	--	14
Beryllium (BE)-----	2	1	7	--	10
Thorium (TH)-----	2	1	7	--	10
Kyanite group (KYN) <sup>5/</sup> -----	--	6	3	--	9
Vanadium (V)-----	--	7	2	--	9
Rare-earth elements (REE) <sup>6/</sup>	1	--	5	--	6
Sodium (NA) <sup>7/</sup> -----	--	2	3	--	5
Strontium (SR)-----	1	--	3	--	4
Pyrophyllite (PYF)-----	1	2	--	--	3
Cobalt (CO)-----	1	--	1	--	2
Platinum-group elements <sup>8/</sup> -	--	--	2	--	2
Trona (TRONA)-----	2	--	--	--	2
Cryolite (CRYOLITE)-----	1	--	--	--	1

Footnotes at end of table.

TABLE 6.—Distribution of mineral deposits in the Metallogenic Map file by size category—Continued

Commodity <sup>1/</sup>	Deposit size category <sup>2/</sup>				Total <sup>3/</sup>
	Large	Medium	Small	Not reported	
Diamond (DIA)-----	--	1	--	--	1
Zirconium (ZR)-----	--	1	--	--	1
Cadmium (CD)-----	[3] <sup>9/</sup>	[5] <sup>9/</sup>	[3] <sup>9/</sup>	--	-- <sup>10/</sup>
Tantalum (TA)-----	[1] <sup>9/</sup>	[1] <sup>9/</sup>	[6] <sup>9/</sup>	--	-- <sup>10/</sup>
Bismuth (BI)-----	[1] <sup>9/</sup>	[1] <sup>9/</sup>	[4] <sup>9/</sup>	--	-- <sup>10/</sup>
Arsenic (AS)-----	--	[2] <sup>9/</sup>	[4] <sup>9/</sup>	--	-- <sup>10/</sup>
Selenium (SE)-----	[2] <sup>9/</sup>	[1] <sup>9/</sup>	--	--	-- <sup>10/</sup>
Cesium (CS)-----	[1] <sup>9/</sup>	--	--	--	-- <sup>10/</sup>
Tellurium (TE)-----	[1] <sup>9/</sup>	--	--	--	-- <sup>10/</sup>
Total -----					4,215

<sup>1/</sup> Unless otherwise specified, standard chemical symbols are indicated in parentheses, except that all letters are in upper case.

<sup>2/</sup> Size limits for deposits are reported in table A-4 of Appendix A. Deposits designated as "not reported" are mining locations only.

<sup>3/</sup> Total number of principal deposits (records) in the Metallogenic Map file. See table 3.

<sup>4/</sup> Chiefly valuable for sulfur and therefore distinguished from ore used for iron metal.

<sup>5/</sup> Includes sillimanite and andalusite.

<sup>6/</sup> Not specified.

<sup>7/</sup> Mineralogic nature not specified; probably halite.

<sup>8/</sup> Includes platinum (PT) and palladium (PD) in deposits.

<sup>9/</sup> Numbers in brackets denote the number of deposits in which the commodity appears as a subordinate constituent.

<sup>10/</sup> Does not occur as a principal commodity in the Metallogenic Map file.

regions may be due to insufficient exploration. The Appalachians, including the orogenic belt along the eastern and northern margin of North America, is the smallest of the geologic provinces; it contained, however, important deposits of most of the commodities, many of which now seem to be exhausted.

One further caveat relates to the preliminary nature of the map and file, discussed briefly in the "Introduction" to USGS Circular 858-A (Guild, 1981a, p. A1, A2). Review of the data for this circular reveals that inconsistencies in treatment and (or) interpretation of the facts from area to area are rather common, particularly in designation of commodities as "major" or "minor" and in assignment of geologic type. In a data file this size, there is always room for improving the quality of the data.

### COMMODITY DIRECTORIES

The rest of this report consists of summary information and deposit lists for each of the 56 principal metals and nonmetallic minerals appearing in the Metallogenic Map file. The directories for

these commodities are ordered as shown in table 1. Deposit directories for metals appear first, beginning with lists of the ferrous metals and continuing with lists of the base, light, and precious metals, nuclear-fuel metals, and other metals. Thus, the first list of deposits to appear is that of iron, followed by iron sulfide, chromium, cobalt, and so forth. As the nonmetallic minerals cited in this report have not been subdivided into groups, directories of these deposits are arranged alphabetically. Directories for the seven "major" but not principal commodities appear last. They consist of only brief texts and are arranged according to their frequency of occurrence in the data base.

Many of the principal sources of information used to compile the Metallogenic Map (and the accompanying data base) have been previously cited (North American Metallogenic Map Committee, 1981). For a more detailed treatment of the mineralogy, geology, and resources of the commodities listed herein, the reader should consult the following: Canada, Douglas (1970) and Eckstrand (1984); Caribbean region, Kesler (1978) and Engineering and Mining Journal

TABLE 7.—*Distribution of mineral deposits in the Metallogenic Map file by commodity group<sup>1</sup> and geologic class*  
 [Source of data: Guild, 1981a and b]

Geologic class <sup>2/</sup>	Metals						Nonmetallic minerals	Total
	Ferrous	Base	Light	Precious	Nuclear	Other		
Pegmatite (PEGM)-----	4	6	1	1	12	46	2	72
Chemical (CHEM)-----	158	2	8	--	--	--	29	197
Skarn or greisen (SKAR)-----	113	89	--	17	2	81	1	303
Placer (PLCR)-----	21	3	55	153	--	2	--	234
Stockwork (STOK)-----	200	240	14	95	20	38	102	709
Evaporite (EVAP)-----	--	--	1	--	--	4	179	184
Vein (VEIN)-----	155	366	1	768	58	187	80	1,615
Igneous concordant (IGNS)----	44	13	2	--	--	1	4	64
Laterite (LTRT)-----	44	--	25	--	1	--	3	73
Stratabound disseminated----- (DSTR)	28	179	5	23	110	16	72	433
Stratabound massive (MSTR)---	66	168	--	3	--	1	31	269
Not reported-----	22	21	--	5	4	1	9	62
Total -----	855	1,087	112	1,065	207	377	512	4,215

<sup>1/</sup> According to the classification of deposits by principal commodity shown in Table 1.

<sup>2/</sup> Geologic classes and abbreviations are from Table A-5 of Appendix A.

(1977); Central America, Roberts and Irving (1957), Dengo and Levy (1970), and Weyl (1980); Greenland, Nielson (1973); Mexico, Salas (1976, 1982) and de Cserna (1976); and the United States, Brobst and Pratt (1973).

Each of the commodity sections consists of three parts. The first part is an introductory text summarizing noteworthy aspects of each commodity deposit list. The second part consists of tables, usually two, one a directory of information on the number and location of other deposits containing the metal or mineral as a subordinate constituent and the second showing the distribution of principal deposits by geologic class. For example, there are 607 deposits containing zinc as a major commodity; 207 of these deposits are principal zinc deposits. The remaining 392 deposits containing zinc as a subordinate constituent are distributed among seven other commodities: lead, 146 deposits; silver, 144 deposits; copper, 74 deposits; gold, 25 deposits; iron sulfide, 7 deposits; barite, 3 deposits; and tungsten, 1 deposit. This information for zinc and the other 56 metals and minerals appearing in the data base was summa-

rized earlier by the matrix in figure 2. Figure 2 also shows that there are seven major commodities not reported as principal commodities in the data base—arsenic, bismuth, cadmium, cesium, selenium, tantalum, and tellurium. Information on these commodities appears after the directories of nonmetallic minerals.

The distribution of deposits by geologic deposit type is also reported. Again, using zinc as the example, all but 2 of the 207 principal zinc deposits are distributed among six geologic deposit-type classes; the other 2 deposits have not been classified. These geologic deposit classes are: massive strata-bound (MSTR), 75 deposits; disseminated strata-bound (DSTR), 70 deposits; vein and shear zone (VEIN), 35 deposits; stockwork (STOK), 15 deposits; skarn or greisen (SKAR), 9 deposits; and pegmatite (PEGM), 1 deposit. Table 7 shows a summary of this information for all mineral deposits in the Metallogenic Map file.

Deposit listings for each commodity follow the brief texts and tables. The lists of deposits are ordered alphabetically by Country/State code and deposit name.

# METALS

## FERROUS METALS<sup>7</sup>

### IRON (FE)

Iron is a major element, accounting for about 5 percent of the Earth's crust. It occurs in nature chiefly as oxide, silicate, carbonate, or sulfide minerals. Most ores used for production of iron (and steel) are oxides concentrated about 5 to 14 times over the crustal abundance; carbonate and silicate ores are minor sources of the metal. (Iron sulfides, valuable principally for the sulfur, and in many deposits especially for the base and precious metals that accompany them, are listed separately.)

By far the largest ore concentrations are the sedimentary (banded) iron formations (CHEM), which are chiefly of Archean and Early Proterozoic age. Iron is ordinarily the only element of commercial interest, although manganese is present in a few. On the other hand, many of the igneous-associated (SKAR, STOCK, IGNS, and VEIN) deposits have other major or minor constituents that correlate to a considerable extent with the composition of the intrusive rock. Thus, most iron-copper ores are skarns associated with felsic rocks, and nearly all the iron-titanium ores are in anorthosite. The laterite (LTRT) ores, which are products of oxidation of iron-magnesium silicates in ultramafic rocks and concentration on

extensive surfaces under tropical weathering conditions, are valuable chiefly for their nickel and cobalt, although they were formerly mined for iron in the Mayarí, Moa, and San Felipe districts of Cuba. Iron-bearing sedimentary formations raised to ore grade by weathering—the brown ores of the Southeastern United States and elsewhere—are also categorized here as LTRT; they can be distinguished by the absence of coding for igneous rocks. Because the iron oxides are heavy and resistant to chemical attack they accumulate as placers (PLCR) that may be of ore grade. Most placers are geologically modern, but a few occur in older sedimentary rocks.

Number of deposits containing iron	Number of principal iron deposits	Principal major commodity of other deposits containing iron as a major commodity									
		Cu	Mn	Nb	Al	Ti	Au	FeS	Pb	Th	Zn (Total)
Total 430	393	17	4	4	3	3	2	1	1	1	1 (37)

Number of principal iron deposits	Geologic class of deposit <sup>1/</sup>								
	CHEM	SKAR	STOK	LTRT	IGNS	PLCR	VEIN	MSTR	DSTR
Total 393	146	107	35	25	21	20	18	5	4

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

<sup>7</sup>Iron and its alloying metals.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAAL	11	DUNGARVAN CREEK	C	PLCR	FE		N49 12	W113 55	2A1C4A5
CAAL	2	SWIFT CREEK	A	CHEM	FE		N56 52	W118 39	2A37A2A6
CABC	140	APEX	C	SKAR	FE	CU	N52 42	W131 55	2D45C3A
CABC	269	ARGONAUT MINE	C	SKAR	FE		N49 52	W125 31	2A45C3A4
CABC	280	BUGABOO CREEK (CONQUEROR, ETC.)	C	SKAR	FE		N48 40	W124 30	2A45C3A4
CABC	141	BURNABY ISLAND (JIB, ETC.)	B	SKAR	FE		N52 24	W131 18	2A45B3A
CABC	276	BYRNOR MINE	B	SKAR	FE		N49 3	W125 27	2A45B3A4
CABC	142	JEDWAY MINE	B	SKAR	FE		N52 17	W131 14	2A45B3A5+
CABC	301	LODESTONE MOUNTAIN AREA	B	IGNS	FE		N49 28	W120 50	2A8B8A4
CABC	139	LOUISE ISLAND (IRON DUKE)	C	SKAR	FE		N52 59	W131 42	2A45C3A5+
CABC	58	MCQUILLAN RIDGE (MAX)	C	SKAR	FE	CU	N56 25	W130 32	2D45C3A4+

CABC	183	MOUNT FERRITT
CABC	177	NIMPKISH AREA (IRON CROWN, ETC.)
CABC	176	POWER RIVER
CABC	185	SAYWARD (IRON MIKE)
CABC	138	TASU MINE
CABC	273	TEXADA MINE
CABC	95	WEDEENE
CAFK	18	CHORKBAK INLET
CAFK	15	EGE BAY-GRANT SUTTIE BAY DISTRICT
CAFK	16	GENERATOR LAKE
CAFK	19	KOROK INLET
CAFK	17	MALTBY LAKE
CAFK	11	MARY RIVER
CAFK	14	MELVILLE PENINSULA-EAST
CAFK	13	MELVILLE PENINSULA-WEST
CAFK	12	ROWLEY RIVER
CAKW	18	BELCHER ISLANDS
CAKW	16	MCCONNELL RIVER
CAKW	9	MISTAKE BAY
CAKW	19	NASTAPOKA ISLAND
CAKW	13	SOUTH HENIK LAKE
CAMB	44	NEEPAWA
CAMK	45	BACK RIVER
CAMK	39	CONTWOYT LAKE DISTRICT
CANF	13	CAROL LAKE
CANF	23	INDIAN HEAD
CANF	4	KIGLAPAIT INTRUSION
CANF	5	KNOB LAKE DISTRICT
CANF	3	SAGLEK BAY-HEBRON DISTRICT
CANF	6	SAWYER LAKE
CANF	25	STEEL MOUNTAIN
CANF	51	WABANA
CANF	14	WABUSH
CANF	15	WILSON LAKE
CANS	22	LONDONDERRY
CANS	38	NICTAUX
CAON	27	AVIS LAKE DISTRICT
CAON	228	BELMONT TP. (BLAIRTON)
CAON	69	BENDING LAKE
CAON	139	BOSTON TP. (ADAMS)
CAON	172	BURWASH LAKE
CAON	211	CALABOGIE DISTRICT
CAON	72	CARPENTER TP.
CAON	115	CLAY-HOWELLS ALKALINE COMPLEX
CAON	107	COLDWELL COMPLEX
CAON	36	DORAN LAKE
CAON	102	GERALDTON IRON RANGE (ERRINGTON TP.)
CAON	157	GOULAIS RIVER
CAON	22	GRIFFITH
CAON	93	GUNFLINT
CAON	44	HOLLINGSWORTH LAKE
CAON	87	HUNTER ISLAND DISTRICT
CAON	81	HUTCHINSON TP. (ATTIKOKAN)
CAON	46	KAPICO IRON RANGE
CAON	37	KASHAWEOGAMA LAKE
CAON	120	KUKATUSH
CAON	35	LAKE ST. JOSEPH
CAON	215	LAWANT TP. (WILBUR)
CAON	229	MARMORA TP. (MARMORA)
CAON	85	MATAWIN IRON RANGE

C	SKAR	FE
C	SKAR	FE
C	SKAR	FE
C	SKAR	FE
B	SKAR	FE CU
B	SKAR	FE CU AU AG
C	SKAR	FE CU
B	CHEM	FE
B	CHEM	FE
C	CHEM	FE
C	CHEM	FE
B	CHEM	FE
A	CHEM	FE
A	CHEM	FE
A	CHEM	FE
C	CHEM	FE
C	CHEM	FE
A	CHEM	FE
A	CHEM	FE MN
B	CHEM	FE
B	CHEM	FE
C	CHEM	FE
C	CHEM	FE
A	CHEM	FE
C	IGNS	FE TI
C	IGNS	FE TI
A	CHEM	FE
C	CHEM	FE
C	CHEM	FE
C	STOK	FE TI
A	CHEM	FE
A	CHEM	FE
C	--	FE TI
C	STOK	FE
C	CHEM	FE
A	CHEM	FE
C	SKAR	FE
A	CHEM	FE
B	CHEM	FE
B	CHEM	FE
B	CHEM	FE
B	SKAR	FE
B	CHEM	FE
B	CHEM	FE
B	STOK	FE
B	IGNS	FE TI CU
A	CHEM	FE
A	CHEM	FE
B	CHEM	FE
A	CHEM	FE
A	CHEM	FE
B	CHEM	FE
B	CHEM	FE
C	STOK	FE
A	CHEM	FE
B	CHEM	FE
A	CHEM	FE
C	SKAR	FE
B	SKAR	FE
B	CHEM	FE

CU NI CO

N50	18	W124	54	2A45C3A
N50	15	W126	52	2A45C3A4+
N50	17	W127	30	2A45C3A
N50	18	W125	58	2A5C3A
N52	45	W132	2	2D45B3A4
N49	43	W124	34	2D45B3A4
N54	6	W128	37	2D45C3A4+
N64	28	W 74	42	2A15B2A2
N69	40	W 76	48	2A15B2A1+
N69	32	W 71	55	2A15C2A1+
N64	20	W 73	27	2A15C2A2
N64	55	W 77	56	2A15B2A1+
N71	19	W 79	21	2A15A2A1+
N68	30	W 82	38*	2A35A2C1+
N68	15	W 85	25	2A35A2A1+
N70	56	W 76	18	2A15C2A1+
N56	10	W 79	10*	2A1A2C2
N61	0	W 94	48	2A35A2A1
N62	12	W 93	8	2A35A2A1
N56	45	W 76	40*	2A37A2C2
N61	38	W 97	14	2A35B2A1
N50	12	W 99	18	2A15B2A1
N64	51	W107	42	2A35C2A1
N65	53	W110	31	2A35C2A1
N53	2	W 66	57	2A1A2A2
N48	33	W 58	31	2C46C8A1
N57	3	W 61	31	2C6C8A3
N54	47	W 66	52*	2A1A2B2
N58	20	W 63	10	2A15C2A1+
N54	27	W 65	59*	2A15C2C2
N48	22	W 58	18	2C68C5A1
N47	40	W 52	58	2A1A2A3
N52	54	W 66	57	2A1A2A2
N53	23	W 62	45	2C15C
N45	28	W 63	39	2A17C5A4
N44	55	W 65	0	2A1C2A4
N50	57	W 92	25	2A35A2A1
N44	28	W 77	46	2A156C3A4
N49	19	W 92	11	2A35A2A1
N48	5	W 79	55	2A35B2A1
N47	5	W 80	59	2A15B2A1
N45	18	W 76	42	2A15B3A4
N48	39	W 93	49*	2A35B2C1
N49	50	W 82	2	2A28B5A4
N48	49	W 86	19	2C28B4A+
N50	58	W 90	36	2A35A2A1
N49	42	W 87	1	2A35A2A1
N47	3	W 83	50	2A35B2A1
N50	49	W 93	22	2A35A2A1
N48	15	W 90	0*	2A37A2C2
N50	35	W 88	58*	2A35B2C1
N48	8	W 91	12*	2A35B2C1
N48	47	W 91	15	2A6C5A1
N50	41	W 80	58	2A35A2A1
N50	25	W 90	41	2A35B2A1
N48	9	W 82	14	2A35B2A1
N50	58	W 91	3	2A35A2A1
N45	1	W 76	41	2A145C3A4
N44	29	W 77	39	2A125B3A4
N48	33	W 90	5*	2A35B2C1

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	214	MAYO TP. (BESSEMER)	C	SKAR	FE		N45 3	W 77 38	2A1 45C3A4
CAON	113	MICHIPICOTEN DISTRICT	A	CHEM	FE		N48 7	W 84 38	2A35A2A1
CAON	178	MOOSE MOUNTAIN	B	CHEM	FE		N46 51	W 81 2	2A35B2A1
CAON	221	NEWBORO LAKE (CHAFFEY-MATTHEWS)	B	IGNS	FE TI		N44 38	W 76 20	2C68B8A4
CAON	8	NORTH SPIRIT LAKE	A	CHEM	FE		N52 28	W 92 51	2A35A2A1
CAON	78	NORWAY LAKE-VAN NOSTRAND LAKE	B	CHEM	FE	FES	N49 3	W 91 12	2A35B2A1
CAON	50	ONAMAN IRON RANGE	A	CHEM	FE		N50 14	W 87 19	2A35A2A1
CAON	196	PAPINEAU TP. (BRAZEAU)	C	DSTR	FE TI	V	N46 13	W 78 42	2C15C10A
CAON	193	PARKMAN TP.	B	CHEM	FE		N46 50	W 79 18	2A1 B2A2
CAON	39	PICKLE LAKE DISTRICT	B	CHEM	FE		N51 35	W 89 56*	2A35B2C1
CAON	52	PIVABISKA	B	CHEM	FE		N50 6	W 83 27	2A35B2A1
CAON	74	SEINE BAY-BAD VERMILION LAKE	B	IGNS	FE TI	V	N48 41	W 92 46	2C68B8A1
CAON	79	STEEPROCK IRON RANGE	A	CHEM	FE		N48 48	W 91 38	2A35A2A1
CAON	49	SUMMIT LAKE-STEWART LAKE	B	CHEM	FE		N50 21	W 87 39	2A35B2A1
CAON	3	SUTTON IRON RANGE	B	CHEM	FE		N54 23	W 84 41*	2A1 B2C2
CAON	192	TIMAGAMI (SHERMAN)	B	CHEM	FE		N47 4	W 79 50	2A35B2A1
CAON	216	WOLLASTON TP. (COEHILL)	C	SKAR	FE		N44 51	W 77 50	2A1 25C3A4
CAQB	77	ALBANEL IRON RANGE	A	CHEM	FE		N51 10	W 72 45*	2A37A2B2
CAQB	120	BOSSE TP. (CHESBAR)	B	CHEM	FE		N49 27	W 76 30	2A35B2A1
CAQB	160	BOURGET TP. (ST. CHARLES)	A	IGNS	FE TI V		N48 31	W 71 27	2C68A8A3
CAQB	220	BRISTOL TP. (HILTON)	B	SKAR	FE		N45 30	W 76 20	2A1 5B3A4
CAQB	162	BRULE LAKE	C	IGNS	FE TI		N49 23	W 69 58	2C68C8A3
CAQB	22	DRAGON-IRONY LAKES	A	CHEM	FE	MN	N58 19	W 70 15*	2A1 A2C2
CAQB	51	DUNCAN LAKE	A	CHEM	FE		N53 30	W 77 51	2A35A2A1
CAQB	21	FINGER LAKE (LAC BERARD)	A	CHEM	FE		N58 41	W 70 4*	2A1 A2C2
CAQB	64	FIRE LAKE-PEPLER LAKE DISTRICT	A	CHEM	FE		N52 21	W 67 22	2A1 5A2A2
CAQB	19	FORD LAKE	A	CHEM	FE		N59 13	W 70 10*	2A1 A2C2
CAQB	56	FORT GEORGE RIVER	C	PLOR	FE		N53 44	W 75 51	2A3C4A8
CAQB	182	GENDREAU TP. (KIPAWA)	C	STOK	FE		N46 48	W 79 0	2A1 5C5A
CAQB	43	GREAT WHALE	A	CHEM	FE		N55 5	W 76 50	2A35A2A1
CAQB	174	GUIGES TP. (VOYAGER)	B	CHEM	FE		N47 34	W 79 20*	2A35B2C1
CAQB	184	HOUDET TP. (CUFF LAKE)	C	CHEM	FE		N47 1	W 77 7	2A1 5C2A
CAQB	225	HULL TP. (FORSYTH)	C	SKAR	FE		N45 28	W 75 47	2A1 5C3A4
CAQB	81	HUMMINGBIRD LAKE	B	CHEM	FE		N51 45	W 69 33	2A1 5B2A2
CAQB	50	KNOB LAKE (SCHEFFERVILLE) DISTRICT	A	CHEM	FE		N54 50	W 66 54*	2A1 A2B2
CAQB	55	LAC GRANDE POINTE	C	CHEM	FE		N53 54	W 75 42*	2A35C2C1
CAQB	83	LAC HERVIEUX (LAC DE LA BLACHE)	A	IGNS	FE TI		N50 3	W 69 38	2C68A8A3
CAQB	82	LAC JEANNINE	A	CHEM	FE		N51 51	W 68 6	2A1 5A2A2
CAQB	158	LAC LA HACHE	B	IGNS	FE TI P		N48 57	W 70 56	2C4B8A3
CAQB	85	LAC RAUDOT	C	IGNS	FE TI		N51 42	W 67 45	2C6C8A3
CAQB	32	LARCH RIVER	A	CHEM	FE MN		N57 33	W 70 7*	2A1 A2C2
CAQB	191	LYNCH TP. (SIENNA)	C	CHEM	FE		N46 16	W 74 49	2A37C2A
CAQB	157	LYONNE TP. (ROBerval)	A	IGNS	FE TI CR		N48 28	W 72 42	2C68A8A3
CAQB	88	MAGPIE MOUNTAIN	A	IGNS	FE TI	CR	N51 25	W 64 3	2C68A8A3
CAQB	80A	MATONUPI LAKE	B	CHEM	FE		N51 52	W 69 50*	2A1 5B2C2
CAQB	63	MIDWAY LAKE	C	CHEM	FE		N52 28	W 67 0*	2A1 5C2C2
CAQB	68	MISHAGOMISH LAKE	C	CHEM	FE		N50 53	W 76 21*	2A35C2C1
CAQB	87	MOISIE	C	PLOR	FE TI		N50 13	W 66 5	2C37C4A8
CAQB	96	MONTOLFIER TP. (ARMORE)	A	CHEM	FE		N49 43	W 78 37	2A35A2A1
CAQB	18	MORGAN LAKE	A	CHEM	FE		N59 44	W 70 0*	2A1 A2C2
CAQB	195	MORIN ANORTHOSITE-BERESFORD TP. (IVRY)	C	IGNS	FE TI		N46 5	W 74 21	2C68C8A3
CAQB	221	MORIN ANORTHOSITE-WEXFORD TP.	A	IGNS	FE TI		N45 58	W 74 2	2C68A8A3
CAQB	59	MOUNT REED	A	CHEM	FE		N52 1	W 68 5	2A1 5A2A2
CAQB	60	MOUNT WRIGHT	A	CHEM	FE		N52 44	W 67 15	2A1 5A2A2
CAQB	93	NATASHQUAN TP.	C	PLOR	FE TI		N50 5	W 61 42	2C37C4A8
CAQB	62	NORTH LAMELEE (AND LACS LAMELEE & JEAN)	B	CHEM	FE		N52 28	W 67 31*	2A1 5B2C2

CAQB	17	PAYNE BAY
CAQB	20	PIG LAKE
CAQB	198	RACETTE LAKE
CAQB	76	RAGEOT TP.
CAQB	147	RINFRET & LEMOINE TPS.
CAQB	15	ROBERTS LAKE SYNCL INE
CAQB	199	SAINT URBAIN
CAQB	58	SEIGNELAY RIVER
CAQB	86	SEPT ILES
CAQB	197	ST. MAURICE
CAQB	61	STAR LAKE
CAQB	159	TAILLON TP.
CAQB	37	TP. 5048 (HEMATITE LAKE)
CAQB	139	VAUQUEL IN TP. (NORDEAU)
CAQB	89	LAC MARMONT
CASA	10	BLACK LAKE-MIDDLE LAKE DISTRICT (TRIANA)
CASA	46	CHOICELAND
CASA	45	KELSEY LAKE
CAYK	19	BEAR RIVER (PACIFIC GIANT)
CAYK	2	MOUNT DAVIES GILBERT (DELTA IRON)
CAYK	8	SHELL CREEK
CAYK	14	SNAKE RIVER (CREST)
CSCS	10	CALDERA
CSCS	22	CORONADO
CSCS	1	COOTAL
CSCS	20	PUERTO VIEJO
CSCS	8	SAN RAMON
CUOU	36	DAQUIRI-FIRMEZA DISTRICT
CUOU	17	FLORIDA DISTRICT
CUOU	27	MAYARI-CRISTAL (NICARO) DISTRICT
CUOU	18	MESA SAN FELIPE
CUOU	29	MOA DISTRICT
DRDR	2	FALCONDO (BONAO)
DRDR	3	MAIMON-HATILLO
GLGL	12	ANAP NUNA
GLGL	26	GRAENSELAND
GLGL	19	ISUA
GTGT	15	IZTAPA
HQHO	12	AGALTECA
HQHO	6	LAGUNA DE LOS MICO
JUJM	4	MULBERRY HILL-COFFEE PIECE
MXBN	16	EL MANZANO
MXBN	9	HERCULES-COLOSO ET AL.
MXBN	21	SANTA URSULA (EL SALTO, LA COCHALOSA)
MXCH	82	AGUAJE
MXCH	102	CARRIZALILLO
MXCH	110	EL COYOTE
MXCH	115	LA NEGRA
MXCH	113	LA PERLA
MXCH	167	SAN JULIAN
MXCL	6	CERRO NAHUATL
MXCL	4	COYUTLAN
MXCL	2	LOS CORDONES
MXCL	3	MANZANILLO
MXCL	5	MESA DE FIERRO
MXCL	1	PENA COLORADO
MXCL	7	PISCILA
MXCO	5	CERRO DE LA VASCA
MXCO	9	HERCULES
MXCO	8	RANCHO PROGRESO

B	CHEM	FE			N59 57	W 70 0*	2A1 B2C2
B	CHEM	FE			N58 55	W 70 2*	2A1 B2C2
C	STOK	FE TI			N46 6	W 73 58	2C68C5A3
C	CHEM	FE			N50 4	W 74 50*	2A3 5C2C1
B	IGNS	FE TI V			M49 49	W 74 2	2C68B8A1
A	CHEM	FE			N60 15	W 70 0*	2A1 A2C2
B	IGNS	FE TI			N47 32	W 70 33	2C68B8A3
B	CHEM	FE			N52 14	W 69 0*	2A1 5B2C2
B	IGNS	FE TI			N50 17	W 66 28	2C68B8A3
C	CHEM	FE			N46 28	W 72 20	2A3 7C2A8
A	CHEM	FE			N52 36	W 67 43*	2A1 5A2C2
C	PLOR	FE TI			N48 44	W 71 50	2C3C4A8
A	CHEM	FE			N56 33	W 68 50*	2A1 A2C2
B	CHEM	FE			N48 0	W 77 12	2A3 5B2A1
C	--	FE		TI	N50 46	W 65 19	2C15C
B	CHEM	FE			N59 13	W105 30	2A1 5B2A2-
B	CHEM	FE			N53 18	W104 35	2A3 5B2A1 +
B	CHEM	FE			N53 35	W104 27	2A3 5B2A1 +
C	STOK	FE		CU	N64 50	W134 17	2A1 C5A
A	CHEM	FE P			N68 35	W136 45	2A1 A2A5
B	CHEM	FE			N64 34	W140 20	2A1 B2A1-2
A	CHEM	FE			N65 15	W133 0	2A1 A2A1
C	PLOR	FE TI			N 9 57	W 84 43	2A3 7C4 A8
C	PLOR	FE TI			N 9 2	W 83 39	2A3 7C4 A8
C	PLOR	FE		TI	N10 33	W 85 43	2A3 7C4 A8
C	PLOR	FE		TI	N 9 40	W 82 46	2A3 7C4 A8
C	VEIN	FE			N10 6	W 84 33	2A7C7A7
B	SKAR	FE			N19 58	W 75 38	2A4 5B3A6
C	--	FE			N21 33	W 78 5	2A4 5C
A	LTRT	FE NI CO		OR	N20 37	W 75 33	5B5 8A9A7+
B	LTRT	FE		NI	N21 38	W 77 55	2A5 8B9A7+
A	LTRT	FE NI CO			N20 37	W 74 57	5B5 8A9A7+
A	LTRT	FE NI CO			N19 1	W 70 23	5B5 8A9A7+
C	SKAR	FE			N18 58	W 70 15	2A4 5C3A5+
C	CHEM	FE			N69 56	W 50 38	2A1 5C2A2
C	CHEM	FE			N61 23	W 47 57	2A5 C2A2
A	CHEM	FE			N65 14	W 50 0	2A1 5A2A1
C	PLOR	FE		TI	N13 55	W 90 39	2A3 7C4 A8
C	SKAR	FE		TI	N14 27	W 87 17	2A1 46C3A6
C	PLOR	FE			N15 48	W 87 37	2A3 7C4 A8
C	VEIN	FE			N18 12	W 76 35	2A4 5C7A5+
C	VEIN	FE			N30 17	W115 37	2A5 C7A5
C	SKAR	FE			N31 17	W116 15	2A1 4C3A5
B	STOK	FE			N29 55	W115 25	2A1 4B5A5
C	SKAR	FE			N28 18	W106 29	2A1 4C3A7
C	SKAR	FE			N28 57	W105 12	2A1 4C3A7
C	VEIN	FE CU			N28 38	W104 5	2D7C7A7
C	STOK	FE			N28 11	W104 7	2A7C5A7
B	STOK	FE			N28 16	W104 33	2A7B5A7
C	VEIN	FE			N26 4	W106 31	2A7C7A7
C	SKAR	FE			N19 10	W103 54	2A1 46C3A6
C	PLOR	FE		TI	N18 55	W104 3	2A3 7C4 A8
C	SKAR	FE			N19 7	W104 12	2A1 46C3A6
C	PLOR	FE TI			N19 3	W104 19	2C37C4 A8
C	SKAR	FE			N19 18	W103 52	2A1 46C3A6
A	SKAR	FE			N19 22	W104 5	2A1 46A3A6
C	SKAR	FE			N19 9	W103 43	2A1 46C3A6
C	SKAR	FE			N28 40	W102 47	2A1 4C3A7
C	VEIN	FE			N28 2	W103 49	2A4 C7A7
C	VEIN	FE			N28 17	W103 39	2A4 C7A7



Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXCO	31	REAL VIEJOS	C	SKAR	FE		N26 45	W101 35	2A14C3A7
MXCP	10	ARRIAGA	C	SKAR	FE	CJ	N16 15	W 93 52	2D145C3A7
MXCP	9	CERRO COLORADO O AURORA	C	VEIN	FE	CJ	N16 17	W 93 58	2D4C7A7
MXDR	44	AREA DE PERIÇOS	C	SKAR	FE	CJ	N25 28	W104 32	2A14C3A7
MXDR	74	CERRO DEL MERCADO	A	STOK	FE		N24 2	W104 40	2A7A5A7
MXGR	55	ARROYO LA LIMA	C	STOK	FE		N17 4	W 99 55	2A4C5A7
MXGR	43	CERRO DE EPAZOTE	C	SKAR	FE		N17 32	W 99 37	2A1C3A7
MXGR	7	CERRO PIEDRA IMAN	C	SKAR	FE		N18 23	W100 51	2A14C3A7
MXGR	22	EL TIBOR Y CHUTLA	B	SKAR	FE		N17 53	W101 43	2A14B3A
MXGR	48	EL VIOLIN	B	DSTR	FE		N17 20	W 99 20	2A1B10A7
MXGR	32	LA CALERA	C	SKAR	FE		N17 14	W100 36	2A14C3A7
MXGR	29	LA COSTENITA Y LOCALIDAD CERRO LA MINA	C	VEIN	FE		N17 25	W101 7	2A4C7A7
MXGR	1	LA MECA Y LA MINA	C	SKAR	FE		N18 5	W102 5	2A14C3A7
MXGR	28	LA QUEBRADA	C	VEIN	FE		N17 25	W101 3	2A15C7A7
MXGR	52	LAS PAPAS	B	SKAR	FE		N17 17	W 99 52	2A14B3A7
MXGR	27	LOCALIDAD LA COCOLMECA	C	VEIN	FE		N17 43	W101 0	2A15C7A7
MXGR	54	PIEDRA IMAN	C	STOK	FE		N17 5	W 99 40	2A4C5A7
MXGR	53	RIO VERDITO	B	STOK	FE	AG CJ	N17 13	W 99 47	2A14B5A7
MXGR	42	TEPENCAXTLA	C	STOK	FE		N17 38	W 99 37	2A7C5A7
MXHD	4	ENCARNACION-MINAS VIEJAS	C	SKAR	FE	CJ	N20 53	W 99 13	2D14C3A7
MXHD	1	SANTA MARIA	C	SKAR	FE	CJ	N21 7	W 99 8	2D14C3A7
MXHD	10	VAQUERIAS O EL SABINAL	C	IGNS	FE		N20 21	W 98 37	2A7C8A7
MXJL	28	AHUIJULLO	C	SKAR	FE		N19 3	W103 12	2A14C3A6
MXJL	20	CIHUATLAN	C	SKAR	FE		N19 15	W104 33	2A146C3A6
MXJL	19	LA HUERTA	B	SKAR	FE		N19 28	W104 40	2A14B3A6
MXJL	14	LA MORA, LA REYNA, TACOTES	C	VEIN	FE		N20 4	W103 47	2A7C7A7
MXJL	22	MATAORISTOS	C	SKAR	FE		N19 51	W103 28	2A14C3A6
MXJL	24	ZONA PIHUMO (EL ENCINO ET AL.)	B	SKAR	FE	BA	N19 7	W103 22	2A14B3B6
MXJL	25	ZONA SIERRA DEL ALO	C	SKAR	FE		N19 14	W103 12	2A14C3A6
MXMC	12	AQUILA Y ESTANZUELA	B	SKAR	FE		N18 40	W103 30	2A14B3A7
MXMC	18	EL VENADO	C	MSTR	FE		N18 32	W102 38	2A1C11A7
MXMC	17	JOVERO (VARIAS MINAS)	C	SKAR	FE		N18 32	W102 49	2A14C3A7
MXMC	16	LA BUFAS (VARIAS MINAS)	C	SKAR	FE		N18 20	W103 3	2A14C3A7
MXMC	6	LA QUICHILLA	C	SKAR	FE		N18 58	W103 10	2A14C3A7
MXMC	13	LA GUAYABERA	C	SKAR	FE		N18 30	W103 15	2A14C3A7
MXMC	7	LAS TROJES	C	SKAR	FE		N18 55	W103 20	2A14C3A7
MXMC	24	LAS TRUCHAS	A	SKAR	FE		N18 0	W102 20	2A14A3A
MXMC	22	LOS FOZOS	B	SKAR	FE	CJ	N18 20	W102 25	2A14B3A7
MXMC	20	YACIMIENTO DE ORDENA VIEJA	C	SKAR	FE		N18 30	W102 10	2A1C3A7
MXNA	16	SAN FRANCISCO	C	VEIN	FE		N21 25	W104 55	2A7C7A7
MXNL	13	EL CANARIO	C	VEIN	FE	P	N24 1	W100 12	2A1C7A7
MXNL	3	GOLONDRINAS O CARRIZAL	C	SKAR	FE		N26 44	W100 30	2A14C3A7
MXNL	9	RICONADA	C	SKAR	FE		N25 27	W100 8	2A14C3A7
MXOX	85	CERRO PENUELAS Y POZO TORIBIO	C	SKAR	FE		N16 54	W 95 11	2A14C3A7
MXOX	13	CHAYUCO O LA FIERROSA	C	STOK	FE		N17 7	W 98 4	2A4C5A7
MXOX	60	EL AGUACATE	C	MSTR	FE		N16 53	W 97 12	2A4C11A7
MXOX	59	EL CARNERO	C	MSTR	FE		N16 45	W 97 35	2A4C11A7
MXOX	94	EL MARMOL	C	MSTR	FE		N16 30	W 95 25	2A4C11A7
MXOX	90	EL MERODIO, EL BUSTAQUIO, LA VENTOSA	B	SKAR	FE		N16 37	W 94 56	2A14B3A7
MXOX	62	EL RECIBIMIENTO	C	MSTR	FE		N16 45	W 97 13	2A4C11A7
MXOX	110	LAS ESPERANZAS	C	SKAR	FE		N15 45	W 96 18	2A14C3A7
MXOX	9	MINA LA FORTUNA	C	SKAR	FE		N17 22	W 98 19	2A14C3A7
MXOX	91	NILTEPEC	C	SKAR	FE		N16 31	W 94 39	2A14C3A7
MXOX	84	NIZADUGA	C	SKAR	FE		N17 0	W 95 22	2A14C3A7
MXOX	44	PURIFICACION	C	SKAR	FE		N16 59	W 97 56	2A14C3A7
MXOX	63	SANTA MARIA ZANIZA	B	SKAR	FE		N16 39	W 97 20	2A14B3A7

MXOX	78	SANTIAGO IXTLAYUTLA	C	SKAR	FE		N16	30	W 97	42	2A1 4C3A7
MXOX	93	TOTOLAPILLA, EL CIRUELO Y LAS QUEVAS	C	SKAR	FE		N16	32	W 95	37	2A1 4C3A7
MXOX	1	TOTOLTEPEC	C	SKAR	FE		N18	15	W 97	45	2A1 4C3A7
MXOX	106	ZONA DE ASTATA	C	SKAR	FE		N16	1	W 95	40	2A1 4C3A7
MXSL	3	CERRO MAZOMIQUE	C	SKAR	FE	CU AU	N26	44	W108	15	2A1 4C3A6
MXSL	29	FELIFE I	C	SKAR	FE		N24	37	W107	10	2A1 4C3A6
MXSL	25	LECHUGUILLA	C	SKAR	FE	CU	N24	58	W107	19	2D1 4C3A
MXSL	2	MI MADRE	C	VEIN	FE	CU	N26	50	W108	15	2D1 4C7A6
MXSL	28	TEPUSSETITO (LOS VASITOS)	C	SKAR	FE		N24	40	W107	6	2A1 4C3A6
MXSN	38	EL CHORRO	C	SKAR	FE		N29	23	W111	11	2A1 4C3A6+
MXSN	64	PIEDRA IMAN-EL VOLCAN	B	SKAR	FE		N27	45	W109	27	2A1 4B3A7
MXSN	39	PIEDRAS NEGRAS & LA CARIDAD	C	SKAR	FE		N29	14	W111	4	2A1 4C3A7
MXVR	4	ALMAGRES	B	CHEM	FE		N17	48	W 94	55	2A1 B2A4
MXVR	1	TATATILA	C	SKAR	FE		N19	42	W 97	8	2A1 4C3A7
NUNU	19	MONTE CARMELO	C	DSTR	FE		N13	58	W 84	26	2A47C10A7
PNFN	1	CEBU	C	PLOR	FE		N 9	30	W 82	25	2A37C4A8
PNFN	31	CHAME	C	PLOR	FE		N 8	38	W 79	48	2A37C4A8
PNFN	7	PUERTO ARMUELLES	C	PLOR	FE		N 8	17	W 82	42	2A37C4A8
RQRQ	11	KEYSTONE (JUNCOS) MINE	C	SKAR	FE	CU	N18	14	W 65	54	2D45C3A5+
RQRQ	6	MAYAGUEZ (GUANAJIBO, LAS MESAS)	B	LTRT	FE	NI CO	N18	9	W 67	8	5B5 8B9A7+
RQRQ	7	ROSARIO-MARICAO AREA	C	LTRT	FE	NI CO	N18	8	W 67	0	5B5 8C9A7+
USAK	182	HETTA INLET (COPPER MTN., JUMBO ET AL.) DIST.	C	SKAR	FE	CU	N55	14	W132	34	2D456C3A5
USAK	181	KASAAN PENINSULA (MT. ANDREW, MAMIE ET AL.)	B	SKAR	FE	CU	N55	31	W132	18	2D456B3A4-5
USAK	115	KASNA CREEK PROSPECTS	C	--	FE		N60	10	W154	10	2DC
USAK	142	KEMUK MTN. (DILLINGHAM) PROSPECT	B	IGNS	--		N59	43	W157	41	2C8B8A3+
USAK	152	KLUKWAN PROSPECT	B	--	--		N59	25	W135	55	2C8B
USAK	68	TATONDUK RIVER	C	CHEM	FE		N65	1	W141	5	2A17C2A1
USAL	4	BIRMINGHAM DISTRICT	A	CHEM	FE		N33	29	W 86	46	2A1 A2A4
USAL	5	BUCKSVILLE RED ORE AREA	C	CHEM	FE		N33	10	W 87	10*	2A1C2B4
USAL	13	EASTERN ALABAMA BROWN ORE DISTRICT	C	LTRT	FE		N33	55	W 85	57*	2A1C9C7+
USAL	2	NORTHEAST ALABAMA RED ORE DISTRICT	C	CHEM	FE		N34	22	W 85	52*	2A1C2B4
USAL	1	RUSSELLVILLE DISTRICT	B	LTRT	FE		N34	30	W 87	48*	2A37B9B4+
USAL	18	SOUTHEAST ALABAMA BROWN ORE DISTRICT	B	LTRT	FE	MN	N31	48	W 85	10*	2A37B9B7+
USAL	9	TALLADEGA DISTRICT	C	PLOR	FE		N33	11	W 86	13	2A1 5C4A3
USAL	6	WOODSTOCK BROWN ORE AREA	C	LTRT	FE		N33	13	W 86	57	2A1C9A4+
USAR	2	NORTHEAST ARKANSAS BROWN ORE DISTRICT	C	LTRT	FE		N56	20	W 90	25*	2A37C9C
USAR	13	RISON ANOMALY	C	STOK	FE		N33	57	W 92	12	2A2 8C5A6
USAZ	48	APACHE & CHEDISKI DEPOSITS	B	CHEM	FE		N34	5	W110	42	2A37B2A1
USAZ	32	MINERAL HILL-NEW PLANET DEPOSITS	C	SKAR	FE	CU	N34	14	W114	0	2D1 4C3A
USAZ	87	OMEGA MINE	B	PLOR	FE		N32	50	W111	5	2A3B4A8
USAZ	67	PIKES PEAK DISTRICT	B	CHEM	FE		N33	51	W112	25	2A5B2A1
USCA	159	CAVE CANYON	C	--	FE		N35	4	W116	20	2A1 5C
USCA	171	CLIFTON AREA	C	PLOR	FE	TI	N33	52	W118	23	2C37C4A8
USCA	181	EAGLE MOUNTAIN DISTRICT	A	SKAR	FE		N33	55	W115	35	2A1 4A3A4+
USCA	170	IRON AGE	C	VEIN	FE		N34	5	W115	43	2A4C7A
USCA	169	IRON HAT (IRONCLAD)	C	SKAR	FE		N34	37	W115	38	2AC3A
USCA	153	IRON MTN-IRON KING	B	SKAR	FE		N35	23	W116	18	2A1 4B3A
USCA	164	KINGSTON DISTRICT (BECK DEPOSIT)	B	--	FE		N35	46	W115	58	2A1 B
USCA	162	LAVA BED DIST (MORRIS LODGE, VAN BUREN GROUP)	C	SKAR	FE		N34	39	W116	34	2A4C3A
USCA	93	MINARETS (IRON MTN.) DEPOSIT	B	STOK	FE		N37	33	W119	12	2A5B5A
USCA	167	OLD DAD MOUNTAIN	C	--	FE		N35	10	W115	52	2A1 4C
USCA	185	OROCOPIA	C	STOK	FE	TI	N33	33	W115	55	2C68C5A1
USCA	143	SAN GABRIEL MOUNTAINS	B	STOK	FE	TI	N34	22	W118	18	2C68B5A1
USCA	19	SHASTA-CALIFORNIA	B	SKAR	FE		N40	47	W122	19	2A4B3A4
USCA	168	VULCAN	B	SKAR	FE		N34	50	W115	35	2A1 4B3A
USGA	5	NORTHWEST GEORGIA BROWN ORE DISTRICT	C	LTRT	FE		N34	10	W 85	15*	2A1C9C8
USGA	1	NORTHWEST GEORGIA RED ORE DISTRICT	C	CHEM	FE		N34	52	W 85	19*	2A1C2B4
USGA	20	SOUTHWEST GEORGIA BROWN ORE DISTRICT	C	LTRT	FE		N32	0	W 84	50*	2A37C9C7+
USIA	2	WAUKON	C	LTRT	FE		N43	22	W 91	30	2A37C9A7
USID	16	IRON MTN. DISTRICT	C	STOK	FE	FES	N44	30	W116	58	2DC5A

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USKY	4	ROSE RUN AREA	C	CHEM	FE		N38 8	W 83 36	2A37C2A3
USKY	6	WESTERN KENTUCKY BROWN IRON DISTRICT	C	LTRT	FE		N36 50	W 88 10*	2A37C9C4+
USLA	1	NORTHWESTERN LOUISIANA AREA	C	CHEM	FE		N32 45	W 93 30*	2A37C2C7
USMI	2	EAST GOGEBIC RANGE	A	CHEM	FE		N46 28	W 90 7*	2A1 A2B2
USMI	11	FELCH TROUGH (GROVELAND MINE)	B	CHEM	FE		N45 59	W 87 55	2A1 B2A2
USMI	10	GWINN	B	CHEM	FE		N46 16	W 87 28	2A1 B2A2
USMI	6	IRON RIVER-CRYSTAL FALLS DISTRICT	A	CHEM	FE		N46 4	W 88 33*	2A5 A2B2
USMI	7	MARQUETTE RANGE	A	CHEM	FE		N46 30	W 87 37*	2A1 A2B2
USMI	12	MENOMINEE RANGE	A	CHEM	FE		N45 50	W 87 54	2A1 A2A2
USMI	9	REPUBLIC TROUGH	B	CHEM	FE		N46 26	W 88 0	2A1 B2A2
USMN	2	CUYUNA RANGE	A	CHEM	FE	MN	N46 30	W 94 0*	2AA2B2
USMN	1	DULUTH GABBRO BELT	C	IGNS	FE TI	V	N48 2	W 90 45*	2C6C8B4
USMN	7	FILLMORE COUNTY	C	LTRT	FE		N43 37	W 92 27	2A37C9A6+
USMN	3	MESABI RANGE	A	CHEM	FE		N47 30	W 92 48*	2A37A2B2
USMN	4	VERMILION RANGE	B	CHEM	FE		N47 48	W 92 12	2A5 B2A1
USMO	22	BOSS MINE	B	STOK	FE CU		N37 33	W 91 10	2D2B5 A2
USMO	18	IRON MOUNTAIN	B	STOK	FE		N37 42	W 90 38	2A7B5 A2
USMO	2	OSAGE RIVER DISTRICT	C	LTRT	FE		N38 15	W 93 15*	2AC9C
USMO	3	PEA RIDGE-BOURBON DISTRICT	A	VEIN	FE		N38 11	W 91 12	2A47A7A2
USMO	19	PILOT KNOB	B	DSTR	FE		N37 35	W 90 37	2A7B1 0A2
USMO	13	SOUTHEAST MISSOURI BROWN ORE DISTRICTS	C	LTRT	FE		N36 30	W 91 15*	2A37C9C
USMO	7	SPRINGFIELD BROWN ORE DISTRICT	C	LTRT	FE		N37 30	W 93 30*	2AC9C
USMS	2	NORTH CENTRAL MISSISSIPPI DISTRICT	C	LTRT	FE		N33 30	W 89 15*	2A37C9C7+
USMS	1	NORTH MISSISSIPPI DISTRICT	C	LTRT	FE		N34 15	W 89 22*	2A37C9C7+
USMT	19	AREA NE OF CHOTEAU	C	PLOR	FE TI REE TH		N47 53	W112 23*	2C37C4B6
USMT	83	BLACK BUTTE PROSPECT	C	CHEM	FE		N44 52	W111 44	2A1 5C2A1
USMT	72	CARTER CREEK (DILLON)	B	CHEM	FE		N45 10	W112 30	2A1 5B2A1
USMT	67	DRY BOULDER CREEK	C	--	FE		N45 34	W112 6	2A1 5C
USMT	42	IRON MTN. (NEIHART)	C	STOK	FE	CU	N46 56	W110 54	2A1 2C5 A6+
USMT	71	KELLY	B	CHEM	FE		N45 15	W112 15	2A1 5B2A1
USMT	68	RAMSHORN (COPPER MTN.)	B	CHEM	FE		N45 25	W112 1	2A1 5B2A1
USMT	44	RUNNING WOLF (WILLOW CREEK) DISTRICT	C	STOK	FE		N47 2	W110 20	2A237C5 A6+
USMT	48	SHEEP CREEK DEPOSITS	C	STOK	FE		N46 46	W110 58	2A1 C5 A
USMT	80	STILLWATER (BEARTOOTH MTNS.)	C	CHEM	FE		N45 25	W110 6	2A1 5C2A1
USNC	2	CRANBERRY MINE	C	VEIN	FE		N36 8	W 81 58	2A1 45C7A
USNC	7	KNAP OF REEDS (CAMP BUTNER) AREA	C	CHEM	FE		N36 10	W 78 48	2A5 C2A
USNJ	4	DOVER DISTRICT	B	CHEM	FE	REE	N40 56	W 74 30	2A1 45B2A1
USNJ	6	OXFORD (WASHINGTON ET AL.) MINES	C	CHEM	FE		N40 49	W 74 59	2A1 5C2A1
USNJ	2	RINGWOOD BELT	C	CHEM	FE		N41 7	W 74 20	2A1 5C2A1
USNM	45	BOSTON HILL MINE, SILVER CITY AREA	B	STOK	FE MN AG		N32 45	W108 17	10A3 47 B5 A6
USNM	61	CABALLO MTNS. AREA	B	CHEM	FE		N32 58	W107 13*	2A37B2A3
USNM	46	FIERRRO-HANOVER DISTRICT	B	SKAR	FE		N32 49	W108 4	2D347 B3 A6
USNM	52	IRON MTN. DISTRICT	C	SKAR	FE W BE	CU ZN	N33 28	W107 38	2A347C3A7
USNV	52	BARTH MINE	C	STOK	FE		N40 33	W116 17	2A7C5 A
USNV	25	BUENA VISTA HILLS DISTRICT	B	SKAR	FE		N40 1	W118 9	2A4 56 B3 A4+
USNV	85	DAYTON	B	SKAR	FE		N39 22	W119 29	2A1 5B3 A
USNV	3	JACKSON MTNS. DISTRICT	C	SKAR	FE		N41 24	W118 33	2A4 56 C3 A
USNV	97	LYON (PUMPKIN HOLLOW) PROSPECT	A	SKAR	FE CU		N38 55	W119 5	2D45 A3 A4+
USNV	61	MCCOY DISTRICT	C	SKAR	FE		N40 18	W117 12	2A1 4C3 A
USNV	91	MINNESOTA MINE	C	SKAR	FE	CU	N39 3	W119 20	2D45 C3 A4
USNV	59	MODARELLI MINE	C	STOK	FE		N40 22	W116 16	2A47C5 A7
USNY	9	AUSABLE FORKS	C	CHEM	FE		N44 28	W 73 40	2A1 5C2A2
USNY	22	BREWSTER BELT (CROTON MINE ET AL.)	C	--	FE CU		N40 24	W 73 40	2D15C
USNY	18	HAMMONDVILLE-CROWN POINT	C	CHEM	FE		N43 57	W 73 34	2A1 5C2A2
USNY	6	LAKE SANFORD (TAHANUS)	A	STOK	FE TI	V	N44 1	W 74 1	2C68A5 A3
USNY	7	LYON MOUNTAIN	B	CHEM	FE		N44 43	W 73 55	2A1 5B2A2

USNY	1	MARY ANOMALY	C	CHEM	FE		N44	36	W 74	20	2A15C2A2
USNY	10	MINERYILLE-FORT HENRY	B	CHEM	FE		N44	6	W 73	32	2A15B2A2
USNY	4	NW ADIRONDACK MAGNETITE (BENSON ET AL.)	A	CHEM	FE		N44	10	W 74	56	2A15A2A2
USNY	8	SARANAC VALLEY	C	CHEM	FE		N44	37	W 73	50	2A15C2A2
USNY	20	STERLING LAKE	C	--	FE		N41	12	W 74	16	2AC
USOK	13	WITCHITA MOUNTAINS	C	STOK	FE TI		N34	44	W 98	48	2C68C5A2
USOR	1	SCAPPOOSE MINE	C	--	FE		N45	47	W122	52	2A3C
USPA	8	BOYERTOWN (BROWER & FEGLEY MINES)	C	SKAR	FE		N40	20	W 75	39	2A6C3A7
USPA	2	CENTRAL PENNSYLVANIA IRON DISTRICT	C	CHEM	FE		N41	0	W 77	0*	2A1C2C4
USPA	5	CORNWALL MINE	A	SKAR	FE	CU OO AU	N40	16	W 76	25	2D16A3A7
USPA	4	DILLSBURG FIELD	C	SKAR	FE		N40	8	W 77	1	2A16C3A7
USPA	11	FRENCH CREEK (KLEIM, ELIZABETH) MINES	C	SKAR	FE CU	ZN OO	N40	9	W 75	47	2D16C3A7
USPA	10	GRACE MINE	B	SKAR	FE	CU OO AU	N40	10	W 75	53	2D16B3A7
USRI	1	IRON MINE HILL	B	STOK	FE TI		N42	0	W 71	27	2C68B5A
USSD	4	NEMO TACONITE DISTRICT	B	CHEM	FE		N44	10	W103	28	2AB2A1
USTN	13	ROCKWOOD-CARDIFF DISTRICT	B	CHEM	FE		N35	53	W 84	42	2A1B2A4
USTN	11	WESTERN HIGHLAND RIM DISTRICT	C	LTRT	FE		N35	30	W 87	30*	2A37C9C6+
USTX	12	NORTH BASIN	B	CHEM	FE		N33	1	W 94	12*	2A37B2B7
USTX	25	SOUTH BASIN	B	CHEM	FE		N31	49	W 95	8*	2A37B2B7
USUT	62	BULL VALLEY-COVE MTN. DISTRICT	C	STOK	FE		N37	24	W113	48	2A347C5A7-
USUT	60	IRON SPRINGS (CEDAR CITY) DISTRICT	A	STOK	FE		N37	41	W113	13	2A347A5A7
USYA	19	CLIFTON FORGE	B	LTRT	FE		N37	38	W 79	57	2A1B9A5+
USYA	36	BLEWETT (WASHINGTON NICKEL) DEPOSIT	C	LTRT	FE	OR NI	N47	24	W120	38	2A8C9A6
USYA	14	BUCKHORN MTN. (MAGNETIC, NEUTRAL, AZTEC)	B	SKAR	FE	CU AU W	N48	57	W118	59	2D25B3A
USYA	35	CLE ELUM RIVER (BALFOUR GUTHRIE)	C	LTRT	FE	OR NI	N47	26	W121	3	2A8C9A6
USNI	9	BARABOO RANGE	C	CHEM	FE		N43	30	W 89	45	2AC2A1
USNI	3	BLACK RIVER FALLS	B	CHEM	FE		N44	20	W 90	48	2AB2A2
USNI	4	FLORENCE AREA	A	CHEM	FE		N46	0	W 88	34*	2A5A2B2
USNI	10	MAYVILLE-IRON RIDGE DISTRICT	C	CHEM	FE		N43	28	W 88	31	2A37C2A3
USNI	1	WEST GOGBIC RANGE	A	CHEM	FE		N46	25	W 90	10*	2A1A2B2
USNY	13	ATLANTIC CITY	A	CHEM	FE		N42	31	W108	42	2A5A2A1
USNY	28	HARTVILLE DISTRICT, SUNRISE MINE	B	CHEM	FE		N42	19	W104	42	2A1B2A1
USNY	40	IRON MOUNTAIN DISTRICT	B	STOK	FE TI	V	N41	36	W105	16*	2C68B5B2
USNY	22	SEMINOE	C	CHEM	FE		N42	10	W107	2	2A5C2A1

# IRON SULFIDE (FES)

Most iron sulfide deposits are concordant with the bedding in stratified rocks and are composed of 50 percent or more of pyrite or, less commonly, pyrrhotite; hence they are designated "massive strata-bound" (MSTR). Many are in mafic submarine volcanic rocks (basalts) and are generally recognized as volcanogenic. The very large deposits at Ducktown (USTN 16) are in nonvolcanic metasediments, but they and similar deposits, for example, Gossan Lead (USVA 13) are now considered to have formed from solutions introduced into fault basins during the early stages of the continental rifting that produced the ancestral Atlantic Ocean (Gair and Slack, 1984; Stephens and others, 1984).

Copper, zinc, and minor lead, gold, and silver may be the chief or only economic metals, especially in deposits for which these commodities are listed first. (Although iron sulfide is usually the most abundant mineral, it is often discarded, and

the file does not always reflect the true order of metal abundance.)

	Number of deposits containing iron sulfide	Number of principal iron sulfide deposits	Principal major commodity of other deposits containing iron sulfide as a major commodity					
			Zn	Cu	Au	Pb	Fe	(Total)
Total	117	41	39	31	3	2	1	(76)

	Number of principal iron sulfide deposits	Geologic class of deposit <sup>1/</sup>					
		MSTR	DSTR	CHEM	STOK	VEIN	Not reported
Total	41	31	4	2	2	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	144	ECSTALL RIVER AREA	B	MSTR	FES	ZN CU	N53 52	W129 30	3D15B11A
CAKW	15	MAGUSE LAKE-WALLACE RIVER DISTRICT	B	CHEM	FES		N61 35	W 94 30*	2A35B2C1
CAKW	17	SMITH ISLAND	C	MSTR	FES		N60 45	W 78 27	11B5C11A2
CAMK	78	PAYNE LAKE AREA (PAT)	C	VEIN	FES	ZN CU	N62 46	W112 10	11B35C7A1
CAMK	37	ZERO	C	MSTR	FES	ZN CU	N64 18	W112 32	11B15C11A
CANF	1	ROSWELL HARBOUR	C	MSTR	FES		N58 56	W 63 17	11B15B11A2+
CAON	110	GOUDREAU	B	MSTR	FES		N48 17	W 84 29	11B35A11A1
CAON	40	MIMINISKA LAKE	A	CHEM	FES		N51 37	W 88 35*	2A35A2C1
CAON	16	MINAKI	B	MSTR	FES		N50 4	W 94 36	11B35B11A
CAON	29	NORTH PINES (VERMILION)	B	MSTR	FES		N50 5	W 92 4	11B35B11A1
CAON	225	SULPHIDE DISTRICT	B	MSTR	FES		N44 31	W 77 14	11B15B11A3+
CAQB	129	DELESTRE TP. (FREEPORT)	B	MSTR	FES		N48 38	W 77 2	11B35B11A1
CAQB	141A	LAMARCK TP.	C	MSTR	FES		N49 56	W 75 15	11B35C11A1
CAQB	69	SCOTT LAKE	C	DSTR	FES	CU	N50 41	W 76 17	3A35C10A1
CAQB	29	TP. 5944 (HOOK LAKE)	B	DSTR	FES		N58 7	W 69 55	11B1B10A2
CAQB	3	TP. 7511 (RUSTY LAKE)	C	MSTR	FES	CU	N60 48	W 78 4	11B5C11A2
CAQB	2	TP. 7613	C	MSTR	FES	CU	N60 55	W 77 36	11B5C11A2
CASA	38	MUSKEG BAY DISTRICT	B	MSTR	FES	ZN CU	N54 34	W102 22	11B35B11A2
CASA	25	WADDY LAKE-KIRK LAKE DISTRICT	A	MSTR	FES	ZN CU	N56 12	W104 0	11B35A11A2
CASA	28	WEBLEY LAKE-OLSON LAKE	C	DSTR	FES		N55 55	W105 27	11B15C10A2
CUQU	14	ANTONIO	C	---	FES	CU	N22 7	W 79 50	11B45C
CUQU	11	CARLOTA MINE	C	MSTR	FES		N22 4	W 80 11	11B15C11A4+
GLGL	6	STOROEN	B	DSTR	FES		N70 40	W 51 24	11B5B10A2
USAL	16	PYRITON DISTRICT	C	MSTR	FES	CU ZN	N33 21	W 85 49	3D15C11A3+
USGA	13	CHESTATEE MINE	C	MSTR	FES	ZN	N34 33	W 83 50	3D15C11A2
USGA	16	TALLAPOOSA (TUDRO, WALDROP) MINE	C	MSTR	FES	CU	N33 51	W 85 5	3A15C11A2-3
USGA	17	VILLA RICA	C	MSTR	FES	CU	N33 47	W 84 54	11B15C11A2

USMA	1	DAVIS MINE	C	MSTR	FES	CJ			N42	41	W 72	52	3D15C11A
USME	7	KATAHDIN PYRRHOTITE	C	STOK	FES			CJ	N45	26	W 69	12	11B6C5A4
USMO	15	STEELVILLE (CHERRY VALLEY) DISTRICT	C	STOK	FES	FE			N37	56	W 91	21*	2A37C5B4+
USNC	16	CULLOWHEE MINE	C	MSTR	FES	CJ		ZN	N35	16	W 83	9	3D15C11A
USNC	14	FONTANA & HAZEL CREEK MINES	B	MSTR	FES	CJ		ZN FB AG AU	N35	28	W 83	45	3D5B11A2-3
USNH	1	MILAN	C	MSTR	FES	CJ ZN		AG	N44	54	W 71	15	3D5C11A3+
USNY	21	PHILLIPS MINE	C	MSTR	FES			CJ NI U	N41	19	W 73	58	11B1456C11A1
USTN	16	DUCKTOWN DISTRICT	A	MSTR	FES	CJ		ZN FB AG AU	N35	1	W 84	26	3D1A11A2-3
USVA	5	CABIN BRANCH	C	MSTR	FES				N38	35	W 77	21	11B5C11A3
USVA	22	DILLWYN DISTRICT (LONDON ET AL. MINES)	C	MSTR	FES	ZN FB AG AU			N37	34	W 78	26	7D5C11A3
USVA	13	GOSSAN LEAD	A	MSTR	FES	CJ ZN			N36	41	W 80	56	3D5A11A2-3
USVA	14	SUTHERLAND-TONCRAE-HOWARD MINES	C	MSTR	FES	CJ ZN			N36	50	W 80	21	3D5C11A2-3
USVA	9	VALZ INCO-MINERAL DISTRICT	B	MSTR	FES	ZN FB CJ		AG AU BI	N38	5	W 77	56*	7D5B11B3
USVT	3	VERMONT COPPER DISTRICT (ELIZABETH ET AL. MINES)	B	MSTR	FES	CJ ZN		AG	N43	57	W 72	18*	3D5B11B3+

# CHROMIUM (CR)

With few exceptions, chromite, the only ore mineral of chromium, occurs alone as segregations in mafic or ultramafic (magnesium-iron-rich) igneous rocks. Two types of deposits are distinguished: stratiform in layered intrusions, and podiform in ophiolite terranes; they are denoted IGNS and STOK, respectively.

The stratiform deposits resulted from segregation in place from large magma intrusions; nearly all are Precambrian age. Stratiform deposits contain most of the chromium resources of the world, but those in North America are relatively unimportant and (or) low grade (DeYoung and others, 1984, p. 31, 37).

Podiform deposits may be massive or layered, but they do not have the great lateral extent of the stratiform ores; some, at least, were almost certainly derived from the mantle by disruption of preexisting deposits (Guild, 1947). They tend to occur in clusters; some districts contain dozens to hundreds of individual deposits. Deposits shown as "geologic class not reported" are also all podiform; hence, the vast majority of North American deposits are of this type. Most production has come from

them, and most are now exhausted. The podiform deposits of North America were emplaced during Paleozoic and Mesozoic time.

Placer accumulations of chromite and titanium minerals on the Oregon coast are subeconomic and geologically young.

Number of deposits containing chromium	Number of principal chromite deposits	Principal major commodity of other deposits containing chromium as a major commodity			
		Fe	Ni	Ti	(Total)
Total 65	62	1	1	1	(3)

Number of principal chromite deposits	Geologic class of deposit <sup>1/</sup>			
	STOK	IGNS	PLCR	Not reported
Total 62	52	7	1	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAMB	49	EJOL ID LAKE AREA	B	IGNS	CR		N50 34	W 95 22	5A3 58B8 A1
CAMB	50	OISEAU (BIRD) RIVER AREA	A	IGNS	CR		N50 27	W 95 34	5A3 58A8 A1
CAMB	12	MUSKOK INTRUSION (1)	C	IGNS	CR	PT	N67 2	W115 13	5A8C8 A4
CANF	21	BLUFF HEAD	C	IGNS	CR		N48 46	W 58 36	5A8C8 A
CANF	41	BURNT HILL	C	—	CR		N48 23	W 55 42	5A8C
CAQB	208	COLERAINE TP. (MONTREAL)	C	STOK	CR		N46 0	W 71 15	5A5 8C5 A3
CAQB	167	MOUNT ALBERT	C	STOK	CR		N48 54	W 66 10	5A8C5 A3
CUQU	30A	ANDRES GROUP	B	STOK	CR		N20 25	W 74 38	5A5 8B5 A5-
CUQU	19	CAMAGUEY DISTRICT	A	STOK	CR		N21 30	W 77 45	5A5 8A5 A5-
CUQU	8	CLARA MINE	C	STOK	CR		N22 50	W 81 50	5A5 8C5 A5-
CUQU	22	HOLGUIN DISTRICT	C	STOK	CR		N21 0	W 76 6	5A5 8C5 A5-
CUQU	31	MAYARI DISTRICT (CALEDONIA ET AL.)	B	STOK	CR		N20 30	W 75 42	5A5 8B5 A5-
CUQU	30	MOA-BARAOA DISTRICT (CAYOGUAN ET AL.)	A	STOK	CR		N20 30	W 74 50*	5A5 8A5 B5-
CUQU	28	SAGUA DE TANAMO DISTRICT	C	STOK	CR		N20 37	W 75 19	5A5 8C5 A5-
GLGL	22	FISKENAESSET	A	IGNS	CR	V TI	N63 6	W 50 40	5A6 8A8 A1
GLGL	20	ITIPILUA	B	IGNS	CR		N65 0	W 51 20	5A6 8B8 A1
GTGT	20A	CABANAS (ROSARIO) DISTRICT	C	STOK	CR		N14 48	W 89 47	5A8C5 A
GTGT	20	POTRERO CARILLO (JALAPA) DISTRICT	C	STOK	CR		N14 46	W 90 0	5A8C5 A
MBBS	1	EL TIGRE	C	STOK	CR		N27 33	W114 42	5A5 8C5 A4
USAK	148	CLAIM POINT	B	STOK	CR		N59 13	W151 49	5A5 8B5 A4+
USAK	117	EKLUTNA (HIGHWAY, PIONEER) DEPOSITS	C	STOK	CR		N61 27	W149 8	5A5 8C5 A



USAK	166	RED BLUFF BAY PROSPECTS	C	STOK	CR		N56	51	W134	45	5A8C5A5
USAK	147	RED MOUNTAIN	B	STOK	CR		N59	22	W151	29	5A58B5A4+
USCA	24	BENSON GROUP	C	STOK	CR		N40	25	W123	16	5A58C5A
USCA	32	BLACK DIAMOND (GREY EAGLE) GROUP	B	STOK	CR		N39	45	W122	33	5A58B5A4+
USCA	52	BOILER PIT	C	STOK	CR		N39	7	W120	45	5A58C5A
USCA	88	BUTLER ESTATE (MISTAKE)	C	STOK	CR		N36	19	W120	30	5AC5A
USCA	103	CLARA H LACEY & JACK SPRATT MINES	C	STOK	CR		N36	54	W119	19	5A58C5A
USCA	13	COGGINS & LITTLE CASTLE CREEK	C	STOK	CR		N41	12	W122	17	5A58C5A
USCA	3	DEL NORTE COUNTY CHROMITE DISTRICT	B	STOK	CR		N41	48	W123	54*	5A58B5B
USCA	54	DOBBAS-PILLIKEN DEPOSITS	B	STOK	CR		N38	47	W121	6	5A58B5A
USCA	7	FAIRVIEW	C	STOK	CR		N41	49	W123	7	5A58C5A
USCA	10	GAZELLE MOUNTAIN DEPOSITS	C	STOK	CR		N41	25	W122	32	5A58C5A
USCA	28	GRAU MINE ET AL.	B	STOK	CR		N40	2	W123	40	5A58B5A4+
USCA	109	HOLSTON	C	--	CR		N36	1	W118	56	5A58C
USCA	43	LAMBERT	B	STOK	CR		N39	47	W121	37	5A58B5A
USCA	74	MARSHS FLAT GROUP	C	STOK	CR		N37	52	W120	27	5A58C5A
USCA	57	MURPHY	C	STOK	CR		N38	31	W120	55	5A8C5A
USCA	9	MOGUFFY CREEK	C	STOK	CR		N41	43	W123	2	5A58C5A
USCA	81	NUMBER 5 & ADOBE CANYON	C	STOK	CR		N37	23	W121	21	5A8C5A
USCA	125	SAN LUIS OBISPO DISTRICT	B	STOK	CR		N35	23	W120	40	5A58B5A5
USCA	5	SEIAD CREEK (MOUNTAIN VIEW)	C	STOK	CR		N41	54	W123	8	5A58C5A
USCA	48	YUBA COUNTY DEPOSITS	C	STOK	CR		N39	31	W121	6	5A58C5A
USGA	18	TURNER PROSPECT	C	STOK	CR		N33	3	W 84	56	5A158C5A
USMD	1	REED (WILKINS) MINE	B	STOK	CR		N39	37	W 76	26	5A8B5A3-
USMD	4	SOLDIERS DELIGHT	C	STOK	CR		N39	25	W 76	50	5A8C5A3-
USMT	86	RED LODGE DISTRICT	B	STOK	CR		N45	1	W109	24	5A8B5A1
USMT	84	STILLWATER COMPLEX	A	IGNS	CR PT	N1 CU	N45	23	W109	53*	5A156A8B1
USNC	12	DEMOCRAT-IVY RIVER DEPOSITS	C	STOK	CR		N35	48	W 82	30	5A8C5A
USNC	13	PRICE CREEK DEPOSIT	C	STOK	CR		N35	50	W 82	25	5A58C5A
USNC	9	RAY MINE-MINE HILL AREA	C	STOK	CR		N35	57	W 82	18	5A8C5A
USNC	15	WEBSTER DISTRICT	C	STOK	CR		N35	23	W 83	4	5A8C5A
USOR	39	CHOLLARD (GOLCONDA)	C	STOK	CR		N42	5	W123	33	5A58C5A
USOR	20	COOS BAY AREA (S. SLOUGH, SEVEN DEVILS ET AL.)	B	PLCR	CR TI		N43	15	W124	21	5A37B4A8
USOR	32	EVANS CREEK AREA	C	STOK	CR		N42	38	W123	13	5A58C5A
USOR	14	JOHN DAY (CANYON MOUNTAIN) DISTRICT	B	STOK	CR		N44	21	W118	52*	5A58B5B3
USOR	21	LOWER ROGUE RIVER AREA	C	STOK	CR		N42	39	W124	4*	5A58C5B
USOR	43	MOUNT ASHLAND AREA	C	STOK	CR		N42	9	W122	48	5A58C5A
USOR	36	OREGON CHROME ET AL.	B	STOK	CR		N42	21	W123	46	5A58B5A3+
USPA	15	STATE LINE DISTRICT (WOODS MINE ET AL.)	B	STOK	CR		N39	45	W 76	7	5A8B5A3-
USWA	3	TWIN SISTERS (LAMBERT, RIBBON, ETC.)	C	STOK	CR		N48	39	W121	54	5A58C5A
USWY	20	CASPER MOUNTAIN	C	STOK	CR		N42	42	W106	19	5A8C5A1

# COBALT (Co)

Most cobalt occurs as a subordinate constituent of ores of other metals, and so only a fraction of the known or potential sources are tabulated below. Cobalt's two principal habits are (1) as sulfides, arsenides, or sulfarsenides in ores of nickel and (or) copper associated with mafic and ultramafic rocks, and (2) as minor constituents in iron-nickel laterites developed over ultramafic rocks by tropical weathering.

In the United States, past cobalt producers have included the Gap nickel mine (USPA 14), the Fredericktown lead district (USMO 21), the Cornwall magnetite mine (USPA 5), and the Blackbird cobalt-copper-nickel deposit (USID 22). The largest domestic source of cobaltiferous ores is thought to be contained in the copper-nickel sulfides occurring in the lower part of the Duluth Complex (see the record for the Marquette Range—Iron, USMI 7) (Grosh and others, 1955).

Commercial bodies of massive and disseminated iron-nickel-copper sulfides containing byproduct cobalt are associated with intrusive mafic rocks of the famed Sudbury nickel district, Ontario (CAON 187). Other cobaltiferous ores in large nickel deposits are associated with mafic igneous rocks and metamorphic rocks in the Lynn Lake (CAMB 3) and Thompson (CAMB 31)—Moak (CAMB 30) Lake area, Manitoba. (Cobalt

was not listed in the data base for the Lynn Lake and Moak deposits.) A silver-cobalt-nickel province centers around Cobalt (CAON 190), Ontario, including also Gowganda (CAON 170), South Lorrain (CAON 191), and other lesser deposits. Cobalt arsenides and sulfarsenides are coproducts with native silver in fissure veins in association with dolerite sills.

Cobalt generally occurs in proportions of about one-tenth the nickel content in the lateritic ores of the Caribbean region.

Number of deposits containing cobalt	Number of principal cobalt deposits	Principal major commodity of other deposits containing cobalt as a major commodity					
		Ni	Ag	Fe	Cu	Au	(Total)
Total 24	2	8	6	5	2	1	(22)

Number of principal cobalt deposits	Geologic class of deposit <sup>1/</sup>	
	VEIN	MSTR
Total 2	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAMK	59	LQU LAKE	C	VEIN	CO BI		N63 33	W116 45	5C17C7A
USID	22	BLACKBIRD DISTRICT	A	MSTR	CO CU	NI AU	N45 7	W114 20	5C15A11A

# MANGANESE (Mn)

Although veins associated with Tertiary volcanism, chiefly in Mexico, predominate in number of deposits, most manganese deposits in North America are small, and the preponderance of resources are of the strata-bound type, either massive (MSTR) and volcanogenic, disseminated (DSTR) or chemical precipitates (CHEM). Manganese oxides that are either primary or the product of oxidation of carbonates (rarely silicates) are the chief ore minerals in most deposits. However, the deposit at Molango, Mexico (MXHD 5), is by far the largest in North America. The deposit consists of manganese carbonate except for minor near-surface oxide bodies that led to its recent (1966) discovery. Resources are estimated in billions of tons (Tavera and Alexandri, 1972) and extend many tens of kilometers through the rugged Sierra Madre Oriental. The other strata-bound deposits shown as large are low grade and subeconomic. Deposits classified as "lateritic" (LTRT) resulted from concen-

tration by weathering from very low concentrations of manganese in sedimentary rocks.

Number of deposits containing manganese	Number of principal manganese deposits	Principal major commodity of other deposits containing manganese as a major commodity					
		Ag	F	Fe	Zn	W	(Total)
Total	205	193	3	3	3	2	1
							(12)

Number of principal manganese deposits	Geologic class of deposit <sup>1/</sup>							
	VEIN	MSTR	LTRT	CHEM	DSTR	STOK	SKAR	Not reported
Total	193	121	28	11	10	9	1	3

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAMB	38	PORQUINE MOUNTAIN (BIRCH RIVER)	C	CHEM	MN		N52 25	W101 10	10A37C2A6
CAMK	5	FAULT RIVER	C	DSTR	MN		N66 45	W117 16	10A17C10A3
CANB	21	MARKHAM ILL	C	STOK	MN		N45 37	W 65 27	10A3C5A5+
CANB	5	WOODSTOCK	B	CHEM	MN	FE	N46 12	W 67 37	10A1B2A4
CANF	52	CONCEPTION BAY (BRIGUS)	C	CHEM	MN		N47 32	W 53 13	10A1C2A3
CANS	23	EAST MOUNTAIN	C	STOK	MN		N45 25	W 63 10	10A3C5A
CANS	25	MINASV ILL- TENNYCAFE	C	STOK	MN		N45 17	W 63 48	10A3C5A5
CANS	39	NEW ROSS	C	STOK	MN		N44 51	W 64 27	10A4C5A4
CAQB	213	MADELEINE ISLANDS (2)	C	STOK	MN		N47 25	W 61 45	10A37C5
CAQB	165	SAINT DENIS TP.	C	LTRT	MN		N48 50	W 67 13	10A1C9A8
CASA	48	PASQUIA HILLS REGION (BAINBRIDGE RIVER)	C	CHEM	MN		N53 33	W102 9	10A37C2A6
CCSC	2	PLAYA REAL	C	VEIN	MN		N10 21	W 85 49	1A56C7A5
CUJU	9	QUEIMADO DISTRICT	C	LTRT	MN		N22 50	W 80 18	10A5C9A7+
CUJU	32	SOUTH CENTRAL ORIENTE MN DISTRICT	B	MSTR	MN		N20 7	W 75 45*	10A5B11B6
CUJU	35	SOUTH COAST MN DISTRICT	C	MSTR	MN		N19 55	W 77 10*	10A5C11C6
CUJU	23	SOUTHWEST ORIENTE MN DISTRICT	B	MSTR	MN		N20 16	W 76 27*	10A5B11B6
HAMA	2	MORNE MACAQUE	C	MSTR	MN		N19 36	W 72 42	10A5C11A6
JMUM	6	MARSHALL'S HALL	C	—	MN		N18 8	W 76 26	10A5C
MXBS	9	EL GAVILAN	C	VEIN	MN		N26 52	W111 48	10A7C7A7
MXBS	6	LUCIFER	B	MSTR	MN		N27 22	W112 23	10A17B11A7
MXBS	10	SANTA ISABEL (SAN NICOLAS)	C	VEIN	MN		N26 29	W111 33	10A7C7A7
MXCH	74	ADELA	C	VEIN	MN		N28 41	W106 40	10A7C7A7
MXCH	134	AGUA CALIENTE	C	VEIN	MN		N27 52	W106 11	10A7C7A7
MXCH	66	AGUA NUEVA	C	VEIN	MN		N29 41	W106 12	10A7C7A7
MXCH	77	ALKADEFF	C	VEIN	MN		N28 36	W107 40	10A7C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXCH	35	APACHE	C	VEIN	MN		N30 20	W107 32	10A7C7A7
MXCH	16	ASCENCION AREA	C	VEIN	MN		N30 55	W107 30	10A7C7A7
MXCH	2	CASA DE JANOS	B	VEIN	MN		N30 43	W108 31	10A7B7A7
MXCH	30	CASAS GRANDES AREA	B	VEIN	MN		N30 29	W107 59	10A7B7A7
MXCH	184	CENICEROS DE ABAJO	C	VEIN	MN		N26 48	W105 21	10A7C7A7
MXCH	185	CORDONADO	C	VEIN	MN	AU	N26 44	W105 5	10A7C7A7
MXCH	20	CUATROS AMIGOS	C	VEIN	MN		N30 35	W107 32	10A7C7A7
MXCH	37	EL CARRIZO	C	VEIN	MN		N30 13	W106 40	10A7C7A7
MXCH	188	EL ROSARIO Y VALDERRAMAS	C	VEIN	MN		N26 31	W105 30	10A7C7A7
MXCH	84	EL ZACATE Y EL CHINO	C	VEIN	MN		N28 9	W106 8	10A7C7A7
MXCH	34	LA ASCENCION	C	VEIN	MN		N30 8	W107 38	10A7C7A7
MXCH	15	LA ASCENCION	C	VEIN	MN		N30 55	W107 56	10A7C7A7
MXCH	65	LA GLORIA	C	VEIN	MN		N29 49	W106 28	10A7C7A7
MXCH	143	LA LABORCITA	C	VEIN	MN		N27 27	W106 13	10A7C7A7
MXCH	111	LA MORITA	C	VEIN	MN		N28 30	W104 20	10A7C7A7
MXCH	138	LA FRIETA	C	VEIN	MN		N27 40	W106 17	10A7C7A7
MXCH	73	LA VIRGEN Y LA PROVIDENCIA	C	VEIN	MN		N28 47	W106 21	10A7C7A7
MXCH	69	LAS ENCINILLAS	C	VEIN	MN		N29 15	W106 18	10A7C7A7
MXCH	13	LOS BORREGOS	C	VEIN	MN		N31 6	W107 26	10A7C7A7
MXCH	18	LOS CAMALEONES	C	VEIN	MN		N30 48	W107 7	10A7C7A7
MXCH	101	LOS VOLCANES	C	VEIN	MN		N28 59	W104 9	10A7C7A7
MXCH	173	MINAS NUEVAS	C	VEIN	MN		N27 8	W105 41	10A7C7A7
MXCH	85	PALOMAS	C	VEIN	MN		N28 6	W106 19	10A1C7A7
MXCH	1	RANCHO DEL MEDIO	C	VEIN	MN		N31 3	W108 39	10A7C7A7
MXCH	116	SABONAROLA	C	VEIN	MN		N28 0	W105 49	10A1C7A7
MXCH	112	SAN BERNARDINO	B	VEIN	MN		N28 19	W104 57	10A7B7A7
MXCH	83	SAN ISIDRO	C	VEIN	MN		N28 21	W106 7	10A7C7A7
MXCH	166	SAN JULIAN	C	VEIN	MN		N26 4	W106 37	10A7C7A7
MXCH	133	SATEVO	C	VEIN	MN		N27 55	W106 3	10A7C7A7
MXCH	181	TALAMANTES	B	VEIN	MN	W BA	N26 56	W105 26	10A7B7A7
MXCH	67	TERRENATES	B	VEIN	MN		N29 37	W106 47	10A7B7A7
MXCH	4	WILKIE	C	VEIN	MN		N30 9	W108 13	10A7C7A7
MXCO	36	CERRO DE LOS INDIOS	C	VEIN	MN		N25 53	W102 20	10A1C7A7
MXCO	21	EL LUCERO	C	VEIN	MN		N27 43	W101 28	10A7C7A7
MXCO	41	EUREKA	C	VEIN	MN		N25 50	W101 29	10A7C7A7
MXCO	11	GOMEZ	C	VEIN	MN		N29 13	W101 4	10A7C7A7
MXCO	14	LA ALCANFORADA	C	VEIN	MN		N27 47	W103 42	10A1C7A7
MXCO	32	LA REFORMA	C	VEIN	MN		N26 40	W101 40	10A1C7A7
MXCO	57	LA VICTORIA	C	VEIN	MN		N24 52	W101 35	10A7C7A7
MXCO	27	NAVARETE	C	VEIN	MN		N26 52	W101 30	10A7C7A7
MXCO	35	SIERRA DE LA PAILA	C	VEIN	MN		N25 58	W102 3	10A1C7A7
MXCO	19	VENADO	C	VEIN	MN		N26 4	W102 40	10A1C7A7
MXDR	83	CUENCAME	C	VEIN	MN		N24 48	W103 42	10A1C7A7
MXDR	42	DTO. PICACHO DE CANDELA	B	VEIN	MN		N25 30	W105 32	10A7B7A7
MXDR	93	LA FURISIMA	C	VEIN	MN		N24 15	W103 45	10A7C7A7
MXDR	78	LA ZARNOSA	B	DSTR	MN		N25 37	W103 40	10A14B10A7
MXDR	12	LAJAS	C	VEIN	MN		N25 35	W106 15	10A7C7A7
MXDR	60	LOS PATOS Y ARRIETA	C	VEIN	MN		N25 7	W105 0	10A7C7A7
MXDR	61	VILLEGAS	C	VEIN	MN		N24 53	W105 7	10A7C7A7
MXEM	3	LA GUADALUPANA Y OTROS	C	VEIN	MN		N18 30	W100 7	10A7C7A7
MXGN	16	LA PROTECTORA ET AL.	C	VEIN	MN		N21 7	W101 29	10A7C7A7
MXGN	12	LA VICTORIA ET AL.	C	VEIN	MN		N21 14	W101 42	10A7C7A7
MXGR	49	CONSUELO, LUCKY NINA	C	VEIN	MN		N17 20	W 99 32	10A7C7A7
MXGR	16	LA JOYA	C	VEIN	MN		N18 31	W 99 23	10A7C7A7
MXGR	46	LA SOLEDAD	C	VEIN	MN		N17 30	W 98 37	10A7C7A7
MXGR	17	LA TIERRA BLANCA, LA CONCEPCION	C	VEIN	MN		N18 25	W 99 52	10A7C7A7

C	VEIN	MN		N18 23	W100 14	10A7C7A7
A	CHEM	MN		N20 48	W 98 43	10A1 A2A4
C	MSTR	MN		N20 27	W104 29	10A7C11A7
B	MSTR	MN		N19 55	W104 20	10A7B11A7
C	--	MN		N19 25	W104 57	10AC
C	VEIN	MN		N21 9	W102 58	10A7C7A7
C	VEIN	MN		N19 12	W103 10	10A7C7A7
C	VEIN	MN		N20 11	W104 30	10A7C7A7
C	VEIN	MN		N20 57	W102 47	10A7C7A7
C	VEIN	MN		N21 2	W102 21	10A7C7A7
C	VEIN	MN		N19 45	W100 32	10A7C7A7
C	SKAR	MN	FE	N18 21	W103 20	10A1 4C3A7
C	VEIN	MN		N19 25	W101 2	10A7C7A7
C	VEIN	MN		N18 49	W103 12	10A7C7A7
C	VEIN	MN		N26 3	W100 33	10A1C7A7
C	VEIN	MN		N24 0	W 99 46	10A1C7A7
C	VEIN	MN		N25 43	W100 27	10A1C7A7
C	VEIN	MN		N17 25	W 96 42	10A1 5C7A7
C	VEIN	MN		N17 44	W 97 9	10A7C7A7
C	VEIN	MN		N17 33	W 97 14	10A7C7A7
C	VEIN	MN		N17 30	W 97 38	10A7C7A7
C	VEIN	MN		N15 48	W 96 27	10A7C7A7
C	VEIN	MN		N16 27	W 95 19	10A7C7A7
C	VEIN	MN		N17 42	W 97 50	10A7C7A7
C	VEIN	MN		N17 35	W 97 53	10A7C7A7
C	STOK	MN	SB	N17 38	W 98 24	10A1C5A7
C	VEIN	MN		N18 12	W 98 0	10A7C7A7
C	VEIN	MN		N18 3	W 98 3	10A1 5C7A7
C	VEIN	MN		N18 27	W 98 3	10A7C7A7
C	VEIN	MN		N20 7	W 98 3	10A7C7A7
C	VEIN	MN		N19 15	W 97 10	10A7C7A7
C	VEIN	MN		N19 5	W 97 23	10A7C7A7
C	VEIN	MN		N18 19	W 98 21	10A7C7A7
C	VEIN	MN		N19 55	W 97 55	10A7C7A7
C	VEIN	MN		N19 48	W 97 48	10A7C7A7
C	VEIN	MN		N23 0	W105 48	10A7C7A7
C	VEIN	MN		N26 0	W108 0	10A7C7A7
C	VEIN	MN		N30 58	W111 31	10A7C7A7
C	VEIN	MN		N31 15	W109 41	10A7C7A7
C	VEIN	MN		N30 21	W108 38	10A7C7A7
C	VEIN	MN		N30 45	W110 43	10A7C7A7
C	VEIN	MN		N28 51	W112 21	10A7C7A7
C	VEIN	MN		N28 20	W109 24	10A7C7A7
C	VEIN	MN		N30 23	W110 50	10A7C7A7
C	VEIN	MN		N31 15	W110 52	10A7C7A7
C	VEIN	MN		N30 41	W110 58	10A1 45C7A7
C	VEIN	MN		N30 26	W110 56	10A7C7A7
C	VEIN	MN		N27 30	W109 44	10A7C7A7
C	VEIN	MN		N31 10	W111 22	10A7C7A7
C	VEIN	MN		N27 20	W109 20	10A7C7A7
B	STOK	MN		N22 16	W100 5	10A37B5A4
B	STOK	MN		N23 21	W101 42	10A1 4B5A7
C	VEIN	MN		N24 17	W103 18	10A7C7A7
C	MSTR	MN		N23 29	W102 39	10A1C11A7
C	MSTR	MN		N23 35	W102 33	10A1C11A7
C	VEIN	MN		N23 25	W102 35	10A7C7A7
C	VEIN	MN		N24 2	W102 52	10A7C7A7
C	VEIN	MN	P	N23 42	W102 20	10A1C7A7
C	MSTR	MN		N23 32	W102 18	10A7C11A7
C	VEIN	MN		N22 27	W102 25	10A7C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXZC	35	TENANGO, LA PIROLUSITA, ETC.	C	MSTR	MN		N23 31	W102 11	10A1C11A7
MXZC	37	Z. LA MANGANITA	C	MSTR	MN		N23 25	W102 20	10A1C11A7
MXZC	36	Z. SAN FELIPE DE JESUS	C	MSTR	MN		N23 28	W102 12	10A1C11A7
PNFN	26	MANDINGA AREA	C	MSTR	MN		N 9 30	W 79 4	10A5C11A5
PNFN	25	NOMBRE DE DIOS-RIO BOQUERON (HYATT) AREA	C	MSTR	MN		N 9 30	W 79 30	10A5C11A5
RQRO	1	AGUADA	C	VEIN	MN		N18 22	W 67 10	10A5C7A6
RQRO	9	JUANA DIAZ MINE	C	MSTR	MN		N18 4	W 66 28	10A5C11A5
USAR	11	BATESVILLE DISTRICT	B	DSTR	MN		N35 52	W 91 44*	10A37B10B3+
USAR	7	MENA DISTRICT	C	CHEM	MN		N34 23	W 93 44*	10AC2B3
USAZ	58	ABC MINE	C	VEIN	MN		N33 13	W114 37	10A7C7A7
USAZ	64	AGUILA DISTRICT	C	VEIN	MN		N33 43	W113 9*	10A7C7B7
USAZ	34	ARTILLERY PEAK DISTRICT	A	DSTR	MN		N34 18	W113 36	10A3A10A7
USAZ	54	BOUSE DISTRICT	C	VEIN	MN		N33 54	W114 0	10A7C7A7
USAZ	42	BURMISTER MINE	C	MSTR	MN		N34 18	W112 3	10A3C11A8
USAZ	35	DOYLE MINE	C	DSTR	MN		N34 7	W113 40	10A3C10A7
USAZ	47	HEBER MINE	C	LTRT	MN		N34 20	W110 45	10AC9A
USAZ	46	LONG VALLEY DISTRICT	C	LTRT	MN		N34 36	W111 20	10A37C9A
USCA	27	BLUE JAY MINE	C	MSTR	MN		N40 7	W123 15	10A5C11A4+
USCA	30	BRAITO MINE	C	MSTR	MN		N40 5	W120 57	10A5C11A3+
USCA	79	BUCKEYE MINE	C	MSTR	MN		N37 30	W121 22	10A5C11A4+
USCA	25	FORT SEWARD MINE	C	MSTR	MN		N40 12	W123 39	10A5C11A4+
USCA	183	IRONWOOD DISTRICT (BLACKJACK & LANGDON MINES)	C	VEIN	MN		N33 48	W114 56	10A7C7A7
USCA	78	LADD MINE	C	MSTR	MN		N37 36	W121 30	10A5C11A4+
USCA	148	NEW DEAL (OWL HOLE)	C	VEIN	MN		N35 45	W116 42	10A7C7A7
USCA	186	PAYMASTER DISTRICT (WHEDON MINE)	C	VEIN	MN		N33 13	W114 48	10A7C7A7
USCA	33	THOMAS (ROUND MTN.) MINE	C	MSTR	MN		N39 19	W123 10	10A5C11A4+
USCA	126	WELCH MINE	C	MSTR	MN		N35 16	W120 46	10A5C11A5
USCA	145	WINGATE WASH	C	--	MN		N35 55	W116 46	10A3C
USGA	7	CARTERSVILLE MANGANESE DISTRICT	C	LTRT	MN	CO	N34 15	W 84 45*	10A1C9C8
USID	68	CLEVELAND	C	MSTR	MN		N42 18	W111 42	10A3C11A8
USID	67	LAVA HOT SPRINGS	C	MSTR	MN		N42 34	W111 59	10A3C11A8
USME	3	CENTRAL AROOSTOOK COUNTY DISTRICT	A	CHEM	MN FE		N46 22	W 68 0	10A5A2A4
USME	2	NORTHERN AROOSTOOK COUNTY DISTRICT	B	CHEM	MN FE		N46 47	W 68 10	10A5B2A4
USME	4	SOUTHERN AROOSTOOK COUNTY DISTRICT	B	CHEM	MN FE		N46 4	W 67 55	10A5B2A4
USMT	49	LITTLE BELT MANGANESE MINE	C	MSTR	MN		N46 35	W110 30	10A37C11A3+
USNM	67	LITTLE FLORIDA MTS. DISTRICT	C	VEIN	MN F		N32 12	W107 34*	10A3C7B7
USNM	49	LUIS LOPEZ DISTRICT	C	VEIN	MN	FB BA	N33 58	W106 58	10A7C7A7
USNV	194	BOULDER CITY	B	DSTR	MN		N35 55	W114 46	10A3B10A7
USNV	193	THREE KIDS	B	DSTR	MN		N36 4	W114 53	10A3B10A7
USOK	21	QUACHITA MOUNTAINS	C	CHEM	MN		N34 15	W 94 35*	10AC2B3
USSC	2	GAFFNEY-KINGS MOUNTAIN AREA	C	DSTR	MN		N35 2	W 81 30*	10A15C10C
USSD	8	CHAMBERLAIN DISTRICT	C	DSTR	--	MN	N43 33	W 99 19*	10A3A10B6
USTN	8	EAST TENNESSEE MANGANESE DISTRICTS	C	LTRT	MN	FE	N36 0	W 82 55*	10A1C9C7+
USUT	27	DRUM MTS. (DETROIT) DISTRICT	C	STOK	MN		N39 32	W113 3	10A1C5A
USUT	25	ERICKSON DISTRICT	C	VEIN	MN		N39 55	W112 59	10AC7A
USUT	53	GRAND COUNTY DISTRICT	C	DSTR	MN		N38 47	W109 53	10A37C10A5
USVA	1	CEDAR CREEK VALLEY	C	LTRT	MN		N38 55	W 78 25*	10A1C9C7+
USVA	3	CRIMORA MINE	B	LTRT	MN		N38 8	W 78 48	10A1B9A7+
USVA	2A	ELKTON AREA	C	LTRT	MN		N38 25	W 78 38*	10A1C9C7+
USVA	11	GLADE MOUNTAIN-LICK MOUNTAIN	C	LTRT	MN		N36 50	W 81 15*	10A1C9C7+
USVA	21	JAMES RIVER-ROANOKE RIVER DISTRICT	C	LTRT	MN		N37 25	W 79 5*	10A15C9C7+
USWA	1	OLYMPIC PENINSULA MN (CRESCENT MINE)	C	MSTR	MN		N48 5	W123 56	10A5C11A6

# MOLYBDENUM (MO)

"Porphyry" ores, which constitute by far the largest resources of copper and molybdenum in North America, were formed by late-stage hydrothermal deposition of ore minerals, chiefly sulfides, in the upper parts of granitic stocks and adjacent wallrocks. (These deposits are reported as "STOK" in the listings.) The principal types of porphyry ore are copper, with or without significant but minor amounts of molybdenum, and molybdenum, usually with little or no copper. In roughly half of the deposits, molybdenum constitutes the chief or only value; in most of the others, it is a co- or byproduct of copper. Most deposits containing both molybdenum and tungsten as major commodities are skarns (SKAR) (Einaudi and others, 1981, p. 358, 359).

The Cordilleran region contains most of the molybdenum resources of North America. Deposits along the western margin of the continent range in age from Mesozoic (age coded 3 to 5) to Tertiary (age coded 6) and are hosted in intrusives into

eugeosynclinal rocks. In contrast, the major deposits of the Front Range, USCO 20, USCO 41, and USNM 9, are in Oligocene stocks intrusive into Early Proterozoic basement rocks. Climax (USCO 20) and Henderson (USCO 41) deposits remain two of the world's largest primary molybdenum mines.

Number of deposits containing molybdenum	Number of principal molybdenum deposits	Principal major commodity of other deposits containing molybdenum as a major commodity				
		Cu	W	Ag	Au	(Total)
Total 182	86	85	9	1	1	(96)

Number of principal molybdenum deposits	Geologic class of deposit <sup>1/</sup>					
	STOK	VEIN	SKAR	PEGM	DSTR	Not reported
Total 86	64	10	5	4	1	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	9	ADANAC-ADERA (RUBY CREEK AREA)	B	STOK	MO	W	N59 42	W133 24	3B4B5A5
CABC	82	AJAX	B	STOK	MO		N55 35	W129 24	3B4B5A
CABC	84	ALICE ARM MOLY AREA (B.C., ROUNDY CREEK, BELL)	B	STOK	MO		N55 25	W129 25	3B4B5A6
CABC	206	ANTIQUIMAX-ROCK ISLAND AREA	C	STOK	MO	FB ZN	N51 36	W120 18	3B4C5A6
CABC	96	ATNA RANGE	C	STOK	MO	CU	N55 52	W127 25*	3B4C5B
CABC	117	BARRETT LAKE-EMERSON CREEK AREA (BARR, ETC.)	C	STOK	MO CU		N54 26	W126 52	3C4C5A
CABC	47	BARRINGTON RIVER AREA	C	STOK	MO		N57 53	W132 3	3B4C5A
CABC	104	BLUNT MOUNTAIN AREA	C	STOK	MO		N55 12	W127 15	3B4C5A6
CABC	167	BOSS MOUNTAIN MINE	B	STOK	MO		N52 6	W120 54	3B4B5A5
CABC	80	BROMLEY GLACIER AREA	C	STOK	MO CU		N55 57	W129 43	3C4C5A6
CABC	309	CARMI	B	STOK	MO	CU	N49 31	W119 10	3B4B5A5
CABC	291	CLEAR CREEK (GEM, ETC.)	B	STOK	MO		N49 43	W121 44	3B4B5A7
CABC	205	CLEARWATER PEAK AREA	C	STOK	MO		N51 47	W120 22	3B4C5A
CABC	10	DAVENPORT CREEK	C	STOK	MO	CU	N59 52	W133 5	3B15C5A
CABC	133	ENDAKO MINE	A	STOK	MO		N54 2	W125 6	3B4A5A5
CABC	116	FISHPAN LAKE (HUBER)	C	STOK	MO		N54 31	W126 46	3B4C5A5+
CABC	110	GLACIER GULCH	B	STOK	MO	W	N54 49	W127 18	3B4B5A6
CABC	28	MARBLE CREEK (S.Q.E.)	B	STOK	MO		N59 15	W129 50	3B4B5A5
CABC	231	MOUNT COPELAND MINE	C	--	MO		N51 8	W118 29	3B125C
CABC	25	MOUNT HASKIN (JOEM)	B	SKAR	MO W		N59 20	W129 29	3C14B3A6
CABC	15	MOUNT OGDEN (NAN)	C	STOK	MO		N58 27	W133 20	3B4C5A
CABC	12	MOUNT SANFORD	C	STOK	MO		N59 28	W132 47	3B4C5A7
CABC	91	MOUNT VANARS DOLL	C	STOK	MO		N54 36	W128 33	3B4C5A
CABC	119	NAKINA RIVER AREA (LUCKY SHIP, ETC.)	B	STOK	MO		N54 2	W127 28	3B4B5A6
CABC	89	PITMAN	C	STOK	MO		N54 44	W128 20	3B4C5A5+
CABC	152	RED BIRD MOUNTAIN (RED BIRD)	B	STOK	MO		N53 19	W127 1	3B4B5A6

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	196	SALAL CREEK	C	STOK	MO		N50 45	W123 27	3B4C5A7
CABC	112	SERB CREEK	B	STOK	MO		N54 39	W127 45	3B4B5A5+
CABC	100	STERRITT CREEK AREA (LAURA, ETC.)	C	STOK	MO	CJ	N55 32	W127 38	3C4C5A
CABC	132	SUTHERLAND RIVER (KID)	C	STOK	MO		N54 24	W124 52	3B4C5A
CABC	99	THOMLINSON MOUNTAIN	B	STOK	MO		N55 35	W127 28	3B34B5A6
CABC	255	TROUT LAKE	B	STOK	MO	W	N50 38	W117 36	3B45B5A4+
CABC	238	WESTWOLD (KENALLEN)	C	SKAR	MO		N50 27	W119 49	3B5C3A
CABC	6	WILLISON BAY (MOLLY)	C	STOK	MO	CJ	N59 14	W134 9	3C4C5A
CABC	86	ZOLZAP CREEK-LAVA LAKE AREA	C	STOK	MO	CJ	N55 10	W129 15	3B34C5A4+
CANF	10	MAKKOVIK	C	VEIN	MO		N55 13	W 59 10	3B147C7A3+
CANF	47	RECONTRE EAST	C	STOK	MO		N47 39	W 55 13	3B4C5A5
CANS	10	GABARUS	C	STOK	MO	BI	N45 53	W 60 6	3B147C5A4
CAON	33	BAMAJI LAKE AREA	C	STOK	MO		N51 8	W 91 35	3B4C5A1
CAON	77	BEILDELMAN BAY & YOUNG LAKE	C	STOK	MO	CJ	N49 50	W 91 10	3C4C5A
CAON	210	BROUGHAM TP.	C	STOK	MO		N45 19	W 76 54	3B145C5A4
CAON	98	BURROWS LAKE	C	STOK	MO		N49 55	W 86 47	3B4C5A
CAON	199	CARDIFF & MONMOUTH TPS.	C	STOK	MO	F U	N45 1	W 78 16	3B145C5A4
CAON	154	DESROSIERES TP. (ALIKE LAKE)	C	STOK	MO		N47 48	W 82 2	3B345C5A
CAON	208	GRIFFITH TP. (SPAIN)	C	STOK	MO		N45 17	W 77 2	3B5C5A4
CAON	56	HIGH LAKE	C	STOK	MO	CJ AU	N49 42	W 95 6	3C4C5A
CAON	206	LYNDOCH TP. (MCCOY & JAMIESON)	C	STOK	MO		N45 16	W 77 28	3B45C5A4
CAON	62	PIDGEON MOLYBDENUM	C	STOK	MO		N49 56	W 92 22	3B4C5A1
CAON	226	SHEFFIELD TP. (CHISHOLM)	C	STOK	MO		N44 32	W 76 54	3B14C5A
CAQB	219	CLARENDON TP. (KIRKHAM)	C	SKAR	MO		N45 41	W 76 24	3B15C3A4
CAQB	240	GAYHURST TP.	C	VEIN	MO		N45 46	W 70 54	3B45C7A4
CAQB	189	KENSINGTON TP.	C	PEGM	MO		N46 24	W 75 52	3B4C1A
CAQB	132	LA CORNE TP. (MOLYBDENITE CORP.)	B	PEGM	MO	BI	N48 17	W 77 59	3B4B1A1
CAQB	218	MASHAM TP. (INDIAN LAKE)	C	SKAR	MO		N45 44	W 76 8	3B15C3A4
CAQB	217	ONSLow TP. (MOSS)	C	STOK	MO		N45 34	W 76 15	3B4C5A4
CAQB	110	PREISSAC TP. (CADILLAC, FREISSAC)	B	PEGM	MO	BI	N48 20	W 78 20	3B4B1A1
CAQB	102	FRIVAT TP.	C	VEIN	MO		N48 42	W 78 40	3B4C7A1
CAYK	61	MOUNT STEELE AREA	C	STOK	MO		N61 9	W140 16*	3B4C5C
CAYK	65	RAFT CREEK	C	STOK	MO	CJ	N61 31	W138 25	3C14C5A5
CAYK	74	STORMY MOUNTAIN	C	SKAR	MO	W	N61 30	W132 48	3B14C3A5+
GLGL	21	IVISARTOQ	C	DSTR	MO		N64 46	W 50 50	3B15C10A1
GLGL	32	MALMBJERGET	B	STOK	MO		N71 55	W 24 15	3B237B5A8
MXCH	163	AL ISOS	C	VEIN	MO		N26 11	W107 19	3B7C7A7
MXCO	28	EL PANUOD	C	PEGM	MO		N26 48	W101 10	3B4C1A7
MXDX	100	TENANGO	C	VEIN	MO		N16 17	W 95 35	3B7C7A7
MXSN	28	CUMPAS	B	STOK	MO		N30 4	W109 45	3B7B5A7
MXSN	62	LA GLORIA-SANTA ROSA	C	VEIN	MO		N28 20	W109 1	3B4C7A7
MXSN	60	SANTA ROSA	C	VEIN	MO		N28 25	W109 10	3B4C7A7
USAK	175	SHAKAN (DRY PASS) PROSPECT	C	STOK	MO	CJ	N56 8	W133 25	3C456C5A
USAK	187	WILSON ARM-QUARTZ HILL	B	STOK	MO		N55 30	W130 35	3B4B5A7
USCA	15	BOULDER CREEK MINE	C	--	MO		N41 1	W122 27	3B4C
USCO	41	MOHAWK, MURDOCK, JUMBO	C	VEIN	MO		N39 54	W120 8	3B4C7A
USCO	20	CLIMAX MINE	A	STOK	MO	W SN	N39 22	W106 10	3B4A5A7
USCO	25	MOUNT EMMONS (RED LADY BASIN) PROSPECT	B	STOK	MO		N38 53	W107 4	3B4B5A7
USCO	41	URAD (HENDERSON) MINE	A	STOK	MO		N39 45	W105 50	3B4A5A7
USID	36	THOMPSON CREEK PROSPECT	B	STOK	MO		N44 19	W114 32	3B14B5A5
USID	40	WHITE CLOUD-LITTLE BOULDER CREEK PROSPECT	B	STOK	MO		N44 3	W114 34	3B14B5A6
USNC	8	BOY SCOUT-JONES PROSPECT	B	VEIN	MO		N36 16	W 77 51	3B4B7A
USNC	29	CONNER (NEVERSON QUARRY) PROSPECT	C	STOK	--	MO CJ	N35 50	W 78 5	3B45C5A
USNM	9	QUESTA MINE	A	STOK	MO		N36 41	W105 30	3B47A5A7
USNV	177	CUCOMUNGO PROSPECT	B	STOK	MO		N37 22	W117 38	3B145B5A
USNV	140	HALL PROSPECT (LIBERTY)	B	STOK	MO		N38 19	W117 18	3B145B5A5
USTX	15	CAVE PEAK	C	STOK	MO		N31 26	W104 53	3B4C5A7
USUT	33	PINE GROVE PROSPECT	B	STOK	MO	W	N38 20	W113 35	3B14B5A
USWA	38	SPOKANE MOLYBDENUM	C	VEIN	MO	U	N47 53	W118 10	3B4C7A
USWA	16	STARR MINE (SILVER TIP, TONASKET)	C	STOK	MO		N48 42	W119 35	3B45C5A



# NICKEL (Ni)

Most nickel deposits are associated with mafic or ultramafic rocks, either as sulfides (less commonly arsenides or sulfarsenides) concentrated during the magmatic or early post-magmatic phase of intrusion (IGNS, STOK, or VEIN), or as late surficial concentrations produced by weathering of nickel contained in the lattice of silicate minerals (chiefly fosteritic olivine) in ultramafic rocks (LTRT). Copper and, to a lesser extent, cobalt accompany nickel in the sulfide deposits; copper tends to predominate in the mafic (gabbroic) and nickel in the ultramafic rocks, though this is not a rigorous relationship. The majority of the sulfide deposits in North America are of Precambrian age; foremost among these are the gabbroic-hosted deposits of the Sudbury district, Canada (CAON 187).

The laterite deposits, which form under warm, humid conditions, are predominantly restricted to tropical or subtropical regions (Golightly, 1981, p. 711). The nickel occurs either as a silicate (garnierite) or as a minor constituent, but major in value, in ferruginous minerals (limonite or hematite). Cobalt ordinarily is present in the ferruginous laterites in amounts of roughly one-tenth that of the nickel, but copper is absent.

Laterites reach thicknesses of tens of meters, and on some extensive surfaces, as in eastern Cuba, resources are measured in billions of tons of iron and millions of tons of nickel (Guild

and Cox, 1977). Laterites have been mined for iron (e.g., Mayarí—CUCU 27), but their chief value today is for the nickel and cobalt. The principal deposits in the data base, besides the Cuban ores mentioned, are in Guatemala (GTGT 17), the Dominican Republic (DRDR 2), and Puerto Rico (RQRQ 6 and RQRQ 7). Smaller deposits in Oregon (USOR 28) and northern California, which are outside the tropics, were formed in earlier times when the climate there was warmer.

Number of deposits containing nickel	Number of principal nickel deposits	Principal major commodity of other deposits containing nickel as a major commodity					
		Cu	Fe	Ag	Au	U	(Total)
Total 106	69	29	5	1	1	1	(37)

Number of principal nickel deposits	Geologic class of deposit <sup>1/</sup>						
	STOK	IGNS	LTRT	VEIN	DSTR	MSTR	Not reported
Total 69	37	16	8	4	1	1	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	297	PRIDE OF EMORY (GIANT)	B	STOK	NI	CJ	N49 28	W121 30	5D8B5A5
CABC	55	SNIPPAKER CREEK (E. & L.)	B	STOK	NI	CJ	N56 35	W130 42	5D56B5A
CAKW	5	FERGUSON LAKE	B	STOK	NI	CJ	N62 52	W 96 56	5D6B5A
CAKW	8	RANKIN INLET	C	IGNS	NI	CJ	N62 49	W 92 5	5D358C8A1
CAMB	29	AMAX	B	STOK	NI	CJ	N54 5	W 99 11	5B158B5A2
CAMB	27	BUCKO, BOWDEN, WABOWDEN	B	STOK	NI	CJ	N54 56	W 98 39	5B158B5A2
CAMB	33	FOX RIVER SILL	C	IGNS	NI	CJ	N55 50	W 94 0	5D8C8A
CAMB	39	LINKLATER ISLAND	C	STOK	NI		N53 56	W 94 46	5B358C5A1
CAMB	3	LYNN LAKE	B	STOK	NI	CJ	N56 51	W101 2	5D356B5A2
CAMB	28	MANIBRIDGE	B	IGNS	NI	CJ	N54 42	W 98 50	5B158B8A
CAMB	30	MOAK, MYSTERY	A	STOK	NI	CJ	N55 56	W 97 35	5B158A5A2
CAMB	25	PIPE	A	STOK	NI	CJ CO	N55 30	W 98 10	5B158A5A2
CAMB	26	SOAB, GRASS RIVER	B	STOK	NI	CJ CO	N55 13	W 98 25	5B158B5A2
CAMB	31	THOMPSON, BIRCHTREE	A	MSTR	NI	CJ CO	N55 43	W 97 50	5B158A1A2
CAMK	100	BLANCHET ISLAND	C	STOK	NI	CO	N61 59	W112 25	5B16C5A2
CAMK	89	COPPER PASS MINES (GOGS)	C	VEIN	NI	CO	N62 24	W111 52	5B356C7A

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAMK	13	MUSKOX INTRUSION (2)	C	IGNS	NI	CU	N66 47	W115 8	5D8C8A4
CAMK	111	SELWYN LAKE (THA)	C	STOK	NI	CU	N60 15	W104 32	5D8C5A
CANB	14	ST. STEPHEN	C	VEIN	NI	CU CO	N45 12	W 67 18	5D8C7A3+
CAON	128	ALEXO	C	STOK	NI		N48 39	W 80 49	5B358C5A1
CAON	99	ELMHIRST TP.	C	IGNS	NI	CU	N49 49	W 87 43	5D6C8A1
CAON	15	GORDON LAKE-WERNER LAKE	B	STOK	NI	CU	N50 28	W 94 55	5D158B5A1+
CAON	132	LANGMUIR TP. (TONTINE, ETC.)	B	STOK	NI		N48 21	W 81 1	5B358B5A1
CAON	217	LIMERICK TP.	C	STOK	NI	CU	N44 51	W 77 43	5D156C5A4
CAON	117	MONTCALM CREEK	B	STOK	NI	CU	N48 40	W 82 6	5D356B5A1
CAON	65	POPULUS LAKE (KENBRIDGE)	C	STOK	NI	CU	N49 28	W 93 38	5D356C5A
CAON	88	PUDDY LAKE	C	STOK	NI	CU CR	N49 58	W 89 32	5D8C5A1
CAON	84	SHEBANDOWAN LAKE MINE	B	STOK	NI	CU CO PTD	N48 36	W 90 15	5B358B5A1
CAON	167	SOTHMAN TP.	C	STOK	NI	CU	N47 51	W 81 15	5D8C5A
CAON	187	SUDBURY NICKEL DISTRICT	A	IGNS	NI	CU CO SE TE	N46 30	W 81 0	5D6A8A2
CAON	134	TEXMONT (FATIMA)	B	STOK	NI		N48 10	W 81 12	5B358B5A1
CAQB	175	BRODEUR TP. (INTEX)	C	STOK	NI	CU	N47 31	W 78 44	5D6C5A1
CAQB	5	KATINIQ	B	IGNS	NI		N61 40	W 73 40	5B8B8A2
CAQB	111	LAMOTTE TP. (MARBRIDGE)	C	STOK	NI		N48 21	W 78 11	5B358C5A1
CAQB	103	LAUNAY AND TRECESSON TPS. (DUMONT)	B	IGNS	NI		N48 39	W 78 26	5B8B8A1
CAQB	166	MOUNT ALBERT	C	DSTR	NI		N48 51	W 66 16	5B18C10A3-8
CAQB	6	RAGLAN (DONALDSON)	B	IGNS	NI		N61 40	W 73 17	5B8B8A2
CAQB	137	TIBLEMONT TP. (ZULAPA)	C	IGNS	NI	CU	N48 16	W 77 14	5D46C8A1
CAQB	10	TP. 7922 (EKWAN RIVER)	C	STOK	NI	CU	N61 29	W 75 16	5D56C5A2
CAQB	14	TP. 8026 (CROSS LAKE)	B	IGNS	NI	CU	N61 36	W 74 17	5D58B8A2
CASA	9	AXIS LAKE	C	VEIN	NI	CU	N59 21	W105 59	5D6C7A
CASA	30	NEMEBEN LAKE	C	STOK	NI	CU	N55 19	W105 10	5D8C5A
CASA	20	ROTTENSTONE LAKE	C	STOK	NI	CU PT	N56 20	W104 49	5D158C5A2
CAYK	62	QUILL CREEK (HUDSON YUKON)	C	IGNS	NI	CU	N61 28	W139 30	5B8C8A3
CAYK	59	WHITE RIVER (CANALASK)	C	STOK	NI	CU	N61 57	W140 32	5B8C5A3
GLGL	7	IGDLUKUNGUQ	C	STOK	NI	CU	N69 52	W 52 28	5B6C5A7
GLGL	18	SONDRE ISORTOQ DISTRICT	B	IGNS	NI		N65 26	W 51 24	5B8B8A1
GTGT	18	MONTUFAR	B	LTRT	NI		N15 24	W 89 6	5B8B9A7+
GTGT	17	NIQUEGUA (EXMIBAL)	A	LTRT	NI		N15 33	W 89 27	5B8A9A7+
MXSL	17	LA CODICIADA	C	--	NI	CU	N25 52	W107 37	5D8C
MXTM	2	CD. VICTORIA (CANONES)	C	STOK	NI		N23 43	W 99 16	5B15C5A2
USAK	160	BOHEMIA BASIN-YAKOBI ISLAND DEPOSITS	B	IGNS	NI	CU	N57 59	W136 26	5D56B8A
USAK	151	BRADY GLACIER PROSPECT	C	IGNS	NI	CU	N58 33	W136 56	5D8C8A
USAK	156	MERTIE LODGE (FUNTER BAY) PROSPECT	C	STOK	NI	CU	N58 13	W134 50	5D56C5A
USAK	162	MIRROR HARBOR (DAVISON BAY) DEPOSITS	C	STOK	NI		N57 47	W136 19	5B56C5A5+
USAK	167	SNIPE BAY PROSPECT	C	STOK	NI	CU	N56 24	W134 55	5D56C5A5+
USAK	125	SPIRIT MTN PROSPECT	C	IGNS	NI		N61 20	W144 17	5B58C8A
USCA	31	LITTLE RED MTN.	C	LTRT	NI		N39 51	W123 39	5B8C9A7+
USCA	179	OLD IRONSIDES (FRIDAY) MINE	C	STOK	NI	CU	N33 0	W116 33	5D6C5A5
USCA	1	PINE FLAT MOUNTAIN	C	LTRT	NI		N41 58	W124 0	5B58C9A7+
USME	10	CRAWFORD POND DEPOSITS	C	STOK	NI	CU CO	N44 15	W 69 19	5B58C5A
USNV	68	COTTONWOOD CANYON DISTRICT (LOVELOCK, NICKEL)	C	STOK	NI	CU	N40 0	W117 55	5B146C5A
USOR	37	EIGHT DOLLAR MOUNTAIN	C	LTRT	NI		N42 14	W123 38	5B58C9A7+
USOR	24	RED FLAT	C	LTRT	NI		N42 22	W124 18	5B58C9A7+
USOR	28	RIDDLE (NICKEL MOUNTAIN) MINE	B	LTRT	NI		N42 58	W123 28	5B58B9A7+
USOR	38	WOODCOCK MOUNTAIN	C	LTRT	NI		N42 7	W123 43	5B58C9A7+
USPA	14	GAP NICKEL MINE	C	STOK	NI	CU	N39 58	W 76 5	5B6C5A
USWA	7	JUMBO MOUNTAIN PROSPECT	C	--	NI		N48 12	W121 35	5B8C
USWA	2	MOUNT VERNON (DEVILS MTN.) DEPOSIT	C	VEIN	--	NI AU	N48 22	W122 18	5B58C7A

# VANADIUM (V)

Nearly all vanadium occurs with uranium, either as the principal or accompanying commodity, in platform cover rocks of the Colorado Plateau (for example, see the record for the Uravan mineral belt—"Uranium," USCO 13). A deposit in Arkansas (USAR 6) contains vanadium in the contact zone of an alkalic-mafic intrusive. Vanadium also occurs as a minor constituent in iron deposits, particularly the titaniferous ones, in phosphorites, and in other environments, but few of these have been identified here.

Number of deposits containing vanadium	Number of principal vanadium deposits	Principal major commodity of other deposits containing vanadium as a major commodity		
		U	Fe	(Total)
Total 26	9	15	2	(17)

Number of principal vanadium deposits	Geologic class of deposit <sup>1/</sup>	
	DSTR	STOK
Total 9	8	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USAR	6	POTASH SPRINGS	B	STOK	V		N34 27	W 92 57	9B28B5 A6
USAZ	15	BLACK MESA AREA	C	DSTR	V U		N36 17	W109 51*	9C37C10B5+
USAZ	14	LUKACHUKAI MTNS. AREA	B	DSTR	V U		N36 31	W109 13*	9C37B10B5+
USAZ	12	MONUMENT NO. 2 MINE	B	DSTR	V U		N36 56	W109 53	9C37B10A5+
USAZ	10	MONUMENT VALLEY AREA (MOONLIGHT MINE)	B	DSTR	V U		N37 0	W110 18*	9C37B10B5+
USAZ	13	NORTHWEST CARRIZO MTNS. AREA	B	DSTR	V U		N36 53	W109 17*	9C37B10B5+
USCO	59	PLACERVILLE (BEAR & FALL CREEK) AREA	B	DSTR	V	U	N37 59	W108 1	9C37B10A5+
USCO	16	RIFLE CREEK AREA	B	DSTR	V	U	N39 40	W107 41	9B37B10A5+
USNM	1	EAST CARRIZO MTNS. (SHIPROCK) DISTRICT	C	DSTR	V U		N36 43	W109 1*	9C37C10B5+

## BASE METALS

### COPPER (CU)

As indicated in the accompanying table, copper occurs with so many metals and in so many deposit types that simple categorization is impossible. Only a few generalizations will be attempted here.

Many ores mined chiefly for other metals also contain recoverable copper. The coproduct-byproduct recovery of copper and associated metals from ores depends on the quantity of metals present (grade) and on the processes used in recovering the principal metals. Sulfides are by far the most common ore minerals; the Keweenaw district (USMI 3) is the only major one in which the copper is present in the native (metallic) state. Oxides, carbonates, and silicates, mostly of secondary origin, are minor sources.

In North America, most copper deposits are genetically related to igneous activity, either intrusive or extrusive; the "porphyry" (STOK) and most vein (VEIN) deposits, plus the skarn (SKAR) and igneous (IGNS) deposits, are of the former type. Porphyry deposits represent the largest commercial concentrations of copper, although other deposit types have been important sources of supply in the past. In many mining districts, more than one deposit type is present. Typically, the porphyry deposit occupies the center of a district containing additional copper-rich veins, pipes, and replacement deposits.

Appreciable quantities of other metals, such as molybdenum, gold, silver, zinc, lead, bismuth, tin, and tungsten, may be present in porphyries in widely varying proportions, either within the disseminated ore itself or in associated skarns, replacement bodies, or veins. Because the grades are so low, economic viability for a deposit depends strongly on its size, location, feasibility of extraction, current metal prices, and byproduct values. Thus many "porphyry systems" have been identified throughout the continent (Canada, Mexico, and Panama) that do not meet the requirements for ore today (see,

e.g., Sillitoe, 1976, and Hollister, 1978); the listings show some, but not all, of these deposits.

Metal associations correlate to a considerable extent with magma type; thus nickel accompanies copper in mafic and ultramafic magmas (indeed, it may predominate in the ultramafic rocks), whereas molybdenum accompanies copper in more silicic magmas. Many of the copper-zinc (or zinc-copper) deposits are massive strata-bound (MSTR) in eugeosynclinal (volcanic) environments and are now generally equated with sea-floor-spreading phenomena (Sillitoe, 1972).

Sedimentary, nonmagmatic copper deposits (many of those categorized as "DSTR") are in sandstone, shale, or, to a lesser extent, carbonate host rocks. Most in North America are small; only White Pine (USMI 4) is listed as of first rank. This contrasts sharply with northern Europe, the Soviet Union, Africa, and Australia, where large strata-bound deposits are known to contain significant concentrations of copper resources (see Tourtelot and Vine, 1976).

Economically unimportant "red bed" copper deposits in the Colorado Plateau have characteristics and origins similar to the uranium-vanadium deposits.

Number of deposits containing copper	Number of principal copper deposits	Principal major commodity of other deposits containing copper as a major commodity												
		Zn	Ag	Au	Ni	Pb	Fe	FeS	Mo	W	U	Co	Sn	(Total)
Total	907	614	90	45	45	36	26	16	13	9	9	2	1	1 (293)

Number of principal copper deposits	Geologic class of deposit <sup>1/</sup>							
	STOK	VEIN	MSTR	DSTR	SKAR	IGNS	PEGM	Not reported
Total	614	182	176	86	80	63	13	1 13

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
U.S.	217	AFTON & IRON MASK AREA	B	STOK	CU	FE	N50 39	W120 31	2D456B5A4
CABC	74	AIKEN LAKE (CROYDON)	C	VEIN	CU	AU MO	N56 27	W125 59	3E46C7A4
CABC	2	ALSEK RIVER (WINDY)	C	MSTR	CU		N59 45	W137 45	3A5C11A3
CABC	98	ANKWILL CREEK (RAINBOW)	C	DSTR	CU		N55 40	W126 30	3A5C10A
CABC	83	ANYOX (HIDDEN CREEK & BONANZA MINE)	B	MSTR	CU	FES	N55 26	W129 50	3A5B11A4+
CABC	65	ASITKA PEAK (ASITKA)	C	STOK	CU		N56 37	W126 26	3A5C5A
CABC	289	ASPEN GROVE AREA	C	STOK	CU		N49 55	W120 36*	3A45C5C
CABC	111	ASTLAIS MOUNTAIN (BIG ONION)	C	STOK	CU	MO	N54 49	W126 52	3C45C5A
CABC	53	BALL CREEK AREA	C	STOK	CU	MO	N57 15	W130 25	3C45C5A
CABC	174	BENSON RIVER AREA (EMPIRE & COAST COPPER MINES)	B	SKAR	CU	FE AU	N50 23	W127 14	2D456B3A4
CABC	148	BERG	A	STOK	CU	MO	N53 48	W127 25	3C45A5A6
CABC	215	BETHLEHEM MINE, VALLEY, ETC.	A	STOK	CU	MO	N50 30	W121 0	3C4A5A4
CABC	279	BLUE GROUSE MINE	C	SKAR	CU	AG	N48 50	W124 13	3A45C3A4+
CABC	164	BOOTJACK LAKE (CARIBOO-BELL)	B	STOK	CU		N52 33	W121 38	3A25B5A4
CABC	202	BOULDER CREEK	C	VEIN	CU	ZN	N50 16	W122 37	3D45C7A
CABC	290	BRENDA MINE	B	STOK	CU	MO	N49 53	W120 0	3C4B5A4
CABC	285	BRITANNIA MINE	B	MSTR	CU	ZN AU AG FE	N49 36	W123 9	3D5B11A5
CABC	342	BULL RIVER MINE	C	VEIN	CU	AG AU	N49 30	W115 23	3E1C7A
CABC	283	CAMBRIAN CHIEFTAIN MINE	C	SKAR	CU		N49 40	W123 55	3A5C3A
CABC	70	CARIBOO HEART RANGE (NORTHSTAR)	C	DSTR	CU		N56 3	W126 15	3A5C10A4
CABC	275	CATFACE RANGE (CATFACE)	B	STOK	CU	MO	N49 15	W125 59	3C45B5A6
CABC	208	CHU CHUA (CC)	B	MSTR	CU	ZN AU AG	N51 23	W120 3	3D5B11A3
CABC	154	CHUTANLI LAKE	C	STOK	CU	MO	N53 21	W124 30	3C45C5A
CABC	345	CLARK RANGE	C	DSTR	CU		N49 10	W114 25	3A1C10A1+
CABC	172	COMSTOCK MOUNTAIN (YREKA)	C	SKAR	CU		N50 27	W127 34	3A45C3A
CABC	304	COPPER MOUNTAIN & INGERBELLE MINES	B	STOK	CU		N49 20	W120 32*	3A25B5B4
CABC	221	CRAIGMONT MINE	B	SKAR	CU	FE	N50 12	W120 55	2D45B3A4
CABC	97	DRIFTWOOD RIVER (DRIFTWOOD)	C	VEIN	CU		N55 41	W126 36	3A53C7A
CABC	145	DRUM LUMMON	C	PEGM	CU	AU AG	N53 57	W129 0	3E4C1A
CABC	122	DUCKLING CREEK AREA (LORRAINE, ETC.)	B	STOK	CU		N55 54	W125 19	3A2B5A4
CABC	190	FISH LAKE	B	STOK	CU	AU	N51 27	W123 36	3E34B5A6
CABC	180	FRANKLIN GLACIER	C	STOK	CU	MO	N51 17	W125 25	3C45C5A7
CABC	52	GALORE CREEK (STIKINE COPPER)	A	STOK	CU	AU AG	N57 9	W131 26	3A25A5A4
CABC	286	GAMBIER ISLAND	B	STOK	CU	MO	N49 30	W123 22	3C45B5A6
CABC	158	GIBRALTAR MINE, ETC.	A	STOK	CU	MO	N52 31	W122 17	3C4A5A4+
CABC	35	GNAT LAKE AREA	B	STOK	CU		N58 15	W129 51	3A25B5A4
CABC	226	GOLDSTREAM (PAT)	B	MSTR	CU	ZN AG	N51 38	W118 27	3D5B11A2
CABC	108	GRANDISLE, NEWMAN, OLD FORT AREA	A	STOK	CU		N54 58	W126 12	3A45A5A6
CABC	59	GRANDUC, SOUTH LEDUC	A	DSTR	CU		N56 13	W130 21	3A45A10A4+
CABC	300	GRASSHOPPER MOUNTAIN-MOUNT RABBIT AREA	C	VEIN	CU	AU	N49 34	W120 51	3E5C7A
CABC	146	GRIBBELL ISLAND	C	SKAR	CU		N53 21	W128 59	3A1456C3A
CABC	229	HARPER CREEK	B	DSTR	CU		N51 20	W119 51	3A5B10A3
CABC	166	HEN LAKE-EUREKA PEAK AREA	C	STOK	CU		N52 20	W120 46	3A2C5A
CABC	267	HESQUIAT LAKE	C	SKAR	CU	FE	N49 30	W126 23	2D5C3A
CABC	33	HIDDEN VALLEY CREEK AREA	C	DSTR	CU		N59 4	W128 1	3A1C10A
CABC	7	HOBEO CREEK (LAVERDIERE)	C	SKAR	CU	FE	N59 13	W134 7	2D45C3A
CABC	113	HOWSON BASIN	C	VEIN	CU	AG	N54 28	W127 26	3A5C7A
CABC	114	HUNTER BASIN-DOMINION BASIN AREA	C	STOK	CU	AG MO	N54 30	W127 10	3A45C5A
CABC	268	INDIAN CHIEF MINE	C	SKAR	CU	FE AG AU	N49 27	W126 18	2D45C3A
CABC	171	ISLAND COPPER MINE	A	STOK	CU	MO	N50 36	W127 28	3C45A5A4
CABC	23	KAKETSA MOUNTAIN-COPPER CREEK AREA	C	STOK	CU		N58 14	W131 49	3A45C5A4-
CABC	155	KAPPAN LAKE	C	STOK	CU	MO	N52 23	W125 28	3C4C5A
CABC	22	KEDAHDA LAKE AREA	C	STOK	CU	MO	N59 20	W131 40	3C14C5A
CABC	64	KEMESS	C	STOK	CU	MO	N57 4	W126 45	3C45C5A
CABC	38	KUTOCHO CREEK (JEFF)	A	MSTR	CU	ZN AG	N58 12	W128 20	3D5A11A4
CABC	128	KWANIKIA CREEK (HOGAN, ETC.)	C	VEIN	CU	MO	N55 30	W125 18	3C45C7A4+
CABC	48	LIMPOKE CREEK (LIMPOKE)	C	STOK	CU		N57 48	W131 52	3A45C5A
CABC	218	LORNEX, HIGHMONT (HIGHLAND VALLEY)	A	STOK	CU	MO	N50 26	W121 0	3C4A5A4
CABC	212	MAGGIE	B	STOK	CU	MO	N50 55	W121 26	3C5B5A6
CABC	305	MCBRIDE CREEK (ASH, NOLA)	C	STOK	CU	MO	N49 7	W120 19	3C34C5A6

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	156	MCCL INCHY LAKE	C	STOK	CJ	MO	N52 1	W125 23	3C4C5A
CABC	187	MENZIES BAY	C	DSTR	CJ		N50 9	W125 25	3A5C10A4
CABC	57	MITCHELL CREEK-SULPHURETTS CREEK AREA	C	STOK	CJ	MO	N56 32	W130 15	3C45C5A4
CABC	105	MORRISON LAKE AREA	B	STOK	CJ		N55 12	W126 20	3A45B5A6
CABC	284	MOUNT BALDWIN	C	VEIN	CJ	ZN AG	N49 39	W123 2	3D5C7A
CABC	181	MOUNT DARTMOUTH AREA	C	STOK	CJ	MO	N51 15	W124 23	3C45C5A
CABC	294	MOUNT HENNING	C	STOK	CJ		N49 38	W120 58	3A45C5A
CABC	277	MOUNT MOQUILLAN AREA (THISTLE)	C	SKAR	CJ	AU AG	N49 6	W124 37	3E45C3A
CABC	270	MOUNT WASHINGTON MINE	C	VEIN	CJ	AG AU AS	N49 46	W125 18	3E34C7A7
CABC	157	MOUSE MOUNTAIN	C	STOK	CJ		N53 1	W122 19	3A5C5A
CABC	103	NAKINILERAK LAKE (CAVZ, DOROTHY, ETC.)	C	VEIN	CJ		N55 20	W126 15	3A45C7A
CABC	239	NASWHITO CREEK (GOODENOUGH-HUGAL)	C	STOK	CJ		N50 18	W119 28	3A45C5A
CABC	129	NATION LAKES AREA	C	STOK	CJ		N55 15	W124 45*	3A4C5B
CABC	32	NIZI CREEK (KIRK)	C	VEIN	CJ		N59 2	W129 9	3A5C7A
CABC	188	OK	B	STOK	CJ	MO	N50 3	W124 40	3C4B5A5
CABC	93	OK RANGE AREA	C	STOK	CJ		N54 32	W128 20	3C45C5A
CABC	313	OLALLA-APEX MOUNTAIN AREA	C	VEIN	CJ		N49 16	W119 50	3A25C7A
CABC	201	OWL CREEK	C	STOK	CJ	MO	N50 23	W122 47	3C45C5A4
CABC	150	OX LAKE AND HUCKLEBERRY MOUNTAIN	B	STOK	CJ	MO	N53 40	W127 3	3C45B5A6
CABC	278	PARKER CREEK-TENAS CREEK AREA (NADIRA)	C	SKAR	CJ		N48 55	W124 32	3A456C3A
CABC	204	PEACH LAKE	C	STOK	CJ		N51 58	W121 19	3A25C5A5
CABC	322	PHOENIX-GREENWOOD AREA (KNOB HILL-IRONSIDES, ETC.)	B	SKAR	CJ	AU	N49 6	W118 34	3A45B5A5
CABC	193	POISON MOUNTAIN	B	STOK	CJ	MO	N51 9	W122 37	3C34B5A6+
CABC	186	QUADRA ISLAND (COPPER ROAD, LUCKY JIM)	C	VEIN	CJ		N50 13	W125 17	3A45C7A4+
CABC	50	QUASH CREEK (Q.C.-QCA)	C	STOK	CJ	MO	N57 45	W130 17	3C45C5A
CABC	222	QUILCHENA	C	VEIN	CJ		N50 7	W120 32	3A45C7A
CABC	4	RAINY MALLOW AREA	C	SKAR	CJ	FE	N59 33	W136 32	2D45C3A4+
CABC	209	RAYFIELD RIVER	C	STOK	CJ		N51 19	W121 5	3A2C5A
CABC	184	RED	C	STOK	CJ	MO	N50 17	W124 54	3C45C5A7
CABC	61	RED CLIFF, GEORGE COPPER	C	VEIN	CJ	ZN	N56 6	W129 44	3D5C7A5
CABC	67	RED CREEK AREA	C	STOK	CJ	FB ZN	N56 31	W126 49	3D5C5A4
CABC	60	RED, CHRIS	B	STOK	CJ		N57 42	W129 48	3A45B5A4
CABC	121	SAM GOOSLY	B	DSTR	CJ	AG AU SB	N54 11	W126 16	3D34B10A6
CABC	16	SAMOTUA RIVER AREA	C	STOK	CJ	MO	N58 22	W132 10	3C45C5A4
CABC	51	SCHAFT CREEK AREA (LIARD COPPER)	A	STOK	CJ	MO	N57 22	W130 59	3C45A5A4
CABC	189	SCUM LAKE	C	STOK	CJ	MO	N51 48	W123 37	3C4C5A6
CABC	303	SILVERDAISY MOUNTAIN (CANAM)	C	STOK	CJ		N49 10	W121 1	3A45C5A6
CABC	19	SLOUGH MOUNTAIN	C	STOK	CJ	MO	N58 54	W130 15	3C4C5A
CABC	288	SOOKE PENINSULA	C	VEIN	CJ		N48 20	W123 40	3A6C7A7
CABC	69	SQUINGULA RIVER AREA	C	STOK	CJ	MO	N56 10	W127 10	3C34C5B
CABC	295	SUMMERS CREEK (AXE)	B	STOK	CJ	MO	N49 40	W120 32*	3C45B5C4
CABC	281	SUNRO MINE	C	VEIN	CJ	AU	N48 26	W124 2	3A36C7A7
CABC	66	SUSTUT COPPER	B	DSTR	CJ		N56 34	W126 42	3A5B10A4
CABC	14	SUTLAHINE RIVER AREA (THORN)	C	STOK	CJ		N58 33	W133 48	3A4C5A
CABC	21	TANZILLA RIVER	C	STOK	CJ	MO	N58 22	W130 16	3C45C5A
CABC	153	TETACHUCK RIVER (TET, ETC.)	C	STOK	CJ	MO	N53 23	W125 34	3C45C5A
CABC	45	TOAD RIVER-RACING RIVER AREA	B	VEIN	CJ		N58 32	W125 25	3A16B7A1
CABC	62	TOODOGGONE LAKE (GARNET, SPARTAN)	C	STOK	CJ		N57 20	W126 50	3A25C5A4
CABC	94	TREASURE MOUNTAIN (NORTHWEST, ETC.)	C	STOK	CJ		N54 29	W128 1	3A5C5A4+
CABC	34	TURNAGAIN RIVER (PYRRHOTITE)	C	--	CJ	NI	N58 28	W128 50	5D58C
CABC	192	UPPER TASEKO RIVER AREA	C	STOK	CJ	MO	N51 5	W123 20	3C34C5A6
CABC	271	VANANDA AREA (MARBLE BAY, CORNELL, ETC.)	C	SKAR	CJ	AU AG	N49 45	W124 34	3E45C3A4
CABC	245	WHITEROCKS MOUNTAIN	C	STOK	CJ	MO	N50 1	W119 45	3C4C5A
CABC	49	WINTER CREEK (GLENORA, KING)	C	STOK	CJ		N57 54	W131 25	3A5C5A
CAFK	10	VICTORIA IS. (NATKUSIAK FM.-WEST)	C	DSTR	CJ		N70 59	W115 53	3A7C10A2
CAFK	9	VICTORIA IS. (NATKUSIAK FM.)	--	DSTR	CJ		N71 30	W113 10*	3A7-10C2
CAFK	8	VICTORIA ISLAND (NS)	C	VEIN	CJ		N71 52	W112 43	3A7C7A2
CAMB	32	HYERS ISLAND	C	VEIN	CJ		N54 46	W 96 1	3A35C7A
CAMB	9	JUNGLE, BOB	B	MSTR	CJ	ZN FES	N55 11	W100 58	3D15B11A2
CAMB	15	NORTH STAR, DON JON	C	MSTR	CJ	FES	N54 46	W101 34	3A35C11A2
CAMB	21	OSBORNE LAKE	B	STOK	CJ	ZN FES	N54 58	W 99 44	3D35B5A2

CAMB 19 REED LAKE  
 CAMB 10 SHERIDON (SHERRITT GORDON)  
 CAMB 22 STALL LAKE, ANDERSON LAKE  
 CAMB 11 WIN  
 CAMK 10 "JUNE"  
 CAMK 18 BARRY ISLANDS  
 CAMK 55 CAP MOUNTAIN  
 CAMK 54 COATES LAKE (REDSTONE, KVALE)  
 CAMK 11 COPPERMINE DISTRICT  
 CAMK 3 DOT GROUP (NO. 47)  
 CAMK 52 HAYHOOK  
 CAMK 19 HIGH LAKE  
 CAMK 104 HORNBY CHANNEL AREA  
 CAMK 6 HUNTER BAY (SLOAN RIVER)  
 CAMK 51 KEELE RIVER (JUNE CREEK)  
 CAMK 91 LAC DUHAMEL (GO GO NO. 3)  
 CAMK 98 LIARD RIVER  
 CAMK 94 MERIDIAN LAKE (ANN)  
 CAMK 92 MURKY CHANNEL (SPD)  
 CAMK 99 NAHANNI BUTTE  
 CAMK 53 PER  
 CAMK 33 POINT LAKE  
 CAMK 110 SALKELD LAKE  
 CAMK 14 TAKIYUAK LAKE  
 CAMK 88 TALTHEILEI NARROWS (BBX)  
 CAMK 9 TESCHIERPI  
 CAMK 24 TET-RAP  
 CAMK 77 TURNBACK LAKE (XLX)  
 CANB 1 BURNIL AND BROOK AREA (LEGACY)  
 CANB 16 DORCHESTER  
 CANB 15 GRAND MANAN ISLAND  
 CANB 18 NEW HORTON  
 CANB 20 TEAHAN  
 CANF 37 BETTS COVE  
 CANF 18 FLEUR DE LYS (HODDER)  
 CANF 16 GOOSE COVE  
 CANF 35 GREAT BURNT LAKE  
 CANF 19 GREGORY RIVER  
 CANF 31 GULL FOND (GULLBRIDGE)  
 CANF 38 LITTLE BAY & WHALESBACK  
 CANF 39 PILLEY'S ISLAND  
 CANF 29 RAMBLER  
 CANF 9 SEAL LAKE DISTRICT  
 CANF 28 TERRA NOVA  
 CANF 36 TILT COVE  
 CANF 33 VICTORIA  
 CANS 7 COXHEATH  
 CANS 36 MARGARETSVILLE DISTRICT  
 CANS 21 TATAMAGOUCHE AREA  
 CAON 66 ATIKWA LAKE (MAYBRUN)  
 CAON 163 BRUCE MINES  
 CAON 23 DIXIE  
 CAON 71 DOBIE TP., EMO  
 CAON 112 EGO  
 CAON 73 GRASSY PORTAGE BAY  
 CAON 164 HERMINA & MASSEY  
 CAON 149 JOGRAN  
 CAON 30 KAPKICHI LAKE DISTRICT  
 CAON 150 KRISTINA (SUPERCREST)  
 CAON 212 LAVANT TP. (CLYDE FORKS)  
 CAON 207 LYNDON TP. (SIMON) -  
 CAON 148 MAMAINSE POINT AREA (COPPER CORP.)  
 CAON 162 MISSISSAGI RIVER-ECHO RIVER DISTRICT  
 CAON 83 NORTH COLDSTREAM  
 CAON 97 PARDEE TP. (GREAT LAKES NICKEL, ETC.)

C MSTR CU FES ZN  
 B MSTR CU ZN FES AU AG ZN AU AG  
 B MSTR CU FES ZN AU AG  
 C MSTR CU FES ZN  
 C VEIN CU  
 C DSTR CU  
 C DSTR CU  
 B DSTR CU  
 DSTR CU  
 B VEIN CU  
 C DSTR CU  
 B MSTR CU ZN FE PB AG  
 C STOK CU PB ZN  
 C STOK CU  
 B DSTR CU  
 C VEIN CU  
 C VEIN CU  
 C VEIN CU  
 C DSTR CU  
 C DSTR CU  
 C VEIN CU AG ZN PB  
 B MSTR CU ZN AG FES PB  
 C STOK CU CO AG U  
 C DSTR CU  
 C VEIN CU AG  
 C MSTR CU ZN PB AG  
 C SKAR CU  
 C DSTR CU AG  
 C IGNS CU  
 C DSTR CU  
 C MSTR CU PB ZN  
 C MSTR CU ZN FES  
 C DSTR CU  
 C MSTR CU FE  
 C STOK CU  
 C VEIN CU  
 C MSTR CU FES  
 B MSTR CU AU FES  
 B MSTR CU FES  
 B MSTR CU ZN AU AG CO  
 C DSTR CU  
 C MSTR CU FES  
 B STOK CU AU  
 C MSTR CU ZN FES  
 C VEIN CU MO  
 C DSTR CU  
 C DSTR CU U  
 C DSTR CU AU  
 C VEIN CU  
 C MSTR CU ZN FE  
 C STOK CU NI CO  
 C — CU AU ZN FES NI  
 C IGNS CU  
 C VEIN CU  
 C STOK CU MO  
 B STOK CU NI  
 C VEIN CU  
 C DSTR CU SB AG HG  
 C — CU ZN FES  
 C VEIN CU  
 C VEIN CU  
 C STOK CU AU AG  
 B IGNS CU NI PTD

N54 38 W100 33 3D35C11A2  
 N55 7 W101 6 3D15B11A2  
 N54 52 W 99 58 3D35B11A2  
 N55 2 W100 3 3D35C11A2  
 N57 34 W115 3 3A7C7A4  
 N57 34 W108 24 3A7C10A  
 N53 26 W123 14 3A1C10A2  
 N52 42 W126 38\* 3A1B10B1  
 N57 20 W115 45\* 3A37-10C4  
 N57 24 W116 25 3A7B7A4  
 N53 26 W127 2 3A1C10A1  
 N57 23 W110 51 3D35B11A1  
 N51 43 W112 8 3A1C5A2+  
 N56 27 W117 32 3A147C5A2+  
 N53 50 W127 58 3A1B10A1  
 N52 19 W110 44 3A1C7A2+  
 N51 11 W122 48 3A37C7A  
 N52 39 W109 21\* 3A1C7B2+  
 N52 16 W111 12 3A1C7A2+  
 N51 5 W123 20 3A1C7A  
 N53 15 W127 3 3A1C10A1  
 N55 2 W112 16 3A15C10A  
 N51 25 W109 46 3D3C7A2+  
 N56 3 W112 45 3D35B11A1  
 N52 35 W111 33 3A3C5A2  
 N57 35 W115 33 3A37C10A4  
 N54 3 W128 17 3A1C7A1  
 N52 44 W112 41 3D35C11A  
 N47 42 W 66 58 3A14C3A3+  
 N45 56 W 64 29 3A37C10A6+  
 N44 40 W 66 50 3A7C8A7+  
 N45 41 W 64 44 3A3C10A6+  
 N45 43 W 64 59 7D5C11A2+  
 N49 48 W 55 48 3D56C11A3  
 N50 8 W 56 8 3A1C10A2  
 N51 19 W 55 38 3A5C11A  
 N48 20 W 56 10 3A5C5A  
 N49 23 W 58 3 3A6C7A3  
 N49 12 W 56 9 3A456C11A3-4  
 N49 36 W 55 58 3A5B11A3-4  
 N49 31 W 55 44 3A5B11A3  
 N49 54 W 56 5 3D5B11A3  
 N54 18 W 62 0 3A36C10B4  
 N49 55 W 56 14 3A58C11A3  
 N49 52 W 55 38 3A456B5A3  
 N48 45 W 56 42 3D45C11A3  
 N46 5 W 60 22 3C147C7A3-4  
 N45 4 W 65 1 3A3C10A7  
 N45 40 W 63 15 3A37C10A6  
 N49 25 W 93 38 3A35C10A  
 N46 18 W 83 48 3A6C7A2  
 N50 52 W 93 11 3D35C11A1  
 N48 40 W 93 57 5D6C5A1  
 N48 15 W 84 37 3E35C  
 N48 41 W 93 4 3A6C8A1  
 N46 15 W 82 10 3A146C7A2+  
 N47 2 W 84 37 3C4C5A  
 N51 30 W 90 20 5D6B5A1  
 N46 53 W 84 5 3A4C7A  
 N45 7 W 76 43 3A1C10A4+  
 N45 12 W 77 19 3D5C  
 N47 1 W 84 45 3A37C7A4  
 N46 25 W 83 30 3A367C7A2  
 N48 36 W 90 35 3A356C5A1  
 N48 4 W 89 36 5D367B8A4

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	161	PATER	C	VEIN	CU		N46 13	W 82 40	3A15C7A2
CAON	197	PERRY SOUND AREA	C	DSTR	CU	AG ZN	N45 13	W 80 6	3A15C10A
CAON	147	POINTE AUX MINES	C	VEIN	CU		N47 8	W 84 42	3A37C7A4+
CAON	124	ROBB TP. & VICINITY (KAM KOTIA, ETC.)	B	MSTR	CU ZN FES	AG AU	N48 35	W 81 36	3035B11A1
CAON	165	RYAN LAKE	C	VEIN	CU MO AU AG		N47 58	W 80 42	3C235C7A1
CAON	182	SHAKESPEARE TP.	C	STOK	CU NI		N46 21	W 81 49	5D6C5A2
CAON	174	TIMAGAMI ISLAND (COPPERFIELDS)	B	STOK	CU FES	NI CO AU AG	N46 58	W 80 2	3A356B5A1+
CAON	146	TRIBAG	C	STOK	CU AG		N47 11	W 84 32	3A345C5A4
CAQB	231	ACTON TP. (ACTON)	C	VEIN	CU		N45 38	W 72 33	3A1C7A
CAQB	244	ASOOT TP. (EUSTIS)	B	STOK	CU FES AU AG	ZN PB	N45 19	W 71 55	305B5A3
CAQB	176	BABY TP. (MIDRIM)	C	STOK	CU NI		N47 28	W 79 14	5D6C5A1
CAQB	112	BEAUCHASTEL TP. (ALDERMAC)	C	MSTR	CU ZN AG AU FE		N48 13	W 79 14	3035C11A1
CAQB	201	BELLECHASSE TP. (PANET)	C	STOK	CU PB ZN		N46 35	W 70 13	7D1C5A
CAQB	179	BLONDEAU TP. (KELLY LAKE)	C	STOK	CU NI		N47 20	W 78 51	5D356C5A1
CAQB	145	CHIBOUGAMAU, MERRILL IS.-LAC DORE ET AL.	B	VEIK	CU AU AG		N49 53	W 74 20	3E68B7A1
CAQB	146	CHIBOUGAMAU, PORTAGE IS. ET AL.	B	VEIN	CU AU AG		N49 54	W 74 12	3E68B7A1
CAQB	242	CLINTON TP. (AND MARSTON TP.)	C	MSTR	CU ZN FE	PB AG	N45 27	W 70 54	3D0C11A
CAQB	65	COURCHESNE TP. (PEGMA LAKE)	C	IGNS	CU NI		N52 22	W 66 46	5D156C8A
CAQB	142	CUVIER TP.	C	DSTR	CU ZN FES		N49 57	W 74 53	3035C10A1
CAQB	104	DALQUIER TP. (CONIGO)	C	DSTR	CU	ZN	N48 36	W 78 3	3A35C10A1
CAQB	101	DESMOIZES TP. (NORMETAL)	B	MSTR	CU ZN AG AU FE		N49 0	W 79 22	3035B11A1
CAQB	107	DESTOR TP. (LYNDHURST)	C	DSTR	CU AU		N48 34	W 78 57	3E35C10A1
CAQB	117	DUFAY TP. (CARLSON)	C	VEIN	CU		N48 8	W 79 27	3A35C7A1
CAQB	106	DUPARQUET TP. (BEATTIE-HUNTER)	C	DSTR	CU		N48 33	W 79 8	3A35C10A1
CAQB	134	EAST SULLIVAN, MANITOU BARVUE, LOUVE	B	MSTR	CU ZN AG AU CO	FES PB	N48 5	W 77 40	3035B11A1
CAQB	232	EASTMAN BELT-SOUTH (HUNTINGDON, ETC.)	C	STOK	CU	ZN AU AG	N45 15	W 72 20	3A58C5A3
CAQB	75	FROTET LAKE DISTRICT	C	STOK	CU ZN		N50 38	W 74 38	3035C5A1
CAQB	178	GABOURY TP. (LORRAINE)	C	STOK	CU NI		N47 21	W 78 56	5D356C5A1
CAQB	169	GASPE COPPER	A	SKAR	CU MO B1		N48 57	W 65 31	3A14A3A5
CAQB	185	HAINAUT TP. (RENZY)	C	IGNS	CU NI		N46 48	W 76 42	5D8C8A
CAQB	204	HARVEY HILL (SUTTON BELT)	C	STOK	CU		N46 16	W 71 12	3A1C5A
CAQB	67	HORDEN (CHABOUILLE LAKE, NEMISKAU LAKE)	B	STOK	CU NI		N50 56	W 77 48	5D6B5A
CAQB	16	KYAK BAY	C	STOK	CU NI		N60 8	W 69 53	5D6C5A2
CAQB	125	LA MORANDIERE TP. (TRINITY)	C	MSTR	CU ZN FES		N48 42	W 77 45	3035C11A1
CAQB	94	LA PELTRIE TP.	C	STOK	CU ZN		N49 55	W 79 15	3035C5A1
CAQB	140	LAMARCK TP. (AND GUETTARD TP.)	C	IGNS	CU NI		N49 59	W 75 18	5D6C8A2
CAQB	150	LESQUIRE & DRUILLETES TPS.	C	DSTR	CU FES		N49 30	W 74 54	3A35C10A1
CAQB	170	LESSEPS TP. (PEKAN BROOK)	C	SKAR	CU	ZN	N48 52	W 65 58	3A1C3A5
CAQB	52	LONG LAKE	C	MSTR	CU		N53 35	W 77 19	3A35C11A1
CAQB	164	MADELEINE	B	SKAR	CU	AG	N49 0	W 66 0	3A1B3A4
CAQB	119	MATTAGAMI DISTRICT	A	MSTR	CU ZN AG AU FE	NI	N49 43	W 77 43	3035A11A1
CAQB	8	MEQUILLON-VALLANT LAKES AREA	C	IGNS	CU NI		N61 30	W 73 45	5D68C8A2
CAQB	172	NEWPORT TP.	C	DSTR	CU		N48 17	W 64 44	3A5C10A
CAQB	113	NORANDA, QUEMONT	A	MSTR	CU AU ZN AG SE	TE FES	N48 15	W 79 0	3E35A11A1
CAQB	80	O'SULLIVAN TP. (COON)	C	DSTR	CU	AG	N50 15	W 73 49	3A37C10A2+
CAQB	148	OFEMISKA	B	VEIN	CU		N49 48	W 74 52	3A6B7A1
CAQB	211	PATAPEDIA TP. (MID-PATAPEDIA)	C	MSTR	CU AG FES		N47 52	W 67 24	3A1C11A3
CAQB	79	PERCH RIVER	C	DSTR	CU	AG	N50 20	W 73 42	3A37C10A2+
CAQB	25	PLO LAKE	C	STOK	CU NI		N58 58	W 69 36	5D58C5A2
CAQB	99	POIRIER & JOUTEL TPS.	B	MSTR	CU ZN AG FES		N49 27	W 78 23	3035B11A1
CAQB	12	POVUNGNIUK RANGE	C	STOK	CU NI		N61 24	W 75 0	5D56C5A2
CAQB	31	RICHMOND GULF	C	DSTR	CU		N56 22	W 76 28	3A37C10A2
CAQB	200	ROLETTE TP. (ST. FABIEN)	C	STOK	CU NI	ZN	N46 39	W 70 12	3D58C5A
CAQB	206	SUTTON BELT-NORTH	C	VEIN	CU		N46 3	W 71 41*	3A5C7B
CAQB	233	SUTTON BELT-SOUTH	C	DSTR	CU		N45 10	W 72 37	3A5C10A
CAQB	186	SUZOR TP.	C	DSTR	CU		N47 55	W 74 25	3A15C10A
CAQB	71	TP. 1322 (LAC DILEO)	C	STOK	CU ZN AG		N50 50	W 74 43	3035C5A1
CAQB	84	TP. 1853 (HART-JAUNE)	C	VEIN	CU NI		N51 43	W 67 58	5D6C7A
CAQB	47	TP. 4259 (RETTY LAKE)	C	STOK	CU NI		N55 15	W 66 12	5B58C5A2
CAQB	45	TP. 4556 (CHANCE LAKE)	C	STOK	CU NI		N55 41	W 66 46	5D8C5A2
CAQB	41	TP. 4753 (DUNPHY LAKE)	C	VEIN	CU		N56 3	W 67 43	3A6C7A2



CAQB	38	TP. 4851 (OTELNUC LAKE)	C	VEIN	CJ				N56 16	W 68 12	3A1C7A2
CAQB	40	TP. 4852 (LAC ROMANET)	C	DSTR	CJ				N56 17	W 67 50	3A5C10A2
CAQB	36	TP. 5249 (LAC AULNEAU)	C	MSTR	CJ				N56 57	W 68 32	3A6C11A2
CAQB	35	TP. 5348 (LAC COLOMBET)	C	VEIN	CJ			NI	N57 0	W 68 53	3A5C7A2
CAQB	33	TP. 5845 (CHRYSLER NO. 2, ANNA LAKE)	C	IGNS	CJ NI				N57 55	W 69 38	5D56C8A2
CAQB	30	TP. 5944 (LESLIE NO. 2, ERICKSON NO. 1)	C	IGNS	CJ NI				N58 1	W 69 46	5D56C8A2
CAQB	28	TP. 6045 (ST. PIERRE)	C	MSTR	CJ FES			ZN FB AU AG	N58 16	W 69 32	3D5C11A2
CAQB	24	TP. 6545 (SOGEMINES)	C	STOK	CJ NI				N59 10	W 69 39	5D6C5A2
CAQB	13	TP. 7925 (KENTY LAKE)	C	VEIN	CJ				N61 27	W 74 34	3A5C7A2
CAQB	7	TP. 8030 (EXPO)	B	IGNS	CJ NI				N61 33	W 73 28	5D8B8A2
CAQB	9	TP. 8032	C	IGNS	CJ NI				N61 32	W 72 49	5D8C8A2
CAQB	241	WEEDON (AND STRATFORD FESITE)	C	MSTR	CJ ZN AG FES				N45 42	W 71 22	3D45C11A3
CASA	37	BIRCH LAKE & FLEXAR	C	STOK	CJ			ZN AU AG	N64 40	W102 2	3A35C5A2
CASA	40	CORONATION	B	STOK	CJ			AG AU ZN	N64 35	W102 0	3A35E5A2
CASA	17	JANICE LAKE-JUNO LAKE AREA	C	DSTR	CJ			AG	N66 53	W104 58	3A15C10A2
CASA	34	KEPUTCH LAKE (QUANDT)	C	VEIN	CJ ZN				N64 44	W102 45	3D145C7A2
CASA	29	PITCHING LAKE	C	MSTR	CJ				N65 26	W104 8	3A15C11A2
CASA	31	WADEN BAY (ANGLO ROUYN)	C	VEIN	CJ			AU AG	N65 18	W105 0	3A15C7A2
CAYK	6	BERN CREEK	C	VEIN	CJ				N66 9	W140 12	3A1C7A
CAYK	38	BIG CREEK AREA (CASH, REVENUE)	C	STOK	CJ MO				N62 25	W137 36	3C4C5A4
CAYK	68	BORNITE CREEK (JOHOB)	C	VEIN	CJ				N60 29	W137 34	3A5C7A3+
CAYK	64	BURWASH CREEK (CORK)	C	STOK	CJ MO				N61 20	W139 30	3C45C5A7
CAYK	60	CANYON CITY (SILVER CITY)	C	VEIN	CJ				N61 47	W140 47	3A5C7A3+
CAYK	36	CASINO	B	STOK	CJ MO				N62 44	W138 49	3C4B5A6
CAYK	18	DOLORES CREEK AREA	C	VEIN	CJ CO U				N64 56	W133 18	3A12C7A1+
CAYK	40	GRANITE MOUNTAIN (TINTA HILL)	C	STOK	CJ MO AG FB ZN				N62 19	W136 58	3C4C5A4
CAYK	80	KING LAKE	C	STOK	CJ MO				N60 49	W135 28	3C45C5A5
CAYK	16	KIWI LAKE (GREMLIN)	C	STOK	CJ AG				N65 11	W134 38	3A5C5A1
CAYK	78	LOON LAKE	C	VEIN	CJ			AG AU	N61 21	W134 11	3A15C7A2
CAYK	33	LUCKY JOE CREEK	C	DSTR	CJ				N63 35	W139 30	3A5C10A4
CAYK	37	MINTO COPPER	B	DSTR	CJ			AG AU	N62 37	W137 15	3A5B10A4
CAYK	69	PIRATE CREEK (JACKPOT)	C	VEIN	CJ				N60 3	W137 7	3A5C7A
CAYK	81	WHITEHORSE COPPER BELT (NEW IMPERIAL)	B	SKAR	CJ			AU AG	N60 38	W135 3	2D45B3A5
CAYK	41	WILLIAMS CREEK	B	DSTR	CJ				N62 21	W136 42	3A5B10A4
CSCS	16	CARAIGRES	C	VEIN	CJ				N 9 40	W 64 5	3A1C7A7
CSCS	17	CONCAVES	C	VEIN	CJ				N 9 48	W 83 51	3A1C7A7
CSCS	18	LA DIVISION	C	VEIN	CJ				N 9 28	W 83 41	3A1C7A7
CSCS	15	PURISCAL (SAN IGNACIO) PROSPECT	C	STOK	CJ				N 9 48	W 84 9	3A47C5A7
CUQU	7	BUENA VISTA ET AL.	C	MSTR	CJ				N22 55	W 83 3*	3A5C11B5
CUQU	3	DORA	C	VEIN	CJ			FB ZN	N22 13	W 84 12	3A1C7A5+
CUQU	33	EL COBRE	B	VEIN	CJ				N20 3	W 75 57	3A45B7A6
CUQU	34	ELECCION	C	VEIN	CJ				N20 10	W 74 48	3A15C7A4+
CUQU	24	ELURECA	C	MSTR	CJ				N20 8	W 76 43	3A5C11A6
CUQU	10	FERNANDO MINE	C	MSTR	CJ FB			ZN	N22 12	W 80 4	3D5C11A5
CUQU	6	LA MERCEDITA & LA CONSTANCIA	C	VEIN	CJ				N22 40	W 83 43	3A1C7A5+
CUQU	4	MATAHAMBRE DISTRICT (MONO ET AL.)	B	VEIN	CJ			FB ZN	N22 35	W 83 56*	3A1B7E5+
CUQU	25	SOUTH COAST PROSPECTS	C	MSTR	CJ				N20 2	W 76 28*	3A5C11B6
CUQU	2	TETE CONTINO (FRANCISCO) MINE	C	VEIN	CJ				N22 23	W 84 7	3A1C7A5+
DRDR	1	MATA GRANDE	C	STOK	CJ				N19 12	W 71 0	3A45C5A5+
FRFR	1	LANGLADE	C	VEIN	CJ				N46 54	W 56 15	3A45C7A4
GLGL	30	FREDERIK F. MINE	C	VEIN	CJ				N60 47	W 45 55	3A15C7A2
GLGL	27	JOSYAMINEN	C	VEIN	CJ				N60 57	W 47 55	3A15C7A2
GLGL	14	LESLIETTEN	C	DSTR	CJ ZN				N68 26	W 51 45	3D15C10A2
GLGL	23	TARTOQ	C	DSTR	CJ				N61 34	W 48 30	3A15C10A1
GTGT	13	MATAQUESQUINTLA	C	STOK	CJ AG				N14 30	W 90 9	3D47C5A7
GTGT	16	OXC	B	MSTR	CJ				N15 33	W 89 35	3A45B811A
HABA	1	MEME DISTRICT	B	SKAR	CJ			AU	N19 38	W 72 48	3A45B3A6
HOMO	1	PETOA	C	SKAR	CJ				N15 16	W 88 19	3A146C3A6
JMJM	8	BELLAS GATE-CONNERS AREA	B	STOK	CJ			AU AG	N18 10	W 77 11	3A45B5A5+
JMJM	5	DURHAM-COOPERS HILL	C	VEIN	CJ				N18 12	W 76 30	3A45C7A
JMJM	3	GINGER RIVER-CASTLETON ZONE	C	—	CJ				N18 14	W 76 49	3A5C
MXBN	19	AGUAJITO	C	VEIN	CJ				N30 3	W115 28	3A145C7A6
MXBN	18	ALEJANDRA	C	VEIN	CJ				N30 10	W115 22	3A4C7A7
MXBN	30	BONET	C	VEIN	CJ FE			AU AG	N28 20	W113 54	3A15C7A5
MXBN	1	CERRO COLORADO	C	VEIN	CJ				N52 28	W116 55	3A147C7A5

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXBN	25	CHAPALA	C	SKAR	CU		N29 40	W114 25	3A4C3A5
MXBN	31	EL ARCO	A	STOK	CU	AU MO	N28 10	W113 15	3A45A5A5
MXBN	22	EL GATO	C	SKAR	CU	FE	N29 53	W115 17	3A14C3A6
MXBN	23	ESMERALDA	C	STOK	CU		N29 45	W115 10	3A1C5A6
MXBN	24	LUCIANO	C	STOK	CU		N29 40	W115 5	3A1C5A6
MXBN	13	SAN JOSE	C	VEIN	CU		N31 5	W115 35	3A4C7A5+
MXBN	17	VIBORA	C	VEIN	CU		N30 10	W115 46	3A4C7A
MXBS	21	CERRO DEL MANGLE	C	VEIN	CU		N23 25	W109 32	3AC7A7
MXBS	7	EL BOLEO	A	DSTR	CU ZN	AG	N27 17	W112 18	3D17A10A7
MXBS	5	SAN ROQUE	C	VEIN	CU		N27 15	W114 24	3A5C7A
MXBS	18	TODO SANTOS	C	VEIN	CU		N23 30	W110 12	3AC7A7
MXCH	104	ALDAMA	C	VEIN	CU		N28 53	W105 54	3A1C7A7
MXCH	92	COYAME	C	STOK	CU		N29 29	W105 5	3A1C5A7
MXCH	93	GIOCONDA	C	VEIN	CU		N29 20	W104 32	3A1C7A7
MXCH	46	HUAYMOPA O GUANOPA	C	VEIN	CU		N29 31	W108 30	3A7C7A7
MXCH	5	JUAREZ	C	DSTR	CU		N31 25	W106 15	3A5C10A4
MXCH	14	LA OBRIZA, FLORENCIA, LA CENTRAL	C	VEIN	CU AG		N31 1	W107 52	3D7C7A7
MXCH	17	LA LOLITA, SAN BLAS	C	SKAR	CU		N30 57	W107 5	3A14C3A7
MXCH	89	LOS ARENALES	C	STOK	CU		N29 48	W105 11	3A1C5A7
MXCH	175	LOS REYES	C	SKAR	CU	W BA	N27 2	W104 51	3A14C3A7
MXCH	39	SAN JUAN	C	VEIN	CU		N31 10	W105 52	3A1C7A7
MXCH	109	SAN MIGUEL	C	VEIN	CU	FE	N28 41	W104 9	3A7C7A7
MXCH	162	SANTA RITA	C	VEIN	CU		N26 13	W107 12	3A7C7A7
MXCO	39	P.V. 3-SIERRA DEL MIMBRE	C	VEIN	CU		N25 0	W103 8	3A1C7A7
MXCO	40	P.V. 17-DOLORES	C	DSTR	CU		N24 54	W102 50	3A1C10A7
MXCP	5	IXTAPA	C	SKAR	CU	PB ZN	N16 50	W 92 55	3A14C3A7
MXCP	3	SABANILLA	C	VEIN	CU		N17 20	W 92 42	3A1C7A7
MXCP	2	SANTA FE	C	SKAR	CU AU AG		N17 24	W 93 3	3E147C3A7
MXCP	8	TAPANATEPEC-PLATANILLO	C	STOK	CU	FE	N16 26	W 94 0	3A147C5A7
MXCP	17	TOLIMAN	C	STOK	CU		N15 20	W 92 12	3A145C5A4
MXDR	33	DESCUBRIDORA	C	SKAR	CU		N25 59	W104 14	3A14C3A7
MXDR	4	EL COBRE	C	VEIN	CU		N26 15	W105 22	3A47C7A7
MXDR	14	ZONA MINERA LA SOLEDAD	C	VEIN	CU MO		N25 15	W107 6	3C4C7A7
MXGR	35	BALSAS-LIMON GUADALUPE	C	SKAR	CU	AU AG PB	N17 58	W 99 47	3A4C3A7
MXGR	45	BARRANCA AHUEHUETLA	C	VEIN	CU AU PB AG		N17 40	W 98 57	3E15C7A7
MXGR	5	EL CERRANO	C	VEIN	CU	SN	N18 27	W100 58	3A4C7A7
MXGR	2	EL PAPAYO	C	VEIN	CU		N18 40	W100 37	3A4C7A7
MXGR	6	FUNDO LOS COCOS, PROSPECTO LOS COCOS	C	VEIN	CU		N18 26	W100 48	3A4C7A7
MXGR	51	LA DICHA	C	VEIN	CU	FE	N17 21	W 99 42	3A7C7A7
MXGR	12	LA ESPERANZA	C	VEIN	CU	HG	N18 7	W100 30	3A7C7A7
MXGR	36	MEDIA LUNA	C	SKAR	CU	AG AU ZN FE	N17 57	W 99 42	3A4C3A7
MXGR	21	MINA LA UNION	C	VEIN	CU		N18 8	W 99 7	3A7C7A7
MXGR	10	MONTE VERDE (LA LUCHA)	C	VEIN	CU	AU AG PB	N18 10	W100 55	3A4C7A7
MXGR	26	PETATLAN-REAL DE COOPER KING	C	VEIN	CU		N17 40	W101 18	3A7C7A7
MXGR	44	POFOCATZ IN	C	SKAR	CU		N17 34	W 99 10	3A15C3A7
MXGR	8	SAN MIGUEL	C	VEIN	CU	AU AG	N18 18	W100 39	3A7C7A7
MXHD	3	JACALA	C	SKAR	CU	FE	N21 2	W 99 12	3A147C3A7
MXJL	7	AYUTLA	C	VEIN	CU	AG	N20 7	W104 20	3A7C7A7
MXJL	21	EL GAVILAN, LA MARIPOSA ET AL.	C	VEIN	CU	AU AG	N19 57	W103 47	3A7C7A7
MXJL	26	MARIA ELISA	C	VEIN	CU		N19 18	W102 56	3A4C7A
MXJL	23	QUITIUPAN	C	VEIN	CU	AU	N19 50	W102 51	3A7C7A7
MXMC	48	BASTON DEL COBRE	B	VEIN	CU		N18 40	W101 9	3A7B7A7
MXMC	35	BENITO JUAREZ	C	VEIN	CU		N19 17	W100 27	3A7C7A7
MXMC	34	CALTZONTZ IN	C	VEIN	CU		N19 25	W101 56	3A7C7A7
MXMC	9	COALCOMAN	C	VEIN	CU		N18 47	W103 10	3A7C7A7
MXMC	46	COLMILLUDA Y OTRAS MINAS	B	DSTR	CU MO		N18 40	W101 45	3C4B10A7
MXMC	32	EL CARACOL	C	VEIN	CU		N19 32	W100 45	3A7C7A7
MXMC	2	EL LIMON, JACONA	C	VEIN	CU		N19 12	W102 40	3A7C7A7
MXMC	36	EL OLIVO	C	VEIN	CU		N19 15	W100 37	3A17C7A7
MXMC	39	EL REALITO DE CHIRANGANGUEO	C	VEIN	CU		N19 12	W100 28	3A7C7A7
MXMC	49	HUETAMO	B	VEIN	CU		N18 35	W100 53	3A7B7A7

MXMC	42	INGUARAN	A	STOK	CJ		W	N19	0	W101	35	3A7A5A5
MXMC	3	LA VERDE	A	STOK	CJ		MO	N19	10	W102	8	3C7A5A5
MXMC	41	LAS MOJARRAS AREA	C	VEIN	CJ			N18	53	W100	45	3A17C7A7
MXMC	37	LAS TRANCAS	C	VEIN	CJ			N19	14	W100	48	3A17C7A7
MXMC	44	MANGA DE CUIMBO	B	VEIN	CJ			N18	53	W101	40	3A7B7A7
MXMC	5	MINA EL TERRERO	C	VEIN	CJ			N18	56	W102	35	3A4C7A7
MXMC	45	OROPEO	C	VEIN	CJ			N18	50	W101	50	3A7C7A7
MXMC	40	PAPATZINGAN	C	VEIN	CJ			N19	3	W100	47	3A17C7A7
MXMC	47	REGION DE CHURUMUCO	C	VEIN	CJ			N18	38	W101	38	3A7C7A7
MXMC	23	RINCON DE VARILLO	C	VEIN	CJ	AU		N18	15	W102	7	3E1C7A7
MXMC	43	SAN ISIDRO	C	STOK	CJ			N18	57	W101	55	3A7C5A5
MXMC	21	SAN JOSE	C	VEIN	CJ			N18	20	W102	13	3A4C7A7
MXNA	27	LA ESPERANZA	C	VEIN	CJ			N21	2	W104	34	3A4C7A
MXNA	21	LA YESCA	C	VEIN	CJ		AG	N21	16	W104	1	3A7C7A7
MXNA	2	MINA CUCHARAS	C	VEIN	CJ		AU	N22	52	W105	15	3E7C7A7
MXNA	28	SANTA EDMIGE	C	VEIN	CJ	AU		N20	58	W104	25	3E4C7A
MXNL	1	DOLORES	C	VEIN	CJ			N27	3	W100	30	3A1C7A7
MXOX	75	COSTACHE	C	VEIN	CJ			N16	22	W	96	0
MXOX	10	MINA LA SOLEDAD	C	VEIN	CJ			N17	24	W	98	14
MXOX	66	PLAN MINA	C	VEIN	CJ		AG	N16	24	W	97	11
MXOX	79	YAGUTI	C	VEIN	CJ			N16	15	W	97	40
MXOX	48	YUTLA	C	VEIN	CJ			N17	4	W	97	9
MXPB	9	TEZ IUTLAN	C	VEIN	CJ		MO	N19	50	W	97	20
MXSL	23	BASAMARI	C	VEIN	CJ			N25	20	W107	45	3A4C7A7
MXSL	41	CONCORDIA Y MALPICA	C	SKAR	CJ		AU AG MO	N23	16	W106	7	3A4C3A
MXSL	8	IVONNE	C	VEIN	CJ	AU		N26	8	W108	37	3E15C7A7
MXSL	40	LA AZULITA	C	—	CJ			N23	40	W106	10	3A4C
MXSL	11	LA NATIVIDAD	C	VEIN	CJ			N26	2	W108	39	3A6C7A7
MXSL	6	LAS LAJAS	C	VEIN	CJ			N26	28	W108	39	3A14C7A7
MXSL	22	LOS GUAJOLOTES	C	VEIN	CJ	AU		N25	31	W107	29	3E4C7A7
MXSL	24	MARGARITA, JULIETA Y CAYELA	C	SKAR	CJ	W	AU AG	N25	10	W107	51	3A14C3A
MXSL	30	RINCON DE COPACO	C	VEIN	CJ	MO	AG AU	N24	32	W107	0	3C5C7A
MXSL	7	SAN FERNANDO	C	STOK	CJ			N26	22	W108	21	3A4C3A7
MXSL	19	SAN JOSE DEL LLANO	C	VEIN	CJ		AU AG	N25	37	W107	20	3A17C7A7
MXSL	1	SANTO TOMAS	B	SKAR	CJ		FE	N26	53	W108	8	3A14B3A6
MXSL	21	TRES FLORES	C	VEIN	CJ	AG AU		N25	32	W107	14	3E5C7A7
MXSN	79	ANTONIO ROSALES	C	VEIN	CJ	PB ZN	AG AU	N26	56	W108	56	3D7C7A7
MXSN	12	CANANEA	A	STOK	CJ		MO	N30	58	W110	18	3C47A5A6
MXSN	50	CENAGUITA	C	VEIN	CJ	AG		N29	8	W109	12	3D7C7A7
MXSN	52	DOLORES	C	VEIN	CJ	PB	AG	N29	0	W109	44	3D4C7A7
MXSN	12A	EL ALACRAN	B	STOK	CJ	MO		N30	50	W110	9	3C47B5A6
MXSN	81	EL COBRE Y SAN BARTOLO	C	VEIN	CJ			N26	58	W108	43	3A7C7A7
MXSN	76	EL TRANVIA	C	VEIN	CJ	PB ZN AG AU		N27	2	W109	3	3D4C7A7
MXSN	8A	FORTUNA DEL COBRE	B	STOK	CJ		MO	N30	4	W112	29	3C14B5A6-
MXSN	53	GALLO DE ORO	C	VEIN	CJ			N28	45	W109	40	3A7C7A7
MXSN	73	LA CANDELARIA	C	SKAR	CJ	AU		N27	11	W109	15	3E14C3A7
MXSN	25	LA CARIDAD	A	STOK	CJ		MO	N30	19	W109	33	3C4A5A6
MXSN	72	LA GUADALUPE	C	VEIN	CJ		AG AU	N27	18	W108	50	3A7C7A7
MXSN	49	LA FLUMOSITA	C	VEIN	CJ		FE	N29	9	W109	22	3A7C7A7
MXSN	37	LA VERDE	B	SKAR	CJ			N29	24	W111	20	3A14B3A6+
MXSN	84	LAS TABLAS	C	SKAR	CJ			N26	47	W108	38	3A14C3A7
MXSN	26	LOS ALISOS AREA	B	VEIN	CJ		MO AG PB ZN	N30	24	W109	29	3C7C87A6
MXSN	83	LUPITA	C	VEIN	CJ			N26	54	W108	45	3A4C7A7
MXSN	80	MARIA, LA VERDE Y CERRO BLANCO	C	VEIN	CJ	AU	FE	N26	58	W108	35	3A7C7A7
MXSN	57	MULATOS	C	VEIN	CJ	AG		N28	35	W109	8	3D7C7A7
MXSN	46	NACORI-CHICO	C	VEIN	CJ			N29	28	W108	43	3A4C7A7
MXSN	25A	NACOZARI DE GARCIA	B	STOK	CJ			N30	26	W109	42	3A4B5A6
MXSN	51	PUEBLA	C	SKAR	CJ			N28	59	W109	30	3A14C3A7
MXSN	59	SAN ANTONIO DEL COBRE	C	STOK	CJ		U	N28	37	W109	37	3A14C3A7
MXSN	36	SANTA CLEOTILDE	C	SKAR	CJ	AU		N29	20	W111	50	3E14C3A7-
MXSN	22	SIERRA CABULLONA	C	VEIN	CJ	ZN AG		N31	5	W109	31	3D14C7A6
MXSN	41	ZONA VIZNAGA	C	VEIN	CJ			N28	55	W111	6	3A4C7A
MXTH	4	MIQUIHUANA	C	VEIN	CJ			N23	36	W	99	50
MXTH	1	SAN CARLOS	C	VEIN	CJ			N24	32	W	98	58
MXVR	2	LAS MINAS	C	SKAR	CJ	AU		N19	40	W	97	14

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXZC	54	LA VUELTA DE GABRIEL	C	STOK	CJ		N22 13	W103 31	3A7C5A7
MXZC	1	P.V. 26	C	STOK	CJ		N24 52	W102 10	3A1C5A7
MXZC	24	SAN FCO. LA VALENCIANA, LA LEGION	C	VEIN	CJ	AG AU	N24 14	W101 10	3E1C7A7
NUNU	20	ROSITA	B	SKAR	CJ	AU	N13 55	W 84 22	3E14B3A6
PNFN	5	CALDERA 1	C	VEIN	CJ		N 8 44	W 82 20	3A7C7A7
PNFN	14	CERRO BANC	C	VEIN	CJ		N 8 27	W 81 36	3A3C7A
PNFN	15	CERRO COLORADO	A	STOK	CJ	MO	N 8 20	W 81 26	3C45A5A7
PNFN	9	CERRO PETAQUILLA	A	STOK	CJ	MO	N 8 50	W 80 40	3C47A5A7
PNFN	23	LOS POZOS	C	DSTR	CJ		N 7 52	W 80 39	3A7C10A7
PNFN	13	SERRANIA DE TABASARA	C	DSTR	CJ		N 8 34	W 81 50	3A3C10A7
RQRQ	12	LA MINA (RIO BLANCO) PROSPECT	C	SKAR	CJ		N18 16	W 65 49	3A45C3A5+
RQRQ	5	LA MUDA	C	STOK	CJ	MO	N18 19	W 66 5	3C45C5A6
RQRQ	3	RIO VIVI (CALA ABAJO, PIEDRA HUECA)	B	STOK	CJ		N18 12	W 66 41	3A45B5A6
RQRQ	2	TANAMA (HELECHO, LOS ANGELES)	B	STOK	CJ		N18 15	W 66 47	3A45B5A6
USAK	7	ARCTIC PROSPECT	A	MSTR	CJ	ZN	N67 11	W156 22	3D5A11A3
USAK	190	ATTU PROSPECT	C	STOK	—		N62 52	E172 50	3A45C5A7
USAK	100	BAULTOFF PROSPECT	B	STOK	—		N62 6	W141 14	3A45B5A5
USAK	98	BOND CREEK PROSPECT	B	STOK	CJ	MO	N62 12	W142 43	3C45B5A5
USAK	8	BORNITE, RUBY CREEK	B	DSTR	CJ	ZN	N67 4	W156 56	3D1B10A3+
USAK	130	COPPER BULLION (RUA COVE) PROSPECT	C	MSTR	CJ		N60 21	W147 38	3A5C11A6
USAK	6	DEAD CREEK PROSPECT	C	MSTR	CJ	ZN	N67 14	W156 31	3D5C11A3
USAK	94	DENALI PROSPECT	C	MSTR	CJ		N63 9	W147 8	3A5C11A4
USAK	128	ELLAMAR MINE	C	MSTR	CJ		N60 54	W146 41	3A5C11A6
USAK	185	FORRESTER ISLAND PROSPECT	C	STOK	CJ		N64 50	W133 30	3A45C5A6+
USAK	5	HORSE CREEK PROSPECT	C	MSTR	CJ	ZN	N67 18	W156 40	3D5C11A3
USAK	179	IVANOF PROSPECT	C	STOK	CJ		N65 53	W159 25	3A45C5A7
USAK	133	KENNEDY (JUMBO, BONANZA, ERIE, ETC.) MINES	B	MSTR	CJ		N61 31	W142 51	3A5B11A4
USAK	114	KIJIK PROSPECT	C	STOK	CJ		N60 20	W154 27	3A45C5A6+
USAK	132	KOTSINA-KUSKULANA AREA	C	DSTR	CJ	AU AG	N61 40	W143 55*	3A45C610C
USAK	131	LATOUCHE ISLAND (BEATSON ET AL.)	B	MSTR	CJ		N60 3	W147 53	3A5B11A6
USAK	186	MOLEAN ARM PROSPECT	C	STOK	CJ		N64 48	W132 14	3A45C5A4+
USAK	144	MONEIL (CREVICE CREEK) DEPOSIT	C	SKAR	CJ		N59 9	W154 39	3AC3A
USAK	145	MONEIL MINE	C	SKAR	CJ		N59 7	W154 39	3A14C3A5+
USAK	81	NIXON FORK MINES (GARNET ET AL.)	C	SKAR	CJ	AU	N63 13	W154 47	3E14C3A6
USAK	2	OMAR PROSPECT	C	DSTR	CJ		N67 30	W160 51	3A1C10A2+
USAK	97	ORANGE HILL PROSPECT	B	STOK	CJ	MO	N62 12	W142 51	3C45B5A5
USAK	129	PORT FIDALGO (FIDALGO ALASKA) MINES	C	MSTR	CJ		N60 46	W146 25	3A5C11A6
USAK	177	PYRAMID PROSPECT	B	STOK	CJ		N55 37	W160 41	3A45B5A7
USAK	180	SALT CHUCK MINE	C	—	CJ		N55 37	W132 32	3A58C
USAK	170	SUMDUM PROSPECT	C	MSTR	CJ	ZN	N67 47	W133 27	3D5C11A3+
USAK	12	SUN CREEK (PIONIC CREEK)	A	MSTR	CJ	ZN	N67 4	W155 1	3D5A11A3
USAK	95	TAURUS PROSPECT	B	STOK	CJ	MO	N63 29	W141 20	3C145B5A5
USAK	24	WARD MINE	C	SKAR	CJ		N65 45	W165 16	3AC3A
USAK	158	WARNER BAY PROSPECT	C	STOK	CJ		N66 10	W158 25	3A47C5A6+
USAK	31	WHEELER (IRON CREEK, SHERRETTE CREEK ET AL.)	C	—	CJ	FB AG	N64 55	W164 42	3AC
USAK	11	ZAME HILL PROSPECT	C	STOK	CJ		N66 20	W156 5	3A45C5A5+
USAL	8	HATCHET CREEK PROSPECT	C	—	—		N33 17	W 86 2	3C15C
USAL	15	STONE HILL (WOODS) MINE	C	MSTR	CJ		N33 29	W 85 27	3D15C11A3+
USAL	73	POOYOOKPUK MTN., WEST CAPE	C	STOK	—		N63 26	W171 31	3C45C5A5+
USAZ	69	AJC DISTRICT (NEW CORNELIA MINE)	A	STOK	CJ	AU AG	N32 21	W112 52	3A4A5A6
USAZ	27	BAGDAD, COPPER KING MINES	B	STOK	CJ	MO	N34 35	W113 12	3C4B5A6
USAZ	4	BENTLEY DIST, GRAND GULCH, AND SAVANIC MINES	C	STOK	CJ		N56 16	W113 48	3A37C5A4+
USAZ	116	BISBEE (WARREN) DISTRICT	A	STOK	CJ	AG AU FB ZN	N31 26	W109 54	3D347A5A4
USAZ	39	BLUE BELL MINE	C	MSTR	CJ	ZN	N34 20	W112 14	3D15C11A1
USAZ	86B	CASA GRANDE	A	STOK	CJ	MO	N32 52	W111 57	3C145A5A6
USAZ	83	CHRISTMAS ET AL. MINES	B	SKAR	CJ		N33 4	W110 46	3A347B3A6
USAZ	96	CLIFTON-MORENCI DISTRICT (METCALF MINE)	A	STOK	CJ	MO	N33 5	W109 22	3C4A5A6
USAZ	29	COPPER BASIN DISTRICT (HASSAYAMPA)	B	STOK	CJ	MO AU AG FB	N34 29	W112 35	3C145B5A6
USAZ	91	COPPER CREEK DIST. (CHILD'S ALDWINCKLE ET AL.)	C	STOK	CJ	MO	N32 45	W110 29	3C4C5A6
USAZ	98	DOS CABEZAS DISTRICT (MASCOT MINE)	C	SKAR	CJ		N32 13	W109 36	3A347C3A6
USAZ	101	ESPERANZA & SIERRITA MINES	A	STOK	CJ	MO	N31 53	W111 8	3C4A5A6

USAZ 80 GLOBE-MIAMI DISTRICT  
 USAZ 104 HELVETIA DISTRICT (COPPER WORLD ET AL.)  
 USAZ 3 JACOBS LAKE (WARM SPRINGS) AREA  
 USAZ 26 JEROME DIST. (UNITED VERDE ET AL. MINES)  
 USAZ 94 JOHNSON CAMP (REPUBLIC ET AL. MINES)  
 USAZ 86 LAKESHORE  
 USAZ 19 MINERAL PARK (ITHACA PEAK) MINE  
 USAZ 100 MISSION, PIMA, DAISY, PALO VERDE MINES  
 USAZ 90 OLD HAT DISTRICT  
 USAZ 40 PECK DISTRICT (DE SOTO ET AL. MINES)  
 USAZ 33 PLANET DISTRICT (SWANSEA, CLARA, PLANET)  
 USAZ 79 POSTON BUTTE  
 USAZ 82 RAY DISTRICT (RAY & COPPER BUTTE MINES)  
 USAZ 86A SACATON  
 USAZ 95 SAFFORD DEPOSIT (LONE STAR DISTRICT)  
 USAZ 88 SAN MANUEL-KALAMAZOO DEPOSIT  
 USAZ 92 SILVER BELL  
 USAZ 81 SUPERIOR (PIONEER) DISTRICT (MAGMA MINE)  
 USAZ 102 TWIN BUTTES MINE  
 USAZ 70 VEKOL HILLS (REWARD MINE)  
 USAZ 9 WHITE MESA (KAIBITO PLATEAU)  
 USCA 102A COPPER KING  
 USCA 71 COPPEROPOLIS DISTRICT (COPPER KING MINE)  
 USCA 21 COW CREEK DISTRICT (INGOT, AFTERTHOUGHT)  
 USCA 53 DAIRY FARM (VALLEY VIEW) DEPOSITS  
 USCA 20 EAST SHASTA DISTRICT  
 USCA 61 FOOTHILL BELT DISTRICT (PENN MINE ET AL.)  
 USCA 40 GENESEE DISTRICT (WALKER MINE)  
 USCA 6 GRAY EAGLE (HAPPY CAMP DISTRICT)  
 USCA 26 ISLAND MOUNTAIN DISTRICT  
 USCA 29 LIGHTS CANYON (ENGELS & SUPERIOR MINES)  
 USCA 70 QUAIL HILL & NAPOLEON MINES  
 USCA 4 SQUAW CREEK DISTRICT (BLUE LEDGE MINE)  
 USCA 18 WEST SHASTA DISTRICT (FLAT CK., IRON MTN.)  
 USCT 1 BRISTOL  
 USGA 22 SEMINOLE (MAGRUDER) MINE  
 USID 63 ALDER CREEK DISTRICT (MACKAY AREA)  
 USID 8 HOODOO DIST. (MIZPAH MINE)  
 USID 14 SEVEN DEVILS (RED LEDGE ET AL. DEPOSITS)  
 USID 10 SNOWSTORM MINE  
 USID 11 ST. JOE DISTRICT  
 USMD 2 LINGANORE DIST. (NEW LONDON & LIBERTY MINES)  
 USMD 5 MOUNT WASHINGTON (BARE HILLS) MINE  
 USMD 3 SYKESVILLE DISTRICT  
 USME 5 LEDGE RIDGE (PARMACHENEE TOWNSHIP)  
 USMI 5 AMERICAN METALS PROSPECT  
 USMI 8 BUSCHELL LAKE  
 USMI 1 ISLE ROYALE  
 USMI 3 KEWEENAW COPPER DISTRICT  
 USMI 4 WHITE PINE MINE  
 USMN 6 LAKE COUNTY (INCO)  
 USMN 5 MINNAMAX  
 USMO 25 EMINENCE DISTRICT  
 USMO 16 SAINTE GENEVIEVE AREA  
 USMT 39 BUTTE (SUMMIT VALLEY) DISTRICT  
 USMT 46 HELLGATE GULCH DISTRICT  
 USMT 2 SPAR LAKE DEPOSIT  
 USNC 6 FENTRESS MINE  
 USNC 21 GOLD HILL DISTRICT (UNION COPPER MINE ET AL.)  
 USNC 25 KINGS MOUNTAIN (CATAMBA) MINE  
 USNC 1 ORE KNOB MINE  
 USNC 4 VIRGINIA DISTRICT  
 USNJ 5 ARLINGTON (SCHUYLER) MINE  
 USNJ 3 PAHAQUARRY  
 USNM 44 BURRO MTN. DISTRICT (TYRONE AREA)

A STOK CU MO AG AU  
 B SKAR CU  
 C DSTR CU  
 A MSTR CU AG AU ZN  
 B SKAR CU ZN AG  
 A STOK CU MO  
 B STOK CU MO  
 C SKAR CU MO  
 A SKAR CU MO  
 C MSTR CU ZN AU AG  
 C SKAR CU FE  
 B STOK CU MO  
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 B VEIN CU ZN  
 B STOK CU MO  
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 C DSTR CU  
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 C SKAR CU W  
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 C MSTR CU FB ZN  
 B DSTR CU  
 B DSTR CU  
 C DSTR CU  
 A DSTR CU  
 B IGNS CU NI  
 B IGNS CU NI  
 C DSTR CU  
 C DSTR CU  
 A STOK CU ZN FB AG AU  
 C VEIN CU  
 B DSTR CU  
 C VEIN CU AU  
 C MSTR CU AU  
 C STOK CU AU  
 B MSTR CU FES  
 C VEIN CU  
 C DSTR CU  
 C DSTR CU  
 A STOK CU MO

N33 25 W110 50 3C4A5A6  
 N31 52 W110 47 3A347B3A6  
 N36 40 W112 14 3A37C10A4+  
 N34 45 W112 7 3D5A11A1  
 N32 7 W110 4 3D347B3A6  
 N32 32 W111 52 3C4A5A6  
 N35 22 W114 9 3C145B5A6  
 N31 59 W111 4 3C347A3A6  
 N32 28 W110 44 3AC3A  
 N34 17 W112 17 3D15C11A1  
 N34 10 W113 50 2D14C3A  
 N33 7 W111 25 3C4B5A6  
 N33 10 W111 0 3A145A5A6  
 N32 55 W111 50 3C4B5A6  
 N32 55 W109 36 3C47B5A6  
 N32 41 W110 42 3C4A5A6  
 N31 24 W111 31 3C347B3A6  
 N33 18 W111 5 3D347B7A6  
 N31 55 W111 2 3C4A5A6  
 N32 37 W112 1 3C4B5A6  
 N36 40 W111 23 3A37C10A5+  
 N36 55 W119 27 3D5C11A4  
 N37 59 W120 39 3D5B11A4  
 N40 43 W122 4 3D5C11A4+  
 N39 0 W121 18 3D5C11A  
 N40 48 W122 12 3D5C11A4+  
 N38 13 W120 51\* 3D5B11A4  
 N39 58 W120 40 3A45B7A4+  
 N41 53 W125 22 3D5C10A  
 N40 4 W123 29 3D5C11A4+  
 N40 13 W120 45 3A45B3A4  
 N37 57 W120 45 3D5C11A4  
 N41 58 W123 6 3D5C11A  
 N40 40 W122 32 3D5B11A3+  
 N41 43 W122 55 3A3C10A7  
 N33 46 W122 34 3E15C7A  
 N44 50 W113 44 3A14C3A7  
 N47 0 W116 30 3A1C11A  
 N45 14 W116 40 3A5A11A4  
 N47 28 W115 44 3A1C10A  
 N47 12 W115 30 3C1C  
 N39 29 W117 15 3A1C11A2-3  
 N39 23 W116 40 3A6C11A2-3  
 N39 24 W116 57 3A6C11A2-3  
 N45 15 W117 3 3D5C11A3  
 N46 41 W118 59 3A37B10A4  
 N46 30 W118 24 3A1B10A2  
 N48 4 W118 41 3A7C10A4  
 N47 14 W118 27\* 3A7A10B4  
 N46 46 W118 34 3A37A10A4  
 N47 51 W119 30 3D6B8A4  
 N47 40 W119 55 3D6B8A4  
 N37 6 W119 16 3A37C10A3+  
 N37 54 W119 9 3A37C10A3+  
 N46 0 W112 31 3D4A5A6  
 N46 41 W111 35 3A14C7A6  
 N48 14 W115 53 3A1B10A1+  
 N36 1 W119 46 3E4C7A  
 N35 30 W120 22\* 3E5C11B  
 N35 13 W120 20 3B15C5A  
 N36 24 W120 18 3D15B11A2-3  
 N36 32 W120 48\* 3A15C7B  
 N40 47 W120 8 3A3C10A7  
 N41 2 W120 2 3A1C10A4+  
 N32 36 W120 23 3C4A5A6

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USNM	47	CENTRAL (SANTA RITA) DIST. (CHINO ET AL.)	A	SKAR	CJ ZN FB MO AG	AU SB FE	N32 47	W108 4	3D347A3A6
USNM	70	JARILLA (OROGRANDE) DISTRICT	C	SKAR	CJ	FB AU AG	N52 25	W106 6	3A347C3A
USNM	20	LA BAJADA MINE	C	STOK	CJ U		N35 31	W106 12	3A7C5A7
USNM	42	LORDSBURG DIST. (85, MISERS CHEST, BONNEY)	B	VEIN	CJ	AU AG FB ZN MO	N32 18	W108 46	3A487A6
USNM	4	NACIMIENTO MTNS. (CUBA) DISTRICT	C	DSTR	CJ		N36 0	W106 53	3A37C10A5+
USNM	22	OLD PLACERS DIST. (SAN PEDRO ET AL. MINES)	C	SKAR	CJ AU	W	N35 20	W106 11	3A347C3A7
USNM	34	PINTADO DISTRICT (GUADALUPE MINE)	C	DSTR	CJ		N34 51	W104 51	3A37C10A5+
USNV	51	BATTLE MTN. DIST. (COPPER BASIN, COPPER CANYON)	B	SKAR	CJ ZN FB AU AG		N40 37	W117 2	3D1483A7
USNV	189	BUNKERVILLE DISTRICT (GREAT EASTERN, KEY WEST)	C	STOK	CJ NI	CO PT	N36 38	W114 8	5D156C5A1
USNV	73	CONTACT (SALMON RIVER) DISTRICT	C	---	CJ		N41 47	W114 45	3A14C
USNV	156	ELY (ROBINSON) DISTRICT	A	STOK	CJ MO	AU AG FB ZN	N39 15	W114 59	3C14A5A5
USNV	70	MOUNTAIN CITY COPPER (RIO TINTO) MINE	B	MSTR	CJ		N41 50	W115 59	3A5B11A2
USNV	103	SANTA FE (LUNING) DISTRICT	C	SKAR	CJ FB AU AG	SB	N38 30	W118 5	3A14C3A5+
USNV	96	YERINGTON DISTRICT	B	STOK	CJ	AG FE	N38 59	W119 11	3A45B5A4
USOK	16	CRETA MINE	B	DSTR	CJ	AG	N34 29	W 99 31	3A37B10A4
USOK	4	LEE UTO PROSPECT	C	DSTR	CJ		N36 21	W 96 55	3A37C10A4
USOK	12	MANGUM PROSPECT	C	DSTR	CJ		N34 46	W 99 32	3A37C10A4
USOK	19	PAOLI PROSPECT	C	DSTR	CJ		N34 48	W 97 22	3A37C10A4
USOR	16	IRON DYKE (HOMESTEAD) MINE	C	MSTR	CJ	AU AG	N45 2	W116 52	3A5C11A3+
USOR	17	KEATING (BALM CREEK) MINE	C	MSTR	CJ		N44 55	W117 20	3A5C11A3+
USOR	13	QUARTZBURG DISTRICT (STANDARD MINE)	C	VEIN	CJ	CO AU	N44 29	W118 43	5D45C7A
USOR	41	QUEEN OF BRONZE MINE	C	MSTR	CJ	ZN FB AU AG	N42 3	W123 37	3A5C11A
USOR	29	RIDDLE DISTRICT	C	MSTR	CJ ZN AG AU		N42 52	W123 23	3D5C11A
USTX	16	ALLAMORE COPPER DISTRICT	C	VEIN	CJ	AG	N31 10	W104 55	3A7A7
USTX	4	RED BED COPPER (NORTH-CENTRAL TEXAS) AREAS	C	DSTR	CJ		N34 0	W 99 30*	3A37C10C4
USUT	36	BEAVER LAKE DIST.-OLD HICKORY, COPPER RANCH	C	SKAR	CJ W		N38 26	W113 1	3A14C3A
USUT	35	BEAVER LAKE DISTRICT-OK DEPOSIT	C	STOK	CJ MO		N38 29	W113 8	3C4C5A
USUT	8	BINGHAM (WEST MTN.) DIST., CARR FORK ET AL.	A	STOK	CJ MO AU AG FB	ZN	N40 30	W112 9	3C14A5A7
USUT	17	CARBONATE DISTRICT (DYER MINE)	C	STOK	CJ AG		N40 44	W109 34	3A37C5A4+
USUT	3	LUCIN DISTRICT	C	STOK	CJ	AG FB ZN	N41 16	W114 0	3D14C5A
USUT	65	TUTSAGUBET DISTRICT (APEX MINE)	C	STOK	CJ AG FB		N37 4	W113 48	3A1C5A4+
USVA	26	VIRGILINA DISTRICT	C	VEIN	CJ	AG AU	N36 32	W 78 48*	3A5C7B
USWA	9	CHELSEA LAKE DISTRICT (HOLDEN MINE)	B	MSTR	CJ ZN AU AG	FE	N48 12	W120 47	3D145B11A2+
USWA	26	CHEWELAH DISTRICT (UNITED CJ, CJ KING ET AL.)	C	DSTR	CJ AG	FB ZN	N48 19	W117 40	3D14C10A
USWA	12	CHIAWA DISTRICT (RED MTN., TRINITY MINE)	C	STOK	CJ	AG MO	N48 2	W120 51	3C145C5A
USWA	15	DANVILLE (LONE STAR MINE)	C	---	CJ	AU	N48 59	W118 36	3A45C
USWA	30A	EARL (MARGARET) DEPOSIT	B	STOK	CJ	AU	N46 21	W122 3	3A47B5A7
USWA	8	GLACIER PEAK (MINERS RIDGE) DEPOSIT	B	STOK	CJ MO		N48 12	W120 58	3C145B5A7
USWA	32	INDEX DISTRICT (SUNSET MINE)	C	VEIN	CJ	AG AU	N47 52	W121 28	3A4C7A7
USWA	34	MILLER RIVER DISTRICT (RAINY MINE)	C	STOK	CJ AG		N47 58	W121 33	3D4C5A7
USWA	11	MONTE CRISTO DISTRICT (MACKINAW PROSPECT)	C	---	CJ NI AU	CO	N48 0	W121 27	5D8C
USWA	18A	MOUNT TOLMAN PROSPECT	B	STOK	CJ MO		N48 3	W118 42	3C4B5A6
USWA	33A	NORTH FORK DEPOSIT	B	STOK	CJ		N47 37	W121 37	3A47B5A7
USWA	31	SULTAN DISTRICT (FLORENCE RAE, KROMONA)	B	VEIN	CJ MO	AU W	N47 57	W121 37	3C4B7A7
USWA	10	THISPETHOW DISTRICT (ALDER, HUNTER ET AL.)	C	---	CJ ZN AU AG		N48 19	W120 9	3D45C
USWI	2	FLAMBEAU (LADYSMITH) DEPOSIT	B	MSTR	CJ	AU AG	N45 27	W 91 7	3A5B11A2
USWI	8	MINERAL POINT AREA	C	DSTR	CJ		N42 50	W 90 10	3A37C10A3+
USWY	37	ENCAMPMENT DISTRICT (FERRIS-HAGGARTY MINE)	C	MSTR	CJ		N41 11	W107 4	3A15C11A1
USWY	39	RAMBLER MINE	C	VEIN	CJ	PT PD AU AG	N41 15	W106 14	3A145C7A1
VIVI	1	VIRGIN GORDA COPPER MINE	C	VEIN	CJ MO		N18 29	W 64 25	3C45C7A6+

Lead, zinc, and silver are closely associated; most, but not all, deposits of one metal contain the others also. The primary lead ore minerals are sulfides; oxidized (secondary) minerals are of little importance. Although vein deposits outnumber the other types, disseminated strata-bound (DSTR) deposits contain the greatest amount of lead resources, principally because many are in extensive districts represented by a single or only a few entries in the file. Chief among these are the carbonate-hosted Mississippi Valley districts, for example, the old and new Lead Belts and nearby districts of Missouri (USMO 17, USMO 21, USMO 23, and USMO 24) in which lead is the only major commodity. (In other carbonate-hosted districts, zinc may predominate or be the sole metal.)

Examples of highly productive vein-type lead deposits include the districts of Coeur d'Alene (USID 7 and USID 9) and Santa Barbara (MXCH 183). It should be noted, however, that some lead-bearing vein deposits in the data base are known for other commodities; these include silver—Taxco (MXGR 15) and Fresnillo (MXZC 42)—and copper—Butte (USMT 39).

Certain deposits are shown as massive strata-bound (MSTR) because sulfide minerals make up more than 50 percent of the ore; these are generally shale-hosted and tend to have higher contents of silver plus other metals than the disseminated deposits, but they are not necessarily volcanogenic. Massive sulfide deposits range in size up to many millions of tons (Mosier and others, 1983) and grade up to combined-metal values of several hundred dollars per ton; they constitute, therefore, important mineral resources. Numerous examples are known in the greenstone belts of the Canadian Shield.

The Proterozoic rocks of the Cordillera are host to abundant lead-zinc-silver deposits, many of them strata-bound. The Sullivan deposit (CABC 329), one of the world's largest, with almost 19 million tons of combined lead and zinc, 10,000 tons of silver, abundant sulfur (from pyrite), and additional values of tin, cadmium, copper, and gold (Gustafson and Williams, 1981, table 1C).

Strata-bound but epigenetic (replacement) deposits in carbonate rocks also constitute a very important source of lead and zinc in the listings. Mississippi Valley-type deposits formed at

relatively low temperatures from highly saline water. No magmatic rocks, either intrusive or extrusive, are associated with these deposits. Important examples of this deposit type include the Pine Point (CAMK 105), Tri-State (USMO 4, USKS 7, and USOK 5—See "Zinc"), Southeast Missouri (USMO 17), and Viburnum (USMO 23) districts.

Lead-zinc deposits, some containing silver, are abundant in the Paleozoic miogeosynclinal rocks of Northwestern Canada, especially in the Mackenzie Mountains area (CAYK 53 and other deposits) and to the south, at Cirque (see listing for "Zinc," CABC 71) and neighboring deposits. Most deposits are strata-bound and either carbonate-hosted or shale-hosted, the former having been equated with the Mississippi Valley type by Callahan (1977). Barite accompanies the sulfide minerals in some deposits, particularly shale-hosted ones, and occurs essentially alone in others, including some that are very large (see "Barite").

Ore in so-called manto deposits is in part strata-bound in sedimentary rocks, generally limestone, and in part crosscutting as stockworks or chimneys that connect bedded ores at more than one horizon and are generally considered to represent channelways for the introduction of mineralizing solutions. These deposits therefore have characteristics of both stratiform deposits and veins; deposits of this type are listed as STOK in the data base. Lead-zinc-silver deposits of this type occur in miogeosynclinal rocks of Mesozoic age in north-central Mexico (MXCH 105, MXDR 76, and others) and of Paleozoic age in the Southwestern United States.

Number of deposits containing lead	Number of principal lead deposits	Principal major commodity of other deposits containing lead as a major commodity							
		Ag	Zn	Au	Cu	FeS	Ba	F	(Total)
Total	622	220	126	35	21	2	1	1	(406)

Number of principal lead deposits	Geologic class of deposit <sup>1/</sup>						
	VEIN	STOK	DSTR	SKAR	MSTR	CHEM	Not reported
Total	216	121	42	28	12	7	5

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	234	ADAMS PLATEAU AREA	C	DSTR	PB ZN AG		N51 3	W119 33	7D5C10A3+
CABC	72	AKIE RIVER (ELF)	C	DSTR	PB ZN BA	AG	N57 18	W124 41	7C1C10A3
CABC	46	DRIFTPILE CREEK	C	DSTR	PB ZN BA		N58 4	W125 55	7C1C10A3
CABC	261	DUNCAN	B	DSTR	PB ZN		N50 22	W116 57	7C1B10A2+
CABC	149	EMERALD GLACIER MINE	C	VEIN	PB ZN AG		N53 44	W127 15	7D45C7A5+
CABC	41	FROG RIVER AREA	C	DSTR	PB ZN	AG	N58 13	W127 10	7D1C10A
CABC	256	HALL CREEK BANNOCKBURN	C	DSTR	PB ZN AG		N50 40	W117 9	7D1C10A
CABC	73	INGENIKA	C	DSTR	PB ZN AG		N56 41	W125 12	7D1C10A2+
CABC	232	JORDAN RIVER (KING FISSURE)	B	DSTR	PB ZN AG		N51 9	W118 25	7D1B10A2
CABC	224	KINBASKET LAKE	C	DSTR	PB ZN		N51 55	W118 2	7C1C10A2+
CABC	123	NINA LAKE (BYD, ETC.)	C	STOK	PB ZN		N55 56	W124 45	7D5C5A3-
CABC	250	RUTH VERMONT MINE	B	VEIN	PB ZN AG		N50 57	W116 59	7D1B7A4+
CABC	228	SEYMOUR RIVER (COTTON BELT)	B	DSTR	PB ZN		N51 27	W118 48	7C1B10A2
CABC	251	SILVER GIANT MINE	C	STOK	PB ZN AG BA		N50 56	W116 29	7D1C5A2+
CABC	344	ST. EUGENE MINE	B	VEIN	PB ZN AG		N49 18	W115 49	7D1B7A1+
CABC	329	SULLIVAN MINE	A	MSTR	PB ZN AG CD SN	FES	N49 42	W116 0	7D1A11A1
CABC	219	SWAKUM MOUNTAIN (SUNSHINE)	C	VEIN	PB ZN AG	CU	N50 19	W120 46	7D5C7A
CABC	75	WASI LAKE AREA (BEVELEY, ETC.)	C	DSTR	PB ZN AG		N56 10	W125 4	7D1C10A2+
CAFK	3	DUNDAS ISLAND	C	DSTR	PB ZN		N76 3	W 95 2	7C1C10A3+
CAFK	2	SHEILLS PENINSULA	C	DSTR	PB ZN		N76 18	W 95 23	7C1C10A3+
CAMK	15	GALENA POINT	C	VEIN	PB		N67 53	W109 58	7A4C7A
CAMK	69	HOMER LAKE	C	VEIN	PB ZN AG		N62 39	W114 18	7D345C7A
CAMK	57	OLD FORT ISLAND	C	VEIN	PB ZN		N62 59	W123 15	7C1C7A
CAMK	97	PRAIRIE CREEK (CADILLAC)	B	VEIN	PB ZN AG	CU	N51 31	W124 48	7D1B7A
CANB	6	NIGADOO	B	VEIN	PB ZN AG CU CD		N47 44	W 65 48	7D147B7A4+
CANF	46	BARASWAY DE CERF	C	DSTR	PB ZN	AG	N47 46	W 55 49	7C5C10A
CANF	49	LA MANCHE	C	VEIN	PB		N47 40	W 53 55	7A1C7A
CANF	54	SILVER CLIFF	C	VEIN	PB ZN AG		N47 18	W 53 56	7D3C7A
CANS	30	GAYS RIVER	B	STOK	PB ZN		N45 1	W 63 22	7C3B5A5+
CANS	11	SALMON RIVER (YAVA)	B	DSTR	PB AG		N45 52	W 60 24	7A37B10A6
CANS	27	SMITHFIELD (LEADVALE)	C	DSTR	PB ZN		N45 16	W 63 5	7C3C10A
CANS	13	STIRLING (MINDAMAR)	B	MSTR	PB ZN AG	CU	N45 44	W 60 26	7D17B11A3+
CAON	92	DORION TP. (DORION & OGEMA)	C	VEIN	PB	ZN BA	N48 45	W 88 40	7C357C7A4+
CAON	203	FITZROY TP. (KINGDON)	C	VEIN	PB	ZN	N45 26	W 76 15	7C37C7A6+
CAON	151	JARDUN	C	VEIN	PB ZN	CU	N48 38	W 84 9	7D46C7A1+
CAON	231	LOUGHBOROUGH TP. (FRONTENAC)	C	VEIN	PB	ZN AG	N44 28	W 76 31	7A1C7A4+
CAON	218	MADOC TP. (HOLLANDIA)	C	VEIN	PB		N44 40	W 77 33	7A5C7A4+
CAQB	171	BAIE DE GASPE, LAROCQUE, AND YORK TPS.	C	DSTR	PB ZN		N48 50	W 64 35	7C1C10C4
CAQB	163	CANDEGO	C	VEIN	PB ZN AG	AU	N49 4	W 66 4	7D1C7A4
CAQB	239	MARLOW TP. (MINE HILL)	C	VEIN	PB AG W	AU	N45 46	W 70 31	4D17C7A4
CAQB	78	TP. 1530 (FAIRWEATHER)	C	DSTR	PB ZN		N51 1	W 72 59	7C37C10A2
CAQB	39	TP. 4852	C	DSTR	PB ZN		N56 18	W 67 57	7C5C10A2
CAYK	46	FARO (ANVIL)	A	MSTR	PB ZN AG FES		N62 21	W133 22	7D1A11A2+
CAYK	87	FRANCES LAKE (MATT BERRY)	C	VEIN	PB ZN AG		N61 28	W129 25	7D5C7A
CAYK	47	VANGORDA CREEK (GRUM, ETC...)	A	MSTR	PB ZN AG FES		N62 15	W133 12	7D1A11A2+
CSCS	6	GUACIMAL	C	VEIN	PB ZN		N10 13	W 84 52	7C7C7A7
CSCS	14	RIO FOAS	C	VEIN	PB ZN		N 9 51	W 84 8	7C5C7A7
CSCS	12	SAN PABLO	C	VEIN	PB ZN		N 9 55	W 84 27	7C7C7A7
CSCS	21	UREN	C	VEIN	PB ZN		N 9 25	W 82 58	7C1C7A7
CSCS	13	VILLA COLON	C	VEIN	PB ZN		N 9 54	W 84 18	7C5C7A7
ESES	1	SAN JUAN	C	SKAR	PB ZN AG		N14 17	W 89 22	7D14C3A6
GLGL	33	MESTERSVIG	B	VEIN	PB ZN		N72 10	W 24 7	7C37B7A8
GTGT	10	CAQUIPEC	B	VEIN	PB ZN	CD	N15 24	W 90 13	7C1B7A6
GTGT	9	CHOCHAL DIST (TORLON, LA ESPERANZA MINES)	C	STOK	PB ZN	AG	N15 24	W 91 31	7C1C5A6
GTGT	5	EL ROSARIO	C	STOK	PB ZN	AG	N15 42	W 91 37	7C1C5A6
GTGT	4	LAGUNA YOLNABAJ	C	STOK	PB ZN		N16 1	W 91 41	7C1C5A6
GTGT	8	SANTO DOMINGO	C	STOK	PB ZN	AG	N15 26	W 91 28	7C1C5A6



GTGT	11	SUQUINAY	B	VEIN	PB	ZN	AG	N15	14	W	90	11	7C1B7A6
GTGT	6	VILLA LINDA	C	STOK	PB	ZN	AG	N15	40	W	91	33	7C1C5A6
MXBS	17	EL TRIUNFO-SAN ANTONIO ZONE	B	VEIN	PB	ZN	AG AU	N23	47	W	10	3	4DB7A7
MXCH	42	BONANZA	C	VEIN	PB	AG		N30	51	W	05	39	7D1C7A7
MXCH	96	BOQUILLITA	C	VEIN	PB	ZN	AG	N29	16	W	04	46	7D1C7A7
MXCH	21	CERRO DEL CHILE	C	VEIN	PB	AG		N30	36	W	07	4	7D7C7A7
MXCH	22	CERRO DEL FLOMO	C	VEIN	PB	AG		N30	27	W	06	55	7D7C7A7
MXCH	103	CERRO FRIETO	C	STOK	PB	AG		N28	53	W	05	23	7D157C5A7
MXCH	41	EL ALAMILLO	C	VEIN	PB	AG		N30	56	W	05	46	7D1C7A7
MXCH	38	EL NOPAL O EL NOGAL	C	VEIN	PB	AG		N30	0	W	06	3	7D7C7A7
MXCH	47	EUREKA	C	VEIN	PB			N29	22	W	08	28	7A1C7A7
MXCH	180	HIDALGO DEL PARRAL	A	VEIN	PB	ZN	AG CU AU	N26	57	W	05	40	7D7A7A7
MXCH	98	LA CEJA-HORMIGAS	C	VEIN	PB	ZN	AG	N29	8	W	05	40	7D17C7A7
MXCH	29	LA ESCONDIDA	C	VEIN	PB	AG		N30	16	W	06	10	4D7C7A7
MXCH	44	LA LAGRIMA	C	VEIN	PB	AG		N30	23	W	05	27	7D1C7A7
MXCH	45	LA FLOMO	C	VEIN	PB	AG		N30	17	W	04	52	7D1C7A7
MXCH	131	LA REFORMA	A	STOK	PB	ZN	AG	N27	3	W	08	10	7D7A5A7
MXCH	72	LA SENORITA, SAN VICENTE	C	VEIN	PB	AG		N28	58	W	06	13	7D7C7A7
MXCH	120	LA VICTORIA	C	VEIN	PB	AG		N29	0	W	03	33	7D1C7A7
MXCH	97	LAS HORMIGAS	C	STOK	PB	ZN	AG	N29	14	W	05	44	7D1C5A7
MXCH	119	LAS MARIAS	C	STOK	PB	ZN		N29	7	W	03	40	7C1C5A7
MXCH	87	MILPILLAS	C	VEIN	PB	AG		N28	3	W	06	45	7D7C7A7
MXCH	75	MINILLAS Y OTRAS	C	VEIN	PB	AG		N28	42	W	06	14	7C7C7A7
MXCH	68	NAMQUIPA LA VENTUROSA	C	VEIN	PB	ZN	AG AU	N29	17	W	07	23	7D7C7A7
MXCH	31	NUEVO CASAS GRANDES	C	VEIN	PB	ZN	AG	N30	17	W	07	55	7D7C7A7
MXCH	63	OJO CALIENTE	C	VEIN	PB	AG		N29	55	W	07	15	7D7C7A7
MXCH	27	PALO BLANCO (LAMENTOS B)	B	STOK	PB	AG		N30	26	W	06	13	7D1B5A7
MXCH	99	FLOMOSAS	C	VEIN	PB	ZN		N29	5	W	05	15	7C7C7A7
MXCH	106	ROQUE	C	OHEN	PB	ZN		N28	39	W	05	20	7C1C2A7
MXCH	6	SAMALAYUCA	C	STOK	PB	AG		N31	22	W	06	32	7D1C5A7
MXCH	182	SAN FRANCISCO DEL ORO	A	VEIN	PB	ZN	AG	N26	52	W	05	50	7D1A7A7
MXCH	9	SAN IGNACIO	C	VEIN	PB	AG		N31	15	W	06	0	7D1C7A7
MXCH	19	SAN PEDRO CORRALITOS	B	VEIN	PB	ZN	AG	N30	44	W	07	40	7D57B7A7
MXCH	183	SANTA BARBARA	A	VEIN	PB	ZN	AG	N26	48	W	05	47	7D1A7A7
MXCH	105	SANTA EULALIA	A	STOK	PB	ZN	AG SN	N28	37	W	05	53	7D1A5A7
MXCH	108	SANTA TERESA	C	SKAR	PB	AG		N28	35	W	05	20	7D14C3A7
MXCH	168	SAUCILLO-NAICA	A	STOK	PB	ZN	AG	N27	52	W	05	30	7D1A5A7
MXCH	26	SIERRA DE LA ALCAPARRA	C	VEIN	PB	AG		N30	40	W	06	5	7D147C7A7
MXCH	25	SIERRA DE LA MAGDALENA	C	VEIN	PB	AG	CU ZN FE	N30	40	W	06	20	4D147C7A7
MXCH	91	SIERRA DE LAS DAMAS	C	SKAR	PB	ZN	AU	N29	35	W	05	48	7D14C3A7
MXCH	28	SIERRA DE LAS MINAS	C	VEIN	PB	ZN	AG	N30	22	W	06	26	7D1C7A7
MXCH	24	SIERRA DE LOS MOSQUETEROS	C	VEIN	PB	AG		N30	46	W	06	14	7D1C7A7
MXCH	62	SIERRA LA MOJINA	C	VEIN	PB	AG		N29	56	W	06	50	7D1C7A7
MXCH	23	STO. DOMINGO	C	VEIN	PB	AG		N30	37	W	06	40	7D7C7A7
MXCH	90	TOSISIHUA	C	SKAR	PB	AG		N29	47	W	05	22	7D14C3A7
MXCH	43	V. AHUMADA-LOS LAMENTOS A	B	STOK	PB	ZN	AG	N30	31	W	05	47	7D1B5A7
MXCH	36	ZONA DE CONTENCIÓN	C	SKAR	PB	ZN	AG	N30	8	W	06	45	7D14C3A7
MXCO	54	ALFA	C	VEIN	PB	ZN		N25	2	W	00	59	7D1C7A7
MXCO	10	EL HUARACHE	C	VEIN	PB	AG		N28	2	W	03	43	7D14C7A7
MXCO	47	EL NINO, CABALLOS	C	VEIN	PB	ZN		N25	15	W	01	0	7D1C7A7
MXCO	15	MINAS DE LA MULA	C	SKAR	PB	ZN		N27	30	W	02	33	7D14C3A7
MXCO	44	MINERAL DE PALOMAS	C	VEIN	PB			N25	37	W	00	47	7D1C7A7
MXCO	46	PAME	C	VEIN	PB	ZN		N25	25	W	00	50	7D1C7A7
MXCO	13	SANTA ELENA	C	VEIN	PB	CU		N27	55	W	03	40	7D15C7A7
MXCO	16	SIERRA MOJADA	B	STOK	PB	CU		N27	18	W	03	45	7D14B5A7
MXCP	15	LAJERIA	C	VEIN	PB	ZN		N15	40	W	92	5	7D15C7A7
MXDR	76	LA OJUELA	A	STOK	PB	ZN	AG	N25	50	W	03	50	7D1A5A7
MXEM	1	TEMASCALTEPEC	B	VEIN	PB	ZN	AG	N19	3	W	00	5	7D7B7A7
MXGR	41	BARRANCA DE LOS NOGALES	C	SKAR	PB			N17	34	W	99	51	7A7C3A
MXGR	14	XITINGA	A	VEIN	PB	ZN	AG AU	N18	38	W	99	43	7D14A7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXHD	9	CARDONAL-FRONTIENCIA	C	VEIN	PB ZN AG		N20 38	W 99 7	7D1C7A7
MXHD	7	PECHUGA-BONANZA DISTRICT	C	VEIN	PB ZN AG		N20 42	W 99 15	7D1C7A7
MXHD	6	ZIMAPAN	B	STOK	PB ZN AG		N20 46	W 99 26	7D147B5A6
MXMC	38	LA YERBA BUENA	C	VEIN	PB		N19 15	W100 20	7A7C7A7
MXMC	4	MINAS LA TRINIDAD	C	VEIN	PB ZN CU		N19 1	W102 21	7D4C7A7
MXMC	29	ZINAPECUARO	C	VEIN	PB AG ZN		N19 52	W100 50	7D7C7A7
MXNL	17	P.V. 15-EL RUCIO	C	VEIN	PB ZN		N23 56	W100 31	7C1C7A7
MXOX	8	EL PIRATA	C	VEIN	PB ZN		N17 32	W 98 9	7D4C7A7
MXOX	82	JAYACATEPEC	C	VEIN	PB ZN AG		N17 14	W 95 55	7D7C7A7
MXOX	105	LA CANDELARIA	C	VEIN	PB AG		N16 5	W 95 26	7D4C7A7
MXOX	65	SANTIAGO MINAS	C	VEIN	PB ZN CU AU		N16 30	W 97 12	7D7C7A7
MXOX	53	TILACOHUAYANA	C	VEIN	PB AG		N16 57	W 96 28	7D7C7A7
MXOX	28	TOTOMAXTLA	C	VEIN	PB ZN	AU AG	N17 40	W 96 34	7D15C7A7
MXOX	45	VETA LA REDONDA	C	VEIN	PB AG		N17 16	W 97 34	7D15C7A7
MXOX	61	YACUJUNDO	C	VEIN	PB ZN		N16 50	W 97 10	7D4C7A7
MXOX	97	YAUATEPEC	C	VEIN	PB		N16 26	W 95 59	7A7C7A7
MXOX	83	ZACATEPEC	C	VEIN	PB ZN AG		N17 11	W 95 50	7D15C7A7
MXOX	6	ZOQUAPAN	C	VEIN	PB AG CU		N17 43	W 98 18	7D7C7A7
MXQR	7	EL DOCTOR, MACONI	C	STOK	PB ZN AG	AU CU	N20 51	W 99 33	7D14C5A7
MXQR	2	PINAL DE AMOLES	C	VEIN	PB ZN AG	CU	N21 9	W 99 38	7D1C7A7
MXSL	10	DEPTO TASAJERO (VARIOUS MINES)	C	VEIN	PB ZN AG		N26 5	W108 33	7D7C7A7
MXSL	9	EL CEDRO, SAN JUDAS, Y SARA	C	VEIN	PB ZN AG		N26 5	W108 25	4D4C7A7
MXSL	26	EL FOZO	C	SKAR	PB ZN AG	AU CU	N24 58	W107 13	4D15C3A
MXSL	43	PLOMOSAS	C	VEIN	PB AG AU		N23 5	W105 25	7D7C7A7
MXSL	12	SAN GOTARDO AMBERES, EL RAMAL	C	VEIN	PB ZN	AG	N26 1	W108 30	7D4C7A7
MXSL	20	SANTIAGO DE LOS CABALLEROS	C	VEIN	PB ZN CU		N25 35	W107 20	7D7C7A7
MXSN	56	LOS BRONCES	C	VEIN	PB AG AU CU		N28 37	W109 44	7D7C7A7
MXSN	30	NOCHE BUENA	C	VEIN	PB ZN AG	AU CU	N27 55	W111 8	7D7C7A7
MXSN	32	SAN EDUARDO	C	VEIN	PB ZN AG		N29 30	W111 45	7D7C7A7
MXSP	5	CHARCAS	A	VEIN	PB ZN AG		N23 11	W101 4	7D147A7A7
MXSP	2	MATEHUALA-LA PAZ	A	VEIN	PB ZN AG		N23 44	W100 45	7D47A7A7
MXTM	7	CERRO GORDO	B	VEIN	PB ZN AG	AU CU	N23 14	W 99 0	7D1B7A7
MXTM	8	FLOR DE NIEVE O TULIPAN	C	DSTR	PB ZN		N23 9	W 99 5	7C1C10A7
MXTM	6	LA CONCEPCION	C	DSTR	PB ZN CU		N23 17	W 99 6	7C1C10A7
MXTM	5	PALOMAS	C	VEIN	PB ZN AG CU		N23 25	W 99 55	7D1C7A7
MXZC	49	BILBAO	C	VEIN	PB	AG	N22 38	W102 10	7A14C7A7
MXZC	17	NOCHE BUENA	B	STOK	PB ZN AG	AU CU	N24 43	W101 37	7D14B5A7
MXZC	19	P.V. 49	C	VEIN	PB ZN		N24 31	W101 47	7C1C7A7
USAK	1A	DRENCHWATER CREEK PROSPECT	B	MSTR	PB ZN BA	CU	N68 34	W158 42	7C5B11A3
USAK	143	DURYEA PROSPECT, DUTTON CLAIMS	C	SKAR	PB ZN CU AG AU		N59 38	W154 1	7D456C3A
USAK	157	GREENS CREEK (BIG SORE)	B	MSTR	PB ZN AG	BA	N58 4	W134 37	7D5B11A3-4
USAK	40	INDEPENDENCE MINE	C	STOK	PB AG		N65 41	W162 28	7D14C5A
USAK	42	OMILAK MINE	C	SKAR	PB AG	SB	N65 2	W162 42	7D1C3A
USAK	45	PERSEVERANCE & VALLEY DEPOSITS	C	VEIN	PB AG		N64 30	W157 9	7D15C7A
USAK	41	QUARTZ CREEK AREA	C	STOK	PB ZN AG		N65 29	W161 24	7D45C5A5+
USAK	1	RED DOG PROSPECT	B	MSTR	PB ZN BA		N68 4	W162 49	7C5B11A3
USAK	176	RIVERSIDE MINE	C	VEIN	PB AG AU W CU	ZN	N66 0	W130 4	7D45C7A5
USAZ	85	ARAVAIPA DISTRICT (HEAD CENTER ET AL.)	C	VEIN	PB ZN CU AG AU		N32 58	W110 20	7D347C7A6+
USAZ	110	PATAGONIA DIST (DUQUESNE, MOWRY MINES)	C	VEIN	PB ZN AG CU AU	V MD MN	N31 23	W110 39	7D347C7A
USCA	114	DARWIN (COSO) DISTRICT	B	SKAR	PB AG ZN CU AU		N66 16	W117 33	7D4B3A5
USCA	115	MODOC DISTRICT	C	SKAR	PB AG ZN CU AU		N66 15	W117 28	7D4C3A
USCA	150	RESTING SPRINGS (TECOPA) DISTRICT	B	STOK	PB ZN AG	AU CU	N65 48	W116 6	7D1B5A
USCA	172	SANTA CATALINA ISLAND	C	VEIN	PB ZN AG		N33 21	W118 22	7D15C7A4+
USCO	26	DORCHESTER-TAYLOR PARK DISTRICT	C	--	PB AG		N68 57	W106 40	4DC
USID	47	BIRCH CREEK DISTRICT	C	VEIN	PB ZN AG		N44 9	W112 49	7D14C7A
USID	5	CLARK FORK DISTRICT	C	VEIN	PB AG	ZN	N48 10	W116 10	7D14C7A

USID	7	COEUR D'ALENE REGION-WEST	A	VEIN	PB AG ZN	CJ AU SB	N47 31	W116 9	7D1A7A
USID	9	COEUR D'ALENE REGION-EAST	A	VEIN	PB AG ZN	CJ AU SB	N47 29	W115 50	7D1A7A
USID	62	DOVE (WILBERT MINE) DISTRICT	C	STOK	PB AG	ZN	N43 58	W113 0	7D14C5A
USID	46	NICHOLIA DISTRICT (VIOLETA MINE)	C	--	PB ZN AG		N44 22	W112 59	7D14C
USID	45	TEXAS DISTRICT	C	VEIN	PB ZN AG		N44 28	W113 18	7D14C7A7
USMO	24	ANNAPOLIS DISTRICT	C	DSTR	PB	ZN CJ	N37 19	W 90 39	7A37C10A3+
USMO	21	FREDERICKTOWN DISTRICT	B	DSTR	PB	CJ NI CO ZN	N37 34	W 90 16	7A37B10A3+
USMO	11	QZARK DISTRICT	C	DSTR	PB ZN		N36 57	W 93 8	7C37C10A3+
USMO	17	SOUTHEAST MISSOURI LEAD BELT	A	DSTR	PB	ZN CJ AG	N37 49	W 90 30	7A37A10A3+
USMO	23	VIBURNUM TREND (NEW LEAD BELT)	A	DSTR	PB	ZN CJ AG NI	N37 27	W 91 3*	7A37A10B3+
USMT	21	COPPER CLIFF DISTRICT (BLACKTAIL MINE)	C	--	PB	AG	N46 47	W113 30	7AC5A
USMT	28	DUNKLEBURG DISTRICT (FOREST ROSE MINE)	C	VEIN	PB ZN AG		N46 31	W113 5	7D146C7A6
USMT	10	EAGLE DISTRICT (JACK WAITE MINE)	B	VEIN	PB ZN AG	CJ	N47 40	W115 44	7D1B7A
USMT	1	TROY DISTRICT (GROUSE MTN.)	C	VEIN	PB ZN AG		N48 27	W115 59	7D146C7A
USNM	35	GALLINAS MTNS. DISTRICT	C	--	PB ZN CJ AG		N34 12	W105 45	7DC
USNM	50	HANSONBURG (CARTHAGE) DISTRICT	C	VEIN	PB AG BA		N33 50	W106 21	7D347C7A6+
USNM	23	NEW PLACERS DIST. (ORTIZ, DOLORES MINES)	C	STOK	PB ZN AG AU CJ		N35 15	W126 12	7D347C5A
USNM	68	ORGAN DISTRICT	C	STOK	PB AG CJ ZN	MN MD F	N32 26	W106 36	7D347C5A6+
USNM	72	SACRAMENTO (HIGH ROLLS) DISTRICT	C	DSTR	PB CJ		N32 54	W105 50	7A37C10A4+
USNM	24	TIJERAS CANYON DISTRICT	C	VEIN	PB AG AU	CJ F	N35 5	W106 24	7D145C7A
USNM	48	VICTORIO DISTRICT	C	STOK	PB AG		N32 10	W108 6	7D37C5A
USNV	136	BELL (SIMON, CEDAR MTNS.) DISTRICT	C	--	PB ZN AG		N38 34	W117 52	7D14C
USNV	74	DELANO DISTRICT (CLEVELAND & DELANO MINES)	C	DSTR	PB AG	CJ ZN	N41 40	W114 15	7D1C10A
USNV	187	GROOM MINE	C	STOK	PB AG	ZN	N37 20	W115 46	7D1C5A
USNV	42	MERRIMAC DISTRICT (RIP VAN WINKLE MINE)	C	VEIN	PB AG ZN		N41 7	W116 0	7D14C7A
USNV	65	MINERAL HILL DISTRICT	C	STOK	PB AG		N40 9	W116 6	7D1C5A
USNV	75	SPRUCE MTN. DISTRICT	C	STOK	PB AG ZN		N40 34	W114 50	7D14C5A
USNV	66	UNION DISTRICT	C	STOK	PB AG		N40 3	W116 3	7D1C5A
USNV	43	WINNEMUCCA DISTRICT	C	VEIN	PB ZN AG		N41 3	W117 42	7D5C7A
USNY	2	ROSSIE (BIGELOW, MACOMB) AREA	C	VEIN	PB ZN	BA F	N44 25	W 75 38	7C1C7A5+
USNY	19	SHAWANGUNK	C	VEIN	PB ZN	CJ	N41 37	W 74 26	7C1C7A4+
USOR	25	BOHEMIA DISTRICT (CHAMPION ET AL.)	C	VEIN	PB CJ ZN	AU AG	N43 35	W122 31	7D467C7A7
USPA	12	PHOENIXVILLE DISTRICT	C	VEIN	PB		N40 6	W 75 31	7A36C7A7
USTX	17	SIERRA BLANCA DISTRICT	C	VEIN	PB ZN AG		N31 10	W105 30	7D14C7A7
USUT	16	AMERICAN FORK DISTRICT	C	STOK	PB ZN AG CJ AU		N40 30	W111 36	7D14C5A7
USUT	15	LITTLE & BIG COTTONWOOD DISTRICTS	B	STOK	PB ZN AG CJ AU		N40 34	W111 38	7D14B5A7
USUT	44	MOUNT NEBO DISTRICT	C	STOK	PB AG		N39 52	W111 47	7D1C5A
USUT	10	OPHIR DISTRICT	B	STOK	PB ZN AG		N40 19	W112 13	7D14B5A7
USUT	14	PARK CITY DISTRICT	A	STOK	PB ZN AG CJ AU		N40 35	W111 29	7D14A5A7
USUT	34	SAN FRANCISCO & PREUSS DISTRICTS	B	STOK	PB AG ZN AU	CJ MD BA	N38 26	W113 16	7D47B5A7
USUT	9	STOCKTON (RUSH VALLEY) DISTRICT	B	STOK	PB ZN AG		N40 26	W112 18	7D14B5A7
USUT	28	TINTIC DISTRICT-WEST	C	STOK	PB AG W		N39 50	W112 24	7D14C5A7
USUT	22	WILLOW SPRINGS DISTRICT (ORO DEL REY MINE)	C	STOK	PB AU AG		N39 59	W113 51	7D14C5A7

# TIN (SN)

Tin occurs almost exclusively as the oxide cassiterite, in association with granitic intrusive rocks or, in Mexico, with siliceous Oligocene volcanic rocks (Lee-Moreno, 1980, p. 42). Because cassiterite is heavy and inert, it accumulates in placers that are a chief source of the world production. Tin is notably scarce in North America, however, and no placers of significance are known. The skarn deposit at East Kemptville (CANS 43) is now the chief, albeit modest, North American deposit in which tin is the primary commodity. Small amounts of tin are recovered from ores of tungsten, molybdenum, and other metals.

Number of deposits containing tin	Number of principal tin deposits	Principal major commodity of other deposits containing tin as a major commodity						
		Au	W	Ag	Pb	Hg	Li	(Total)
Total	62	3	3	2	2	1	1	(12)

Number of principal tin deposits	Geologic class of deposit <sup>1/</sup>						
	VEIN	PEGM	SKAR	PLCR	DSTR	STOK	Not reported
Total	50	34	5	5	3	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
BHBH	1	MOUNTAIN PINE RIDGE	C	PLCR	SN		N17 5	W 88 55	1B3C4A8
CANS	43	EAST KEMPTVILLE	B	SKAR	SN	CJ ZN AG	N44 6	W 65 43	1B14B3A4
CANS	40	NEW ROSS DISTRICT	C	VEIN	SN		N44 47	W 64 27	1B4C7A4
MXAG	2	CERRO COLORADO	C	VEIN	SN		N22 20	W102 19	1B7C7A7
MXAG	1	EL TITAN-EL TAJO	C	VEIN	SN		N22 22	W102 27	1B7C7A7
MXCH	3	HACIENDA CASA DE ADOBE	C	VEIN	SN		N30 37	W108 28	1B7C7A7
MXDR	54	AMERICA-SAPIORIS	C	VEIN	SN		N25 8	W104 54	1B7C7A7
MXDR	103	CERRO DE LAS GALLINAS	B	VEIN	SN		N23 16	W104 10	1B7B7A7
MXDR	66	EL LUCERO, EL PORVENIR, ETC.	C	VEIN	SN		N24 33	W104 47	1B7C7A7
MXDR	63	LA BARROSA	C	VEIN	SN		N24 50	W104 48	1B7C7A7
MXDR	67	LA FORTUNA-EL SOLDADO	C	VEIN	SN		N24 30	W105 0	1B7C7A7
MXDR	95	OCHOA	C	VEIN	SN		N24 2	W103 55	1B7C7A7
MXDR	71	ZONA AVINO	C	DSTR	SN		N24 31	W104 14	1B7C10A7
MXGN	14	CERRO DE LA FAJA	C	VEIN	SN		N21 9	W100 5	1B7C7A7
MXGN	20	EL ROBLE, REGINA ET AL.	C	VEIN	SN	FE	N21 5	W100 14	1B7C7A7
MXGN	18	MINA LA TAPONA	B	VEIN	SN		N20 54	W101 10	1B7B7A7
MXGN	3	SAN DIEGO DE LA UNION	C	VEIN	SN		N21 28	W100 54	1B7C7A7
MXGN	8	SAN JOSE DE TANQUE	C	VEIN	SN		N21 22	W101 29	1B7C7A7
MXGN	2	TLACHIQUERO	C	VEIN	SN		N21 32	W101 29	1B7C7A7
MXGN	10	TRANCAS	C	VEIN	SN		N21 15	W101 4	1B7C7A7
MXGN	21	ZAMORANO	C	VEIN	SN		N21 0	W100 20	1B7C7A7
MXJL	9	CERRO DE PACHONA O LAS MINITAS	C	VEIN	SN		N21 40	W102 1	1B2C7A
MXJL	15	EL ROBLE	C	VEIN	SN		N21 32	W101 44	1B7C7A7
MXJL	8	MINA LAS HUERTITAS	C	VEIN	SN		N21 42	W102 35	1B2C7A
MXMC	25	LOS CABIRES	C	VEIN	SN		N20 5	W100 20	1B7C7A7
MXNA	14	HUAJIMIC	C	VEIN	SN		N21 40	W104 20	1B7C7A7
MXNA	6	LAS CRUCES	C	VEIN	SN		N22 33	W104 45	1B7C7A7
MXNA	5	LOS ESPEJOS	C	VEIN	SN		N22 39	W104 48	1B7C7A7
MXNA	8	LOS NOPALITOS	B	VEIN	SN		N22 20	W104 41	1B7B7A7
MXSP	6	GUADALCAZAR	C	PLCR	SN HG	AG AU	N22 44	W100 25	1B14C4A8
MXZC	50	P.V. 9 (SANTA CRUZ)	C	VEIN	SN		N22 28	W102 34	1B7C7A7
MXZC	25	PLAN DE ESTANERAS	B	VEIN	SN		N22 45	W104 1	1B7B7A7
MXZC	6	SAN MIGUEL AUZA	C	VEIN	SN		N24 20	W103 28	1B7C7A7
MXZC	59	SIERRA DE PINOS	C	VEIN	SN		N22 18	W101 32	1B7C7A7
USAK	27	CAPE CREEK AREA	C	--	SN	W	N65 36	W167 59	1B14C

USAK	23	EAR MTN., TUTTLE CREEK ET AL.	C	PLOR	SN	U	CU	HG	N65	56	W166	13	1B14C4A8
USAK	29	LOST RIVER AREA	B	VEIN	SN W BE F	SB	FB	ZN AG B I	N65	29	W167	8	1B14B7A5
USAK	26	POTATO MTN. (BUCK CREEK & EUREKA)	C	STOK	SN	AU			N65	39	W167	32	1B14C5A
USAL	11	OOOSA (ROCKFORD) DISTRICT	C	PEGM	--	SN			N32	58	W 86	9*	1B145C1B3+
USCA	138	GORMAN (MEEKE-HOGAN) DISTRICT	C	SKAR	SN				N34	50	W118	43	1B4C3A
USCA	177	MESA GRANDE (HIMALAYA) MINE	C	PEGM	--	SN			N33	15	W116	43	1BC1A
USCA	173	TEMESCAL (CAJALCO) MINE	C	SKAR	SN				N33	50	W117	30	1B145C3A4+
USMA	2	CHESTERFIELD DISTRICT	C	PEGM	--	SN			N42	25	W 72	48*	1B4C1B
USME	6	MOUNT MICA AREA	C	PEGM	--	SN			N44	16	W 70	27*	1BC1B
USNM	51	TAYLOR CREEK (BLACK RANGE) DISTRICT	C	VEIN	--	SN			N33	27	W107	54	1B7C7A7
USNV	44	IZENHOOD RANCH	C	VEIN	--	SN			N40	58	W116	51	1B7C7A7
USNV	10	MAJUBA HILL MINE	C	SKAR	SN CU	U			N40	40	W118	27	1B4C3A7
USSD	2	TINTON DISTRICT	C	PEGM	SN				N44	24	W104	3	1B4C1A1
USTX	13	FRANKLIN MOUNTAINS	C	VEIN	SN				N31	55	W106	28	1B7C7A
USVA	15	IRISH CREEK MINE	C	SKAR	--	SN			N37	52	W 79	9	1B145C3A

# ZINC (ZN)

Zinc sulfide is the common ore mineral; zinc oxide, carbonate, or silicate minerals are present in some and predominate in a few deposits. Most major and many smaller zinc deposits are strata-bound and are not associated with intrusive igneous rocks. The disseminated deposits (DSTR) tend to have lead and only minor silver; they are ordinarily in miogeosynclinal or platform-cover carbonate rocks. The massive strata-bound (MSTR) deposits commonly contain copper (which may exceed the zinc), silver, and iron sulfide; lead may be minor or not be present in significant amounts. Most MSTR deposits are hosted in volcano-sedimentary (greenstone or eugeosynclinal) sequences.

Strata-bound deposits in metamorphic rocks include the largest commercial concentrations of zinc-lead and zinc-copper ores known. Typical of these deposits are those at the Sullivan mine (see "Lead," CABC 329), Buchans (CANF 32), Bathurst-Newcastle (CANB 2), Kidd Creek (CAON 123), Flin Flon (CASA 39), and Sturgeon Lake (CAON 76).

Another major type of strata-bound zinc deposit is found in platform carbonate rocks. The ores in many districts are relatively low grade and occur as extensive bodies within broadly mineralized regions that are tectonically undisturbed. Although most of these districts produce both lead and zinc, zinc is generally dominant. Districts containing strata-bound deposits in carbonate rocks in the Metallogenic Map file include the Pine Point (CAMK 105), Upper Mississippi Valley (USIL 1 and USWI 7), Friedensville (USPA 7), and Tri-State (USKS 7,

USMO 4, and USOK 5) districts. Structurally disturbed and metamorphosed equivalents of this class include Metaline (USWA 22), Balmat-Edwards (USNY 3), and Franklin Furnace—Sterling Hill (USNJ 1).

Irregular replacement deposits (and associated fissure fillings) appear to be spatially and genetically related to igneous stocks of intermediate to acidic composition. These deposits, reported as STOK, contain, in addition to lead and zinc, appreciable quantities of copper, silver, gold, and tin. Examples of this class include Santa Eulalia (MXCH 105), Saucillo-Naica (MXCH 168), La Ojuela (MXDR 76), and other similar deposits throughout Mexico, Park City (USUT 14), and Tintic (USUT 28) districts—all listed under "Lead."

Number of deposits containing zinc	Number of principal zinc deposits	Principal major commodity of other deposits containing zinc as a major commodity							
		Pb	Ag	Cu	Au	FeS	Ba	W	(Total)
Total	607	207	146	144	74	25	7	3	1 (400)

Number of principal zinc deposits	Geologic class of deposit <sup>1/</sup>							
	MSTR	DSTR	VEIN	STOK	SKAR	CHEM	Not reported	
Total	207	75	70	35	15	9	1	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	252	AKOLKOLEX RIVER (WIGWAM)	C	DSTR	ZN	PB	N50 52	W117 58	7C1C10A2+
CABC	26	ATAN LAKE-MOUNT HASKIN AREA	C	DSTR	ZN	PB AG	N59 16	W129 15	7D14C10A2+
CABC	327	BLUEBELL MINE	B	VEIN	ZN	PB AG CD	N49 45	W116 51	7D1B7A6
CABC	230	CARNES CREEK (MASTODON)	C	VEIN	ZN	PB	N51 15	W118 7	7C1C7A4+
CABC	302	CHEHALIS RIVER (SENECA)	C	MSTR	ZN	CJ AG AU	N49 19	W121 57	3D5C11A4
CABC	337	ESTELLA MINE	C	VEIN	ZN	PB AG	N49 47	W115 36	7D1C7A1+
CABC	115	GROUSE MOUNTAIN (COPPER CROWN)	C	VEIN	ZN	AG CJ	N54 33	W126 44	3D5C7A
CABC	248	HAWK CREEK	C	STOK	ZN	PB	N51 6	W116 1	7C1C5A2+
CABC	235	KINGFISHER CREEK	C	DSTR	ZN	PB AG CJ	N50 44	W118 45	7D15C10A4+
CABC	272	LYNX MINE	B	MSTR	ZN	CJ PB AG AU	N49 34	W125 35	3D5B11A3
CABC	173	MARBLE RIVER	C	VEIN	ZN	AG	N50 26	W127 24	7B45C7A

CABC	260	MINERAL KING MINE
CABC	246	MONARCH & KICKING HORSE MINES
CABC	78	MOUNT BURDEN
CABC	120	NADINA MINE
CABC	71	PAUL RIVER (CIRQUE)
CABC	236	PINGSTON CREEK (BIG LEDGE)
CABC	76	REDFERN LAKE-RICHARDS CREEK AREA
CABC	334	REMAC-SALMO AREA (REEVES-MACDONALD, H.B., JERSEY)
CABC	223	RUDDOCK CREEK
CABC	175	STOREY CREEK
CABC	13	TULSEQUAH AREA
CABC	287	TWIN J MINE
CAFK	5	ARVIK (POLARIS, ECLIPSE)
CAFK	6	NANISIVIK
CAFK	7	SURPRISE CREEK
CAKW	14	HENINGA LAKE
CAKW	10	SPI LAKE
CAMB	6	BARRINGTON LAKE
CAMB	18	CHISEL LAKE, GHOST LAKE
CAMB	17	DICKSTONE
CAMB	14	FLIN FLON (AND SCHIST LAKE, CUPRUS)
CAMB	4	FOX LAKE MINE
CAMB	7	MACBRIDE LAKE
CAMB	8	RUTTAN LAKE
CAMB	20	SFRUCE POINT
CAMB	12	VAMP (MARCON)
CAMK	42	AGRICOLA LAKE (YAVA)
CAMK	87	CAVALIER
CAMK	21	GAYNA RIVER
CAMK	46	GODIN LAKES AREA
CAMK	38	HACKETT RIVER
CAMK	48	HOWARDS PASS
CAMK	86	INDIAN MOUNTAIN LAKE (BB)
CAMK	31	IZOK LAKE
CAMK	96	LUCKY LAKE
CAMK	108	O'CONNOR LAKE AREA
CAMK	105	PINE POINT AREA
CAMK	85	RIVETT LAKE
CAMK	107	THUBIN LAKE (BUN)
CAMK	22	TIC
CAMK	23	TWITYA RIVER
CAMK	79	VICTORY LAKE
CAMK	50	VULCAN (ANNIE)
CAMK	56	WRIGLEY
CANB	2	BATHURST-NEWCASTLE DISTRICT
CANB	8	MILLSTREAM RIVER (QUEBEC STURGEON)
CANB	12	RESERVE BROOK
CANF	32	BUCHANAN
CANF	17	DANIEL'S HARBOUR
CANF	40A	POINT LEAMINGTON
CANF	43	STRICKLAND-LA POILE
CANF	34	TULK'S FOND
CANF	20	YORK HARBOUR
CANS	14	LIME HILL
CANS	1	MEAT COVE
CANS	4	ROCKY BROOK
CAON	202	ADMASTON TP.
CAON	198	ALBEMARLE TP.
CAON	28	BELANGER TP.-SNAKEWOOD LAKE AREA
CAON	175	CRAIG TP. (STRALAK)

B	STOK	ZN	FB	AG	BA	N50	22	W116	26	7D1B5A1+
B	DSTR	ZN	FB	AG		N51	24	W116	26	7C1B10A2
C	DSTR	ZN	FB			N56	11	W123	22	7C1C10A2+
B	VEIN	ZN	CU	FB	AG	N54	5	W126	44	4D34B7A6
A	DSTR	ZN	FB	BA		N57	31	W125	9	7C1A10A3
B	DSTR	ZN	FB		AG	N50	29	W118	1	7C14B10A2-
C	DSTR	ZN	FB			N57	25	W123	50	7C1C10A2+
A	DSTR	ZN	FB	CD	AG	N49	1	W117	22	7C1A10A2+
B	DSTR	ZN	FB			N51	45	W118	54	7C1B10A2
C	SKAR	ZN	FB	CU	AG	N50	22	W126	55	7D5C3A
B	MSTR	ZN	FB	CU	AU	N58	40	W133	36	7D5B11B4+
C	MSTR	ZN	CU	FB	AG	N48	52	W123	47	3D5C11A3
C	DSTR	ZN	FB		CD	N75	23	W96	56	7C1A10A3+
B	MSTR	ZN	FB	AG	FE	N73	3	W84	30	7D37B11A5
C	DSTR	ZN	FB			N72	31	W82	7	7D37C10A5
C	MSTR	ZN	CU	FES		N61	46	W96	12	3D35C11A1
C	MSTR	ZN	CU	FES		N62	4	W95	53	3D35C11A1
C	MSTR	ZN	CU	FES		N56	58	W100	18	3D35C11A2
B	MSTR	ZN	FES			N54	50	W100	7	3D35B11A2
C	MSTR	ZN	CU	FES		N54	51	W100	29	3D35C11A2
A	MSTR	ZN	CU	FES		N54	46	W101	53	3D35A11A2
B	STOK	ZN	CU	FES		N56	38	W101	39	3D35B5A2
C	MSTR	ZN	CU	FES		N56	54	W99	54	3D35C11A2
A	MSTR	ZN	CU	FES		N56	29	W99	38	3D35A11A2
C	MSTR	ZN	CU	FES		N54	35	W100	24	3D35C11A2
C	MSTR	ZN	CU	FES		N54	56	W101	10	3D35C11A2
C	MSTR	ZN	CU		AU	N65	37	W107	56	3D35C11A1
C	MSTR	ZN	CU		FB	N63	14	W108	28	3D35C11A
B	DSTR	ZN	FB			N64	57	W130	42	7C1B10B1
B	DSTR	ZN	FB			N63	38	W129	3*	7C1B10B2
A	MSTR	ZN	FB	AG	CU	N65	55	W108	22	7D35A11A1
A	DSTR	ZN	FB			N62	29	W129	12	7C1A10A2
B	MSTR	ZN	FB	AG	CU	N63	3	W110	57	7D35B11A1
A	MSTR	ZN	CU	FB	AG	N65	38	W112	48	3D35A11A1
C	SKAR	ZN	FB	AG		N61	34	W127	30	7D14C3A5+
C	VEIN	ZN	FB			N61	20	W111	47	7C15C7A2+
A	DSTR	ZN	FB			N60	53	W114	19	7C37A10A3+
C	MSTR	ZN	CU	FES		N63	21	W111	51	3D35C11A
C	STOK	ZN	CU			N61	33	W111	47	3D15C5A2+
C	DSTR	ZN	FB			N64	31	W130	7	7C1C10A2
B	VEIN	ZN	FB	AG		N64	3	W129	25	7D1B7A2
C	VEIN	ZN	FB	AG		N62	39	W113	2	7D35C7A
C	MSTR	ZN	FB	AG	FES	N62	17	W128	9	7D1C11A2
B	VEIN	ZN	FB			N63	16	W123	45	7C1B7A3+
A	MSTR	ZN	FB	CU	CD	N47	24	W66	8*	7D5A11B5+
C	VEIN	ZN	FB	AG		N47	40	W65	55	7D5C7A
C	VEIN	ZN	FB	CU	AG	N45	30	W66	12	7D4C7A5+
A	MSTR	ZN	FB	CU	BA	N48	49	W56	52	7D5A11A4
B	DSTR	ZN				N50	15	W57	34	7B37B10A3
B	MSTR	ZN	CU			N49	17	W55	35	3D5B11A3
C	VEIN	ZN	FB	CU	AG	N47	53	W58	14	7D5C7A4
B	MSTR	ZN	CU	FB	AG	N48	31	W57	11	3D5B11A3+
C	MSTR	ZN	CU	FES		N49	4	W58	20	3D5C11A3
C	SKAR	ZN				N45	46	W61	9	7B14C3A
B	SKAR	ZN				N47	0	W60	35	7B145B3A1-4
C	--	ZN	CU			N46	31	W60	53	7D1C
C	DSTR	ZN				N45	25	W76	42	7B5C10A3
C	DSTR	ZN				N44	47	W81	10	7B37C10A3
C	MSTR	ZN	CU	FES		N50	58	W92	55	3D35C11A1
C	MSTR	ZN	CU	AG	FES	N46	48	W81	41	3D35C11A

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	155	CUNNINGHAM TP. (ALDRA)	C	DSTR	ZN CU FES		N47 43	W 82 39	3D35C10A
CAON	123	KIDD CREEK (TEXASGULF)	A	MSTR	ZN CU AG FES	PB	N48 42	W 81 22	3D35A11A1
CAON	176	LAKE GENEVA	C	VEIN	ZN PB	AG	N46 47	W 81 31	7C35C7A
CAON	220	LONG LAKE (LYNX)	C	DSTR	ZN PB		N44 41	W 76 46	7B1C10A4+
CAON	183	LORNE TF. (FENSOM)	C	VEIN	ZN CU FES		N46 17	W 81 33	3D1C7A2+
CAON	109	MANITOWADGE AREA	A	MSTR	ZN CU AG FES	PB AU	N49 9	W 85 47	3D35A11A1
CAON	48	MARSHALL LAKE-SUMMIT LAKE AREA	C	MSTR	ZN CU AG		N50 24	W 87 37	3D35C11A1
CAON	171	MARSHAY TP. (ZINC LAKE)	C	DSTR	ZN PB	AG	N47 9	W 81 27	7C35C10A1
CAON	25	SOUTH BAY	B	MSTR	ZN CU AG FES	SN	N51 6	W 92 40	3D35B11A1
CAON	76	STURGEON LAKE (MATTAI, ETC.)	A	MSTR	ZN CU AG FES	PB AU	N49 52	W 90 57	3D35A11A1
CAON	14	SYDNEY LAKE	C	MSTR	ZN CU FES		N50 44	W 94 21	3D15C11A1
CAON	12	TROUT BAY	C	MSTR	ZN CU AG FES		N51 0	W 94 13	3D35C11A
CAON	106	ZENMAC	C	STOK	ZN	CU CD	N48 58	W 87 22	7B6C5A1
CAQB	243	ASCOT TP. (MOULTON HILL)	C	STOK	ZN PB CU AG AU	FES	N45 24	W 71 49	7D5C5A3
CAQB	127	BARRAUTE TP. (BARVUE, PERSHOURT, FREBERT)	B	DSTR	ZN AG FES	PB	N48 31	W 77 41	7D35B10A1
CAQB	190	BOUCHETTE TP.	C	STOK	ZN		N46 15	W 75 59	7B15C5A
CAQB	95	BROUILLAN TP. (DETOUR)	A	MSTR	ZN CU AG		N49 47	W 78 55	3D35A11A1
CAQB	122	CONIAGAS	B	MSTR	ZN AG FB		N49 30	W 76 10	7D35B11A1
CAQB	109	DUPRAT & DUFRESNOY TPS.	A	MSTR	ZN CU AG AU FES		N48 21	W 79 5	3D35A11A1
CAQB	216	GRAND CALUMET TP. (NEW CALUMET)	B	STOK	ZN PB AG AU		N45 42	W 76 41	7D15B5A4
CAQB	108	HEBECOURT TP. (MAGUSI RIVER, FABIE BAY)	B	MSTR	ZN CU AG		N48 26	W 79 22	3D35B11A1
CAQB	97	LAGAUOCHETIERE TP.	B	MSTR	ZN CU AG		N49 46	W 78 9	3D35B11A1
CAQB	141	LARIBOURDE-SAUSSURE	C	MSTR	ZN CU AG		N49 48	W 75 32	3D35C11A1
CAQB	168	LEMIEUX TP. (FEDERAL)	C	VEIN	ZN PB	CU	N48 46	W 66 8	7D1C7A5
CAQB	147A	LEMOINE	B	MSTR	ZN CU AG AU		N49 46	W 74 6	3D35B11A1
CAQB	143	MCKENZIE TP. (TACHE LAKE)	C	VEIN	ZN AU AG		N49 56	W 74 24	7D35B8C7A
CAQB	196	MONTAUBAN TP. (TETRAULT, ETC.)	B	DSTR	ZN PB AU AG		N46 49	W 72 21	7D15B10A
CAQB	118	MONTBEILLARD TP. (NORZONE)	C	VEIN	ZN PB		N48 8	W 79 11	7C35C7A1
CAQB	42	RICHMOND GULF	C	DSTR	ZN PB		N55 57	W 76 43	7C1C10A2
CAQB	238	SOLBEC-CUFRAN-D'ESTRIE	B	MSTR	ZN CU PB AG AU	FE	N45 47	W 71 18	3D5B11A3
CAQB	49	TP. 4059 (JIMMICK LAKE)	C	DSTR	ZN CU PB		N54 58	W 66 12	3D5C10A2
CAQB	48	TP. 4158 (FREDERICKSON LAKE)	C	DSTR	ZN CU PB AU AG		N55 3	W 66 16	3D5C10A2
CAQB	34	TP. 5646 (BOYLEN)	B	MSTR	ZN PB CU AG AU	FES	N57 40	W 69 27	7D5B11A2
CAQB	27	TP. 6044 (PRUDHOMME NO. 1, ETC.)	B	MSTR	ZN CU AU AG FES		N58 15	W 69 54	3D56B11A2
CAQB	26	TP. 6044 (SOUCY NO. 1)	B	MSTR	ZN CU AU	AG NI	N58 19	W 69 52	3D56B11A2
CAQB	11	TP. 7923 (EKMAN RIVER-E ZONE)	C	DSTR	ZN PB AG		N61 27	W 75 1	7D5C10A2
CAQB	230	UPTON TP. (UPTON)	C	DSTR	ZN CU PB AG		N45 41	W 72 40	3D1C10A3
CASA	26	BRABANT LAKE	B	VEIN	ZN CU		N56 7	W103 42	3D145B7A2
CASA	39	FLIN FLON	A	MSTR	ZN CU FES	CD AU AG TE SE	N54 45	W101 52	3D35A11A2
CASA	22	GEORGE LAKE	B	DSTR	ZN PB		N57 28	W103 46	7C15B10A2
CASA	35	HANSON LAKE	C	VEIN	ZN PB AG FES	CU AU	N54 40	W102 51	7D35C7A1+
CASA	23	PASKINACH BAY	C	DSTR	ZN CU		N57 17	W102 1	3D145C10A2-
CASA	33	SCHOTTS LAKE-WILDNEST LAKE DISTRICT	C	MSTR	ZN CU FES		N55 5	W102 14	3D35C11A
CASA	19	SITO LAKE-FABLE LAKE AREA	C	DSTR	ZN PB		N56 15	W105 40	7C1C10A2
CAYK	86	ANDERSON CREEK (MAXI)	C	DSTR	ZN PB AG		N61 38	W129 11	7D1C10A2
CAYK	45	CLAR LAKE	C	MSTR	ZN PB AG BA FES		N62 48	W135 0	7D1C11A3
CAYK	7	COAL CREEK DOME AREA	C	DSTR	ZN PB		N64 50	W140 0	7C1C10A1
CAYK	21	CORN CREEK AREA	C	VEIN	ZN PB AG		N64 38	W133 15	7C1C7A1
CAYK	15	FLUNK	C	DSTR	ZN PB		N65 8	W134 52	7C1C10A2
CAYK	85	FORTIN LAKE	C	DSTR	ZN PB		N61 59	W130 30	7C1C10A2
CAYK	22	GOZ CREEK AREA (BARRIER REEF)	B	VEIN	ZN PB		N64 25	W132 30	7C1B7A2
CAYK	13	HART RIVER	B	MSTR	ZN CU FES	PB AG AU	N64 38	W136 52	3D16B11A
CAYK	58	HOWARDS PASS DISTRICT	A	DSTR	ZN PB		N62 29	W129 12	7C1A10A2
CAYK	53	MACMILLAN PASS (TOM, JASON)	A	MSTR	ZN PB AG BA		N63 10	W130 9	7D1A11A3
CAYK	92	MOUNT HUNDERE	C	SKAR	ZN PB AG		N60 32	W128 54	7D1C3A
CAYK	25	NADALEEN MOUNTAIN AREA	C	DSTR	ZN PB AG		N64 12	W132 59	7D1C10A1



CAYK	97	OTTER CREEK (MEL)	C	DSTR	ZN	FB	BA			N60	21	W127	25	7C1C10A2
CAYK	96	QUARTZ LAKE (MACMILLAN)	B	MSTR	ZN	FB				N60	30	W127	57	7D1B11A2
CAYK	75	SEAGULL CREEK AREA	C	MSTR	ZN	FB	BA	FES	AG	N61	27	W132	28	7C5C11A3
CAYK	49	SUNSET, SIR JOHN A.	C	DSTR	ZN	FB				N62	3	W133	4	7C1C10A2
CAYK	48	SWIM LAKES AREA	B	MSTR	ZN	FB	AG	FES		N62	12	W133	2	7D1B11A2+
CAYK	88	TYERS RIVER AREA	C	SKAR	ZN	FB	CJ	AG	CD	N61	25	W128	25	7D15C3A2
GLGL	5	BLACK ANGEL (MARMORILIK)	B	MSTR	ZN	FB			AG	N71	6	W 51	18	7C15B11A2
HOHO	5	QUITAGANA	C	VEIN	ZN	CJ	AG			N14	37	W 88	23	3D1C7A6
JMUM	10	HOPE MINE	C	MSTR	ZN	FB			AG	N18	7	W 76	44	7D5C11A6
MXCH	76	CALERA	C	VEIN	ZN	FB	AG			N28	38	W107	25	7D1C7A7
MXCH	135	CIENEGUITA	C	VEIN	ZN	FB				N27	50	W106	0	7C1C7A7
MXCO	52	EL CAPULIN	C	VEIN	ZN	FB				N25	8	W101	15	7D1C7A7
MXGR	13	CAMPO MORADO GP. (REFORMA ET AL.)	B	MSTR	ZN	FB	CJ	AG	AU	N18	10	W100	10	7D5B11A5
USAK	173	GROUNDHOG BASIN, GLACIER BASIN	C	MSTR	ZN	FB			AG	N56	29	W132	3	7D5C11A
USAK	188	MAHONEY MINE	C	VEIN	ZN	FB				N55	24	W131	30	7CC7A
USAK	189	MOTH BAY DEPOSITS	C	MSTR	ZN	CJ				N55	18	W131	23	3DC11A
USAK	89	MOUNT EIELSON DEPOSITS	C	STOK	ZN	FB	AG		CJ	N63	23	W150	20	7D14C5A
USAK	171	POINT ASTLEY PROSPECTS	C	MSTR	ZN	CJ			FB	N57	42	W133	39	3D5C11A
USAK	192	SEDANKA ISLAND PROSPECT	C	VEIN	ZN	CJ	FB		AG	N53	49	W166	12	7D456C7A
USAK	83	SHELLABARGER PASS DEPOSITS	C	MSTR	ZN	CJ	FB		AG	N62	34	W152	47	3D5C11A4
USAK	169	TRACY ARM PROSPECT	C	MSTR	ZN	CJ	AG			N57	54	W133	37	3D5C11A3+
USAR	1	NORTHERN ARKANSAS DISTRICT	C	DSTR	ZN	FB			CD	N56	12	W 92	39*	7C37C10B4+
USAZ	31	BIG BUG DISTRICT (IRON KING ET AL. MINES)	B	MSTR	ZN	FB	CJ	AG	AU	N34	29	W112	16	7D5B11A1
USAZ	23	CEDAR VALLEY, ANTLER, AND COPPER WORLD MINES	C	MSTR	ZN	CJ	AG		FB	N34	52	W113	57	3D15C11A1
USAZ	28	EUREKA DIST. (COPPER QUEEN & OLD DICK MINES)	C	MSTR	ZN	CJ	FB			N34	32	W113	13	3D15C11A1
USAZ	109	HARSHAW DISTRICT	B	VEIN	ZN	FB	AG	CJ	AU	N31	28	W110	44	7D347B7A
USAZ	18	WALLAPAI DIST. (CHLORIDE & CERBAT CAMPS)	C	VEIN	ZN	FB	AG	AU	CJ	N35	25	W114	11	7D145C7A6
USOD	18	GILMAN (RED CLIFF, BATTLE MTN.) DISTRICT	B	STOK	ZN	AG	CJ	FB	AU	N39	32	W106	23	7D347B5A6+
USOD	15	GREEN MOUNTAIN DISTRICT (BIG FOUR MINE)	C	VEIN	ZN	AG			FB	N39	53	W106	20	7D4C7A6+
USOD	31	MONARCH-TOMICHI-WHITE PINE DISTRICTS	C	STOK	ZN	AG	FB	CJ	AU	N38	32	W106	18	7D347C5A6+
USIA	3	UPPER MISSISSIPPI VALLEY DISTRICT	A	DSTR	ZN	FB				N42	31	W 90	36*	7C37A10B3+
USID	58	WARM SPRINGS DISTRICT	B	VEIN	ZN	FB	AG	AU	CJ	N43	40	W114	17	7D14B7A
USIL	1	UPPER MISSISSIPPI VALLEY DISTRICT	A	DSTR	ZN	FB				N42	31	W 90	36*	7C37A10B3+
USKS	7	TRI-STATE DISTRICT	A	DSTR	ZN	FB			CD	N37	0	W 94	30*	7C37A10B4+
USME	1	HALD MOUNTAIN (MACHIAS LAKE)	A	MSTR	ZN	CJ	AU	AG		N46	44	W 68	47	3D5A11A3
USME	11	BARRETT-BIG HILL PROSPECT	C	DSTR	ZN	CJ			FB	N44	58	W 67	13	3D5C10A4
USME	8	BLACK HAWK-BLUE HILL DISTRICT	B	MSTR	ZN	CJ	FES		FB	N44	23	W 68	39	3D5B11A4
USME	9	PENOBSCOT (HARBORSIDE) DISTRICT	B	MSTR	ZN	CJ	FES		FB	N44	21	W 68	46	3D5B11A4
USMO	10	AURORA DISTRICT	B	DSTR	ZN	FB				N36	57	W 93	39	7C37B10A4+
USMO	12	CAULFIELD DISTRICT	C	DSTR	ZN					N36	35	W 92	7	7B37C10A3+
USMO	8	CORRY MINES AREA	C	DSTR	ZN	FB				N37	28	W 93	44	7C37C10A4+
USMO	5	GRANBY DISTRICT	B	DSTR	ZN	FB				N36	52	W 94	13*	7C37B10B4+
USMO	9	PIERSON CREEK (SPRINGFIELD) DISTRICT	C	DSTR	ZN	FB				N37	10	W 93	12	7C37C10A4+
USMO	4	TRI-STATE DISTRICT	A	DSTR	ZN	FB			CD	N36	56	W 94	36*	7C37A10B4+
USMO	6	WENTWORTH DISTRICT	C	DSTR	ZN				FB	N36	56	W 94	1*	7C37C10B4+
USMT	11	PACKER CREEK DISTRICT (SILVER CABLE MINE)	C	VEIN	ZN	FB	AG		CJ	N47	29	W115	37	7D1C7A
USNH	2	ORE HILL	C	MSTR	ZN				FB	N43	56	W 71	57	7B15C11A3+
USNJ	1	FRANKLIN FURNACE-STERLING HILL	A	MSTR	ZN	MN				N41	6	W 74	35	7B15A11A1
USNM	21	CERILLOS DISTRICT	C	VEIN	ZN	FB	AG		CJ	N35	29	W106	9	7D347C7A6+
USNM	30	MAGDALENA DISTRICT	B	SKAR	ZN	FB	AG	CJ	AU	N34	4	W107	12	7D347B3A7
USNM	77	TRES HERMANAS DISTRICT	C	SKAR	ZN	FB	AG	AU		N31	55	W107	47	7D347C3A
USNM	32	WILLOW CREEK DISTRICT (PECOS MINE)	B	MSTR	ZN	FB	AG	AU	CJ	N35	46	W105	40	7D15B11A2-
USNV	116	MOUNT HOPE MINE	C	SKAR	ZN	AG			CD	N39	47	W116	10	7D14C3A
USNV	183	PLOCHE DISTRICT	B	STOK	ZN	FB	AG	CJ	MN	N37	55	W114	29	7D14B5A5
USNV	145	REVEILLE DISTRICT	C	STOK	ZN	FB	AG		SB	N38	1	W116	6	7D1C5A6+
USNV	195	YELLOW PINE (GOODSPRINGS) DISTRICT	B	STOK	ZN	FB	AG	AU	CJ	N35	52	W115	31	7D14B5A6+
USNY	3	BALMAT-EDWARDS	A	MSTR	ZN	FB			AG	N44	18	W 75	20	7C1A11A2-4
USNY	11	MANNING	C	CHEM	ZN				FB	N43	11	W 78	7	7B3C2A8
USOK	20	DAVIS DISTRICT	C	DSTR	ZN				CD	N34	27	W 97	12	7B37C10A3+
USOK	5	TRI-STATE DISTRICT	A	DSTR	ZN	FB			CD	N36	58	W 94	38*	7C37A10B4+

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USOR	4	NORTH SANTIAM DISTRICT	C	VE IN	ZN FB CU	AG AU	N44 51	W122 11	7D467C7A7
USPA	3	AL MEDIA DEPOSIT	C	DS TR	ZN		N41 1	W 76 21	7B1C10A4+
USPA	6	BAMFORD	C	DS TR	ZN		N40 5	W 76 23	7B1C10A4+
USPA	7	FRIEDENSVILLE	A	DS TR	ZN		N40 33	W 75 24	7B1A10A3+
USPA	1	SINKING VALLEY & BIRMINGHAM	C	DS TR	ZN	PB BA	N40 29	W 78 19	7B1C10A3+
USTN	5	COPPER RIDGE-FLAT GAP DISTRICT	A	DS TR	ZN		N36 24	W 83 21	7B1A10A3+
USTN	3	ELMWOOD MINE	A	DS TR	ZN FB		N36 14	W 85 53	7C37A10A3+
USTN	7	EMBREEVILLE	B	DS TR	ZN FB		N36 10	W 82 29	7C1B10A3+
USTN	6	MASCOOT-JEFFERSON CITY-NEW MARKET DIST.	A	DS TR	ZN		N36 5	W 83 38	7B1A10A3+
USTN	4	NEW PROSPECT-STRAIGHT CREEK MINES	C	DS TR	ZN FB		N36 14	W 83 43	7C1C10A3+
USUT	24	DUGWAY DISTRICT	C	STOK	ZN FB AG	CU	N39 57	W113 13	7D14C5A7
USUT	4	FROMMONTORY DISTRICT	C	--	ZN FB CU		N41 15	W112 26	7D14C
USVA	12	AUSTINVILLE-IVANHOE DISTRICT	A	DS TR	ZN FB	AG	N36 51	W 80 57	7C1A10A3+
USVA	2	TIMBERVILLE (WEATHERHOLTZ) MINE	B	DS TR	ZN		N38 39	W 78 48	7B1B10A3+
USWA	22	METALINE DISTRICT	A	DS TR	ZN FB	AG CU	N48 52	W117 22	7C1A10A2+
USWA	21	NORTHFORT DISTRICT (DEEP CR., VAN STONE ET AL.)	B	DS TR	ZN FB AG		N48 52	W117 43	7D14B10A
USWI	6	CRANDON DEPOSIT	A	MS TR	ZN CU	PB AU AG	N45 29	W 88 55	3D5A11A2
USWI	5	PELICAN RIVER PROSPECT	B	MS TR	ZN CU		N45 33	W 89 16	3D5B11A2
USWI	7	UPPER MISSISSIPPI VALLEY DISTRICT	A	DS TR	ZN FB		N42 31	W 90 36*	7C37A10B3+
USWV	2	HOWELL FARM	C	DS TR	ZN		N39 13	W 77 49	7B1C10A3+

# LIGHT METALS

## ALUMINUM (AL)

Most aluminum is derived from bauxite, which consists of one or more hydrous oxides formed by surficial leaching of aluminous silicates under tropical or subtropical weathering conditions. The parent rock may be intrusive or extrusive igneous or, more commonly in North America, limestone or other sedimentary rock containing aluminous impurities. On the Caribbean Islands (JMJM, DRDR, and HAHA), bauxite occurs as concentrations of soft earthy material in Miocene limestone sinkholes and channels in karst depressions.

In Arkansas, Alabama, and Georgia, low-grade bauxite deposits occur on a mantle of residual clay that represents a pre-Tertiary weathering surface.

As aluminum ranks third in abundance in the Earth's crust, after oxygen and silicon, many alternatives to bauxite are available as potential sources, but most are not competitive

(National Materials Advisory Board, 1970). Only a single deposit of alunite, a hydrous sulfate of potassium and aluminum, has been included in the listing—the Marysville area of Utah (USUT 42). (Other alunite-bearing deposits in North America are reviewed by Hall (1978).)

Number of deposits containing aluminum	Number of principal aluminum deposits	Principal major commodity of other deposits containing aluminum as a major commodity	
		K	(Total)
Total 27	26	1	(1)

Number of principal aluminum deposits	Geologic class of deposit <sup>1/</sup>	
	LTRT	STOK
Total 26	25	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CSCS	19	SAN ISIDRO DEL GENERAL	A	LTRT	AL		N 9 19	W 83 36	10B3A9A8
DRDR	6	LAS MERCEDES (BUCAN FOLO)	B	LTRT	AL		N18 4	W 71 38	10B1B9A7+
DRDR	5	SIERRA DE BAHORUO (ACEITILLAR)	B	LTRT	AL		N18 8	W 71 33	10B1B9A7+
HAHA	3	ROCHEL OIS FLAT. (REYNOLD'S ALUMINUM)	B	LTRT	AL		N18 24	W 73 12	10B1B9A7+
JMJM	2	NORTH CENTRAL DISTRICT	A	LTRT	AL		N18 21	W 77 17*	10B1A9B7+
JMJM	9	SAINT CATHERINE PARISH	B	LTRT	AL		N18 2	W 77 3	10B1B9A7+
JMJM	1	SAINT JAMES PARISH	B	LTRT	AL		N18 20	W 77 54	10B1B9A7+
JMJM	7	SOUTH CENTRAL DISTRICT	A	LTRT	AL		N18 2	W 77 28*	10B1A9B7+
MXCH	174	JIMENEZ	B	LTRT	AL		N27 10	W104 51	10B1B5A7
MXCP	1	ESTACION JUAREZ	C	STOK	AL		N17 42	W 93 11	10B3C9A6
MXCP	12	MONTE BELLO	C	LTRT	AL		N16 10	W 91 45	10B23C9A7
MXDR	69	PARAISO	C	LTRT	AL		N24 40	W104 0	10B7C5A7
PNFN	8	DAVID	B	LTRT	AL		N 8 23	W 82 20	10B37B9A8
PNFN	19	LAS LAJAS	C	LTRT	AL		N 8 14	W 81 52	10B37C9A8
PNFN	21	LAS PALMAS	C	LTRT	AL		N 8 5	W 81 28	10B37C9A8
PNFN	20	TOLE	B	LTRT	AL		N 8 14	W 81 41	10B37B9A8
USAL	19	BUFAULA DISTRICT	C	LTRT	AL		N31 45	W 86 16	10B37C9A7+
USAL	3	ROCK RUN-GOSHEN VALLEY DISTRICT	C	LTRT	AL		N34 2	W 85 37*	10B1C9B8
USAR	4	BAUXITE AREA	B	LTRT	AL		N34 31	W 92 30	10B2B9A7
USAR	3	FOURCHE MOUNTAIN DISTRICT	B	LTRT	AL		N34 40	W 92 16	10B2B9A7
USGA	21	ANDERSONVILLE DISTRICT	C	LTRT	AL		N32 12	W 84 8	10B37C9A7
USGA	6	NORTHWEST GEORGIA BAUXITE DISTRICT	C	LTRT	AL		N34 17	W 84 57*	10B1C9B8
USGA	24	SPRINGVALE DISTRICT	C	LTRT	AL		N31 49	W 84 52	10B37C9A7
USOR	3	SALEM HILLS	B	LTRT	--	AL FE TI	N44 51	W123 3	10B7B9A7+
USOR	2	TUALATIN HILLS	B	LTRT	--	AL FE TI	N45 45	W123 0*	10B7B9B7+
USWA	29	SOUTHWEST WASHINGTON AREA	B	LTRT	--	AL FE TI	N46 13	W123 10	10B7B9A7+

# MAGNESIUM (MG)

Magnesium is the eighth most abundant element of the Earth's crust and one that occurs in many forms and geologic environments, both as minerals and in brines. Although a major industrial source of magnesium today is brines, and especially seawater, only deposits of the carbonate, magnesite, some of which also contain the hydroxide brucite, are included here. Magnesite forms by replacement of dolomite or limestone, by alteration (carbonatization) of serpentine in ultramafic rocks, or by direct precipitation in sedimentary sequences.

Number of deposits containing magnesium	Number of principal magnesium deposits	Principal major commodity of other deposits containing magnesium as a major commodity	
		HAL	(Total)
Total 21	19	2	(2)

Number of principal magnesium deposits	Geologic class of deposit <sup>1/</sup>				
	CHEM	STOK	DSTR	EVAP	VEIN
Total 19	8	6	3	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	214	BASQUE	C	EVAP	MG		N50 36	W121 22	6D3C6A8
CABC	134	CHUYAZEGA CREEK	C	CHEM	MG		N54 58	W122 23	6D1C2A2
CABC	340	MARYSVILLE	A	CHEM	MG		N49 35	W115 58	6D1A2A2
CABC	262	MITCHELL RIVER (MAG)	A	CHEM	MG		N50 47	W115 40	6D1A2A2
CAON	201	ROSS TP. (HALEY)	B	CHEM	MG	GY	N45 36	W 76 45	6D15B2A2+
CAQB	224	HULL TP. (FARM POINT)	C	DSTR	MG		N45 36	W 75 54	6D15C10A4
CAQB	227	KILMAR	A	STOK	MG		N45 45	W 74 37	6D15A5A4
CAQB	156	LATRAPPE TP.	C	DSTR	MG		N49 5	W 72 10	6D15C10A3
MXBS	12	ISLA MAGDALENA	C	STOK	MG		N24 54	W112 13	6D58C5A4
MXBS	14	ISLA SANTA MARGARITA	C	STOK	MG		N24 30	W111 55	6D58C5A4
MXBS	2	SAN BARTOLOME DISTRICT	C	STOK	MG		N27 28	W114 25	6D58C5A4
MXCO	30	CANDELA	C	CHEM	MG		N26 45	W100 45	6D1C2A6
MXCO	23	LUCERO Y BALUARTE	C	CHEM	MG		N27 15	W101 15	6D1C2A6
MXCP	11	SANTA MARGARITA	C	CHEM	MG		N17 26	W 91 34	6D2C2A5
MXCP	6	TUXTLA GUTIERREZ	C	CHEM	MG		N16 45	W 93 10	6D1C2A5
USCA	80	WESTERN MINE	B	VEIN	MG		N57 24	W121 29	6D8B7A
USNV	162	CURRENT CREEK DISTRICT	B	DSTR	MG		N58 54	W115 15	6D7B10A7
USNV	131	GABBS (MAMMOTH) DISTRICT	A	STOK	MG		N58 50	W117 52	6D14A5A
USNA	27	CHEWELAH DISTRICT	B	STOK	MG		N48 8	W117 57	6D14B5A

# TITANIUM (Ti)

The chief ore minerals of titanium are ilmenite,  $\text{FeTiO}_3$ , and rutile,  $\text{TiO}_2$ . Ilmenite is the usual mineral in the titaniferous iron ores that normally occur in anorthosite or gabbro-anorthosite complexes; in North America these complexes are invariably of Middle Proterozoic age. Rutile, far less common than ilmenite, may be hosted in igneous alkalic complexes or in metamorphic aluminosilicate bodies.

Titanium-bearing sands containing accessory thorium, zirconium, and rare-earth minerals are widely distributed along and near the eastern coast of the United States. The largest deposits (USNJ 7 and USFL 3) are of Neogene age, but most are Quaternary or are presently forming. Numerous iron-titanium "black sand" deposits are widespread in the Mesozoic platform cover rocks of the Western United States. These "fossil placers"

were lithified along with the enclosing bedrock following deposition in paleostream channels.

		Number of deposits containing titanium	Number of principal titanium deposits	Principal major commodity of other deposits containing titanium as a major commodity				
				Fe	Al	Cr	Th	(Total)
Total	110		67	38	3	1	1	(43)

		Number of principal titanium deposits	Geologic class of deposit <sup>1/</sup>				
			PLCR	STOK	DSTR	IGNS	PEGM
Total	67		55	7	2	2	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

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Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAQB	90	ALLARD LAKE DISTRICT	A	IGNS	Ti	FE	N50 33	W 63 25	2C68A8A3
CAQB	91	LAC BAT-LE-DIABLE	C	IGNS	Ti	FE	N50 27	W 63 40	2C68C8A3
MXCO	48	GRAL. CEPEDA	B	PLCR	Ti	FE	N25 23	W101 30	2C1B4A5
MXDX	51	CUILAPAN	C	PLCR	Ti		N16 59	W 96 48	2B4C4A8
MXDX	111	PLAYAS	C	PLCR	Ti		N15 59	W 95 35	2B4C4A8
MXDX	108	FLUMA HIDALGO	C	STOK	Ti		N15 57	W 96 28	2B15C5A1
MXDX	33	SAN PEDRO Y SAN PABLO ETLA	C	PEGM	Ti		N17 15	W 96 50	2B15C1A4
MXDX	88	SANTA MARIA CHIMALAPA	C	STOK	Ti		N16 54	W 94 42	2B4C5A2
MXDX	112	ZONA DE CHACALPA	B	STOK	Ti		N15 54	W 95 55	2B4B5A7
MXDX	14	ZONA DE MINIZO	C	PLCR	Ti		N16 8	W 98 1	2B4C4A8
USAR	12	PINK GREEN & BEJLAH GREEN DEPOSITS	C	PLCR	Ti		N33 53	W 93 56	2B37C4A6
USCA	2	CRESCENT CITY BEACH SANDS	C	PLCR	Ti	CR	N41 44	W124 9	2C37C4A8
USCO	44	CARIBOU HILL DEPOSIT	C	DSTR	Ti		N39 43	W105 25	2B15C10A1
USCO	12	GRAND MESA DEPOSIT	C	PLCR	Ti	TH REE	N39 3	W108 19	2B37C4A6
USFL	6	AMELIA ISLAND PROSPECT	B	FLCR	Ti		N30 37	W 81 27	2B37B4A8
USFL	4	BOULOGNE MINE	B	FLCR	Ti		N30 46	W 82 0	2B37B4A8
USFL	12	GREEN COVE SPRINGS MINE	B	FLCR	Ti		N29 52	W 81 42	2B37B4A8
USFL	11	INTERLACHEN PROSPECT	C	PLCR	Ti		N29 40	W 81 53	2B37C4A8
USFL	7	JACKSONVILLE DISTRICT	B	FLCR	Ti		N30 18	W 81 33	2B37B4A8
USFL	13	MELBOURNE-PALM BAY MINE	B	FLCR	Ti		N28 4	W 80 37	2B37B4A8
USFL	1	PENSACOLA BAY PROSPECT	C	PLCR	--	Ti ZR KYN	N30 24	W 87 1	2B37C4A8
USFL	2	PHILIPS INLET-PANAMA CITY PROSPECT	C	PLCR	Ti		N30 16	W 86 0	2B37C4A8
USFL	3	TRAIL RIDGE DISTRICT	A	FLCR	Ti		N30 3	W 82 2	2B37A4A7-8
USFL	15	VERO BEACH MINE	B	FLCR	Ti		N27 38	W 80 23	2B37B4A8
USFL	5	YULEE PROSPECT	C	PLCR	Ti		N30 37	W 81 37	2B37C4A8
USGA	27	ALTAMAHA PLANTATION AREA	C	PLCR	Ti		N31 17	W 81 29	2B37C4A8
USGA	29	FOLKSTON AREA	B	FLCR	Ti		N30 51	W 81 58	2B37B4A7-8
USGA	28	JEKYLL ISLAND PROSPECT	C	PLCR	Ti		N31 3	W 81 24	2B37C4A8
USGA	26	SAVANNAH BEACH PLACER PROSPECT	C	PLCR	Ti		N31 59	W 80 53	2B37C4A8

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USID	33	BEAR VALLEY	B	FLOR	TI	NB U REE	N44 19	W115 23	2B3B4A8
USID	31	CASCADE REGION	B	FLOR	TI	TH REE NB	N44 28	W115 57	2B3B4A8
USID	39	GOLD CREEK & WILLIAMS CREEK	C	PLOR	TI		N44 2	W114 49	2B3C4A8
USID	29	GOLD FORK AREA	C	PLOR	TI	REE	N44 42	W115 59	2B3C4A8
USID	48	JOHNSON CREEK	C	PLOR	TI		N43 54	W116 18	2B3C4A8
USID	34	MEADOW CREEK & VALLEY CREEK	C	PLOR	TI	TH ZR	N44 18	W115 1	2B3C4A8
USID	52	RABBIT CREEK	C	PLOR	TI		N43 48	W115 41	2B3C4A8
USMS	3	CAT ISLAND	C	PLOR	--	TI	N30 13	W 89 10	2B37C4A8
USMS	4	SHIP ISLAND	C	PLOR	TI		N30 13	W 88 58	2B37C4A8
USNC	33	BOGUE BANKS DEPOSIT	C	PLOR	--	TI	N34 39	W 77 5	2B37C4A8
USNC	3	RICHLANDS COVE DEPOSIT	B	DSTR	TI		N36 5	W 81 33	2B15B10A
USNC	18	SHOOTING CREEK DEPOSIT	C	PLOR	TI		N35 3	W 83 45	2B15C4A
USNJ	7	BURLINGTON-OCEAN-MONMOUTH COUNTIES AREA	A	FLOR	TI		N40 3	W 74 22	2B37A4A7
USNM	3	SANOSTEE AREA	C	PLOR	TI	REE TH	N36 23	W108 54	2B37C4A6
USNY	17	PORT LEYDEN PROSPECT	B	FLOR	--	TI	N43 35	W 75 19	2B3BB4A8
USOK	14	LAKE LAWTONKA	C	PLOR	TI		N34 43	W 98 31	2CC4A8
USSC	15	BULL ISLAND	B	FLOR	TI	ZR TH REE	N32 54	W 79 39	2B37B4A8
USSC	14	HILTON HEAD ISLAND	B	FLOR	TI	ZR TH REE	N32 11	W 80 43	2B37B4A8
USSC	11	HORSE CREEK-HOLLOW CREEK AREA	B	FLOR	TI	ZR TH REE	N33 26	W 81 54	2B37B4A8
USTN	1	CAMDEN AREA	C	PLOR	TI		N36 7	W 88 2	2B37C4A6
USTN	10	LEXINGTON-PINEY CREEK AREA	C	PLOR	TI		N35 36	W 88 16	2B37C4A6
USTN	9	NATCHEZ TRACE STATE PARK AREA	C	PLOR	TI		N35 51	W 88 4	2B37C4A6
USUT	69	ROCK CREEK AREA	C	PLOR	TI		N37 19	W111 19	2B37C4A6
USVA	24	BUSH-HUTCHINS DEPOSIT	C	STOK	TI	P	N37 16	W 79 52	2B25C5A
USVA	27	MONTPELIER DISTRICT (HANOVER MINE)	C	STOK	TI		N37 45	W 77 42	2B68C5A1
USVA	16	ROSELAND DISTRICT	B	STOK	TI	P	N37 46	W 78 59	2B68B5A1
USNY	4	BALD MOUNTAIN DISTRICT	C	PLOR	TI	TH REE	N44 46	W107 46	2B37C4A3
USNY	32	BLACK BUTTE DEPOSIT	C	STOK	TI		N41 28	W108 49	2B37C4A6
USNY	11	COTTONWOOD CREEK DEPOSIT	C	PLOR	TI		N43 49	W108 23	2B37C4A6
USNY	2	COWLEY DEPOSIT	C	PLOR	TI		N44 54	W108 40	2B37C4A6
USNY	30	CUMBERLAND GAP DEPOSITS	C	PLOR	TI	TH REE	N41 29	W110 32	2B37C4A6
USNY	16	DUGOUT CREEK DEPOSIT	C	PLOR	TI		N43 47	W107 28	2B37C4A6
USNY	9	GIBBS CREEK DEPOSITS	C	PLOR	TI	TH REE	N43 10	W110 28	2B37C4A5
USNY	10	GRASS CREEK DEPOSIT	C	PLOR	TI		N43 54	W108 33	2B37C4A5
USNY	3	LOVELL DEPOSIT	C	PLOR	TI	TH REE	N44 48	W108 27	2B37C4A6
USNY	17	MUD CREEK DEPOSIT	C	PLOR	TI		N43 43	W107 45	2B37C4A5
USNY	34	RED CREEK DEPOSIT	C	PLOR	TI		N41 2	W109 14	2B37C4A5
USNY	33	SALT WELLS CREEK DEPOSIT	C	PLOR	TI	TH REE	N41 10	W109 2	2B37C4A6

# PRECIOUS METALS

## GOLD (Au)

The most numerous entries in the file are gold deposits. If deposits were included in which gold is a minor commodity, but one ordinarily recovered, the total number would be increased substantially.

Most gold occurs as the native metal in the primary deposits; in a few it forms tellurides. Some silver is invariably alloyed with it, although not necessarily reported. Where it is a secondary or minor commodity, gold may be incorporated in sulfides of iron, copper, zinc, or other metals and recovered only during their refining.

The weight and chemical inertness of gold cause it to accumulate in placers which frequently are clues to the bedrock deposits from which it came. Bedrock deposits have been emphasized in the file.

Generalizations concerning the occurrence of "bedrock" gold are hazardous and subject to exception:

The deposits in the Shield and its outliers are largely in greenstone belts (geologic environment coded 3-5) and associated with granitic intrusions (geologic environment coded 4). Most are Archean (geologic environment coded 1); some are younger. Gold is usually the only product. Vein deposits greatly predominate, but there is some evidence that the gold may originally have been strata-bound and redeposited in fractures.

The Cordilleran deposits are more likely to contain associated metals, especially silver. Two somewhat overlapping

groups of deposits may be distinguished, those hosted in "geosynclinal" rocks (sedimentary and (or) marine volcanic rocks) or their metamorphosed equivalents, and those in essentially undeformed terrestrial volcanic rocks. Granitic intrusive rocks are commonly associated with both groups, although they may not be exposed in the second. Mineralization ages of the first group are mostly Mesozoic or Early Tertiary (age coded 4 to 6+), of the second, mid-Tertiary (age coded 7). Veins predominate.

Only minor amounts of gold have been found in the Appalachian region, and virtually none in the Platform except along its western margin where granitic magmas related to Cordilleran tectonics intruded older rocks.

Number of deposits containing gold	Number of principal gold deposits	Principal major commodity of other deposits containing gold as a major commodity											
		Ag	Cu	Zn	Pb	W	Sb	F	U	Fe	FeS	Hg	Mo
Total	983	770	80	68	27	21	5	3	2	2	1	1	1

Number of principal gold deposits	Geologic class of deposit <sup>1/</sup>							
	VEIN	PLCR	STOK	DSTR	SKAR	MSTR	PEGM	Not reported
Total	770	546	152	37	16	10	3	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
EEBH	3	QUEBRADA CEIBO GRANDE	C	PLCR	AU		N16 35	W 89 10	4A3C4A8
CAAL	6	NORTH SASKATCHEWAN RIVER	C	PLCR	AU		N53 45	W113 10	4A37C4A8
CABC	282	ASHLOO MINE	C	VEIN	AU	CJ	N49 57	W123 26	4B4C7A
CABC	11	ATL IN AREA	C	PLCR	AU		N59 33	W133 29	4A3C4A7+
CABC	336	BAYONNE MINE	C	VEIN	AU	AG	N49 7	W116 58	4C4C7A
CABC	323	BERLIN, INLAND EMPIRE, ALICE LAKE	C	VEIN	AU	AG	N49 12	W118 4	4C4C7A
CABC	179	BLACKHORN MOUNTAIN	C	VEIN	AU		N51 37	W124 43	4A1C7A
CABC	198	BRALORNE & PIONEER MINES	B	VEIN	AU		N50 46	W122 48	4A45B7A6

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	203	BRANDYWINE-DORITY CREEKS (NORTH AIR, VAN SILVER)	C	VEIN	AU AG ZN PB CU		N50 6	W123 9	4D45C7A5+
CABC	274	BUCCANEER & MUSKETEER MINES	C	VEIN	AU		N49 25	W125 44	4A4C7A4-
CABC	253	CAMBORNE AREA	C	VEIN	AU AG PB ZN		N50 46	W117 37	4D5C7A4+
CABC	161	CARIBOO DISTRICT	B	PLOR	AU		N52 56	W121 28*	4A3B4B7+
CABC	160	CARIBOO, GOLD QUARTZ, AND ISLAND MOUNTAIN MINES	B	VEIN	AU		N53 5	W121 33	4A1B7A3+
CABC	317	CARIBOO-AMELIA MINE	C	VEIN	AU	AG PB ZN	N49 7	W119 17	4A45C7A6
CABC	162	CARIBOO-HUDSON MINE	C	VEIN	AU W		N52 58	W121 21	4A1C7A
CABC	63	CHAPELLE	C	VEIN	AU AG		N57 17	W127 7	4C45C7A4
CABC	241	CHERRY CREEK	C	PLOR	AU		N50 15	W118 35	4A3C4A8
CABC	298	COQUIHALLA-SPIDER PEAK GOLD BELT (CAROL IN)	C	VEIN	AU		N49 31	W121 18*	4A58C7B
CABC	20	DEASE LAKE AREA	C	PLOR	AU	PT	N58 44	W130 9	4A3C4A7+
CABC	316	DIVIDEND MINE	C	SKAR	AU CU		N49 1	W119 30	4B5C3A
CABC	1	DULLIS (SQUAW) CREEK	C	PLOR	AU		N60 0	W137 7	4A3C4A8
CABC	5	ENGINEER MINE	C	VEIN	AU		N59 29	W134 14	4A45C7A6
CABC	29	ERIKSON CREEK (VOLL AUG, CORNUCOPIA)	C	VEIN	AU		N59 15	W129 40	4A5C7A3+
CABC	314	FAIRVIEW CAMP	C	VEIN	AU AG	PB	N49 11	W119 37	4C45C7A
CABC	191	FALLS CREEK (HI DO)	C	VEIN	AU		N51 6	W123 36	4A4C7A6+
CABC	312	FRANKLIN CAMP (UNION MINE, ETC.)	C	VEIN	AU AG		N49 34	W118 21	4C45C7A4
CABC	225	GOLDSTREAM RIVER AREA	C	PLOR	AU		N51 42	W118 22	4A3C4A8
CABC	68	GOLDWAY PEAK AREA	C	VEIN	AU AG		N56 30	W126 7	4C45C7A
CABC	85	GOLKEISH	C	VEIN	AU AG PB ZN		N55 21	W129 49	4D5C7A
CABC	306	HEDLEY CAMP (NICKEL PLATE & HEDLEY MASCOOT)	B	SKAR	AU		N49 23	W120 2	4A456B3A4+
CABC	143	HEPLER LAKE (WALLER)	C	SKAR	AU		N53 21	W130 9	4A15C3A
CABC	169	HOBSON CREEK (BLUE ICE)	C	VEIN	AU		N52 41	W119 53	4A1C7A
CABC	318	JAMES CREEK (CROWN POINT, ETC.)	C	VEIN	AU PB ZN		N49 8	W119 1	4D5C7A
CABC	321	JEWEL LAKE (DENTONIA MINE, ETC.)	C	VEIN	AU AG		N49 10	W118 37	4C45C7A4
CABC	243	KALAMALKA	C	VEIN	AU		N50 12	W119 5	4A456C7A
CABC	211	KELLY CREEK (BIG SLIDE)	C	VEIN	AU CU AG		N50 58	W121 50	4B456C7A
CABC	92	KLEANZA MOUNTAIN (COLUMARIO, ETC.)	C	VEIN	AU		N54 33	W128 24	4A45C7A
CABC	151	LINDQUIST LAKE (DEER HORN)	C	VEIN	AU AG W		N53 22	W127 17	4C45C7A
CABC	124	MANSON CREEK AREA	C	PLOR	AU		N55 45	W124 40	4A3C4A8
CABC	30	MCDAME CREEK	C	PLOR	AU		N59 16	W129 22	4A3C4A8
CABC	197	MINTO AREA	C	VEIN	AU SB		N50 54	W122 46	8B45C7A6+
CABC	244	MONASHEE MINE	C	VEIN	AU AG	PB ZN	N50 8	W118 28	4C456C7A
CABC	88	MOUNT KNAUSS (FIDDLER-DOREEN)	C	VEIN	AU AG PB ZN		N54 48	W128 27	4D3C7A
CABC	90	MOUNT OBRIEN AREA	C	VEIN	AU AG PB ZN CU		N54 40	W128 10	4D45C7A
CABC	310	OKANAGAN FALLS (DUSTY MAC)	C	VEIN	AU AG		N49 21	W119 33	4C5C7A7
CABC	182	PHILLIPS ARM AREA (DORATHA MORTON, ETC.)	C	VEIN	AU AG	CU	N50 30	W125 24	4C45C7A
CABC	59A	PORTLAND CANAL AREA (PREMIER MINE, ETC.)	B	VEIN	AU AG PB ZN		N56 3	W130 2*	4C45B7B5
CABC	319	ROCK CREEK	C	PLOR	AU		N49 3	W119 0	4A3C4A8
CABC	333	ROSSLAND (LE ROI, WAR EAGLE MINES, ETC.)	B	VEIN	AU CU		N49 5	W117 48	4B456B7A5+
CABC	332	SHEEP CREEK AREA (KOOTENAY BELL, QUEEN, ETC.)	C	VEIN	AU		N49 10	W117 7	4A1C7A5+
CABC	136	SKIDEGATE (SOUTHEASTER)	C	VEIN	AU		N53 18	W132 0	4A3C7A
CABC	135	SPECOGNA	C	STOK	AU AG		N53 32	W132 13	4A3C5A7
CABC	147	SURF INLET MINE	C	VEIN	AU CU		N53 5	W128 54	4B145C7A
CABC	79	SURF POINT MINE	C	VEIN	AU		N54 1	W130 35	4A4C7A
CABC	301A	TULAMEEN-SIMILKAMEEN AREA	C	PLOR	AU PT		N49 30	W120 38*	4A3C4C8
CABC	137	UNA POINT (EARLY BIRD)	C	VEIN	AU		N52 57	W132 11	4A5C7A
CABC	210	VIDETTE MINE	C	VEIN	AU AG		N51 10	W120 54	4C5C7A
CABC	36	WHEATON CREEK	C	PLOR	AU		N58 23	W129 2	4A3C4A8
CABC	242	WHITE ELEPHANT	C	VEIN	AU		N50 8	W119 33	4A4C7A
CABC	339	WILDHORSE RIVER	C	PLOR	AU		N49 40	W115 35	4A3C4A8
CABC	207	WINDPASS MINE	C	VEIN	AU CU AG		N51 26	W120 6	4B45C7A5
CABC	163	YANKS PEAK-KEITHLEY CREEK AREA	C	VEIN	AU		N52 52	W121 24	4A1C7A
CABC	331	YMIR-ERIE CREEK AREA	B	VEIN	AU AG PB ZN		N49 18	W117 11	4D45B7A5+
CABC	178	ZEBALLOS AREA (PRIVATEER, SPUD VALLEY MINES)	C	VEIN	AU AG	CU ZN PB	N50 1	W126 48	4A45C7A7



CAKW	11	CULLATON LAKE DISTRICT
CAKW	12	LOWO LAKE
CAMB	2	AGASSIZ
CAMB	46	CENTRAL MANITOBA, OGAMA, ROCKLAND
CAMB	53	FALCON LAKE-STAR LAKE (SUNBEAM, ETC.)
CAMB	37	GOODS LAKE
CAMB	41	GOLD ISLAND
CAMB	47	GUNNAR
CAMB	16	GURNEY
CAMB	40	HIGH ROCK ISLAND
CAMB	36	JOWSEY ISLAND
CAMB	23	LAGUNA
CAMB	5	LASTHOPE LAKE
CAMB	45	SAN ANTONIO
CAMB	13	SNOW LAKE (NOR-AOME)
CAMK	43	ACK GROUP
CAMK	34	ARSENAL LAKE (DINGO)
CAMK	67	CAMLAREN MINE AREA
CAMK	66	CLAN LAKE
CAMK	73	CON-RYCON & NEGUS MINES
CAMK	40	COONTWOYT LAKE AREA
CAMK	65	DISCOVERY MINE AREA
CAMK	80	FRANCIS LAKE AREA
CAMK	2	HOPE BAY (2)
CAMK	36	INDIN LAKE
CAMK	64	MOSHER LAKE (BR)
CAMK	35	NORRIS LAKE
CAMK	20	PISTOL LAKE
CAMK	44	REGAN LAKE (DON)
CAMK	61	SNARE RIVER (IO)
CAMK	71	THOMPSON-LUNDMARK MINE
CAMK	17	TREE RIVER (H)
CAMK	16	TREE RIVER (SIDEWALK)
CAMK	41	TUNDRA MINE & COURAGEOUS LAKE AREA
CAMK	72	YELLOWKNIFE (GIANT, PTARMIGAN, ETC.)
CANF	44	ISLE AUX MORTS RIVER (RIOCANEX)
CANF	30	SOPS ARM (BROWNING)
CANS	29	CARIBOU DISTRICT
CANS	33	GOLDENVILLE
CANS	32	HALIFAX-HANTS DISTRICT
CANS	42	LEIPSIGATE
CANS	41	MOLEGA & BROOKFIELD
CANS	18	SEAL HARBOUR AREA
CAON	173	AFTON TP. (NEW GOLDEN ROSE)
CAON	17	ARGOSY (NEW JASON)
CAON	136	ASHLEY
CAON	13	BEE LAKE
CAON	222	BELMONT TP. (CORDOVA)
CAON	31	CENTRAL PATRICIA
CAON	19	COCHENOUR WILLIAMS, CAMPBELL, ETC.
CAON	180	DAVIS TP. (NORSTAR LAKE)
CAON	55	DETOUR LAKE
CAON	67	DOG PAW LAKE
CAON	103	GERALDTON DISTRICT
CAON	63	GOLDLUND
CAON	111	GOUDREAU DISTRICT
CAON	153	HORWOOD LAKE-COPPELL LAKE AREA (OROFINA, RUNDLE)
CAON	42	ISHKISH LAKE
CAON	24	JACKSON-MANION
CAON	156	JEROME

C	DSTR	AU	FE	N61	18	W 98	30	4A35C10A1
C	VEIN	AU		N61	3	W 97	52	4A35C7A
C	VEIN	AU	AG	N56	55	W100	56	4A35C7A2
C	VEIN	AU		N50	54	W 95	20	4A356C7A1
C	STOK	AU		N49	45	W 95	15	4A345C5A1
C	VEIN	AU		N54	40	W 94	9	4A35C7A1
C	VEIN	AU		N53	47	W 94	12	4A35C7A
C	VEIN	AU		N50	52	W 95	16	4A35C7A1
C	VEIN	AU		N54	44	W101	11	4A35C7A2
C	VEIN	AU		N53	46	W 94	30	4A345C7A
C	VEIN	AU		N54	39	W 94	17	4A35C7A1
C	VEIN	AU		N54	47	W 99	46	4A35C7A2
C	STOK	AU		N56	40	W100	48	4A35C5A2
B	VEIN	AU		N51	1	W 95	41	4A356B7A1
C	STOK	AU		N54	53	W100	1	4A35C5A2
C	DSTR	AU		N65	12	W107	57	4A35C10A
C	VEIN	AU		N54	35	W115	32	4A35C7A
C	VEIN	AU		N52	59	W113	12*	4A35C7B1+
C	VEIN	AU		N52	55	W114	14	4A35C7A
B	VEIN	AU		N52	26	W114	22	4A35B7A1
B	DSTR	AU		N55	46	W111	13*	4A15B10B1
B	VEIN	AU		N63	11	W113	54*	4A35B7B1+
C	VEIN	AU	W	N52	27	W112	30	4A35C7A1
C	VEIN	AU		N58	1	W106	46	4A35C7A
C	VEIN	AU		N54	15	W115	10*	4A35C7B
C	STOK	AU		N53	5	W115	27	4A35C5A
C	VEIN	AU		N54	27	W115	46	4A1C7A
C	DSTR	AU		N57	3	W108	47	4A15C10A1
C	VEIN	AU		N55	6	W107	41	4A35C7A
C	VEIN	AU		N53	21	W116	20	4A35C7A1+
C	VEIN	AU		N52	37	W113	28	4A35C7A1+
C	VEIN	AU		N57	42	W111	21	4A15C7A
C	VEIN	AU		N57	42	W111	23	4A35C7A
C	VEIN	AU		N54	2	W111	11*	4A35C7B
B	VEIN	AU		N52	30	W114	20	4A35B7A1
C	VEIN	AU		N47	45	W 58	58	4A5C7A
C	VEIN	AU		N49	44	W 56	54	4A5C7A
C	VEIN	AU		N45	3	W 62	56*	4A14C7B4
C	VEIN	AU		N45	7	W 62	1	4A1C7A4
C	VEIN	AU		N44	50	W 63	40*	4A14C7B2
C	VEIN	AU		N44	19	W 64	37	4A1C7A
C	VEIN	AU		N44	20	W 64	54*	4A14C7B4
C	VEIN	AU		N45	12	W 61	38*	4A14C7B2
C	DSTR	AU		N46	56	W 80	19	4A35C10A1
C	VEIN	AU		N51	29	W 92	20	4A35C7A1
C	VEIN	AU		N48	1	W 80	54	4A35C7A1
C	VEIN	AU	W	N50	43	W 95	8	4A35C7A
C	VEIN	AU		N44	32	W 77	47	4A6C7A4+
C	DSTR	AU	FES	N51	29	W 90	9	4A35C10A1
B	VEIN	AU		N51	3	W 93	44	4A35B7A1
C	VEIN	AU	CU	N46	39	W 80	30	4B16C7A2+
B	DSTR	AU		N50	1	W 79	42	4A35B10A1
C	VEIN	AU		N49	20	W 93	52	4A35C7A
B	VEIN	AU		N49	40	W 86	56	4A235B710A1
C	VEIN	AU		N49	54	W 92	21	4A345C7A
C	VEIN	AU		N48	19	W 84	20	4A345C7A1
C	STOK	AU		N47	55	W 82	25	4A356C5B1
C	DSTR	AU	FE	N51	37	W 88	20	4A35C10A1
C	VEIN	AU		N51	6	W 92	44	4A345C7A1
C	VEIN	AU		N47	37	W 82	14	4A345C7A1

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	58	KENRICA	C	VEIN	AU		N49 43	W 94 40	4A35C7A
CAON	135	KIRKLAND LAKE	A	VEIN	AU	AG	N48 9	W 80 3	4A235A7A1+
CAON	142	LARDER-LAKE AREA	B	STOK	AU	AG	N48 8	W 79 35	4A35B5A1
CAON	89	LEITCH & SAND RIVER	B	VEIN	AU	AG	N49 37	W 88 1	4A35B7A1
CAON	5	LINGMAN LAKE	C	VEIN	AU		N53 52	W 92 53	4A35C7A
CAON	186	LONG LAKE (LEBEL ORO)	C	STOK	AU		N46 18	W 81 9	4A146C5A3-4
CAON	21	MADSEN RED LAKE, ETC.	B	VEIN	AU	AG	N50 58	W 93 55	4A35B7A1
CAON	68	MANITOU LAKE (LAURENTIAN)	C	VEIN	AU		N49 27	W 92 42	4A35C7A
CAON	80	MCCAUL TP. (SAPWE)	C	VEIN	AU		N48 47	W 91 24	4A345C7A
CAON	20	MCKENZIE RED LAKE, ETC.	C	VEIN	AU	AG	N51 4	W 93 50	4A4C7A1
CAON	75	MINE CENTRE-SHOAL LAKE DISTRICT	C	VEIN	AU		N48 44	W 92 37	4A345C7A1
CAON	185	MONGWIN TP. (MCMILLAN)	C	VEIN	AU		N46 8	W 81 48	4A16C7A2+
CAON	82	MOSS TP. (KERRY)	C	VEIN	AU AG		N48 32	W 90 47	4A345C7A1
CAON	101	NORTHERN EMPIRE	C	VEIN	AU	AG	N49 37	W 87 55	4A35C7A1
CAON	47	O'SULLIVAN LAKE	C	STOK	AU		N50 27	W 87 5	4A345C5A
CAON	141	OMEGA	C	DSTR	AU	AG	N48 7	W 79 42	4A35C10A1
CAON	32	PICKLE CROW	B	VEIN	AU	AG W	N51 30	W 90 3	4A345B7A1
CAON	125	PORCUPINE DIST.-TISDALE & DE LORO TPS. (TIMMONS)	A	VEIN	AU	AG CU W	N48 28	W 81 18	4A345A7A1
CAON	127	PORCUPINE DISTRICT-NIGHTHAWK LAKE	C	VEIN	AU	AG	N48 30	W 80 58	4A235C7A1
CAON	126	PORCUPINE DISTRICT-WHITNEY TP.	B	DSTR	AU	AG	N48 31	W 81 7	4A35B10A1
CAON	11	RED CREST	C	VEIN	AU		N51 4	W 94 4	4A4C7A
CAON	64	REDEEMER & BONANZA	C	VEIN	AU		N49 43	W 92 52	4A345C7A
CAON	118	RENBIE	C	VEIN	AU	AG	N48 22	W 83 52	4A345C7A1
CAON	45	RESERVE LAKE (ZULAPA)	C	VEIN	AU		N51 34	W 87 46	4A345C7A
CAON	43	ROND LAKE	C	VEIN	AU		N51 37	W 88 2	4A35C7A1
CAON	131	ROSS	C	VEIN	AU AG		N48 29	W 80 17	4A35C7A1
CAON	2	SACHIGO RIVER	C	VEIN	AU		N54 30	W 91 24	4A345C7A1
CAON	108	SCHREIBER (NORTH SHORE)	C	VEIN	AU		N48 46	W 87 16	4A4C7A
CAON	18	SHABU LAKE	C	VEIN	AU		N51 20	W 92 57	4A35C7A
CAON	57	SHOAL LAKE DISTRICT	C	VEIN	AU	AG	N49 35	W 94 58	4A345C7A1
CAON	38	ST. ANTHONY	C	VEIN	AU		N50 6	W 90 40	4A345C7A1
CAON	70	STRAW LAKE BEACH	C	VEIN	AU		N49 8	W 93 21	4A35C7A
CAON	100	STURGEON RIVER	C	VEIN	AU	AG	N49 45	W 87 46	4A345C7A1
CAON	59	SULTANA	C	VEIN	AU		N49 42	W 94 24	4A345C7A1
CAON	51	TASHOTA-NIPIGON (AND HEADWAY)	C	VEIN	AU CU	AG ZN FB	N50 3	W 87 35	4A345C7A1
CAON	169	TYRANITE	C	STOK	AU		N47 40	W 81 0	4A35B5A
CAON	26	UCHI	C	DSTR	AU	AG	N51 4	W 92 35	4A35C10A1
CAON	140	UPPER BEAVER	C	VEIN	AU CU	AG	N48 10	W 76 46	4B235C7A1
CAON	144	WAWA	C	VEIN	AU		N47 58	W 84 44	4A4C7A1
CAON	60	WENDIGO	C	VEIN	AU CU	AG	N49 36	W 94 14	4A35C7A1
CAON	41	WOTTAM LAKE	C	DSTR	AU FES		N51 35	W 88 27	4A35C10A1
CAON	166	YOUNG-DAVIDSON & MATACHEWAN CONS.	B	STOK	AU	AG	N47 57	W 80 42	4A2B5A1
CAQB	116	BARNAT, EAST MALARTIC	B	STOK	AU		N48 8	W 78 6	4A345B7A1
CAQB	205	BEAUCE (CHAUDIERE) DISTRICT	C	PL CR	AU		N46 13	W 70 38	4A3C4A8
CAQB	202	BELLECHASSE TP.	C	VEIN	AU		N46 33	W 70 14	4A1C7A
CAQB	135	BOURLAMAQUE BATHOLITH (PERRON, BECMORAL)	B	VEIN	AU		N48 9	W 77 33	4A4B7A1
CAQB	123	CURRIE TP. (LAKE ROSE)	C	VEIN	AU		N49 22	W 76 49	4A35C7A1
CAQB	124	DESJARDINS TP. (FLORDIN)	C	VEIN	AU		N49 18	W 76 55	4A35C7A1
CAQB	105	DUPARQUET TP. (BEATTIE-DUQUESNE)	B	STOK	AU AG AS		N48 30	W 79 14	4A4B5A1
CAQB	126	DUVERNY TP. (CLAVERNY, ETC.)	C	VEIN	AU	CU	N48 39	W 77 54	4A4C7A1
CAQB	98	EAGLE (AGNICO-EAGLE)	B	DSTR	AU FES	CU	N49 29	W 78 21	4A35B10A1
CAQB	151	GAMACHE TP. (MESTON LAKE)	C	STOK	AU		N49 29	W 74 30	4A4C5A1
CAQB	180	GUILLET TP. (BELLETERRE)	C	VEIN	AU	AG	N47 24	W 78 41	4A35C7A1
CAQB	133	LAMAQUE	B	VEIN	AU		N48 6	W 77 45	4A4B7A1
CAQB	144	MCKENZIE TP. (NORBEAU)	C	VEIN	AU		N49 58	W 74 18	4A6C7A1
CAQB	114	MIC-MAC, SILVERSTACK, THOMPSON, ETC.	B	DSTR	AU CU		N48 16	W 78 33	4B35B10A1
CAQB	115	O'BRIEN	B	VEIN	AU AG AS		N48 14	W 78 23	4A35B7A1

CAQB	149	OPAWICA LAKE DISTRICT	C	VEIN	AU			N49 35	W 75 55	4A35C7A1
CAQB	138	PERSHING TP. (CROINOR)	C	VEIN	AU			N48 6	W 77 1	4A46C7A1
CAQB	152	ROHAULT TP. (ANACON)	C	VEIN	AU	CJ	AG	N49 29	W 74 26	4B46C7A1
CAQB	136	TIBLEMONT TP.	C	VEIN	AU			N48 15	W 77 18	4A4C7A1
CAQB	66	TP. 1304 (OBAMSKA)	C	VEIN	AU			N50 47	W 78 40	4A35C7A1
CAQB	72	TP. 1323 (TROILUS LAKE)	C	VEIN	AU			N50 51	W 74 35	4A35C7A1
CAQB	153	URBAN TP.	C	VEIN	AU			N49 1	W 75 36	4A35C7A1
CASA	36	AMISK LAKE--NW (PRINCE ALBERT)	C	VEIN	AU			N54 43	W102 16	4A35C7A2
CASA	4	GOLDFIELDS (BOX)	C	STOK	AU			N59 27	W108 31	4A4C5A2
CASA	21	JOJAY LAKE AREA (JOLU, JOJAY)	C	VEIN	AU			N56 0	W104 16	4A145C7A
CAYK	29	BONANZA CREEK	B	PLOR	AU			N63 57	W139 20	4A3B4A7
CAYK	67	BULLION & SHEEP CREEKS	C	PLOR	AU			N61 0	W138 37	4A3C4A7+
CAYK	63	BURWASH CREEK	C	PLOR	AU			N61 23	W139 15	4A3C4A8
CAYK	28	CLAYMORE-DISCOVERY CREEK	B	PLOR	AU			N63 3	W140 56	4A3B4A7
CAYK	34	CLER CREEK	C	PLOR	AU			N63 50	W137 17	4A3C4A7+
CAYK	31	DOMINION CREEK	B	PLOR	AU			N63 49	W138 42	4A3B4A7
CAYK	26	DUBLIN GULCH	C	PLOR	AU	W	SN	N64 2	W135 50	4A3C4A7+
CAYK	70	DULLIS (SQUAW) CREEK	C	PLOR	AU			N60 0	W137 7	4A3C4A8
CAYK	30	HUNKER CREEK	B	PLOR	AU			N63 54	W138 59	4A3B4A7
CAYK	35	JOHNSON CREEK-MINTO LAKE	C	PLOR	AU			N63 45	W136 9	4A3C4A7+
CAYK	39	LAFORMA	C	VEIN	AU			N62 16	W137 6	4A4C7A4
CAYK	77	LIVINGSTONE CREEK	C	PLOR	AU			N61 20	W134 22	4A3C4A7+
CAYK	84	MONTANA MOUNTAIN-POOLY CREEK AREA	C	VEIN	AU	AG		N60 5	W134 42	4C34C7A5+
CAYK	42	MOUNT NANSEN-BROWN MCDADE	C	VEIN	AU	AG		N62 3	W137 9	4C4C7A6
CAYK	11	SIXTY MILE RIVER	C	PLOR	AU			N64 2	W140 46	4A3C4A7
CAYK	32	SULPHUR CREEK	B	PLOR	AU			N63 45	W138 50	4A3B4A7
CSCS	5	ABANGARES DIST. (TRES HERMANOS, BOSTON)	B	VEIN	AU			N10 18	W 84 57	4A7B7A7
CSCS	24	CARATE	C	PLOR	AU			N 8 26	W 83 24	4A37C4A8
CSCS	9	ESPARTA DISTRICT	C	VEIN	AU	AG		N10 3	W 84 36	4C7C7A7
CSCS	7	MIRAMAR	C	VEIN	AU	AG		N10 9	W 84 42	4C7C7A7
CSCS	23	PLAYA MADRIGAL	C	PLOR	AU			N 8 27	W 83 33	4A37C4A8
CUJU	13	BAEZ AREA	C	--	AU			N22 17	W 79 42	4A5C
CUJU	15	FIELD, DELITA	C	VEIN	AU			N21 47	W 83 1	4A145C7A4+
CUJU	20	GUAIMARO DISTRICT	C	VEIN	AU			N21 0	W 77 20	4A45C7A5
CUJU	21	HOLGUIN AREA	C	VEIN	AU			N20 58	W 76 18	4A45C7A5
CUJU	12	SANTA CLARA AREA	C	--	AU			N22 20	W 79 56	4AC
CUJU	26	SANTA LUCIA AREA	C	--	AU			N21 5	W 75 55	4A5C
DRDR	4	PUEBLO VIEJO	B	STOK	AU	AG	ZN	N18 57	W 70 12	4D5B5A5
ESES	2	EL DORADO	C	VEIN	AU	AG		N13 51	W 88 48	4C7C7A7
ESES	6	HORMIGUERO	C	VEIN	AU	AG		N13 31	W 88 3	4C7C7A7
ESES	7	MONTE MAYOR	C	VEIN	AU	AG		N13 42	W 87 58	4C7C7A7
ESES	5	MONTECRISTO & DIVISADERO	C	VEIN	AU	AG		N13 36	W 88 4	4C7C7A7
ESES	3	POTOSI	C	VEIN	AU	AG		N13 42	W 88 20	4C7C7A7
ESES	8	SAN SEBASTIAN	B	STOK	AU			N13 39	W 87 55	4B7B5A7
GTGT	12	LA CANOA	C	PLOR	AU			N14 54	W 90 27	4A3C4A8
GTGT	19	RIO BOBOS	C	PLOR	AU			N15 23	W 88 43	4A3C4A8
HOHO	17	AGUA FRIA	C	VEIN	AU	AG	CJ	N14 6	W 86 37	4C14C7A6
HOHO	9	ANDERSON Y REY DEL ORO	C	VEIN	AU	AG		N14 33	W 86 10	4A15C7A3+
HOHO	18	AZABACHE & LA VIRGEN	C	VEIN	AU	AG		N14 6	W 86 29	4C15C7A5+
HOHO	27	CONCHAGUA	C	VEIN	AU			N13 48	W 86 28	4A15C7A6
HOHO	30	CORPUS DEPOSITS	C	VEIN	AU			N13 16	W 87 1	4A7C7A7
HOHO	20	EL DORADO	C	PLOR	AU			N15 34	W 85 16	4A3C4A8
HOHO	23	EL FORVENIR	C	VEIN	AU	AG		N13 46	W 87 42	4C7C7A7
HOHO	10	EL RETIRO	C	PLOR	AU			N14 34	W 86 19	4A3C4A8
HOHO	28	EL TRANSITO	C	VEIN	AU	AG		N13 30	W 87 36	4C7C7A7
HOHO	31	GUADALUPE	C	VEIN	AU			N13 19	W 86 52	4A7C7A7
HOHO	15	LA ALHAMBRA	C	VEIN	AU	AG		N14 15	W 86 16	4C15C7A3+
HOHO	22	LA VICTORINA	C	VEIN	AU	AG		N13 52	W 87 33	4C7C7A7
HOHO	26	MORAMULCA	C	VEIN	AU	AG		N13 41	W 87 18	4C7C7A7
HOHO	19	RIO ALMENDROS	C	PLOR	AU			N14 4	W 86 23	4A3C4A8
HOHO	16	RIO FRIO	C	PLOR	AU			N14 14	W 86 7	4A3C4A8

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
HQHO	8	RIO GUAYAPE	C	PLQR	AU		N14 45	W 86 2	4A3C4A8
HQHO	21	RIO PATUCA	C	PLQR	AU		N14 33	W 85 25	4A3C4A8
HQHO	25	SABANA GRANDE	C	VEIN	AU AG		N13 48	W 87 15	4C7C7A7
HQHO	3	SAN ANDRES	C	VEIN	AU		N14 45	W 88 56	4A7C7A7
HQHO	32	SAN JUAN	C	VEIN	AU		N13 12	W 87 0	4A7C7A7
HQHO	29	SAN MARTIN	C	VEIN	AU AG		N13 25	W 87 16	4C7C7A7
HQHO	24	YUSCARAN DISTRICT (VETA GRANDE MINE)	C	VEIN	AU AG		N13 55	W 86 51	4C7C7A7
MXAG	4	Z. MINERA DE ASIENOS	C	VEIN	AU CU		N22 15	W102 5	4B15C7A7
MXAG	3	Z. MINERA DE TEPEZALA	C	VEIN	AU CU		N22 14	W102 10	4B15C7A7
MXBN	8	EL ALAMO, LA PRINCESA ET AL.	C	VEIN	AU AG		N31 40	W116 5	4C4C7A5
MXBN	12	EL SOCORRO	C	SKAR	AU		N31 2	W115 45	4A14C3A5
MXBN	27	LA ESCONDIDA	C	VEIN	AU		N29 5	W113 40	4A15C7A7
MXBN	2	LA MILLA	C	VEIN	AU		N32 15	W116 0	4A4C7A5+
MXBN	28	LAS CHOLLAS	C	VEIN	AU		N28 50	W113 30	4A15C7A5+
MXBN	26	LEON GRANDE	C	VEIN	AU		N29 15	W114 25	4A15C7A6
MXBN	7	REAL DEL CASTILLO	C	VEIN	AU		N31 55	W116 15	4A14C7A5
MXBN	10	SAN ANTONIO DEL MAR	C	VEIN	AU CU	FE	N31 5	W116 15	4B4C7A5
MXBN	29	SAN JUAN	C	VEIN	AU		N28 40	W113 30	4A15C7A5+
MXBN	11	SANTA TERESA	C	VEIN	AU CU	FE	N31 5	W116 1	4B14C7A5
MXBN	14	VALLADARES	C	VEIN	AU		N31 1	W115 25	4A4C7A
MXBS	4	LA MINITA	C	VEIN	AU		N27 29	W114 11	4A15C7A
MXBS	22	SAN JOSE DEL CABO	C	VEIN	AU AG	W	N23 4	W109 40	4C4C7A7
MXBS	20	SANTIAGO	C	VEIN	AU AG	W	N23 30	W109 45	4CC7A7
MXBS	19	TODOS SANTOS	C	VEIN	AU AG	W	N23 26	W110 11	4CC7A7
MXCH	149	BATOPILAS	B	VEIN	AU AG		N27 2	W107 44	4C47B7A7
MXCH	128	BATOSEGACHI, EL POTRERO	C	VEIN	AU		N27 23	W108 20	4C7C7A7
MXCH	12	BISMARCK	C	VEIN	AU AG CU		N31 14	W107 35	4C7C7A7
MXCH	158	CALABACILLAS	C	VEIN	AU AG		N26 20	W107 41	4C7C7A7
MXCH	161	CEBOLLITAS, LOS ANGELES	C	VEIN	AU AG		N26 21	W107 15	4C7C7A7
MXCH	165	CENIZA	C	VEIN	AU AG		N26 10	W106 31	4C7C7A7
MXCH	50	CERRO BOLUDO, PARAGATOS	B	VEIN	AU AG		N28 21	W108 32	4C7B7A7
MXCH	145	CERRO DEL COMAL, NAVEGANTE	C	VEIN	AU AG		N27 2	W106 31	4C7C7A7
MXCH	127	CHINIPAS	B	VEIN	AU AG		N27 26	W108 31	4C7B7A7
MXCH	151	COLORES	C	VEIN	AU AG		N26 53	W107 41	4C7C7A7
MXCH	49	CONCHENITO	C	VEIN	AU AG		N28 32	W108 18	4C7C7A7
MXCH	189	DOLORES	C	VEIN	AU AG		N25 57	W107 7	4C7C7A7
MXCH	48	DOLORES, HUISOPA	C	VEIN	AU AG		N28 59	W108 34	4C7C7A7
MXCH	54	EL CABIRO	C	VEIN	AU AG		N28 13	W108 30	4C7C7A7
MXCH	51	EL MADRONO	C	VEIN	AU AG		N28 20	W108 20	4C7C7A7
MXCH	7	EL MIMBRE	C	VEIN	AU AG		N31 20	W106 4	4C1C7A7
MXCH	58	EL PILAR	C	SKAR	AU AG		N28 8	W108 33	4C14C3A7
MXCH	60	EL PINITO, EMILIA	C	VEIN	AU AG	SB	N28 4	W108 41	4C15C7A7
MXCH	57	EL SAUS	C	VEIN	AU AG		N28 11	W108 50	4C7C7A7
MXCH	121	EL ZAFOTE	C	SKAR	AU AG		N27 59	W108 40	4C17C3A7
MXCH	61	EL ZORRILLO	C	VEIN	AU AG		N28 3	W108 49	4C7C7A7
MXCH	164	GUADALUPE Y CALVO	A	VEIN	AU AG		N26 7	W106 59	4C7A7A7
MXCH	154	HUERACHIC, SAPURI	C	VEIN	AU AG		N26 42	W107 22	4C7C7A7
MXCH	32	INCA Y FORTUNA	C	VEIN	AU AG		N30 12	W107 50	4C7C7A7
MXCH	10	KLONDYKE	C	VEIN	AU AG		N31 1	W106 10	4C1C7A7
MXCH	130	LA MILLONARIA	C	VEIN	AU AG		N27 14	W108 26	4C7C7A7
MXCH	142	LA PATRIA SAN IGNACIO	C	VEIN	AU AG		N27 26	W107 50	4C7C7A7
MXCH	78	LAS BRAZAS	C	VEIN	AU AG		N28 23	W127 52	4C7C7A7
MXCH	125	LORETO, EL TRIGO, SANTA ANA	C	VEIN	AU AG		N27 40	W108 35	4C7C7A7
MXCH	140	LOS ANGELES	C	VEIN	AU AG		N27 33	W107 48	4C7C7A7
MXCH	137	LOS ESTADOS (LA GAVILANA)	C	VEIN	AU AG		N27 44	W106 33	4C7C7A7
MXCH	136	MAGUARICHIC, SANTA MARTA	C	VEIN	AU AG		N27 51	W107 59	4C7C7A7
MXCH	179	MINAS NUEVAS	C	VEIN	AU AG PB ZN		N27 3	W105 15	4D7C7A7

MXCH 153 MOL INARES  
 MXCH 126 MONTERDE  
 MXCH 139 NONOAYA  
 MXCH 191 RAFAEL, POTRERO DE ORPINEDA, CUERVO  
 MXCH 56 SAN ANTONIO  
 MXCH 150 SAN IGNACIO  
 MXCH 152 SAN JOAQUIN, MORELOS  
 MXCH 160 SAN JOSE DE LAS CRUCES  
 MXCH 159 SAN JUAN NEPOMUCENO  
 MXCH 124 SAN LUIS  
 MXCH 53 SANTA MARGARITA, MARIA VIRGINIA  
 MXCH 55 SANTA MARIA, SAHUAYACANCITO  
 MXCH 8 SIERRA DE GUADALUPE  
 MXCH 94 SIERRA PLACER DE GUADALUPE  
 MXCH 146 TUBARES  
 MXCH 123 URACHIC  
 MXCH 148 URIQUE  
 MXCH 190 ZAPOTE  
 MXCH 144 ZONA VALLE DE OLIVOS  
 MXCO 18 DELICIAS  
 MXCO 29 PANUCCO  
 MXDR 98 ARROYO DE LA HIGUERA  
 MXDR 16 CANELAS  
 MXDR 18 CERRO PRIETO  
 MXDR 75 DTO. SAN DIMAS (TAYOLTITA)  
 MXDR 22 EL RODEO  
 MXDR 19 EL TUNEL (Z. SAN MIGUEL DEL CANTIL.)  
 MXDR 101 GARIBAYA  
 MXDR 29 GUANACEYI  
 MXDR 104 JACUXTLE (LLUVIA DE ORO)  
 MXDR 20 LA FE  
 MXDR 2 LA MADRUGADA  
 MXDR 59 LA PROVIDENCIA, ONTARIO, ETC.  
 MXDR 45 LA SANTA CRUZ  
 MXDR 28 LOS GUEROS DE S. FERNANDO  
 MXDR 56 PROMONTORIO  
 MXDR 62 REYNA ISABEL  
 MXDR 84 SAN EDUARDO  
 MXDR 25 SAN JACOB (Z. SIERRA SANTA)  
 MXDR 30 SANTA MARIA DEL ORO  
 MXDR 17 TAMAZULA  
 MXDR 26 Z. RINCON DE NEVAREZ  
 MXDR 24 Z. SAN PEDRO DE AZAFRANES  
 MXEM 4 ALBARRAN  
 MXGN 6 ARCELIA  
 MXGN 9 CAPETILLO  
 MXGN 15 CERRO SAN ANTONIO  
 MXGN 23 MINA DE JESUS  
 MXGN 11 POZOS  
 MXGR 38 CARMEN Y CONCEPCION  
 MXGR 37 LA DELFINA Y CUATRO SEÑORES  
 MXGR 24 LA DIVINA PROVIDENCIA, AGUILA  
 MXGR 30 MARINA I, MARINA II  
 MXGR 39 MINA LA NATIVIDAD  
 MXGR 25 NICOLAS DEL ORO  
 MXGR 9 PINZON MORADO  
 MXGR 3 TLAPEHUALA Y AMPL. TLAPEHUALA  
 MXHD 8 SAN CLEMENTE  
 MXMC 11 AGUILILLA  
 MXMC 15 CERRO CANTADOR  
 MXMC 31 EL CARMEN

C	VEIN	AU	AG		N26	43	W107	34	4C7C7A7
C	VEIN	AU	AG		N27	39	W108	7	4C7C7A7
C	VEIN	AU	AG		N27	38	W106	44	4C7C7A7
C	VEIN	AU	AG		N25	50	W107	2	4C7C7A7
C	VEIN	AU	AG	SB	N28	11	W108	43	4C15C7A7
C	VEIN	AU	AG		N26	53	W107	52	4C7C7A7
C	VEIN	AU	AG		N26	43	W107	42	4C7C7A7
C	SKAR	AU	AG		N26	24	W107	23	4C4C3A7
C	VEIN	AU	AG		N26	22	W107	26	4C7C7A7
C	VEIN	AU	AG		N27	49	W108	50	4C7C7A7
C	VEIN	AU	AG		N28	13	W108	16	4C7C7A7
C	VEIN	AU	AG		N28	12	W108	39	4C7C7A7
C	VEIN	AU	AG		N51	15	W106	9	4C1C7A7
C	VEIN	AU	AG	FB ZN	N29	20	W105	24	4C107A7
C	VEIN	AU	AG		N26	57	W107	1	4C7C7A7
C	VEIN	AU	AG		N27	52	W108	12	4C7C7A7
C	VEIN	AU	AG		N27	14	W107	55	4C7C7A7
C	VEIN	AU	AG		N25	54	W107	14	4C7C7A7
C	VEIN	AU	AG	CJ	N27	13	W106	15	4C7C7A7
C	PLOR	AU			N26	18	W102	52	4A3C4A8
C	VEIN	AU	AG	CJ	N26	44	W101	0	4C7C7A7
B	VEIN	AU	AG		N23	42	W105	50	4C4B7A7
B	VEIN	AU	AG		N25	7	W106	31	4C7B7A7
C	VEIN	AU	AG		N25	1	W106	30	4C7C7A7
A	VEIN	AU	AG		N24	10	W105	55	4C7A7A6
C	VEIN	AU		CJ	N24	48	W106	43	4B7C7A7
B	VEIN	AU	AG	FB	N24	57	W106	15	4C7B7A7
C	VEIN	AU	AG	CJ FB ZN	N23	22	W105	22	4D7C7A7
B	VEIN	AU	AG		N25	35	W105	58	4C7B7A7
C	VEIN	AU			N23	10	W105	20	4A7C7A7
C	VEIN	AU	AG	FB	N24	54	W106	30	4D5C7A7
C	VEIN	AU	AG	FB	N26	15	W105	45	4C7C7A7
C	VEIN	AU	AG	FB	N25	3	W105	33	4C7C7A7
C	VEIN	AU	AG	MO ZN	N25	30	W104	7	4D1C7A7
C	VEIN	AU	AG	FB ZN CJ	N24	20	W106	3	4D4C7A7
C	VEIN	AU	AG		N25	14	W105	8	4C7C7A7
C	VEIN	AU	AG	FB	N24	53	W104	45	4C15C7A7
B	VEIN	AU	AG		N24	50	W103	56	4C14B7A7
B	VEIN	AU	AG		N24	33	W106	0	4C45B7A7
A	VEIN	AU	AG		N25	55	W105	27	4C145A7A7
C	VEIN	AU	AG		N25	5	W107	2	4C7C7A7
B	VEIN	AU	AG		N24	34	W106	18	4C7B7A7
B	VEIN	AU	AG		N24	42	W106	10	4C7B7A7
C	VEIN	AU	FB		N19	7	W 99	59	4A17C7A7
C	VEIN	AU	AG		N21	27	W101	5	4C4C7A7
C	VEIN	AU	AG		N21	22	W101	5	4C4C7A7
C	VEIN	AU	AG		N21	9	W100	43	4C4C7A7
C	VEIN	AU	AG		N21	25	W 99	50	4C7C7A7
C	VEIN	AU	AG	CJ FB ZN	N21	14	W100	30	4D7C7A7
B	SKAR	AU	AG		N17	50	W 99	40	4C14B3A7
C	SKAR	AU	AG	FB	N17	50	W 99	50	4C15C3A8
C	VEIN	AU	AG	CJ	N17	55	W100	15	4C4C7A7
C	VEIN	AU	AG	FB CJ	N17	21	W100	59	4C4C7A7
C	VEIN	AU			N17	42	W 99	45	4A15C7A7
C	VEIN	AU	AG		N17	50	W100	15	4C4C7A7
C	STOK	AU	AG	CJ	N18	12	W100	50	4C15C5A7
C	PEGM	AU	CJ	AG	N18	30	W100	30	4B4C1A7
C	VEIN	AU	AG		N20	40	W 99	10	4C7C7A7
C	VEIN	AU	AG		N18	42	W102	46	4C1C7A7
C	VEIN	AU			N18	29	W103	0	4A7C7A7
C	VEIN	AU	AG		N19	32	W100	36	4C7C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXMC	30	LA REYNA	B	VEIN	AU AG		N19 47	W100 51	4C7B7A7
MXMC	26	TLALFUJAHUA-EL ORO	C	VEIN	AU AG		N19 50	W100 10	4C17A7A7
MXMC	19	TUMISCATIO	C	VEIN	AU AG	CJ	N18 30	W102 20	4B4C7A7
MXNA	15	AGUA CALIENTE	C	VEIN	AU AG		N21 40	W104 33	4C7C7A7
MXNA	24	CACALUTAN	C	VEIN	AU AG		N21 13	W104 18	4C7C7A7
MXNA	23	COMPOSTELA	C	VEIN	AU AG		N21 12	W104 55	4C7C7A7
MXNA	10	COYOTES	C	VEIN	AU AG		N22 7	W105 10	4C7C7A7
MXNA	30	EL DORADO	C	VEIN	AU AG		N20 51	W104 26	4C4C7A
MXNA	22	EL FAISAN, LA CORONILLA	C	VEIN	AU AG		N21 15	W105 3	4C47C7A
MXNA	29	EL PITON	C	VEIN	AU		N20 55	W104 30	4A7C7A7
MXNA	4	EL TIGRE	C	VEIN	AU CJ		N22 29	W105 24	4B7C7A7
MXNA	1	GUAMUCHIL	C	VEIN	AU AG		N22 58	W105 10	4C7C7A7
MXNA	9	LA CHIRIPA Y DORADITO	C	VEIN	AU AG		N22 12	W105 15	4C4C7A7
MXNA	25	LA PURISIMA, LA VIRGEN	C	VEIN	AU AG		N20 58	W105 0	4C4C7A
MXNA	19	MALINAL	C	VEIN	AU		N21 20	W105 5	4A7C7A7
MXNA	11	P.V. 4 (EL ZOPILOTE)	C	VEIN	AU AG		N21 57	W104 56	4C7C7A7
MXNA	3	PUYEQUE	C	VEIN	AU AG		N22 35	W105 23	4C7C7A7
MXNA	7	SAN FRANCISCO, EL CARMEN, ETC.	C	VEIN	AU AG		N22 26	W105 10	4C7C7A7
MXNA	12	SANTIAGO IXCUINTLA	B	VEIN	AU	CJ	N21 48	W105 10	4A7B7A7
MXNA	17	ZONA DE ACUILAPILCO	C	VEIN	AU AG		N21 26	W104 31	4C7C7A7
MXNA	18	ZONA DE COAPILLA	C	VEIN	AU AG		N21 22	W104 45	4C47C7A
MXOX	98	ECATEPEC	C	VEIN	AU AG		N16 20	W 95 55	4C7C7A7
MXOX	49	ESTETLA	C	VEIN	AU AG		N17 2	W 97 6	4C15C7A7
MXOX	64	HACIENDA Y EJEA	C	VEIN	AU		N16 36	W 97 10	4A4C7A7
MXOX	37	IXTLAN DE JUAREZ	B	VEIN	AU AG		N17 17	W 96 28	4C7B7A7
MXOX	24	JALTEPETONGO	C	VEIN	AU CJ		N17 40	W 97 4	4B15C7A7
MXOX	80	JUQUILA	C	VEIN	AU		N16 15	W 97 20	4A4C7A7
MXOX	72	LA SOLEDAD	C	VEIN	AU AG		N16 36	W 96 14	4C7C7A7
MXOX	74	LACHIADOVA	C	VEIN	AU AG		N16 25	W 96 16	4C4C7A7
MXOX	40	LAXOBA	C	VEIN	AU AG	FB	N17 15	W 96 12	4C7C7A7
MXOX	92	LOAYAGA	C	VEIN	AU CJ AG		N16 38	W 95 11	4B7C7A7
MXOX	29	MACUILTIANGUIS	C	VEIN	AU AG		N17 36	W 96 34	4C15C7A7
MXOX	86	MATIAS ROMERO	C	VEIN	AU		N16 51	W 95 5	4A4C7A7
MXOX	4	MILTEPEC	C	VEIN	AU AG FB		N18 0	W 97 40	4C7C7A7
MXOX	103	MINAS GUADALUPE Y ZONA DE COBAS	C	VEIN	AU	CO NI	N16 23	W 94 16	4A4C7A7
MXOX	68	MIXTEPEC	C	VEIN	AU AG		N16 40	W 96 53	4C15C7A7
MXOX	95	MIXTEQUILLA	C	VEIN	AU AG FB		N16 27	W 95 23	4C4C7A7
MXOX	50	MUNANA	C	VEIN	AU		N17 4	W 96 59	4A4C7A7
MXOX	101	PASO NAVEGANTE	C	VEIN	AU CJ CO NI		N16 25	W 94 26	4B4C7A7
MXOX	104	PIEDRAS BLANCAS	C	VEIN	AU CJ	CO NI	N16 18	W 94 17	4B4C7A7
MXOX	107	PINAS	C	VEIN	AU AG		N15 59	W 96 20	4C15C7A7
MXOX	73	QUECHAPA	C	VEIN	AU AG		N16 27	W 96 15	4C7C7A7
MXOX	57	QUIATONI	C	VEIN	AU AG	CJ	N16 45	W 96 1	4C7C7A7
MXOX	27	QUIOTEPEC	C	VEIN	AU AG		N17 43	W 96 37	4C15C7A7
MXOX	25	SAN JUAN	C	VEIN	AU AG		N17 40	W 96 55	4C15C7A7
MXOX	89	SAN MIGUEL CHIMALAPA	C	VEIN	AU AG CJ		N16 43	W 94 44	4C7C7A7
MXOX	77	SAN PEDRO	C	VEIN	AU		N16 19	W 96 42	4A4C7A7
MXOX	54	SANTA ANA DEL VALLE	C	VEIN	AU AG		N16 58	W 96 23	4C7C7A7
MXOX	52	SANTA INES	C	VEIN	AU AG		N16 55	W 96 52	4C15C7A7
MXOX	87	SANTA MARIA PETAPA	C	VEIN	AU AG		N16 48	W 95 8	4C7C7A7
MXOX	56	SANTIAGO MATATLAN	C	VEIN	AU CJ	AG FB	N16 50	W 96 15	4B7C7A7
MXOX	34	SANTIAGO TENANGO	C	VEIN	AU	TI	N17 27	W 96 47	4A4C7A7
MXOX	17	SILICAYOAPILLA	C	VEIN	AU AG	FB	N17 50	W 97 44	4C15C7A7
MXOX	46	TALTEPEC	C	VEIN	AU		N17 8	W 97 22	4C4C7A7
MXOX	11	TECOMAXTLAHUACA	C	VEIN	AU AG	SB	N17 20	W 98 2	4C7C7A7
MXOX	15	TEUTLA	C	VEIN	AU		N17 58	W 96 42	4A4C7A7
MXOX	36	YARENI Y GUELACHE	C	VEIN	AU AG		N17 17	W 96 39	4C7C7A7

MXOX	38	YATAO	C	VEIN	AU	AG		N17	21	W 96	16	4C15C7A7
MXOX	2	YOLOTEPEC	C	VEIN	AU	AG		N18	7	W 97	45	4C15C7A7
MXOX	58	YU-MINI Y TIA-NDIATO	C	PLQR	AU			N16	51	W 97	32	4A37C4A8
MXOX	102	ZANATEPEC	C	VEIN	AU	AG	CO NI	N16	48	W 94	20	4C4C7A7
MXOX	99	ZONA DE TEQUISISTLAN	C	VEIN	AU	AG		N16	24	W 95	39	4C4C7A7
MXOX	70	ZONA MINERA DE TAVICHE	C	VEIN	AU	AG	PB ZN	N16	39	W 96	32	4C7C7A7
MXPB	8	TETELA	C	VEIN	AU			N19	54	W 97	43	4A7C7A7
MXQR	8	BERNAL (SAN MARTIN, AJUCHITLAN)	C	VEIN	AU	AG		N20	53	W100	0	4C1C7A7
MXQR	3	JALPAN	C	VEIN	AU	AG	PB ZN	N21	12	W 99	28	4D1C7A7
MXSL	16	BAQUIRITO	C	PLQR	AU			N25	51	W107	55	4A3C4A8
MXSL	35	EL HUIZACHE	C	VEIN	AU	AG		N24	3	W106	25	4C4C7A
MXSL	4	EL RAYO	C	VEIN	AU	AG		N26	30	W108	10	4C4C7A7
MXSL	34	EL TAMBOR	C	VEIN	AU			N24	8	W106	30	4A7C7A7
MXSL	14	JESUS, MARIA, Y EL PARAISO	C	VEIN	AU	AG	CJ	N26	8	W107	58	4C47C7A7
MXSL	37	LA CHIRIPA, GUERRA Y QUINA	C	VEIN	AU	AG		N23	56	W106	23	4C4C7A
MXSL	38	LA CRUZ Y OTROS	C	VEIN	AU	AG		N23	50	W106	20	4C4C7A
MXSL	5	LA SIDRA	C	VEIN	AU	AG		N26	29	W108	2	4C4C7A7
MXSL	33	LAS JARILLAS	C	VEIN	AU	AG		N24	16	W106	32	4C7C7A7
MXSL	18	LAS TROJES	C	VEIN	AU	AG		N25	41	W107	24	4C4C7A7
MXSL	39	MINERALES DE VENTANA Y METATES	C	VEIN	AU	AG		N23	48	W106	0	4C7C7A7
MXSL	31	PACHUCA	B	VEIN	AU	AG		N24	20	W106	42	4C17B7A7
MXSL	36	SAN AGUSTIN	C	VEIN	AU	AG		N23	58	W106	32	4C7C7A7
MXSL	13	SAN ANTONIO	C	VEIN	AU	AG		N26	3	W108	10	4C4C7A7
MXSN	82	ALGORROBA-PICHUCATE	C	VEIN	AU			N26	56	W108	31	4A7C7A7
MXSN	75	BLANCA, URREA, LAS LOMAS	C	VEIN	AU			N27	4	W109	10	4A4C7A7
MXSN	19	DOS NACIONES	C	VEIN	AU	AG	PB	N30	10	W110	35	4C7C7A7
MXSN	74	EL TORO, NOCHE BUENA-VETA GRANDE	C	VEIN	AU			N27	12	W108	50	4A4C7A7
MXSN	67	LA ESTRELLA	C	VEIN	AU			N27	24	W108	55	4A7C7A7
MXSN	3	LOS TANQUES	C	VEIN	AU			N31	40	W112	57	4A7C7A7
MXSN	4	SAN FRANCISCO	C	VEIN	AU			N31	30	W113	2	4A7C7A7
MXSN	6	SIERRA DE TAJITOS	C	VEIN	AU	AG		N30	58	W112	15	4C1C7A7
MXSN	5	SIERRA FRIETA	C	VEIN	AU			N31	18	W113	2	4A7C7A7
MXZC	21	LA ESMERALDA-LA PROVIDENCIA	C	VEIN	AU	AG	PB CJ	N24	23	W100	58	4C4C7A7
MXZC	63	LOS LUGOS Y SAN MIGUEL	C	VEIN	AU			N21	10	W103	25	4A4C7A7
MXZC	15	SAN BENITO	C	VEIN	AU			N25	1	W101	59	4A1C7A7
MXZC	5	TEYRA	C	VEIN	AU			N24	34	W102	10	4A4C7A6
NUNU	21	AMERICA	C	VEIN	AU			N13	47	W 84	30	4A7C7A7
NUNU	18	BONANZA	B	VEIN	AU	AG	PB ZN	N13	58	W 84	37	4D7B7A7
NUNU	8	DIPILTO	C	VEIN	AU			N13	45	W 86	32	4A15C7A5+
NUNU	13	EL CHORREADERO	C	VEIN	AU			N13	0	W 86	49	4A7C7A7
NUNU	14	EL LIMON	B	VEIN	AU			N12	44	W 86	43	4A7B7A7
NUNU	4	LA CORONA	C	VEIN	AU			N13	48	W 86	1	4A15C7A5+
NUNU	12	LA GRECIA	C	STOK	AU	AG		N13	10	W 86	35	4C7C5A7
NUNU	15	LA INDIA	C	VEIN	AU			N12	45	W 86	11	4A7C7A7
NUNU	24	LA LIBERTAD	C	VEIN	AU	AG		N12	17	W 85	9	4C7C7A7
NUNU	17	LA LUZ	B	STOK	AU	CJ	AG	N13	45	W 84	48	4B14B5A6+
NUNU	22	LA REINA	C	VEIN	AU	AG		N12	58	W 85	49	4C7C7A7
NUNU	5	MURRA	C	VEIN	AU			N13	43	W 86	3	4A15C7A5+
NUNU	16	OCONGUAS	C	PLQR	AU			N13	45	W 85	47	4A3C4A8
NUNU	2	PIS PIS	C	PLQR	AU			N14	6	W 84	37	4A3C4A8
NUNU	1	RIO WAWA	C	PLQR	AU			N14	18	W 84	23	4A3C4A8
NUNU	3	RISCOS DE ORO	C	VEIN	AU	CJ		N14	3	W 84	12	4B7C7A7
NUNU	6	SAN ALBINO	C	VEIN	AU			N13	41	W 86	7	4A15C7A5+
NUNU	7	SAN JUAN TEL PANECA	C	VEIN	AU			N13	34	W 86	13	4A15C7A5+
NUNU	25	SANTO DOMINGO	C	VEIN	AU			N12	13	W 85	1	4A7C7A7
NUNU	23	VERDE	C	VEIN	AU			N12	54	W 85	49	4A7C7A7
PNPN	4	BOCAS DEL TORO	C	VEIN	AU			N 8	55	W 82	12	4A7C7A7
PNPN	3	BOQUETE	C	VEIN	AU			N 8	52	W 82	27	4A7C7A7
PNPN	6	CALDERA 2	C	VEIN	AU			N 8	40	W 82	21	4A7C7A7
PNPN	37	CANAS	C	VEIN	AU	CJ		N 7	47	W 77	35	4B7C7A7
PNPN	2	CANAS GORDAS	C	VEIN	AU			N 8	50	W 82	49	4A7C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
PNFN	16	CANAZAS	C	VEIN	AU		N 8 22	W 81 10	4A7C7A7
PNFN	29	CERRO CABRA	C	VEIN	AU		N 9 0	W 79 40	4A7C7A7
PNFN	30	CERRO CAMPANA	C	VEIN	AU AG		N 8 45	W 79 56	4C7C7A7
PNFN	11	COQUYO	C	VEIN	AU		N 8 48	W 81 0	4A7C7A7
PNFN	18	LOS HATILLOS	C	VEIN	AU FB		N 8 16	W 80 57	4D7C7A7
PNFN	12	NUESTRO AMO	C	VEIN	AU		N 8 29	W 80 30	4A7C7A7
PNFN	24	PALO SECO	C	PLOR	AU		N 7 35	W 80 58	4A3C4A8
PNFN	17	REMANSE	C	VEIN	AU		N 8 17	W 81 4	4A7C7A7
PNFN	28	RIO BAYANO	C	PLOR	AU		N 9 5	W 78 20	4A3C4A8
PNFN	10	RIO INDIO	C	VEIN	AU		N 8 49	W 80 3	4A7C7A7
PNFN	22	RIO LOVAINA	C	VEIN	AU		N 7 52	W 81 33	4A7C7A7
PNFN	36	RIO PINA	C	VEIN	AU		N 7 40	W 78 8	4A56C7A7
PNFN	32	RIO SAMBU	C	PLOR	AU		N 8 4	W 78 12	4A3C4A8
PNFN	35	RIO TUQUTI	C	PLOR	AU		N 8 6	W 77 55	4A3C4A8
PNFN	34	TUQUESA	B	VEIN	AU CU		N 8 30	W 77 35	4B7B7A7
RQRQ	10	CARMEN	C	VEIN	AU AG	FB ZN CU	N18 2	W 66 10	4D5C7A5+
RQRQ	4	COROZAL (PALOS BLANCOS)	C	PLOR	AU		N18 17	W 66 17	4A3C4A8
RQRQ	8	MINILLAS, SAN GERMAN	C	VEIN	AU CU	AG FB	N18 4	W 67 0	4B5C7A6
USAK	155	ALASKA-JUNEAU, TREADWELL ET AL.	B	VEIN	AU	AG FB	N58 17	W134 21	4A145B7A
USAK	28	ANIKOVIK RIVER AREA	C	PLOR	AU SN	W	N65 32	W167 40	4A3C4A8
USAK	161	APEX-EL NIDO MINES	C	VEIN	AU	AG W	N57 57	W136 17	4A456C7A4+
USAK	178	APOLLO MINE	C	VEIN	AU	AG FB ZN CU	N55 11	W160 35	4A45C7A7
USAK	165	BAUER-SILVER BAY PROSPECTS	C	VEIN	AU		N57 0	W135 9	4A45C7A4+
USAK	111	BEAR CREEK	C	PLOR	AU	HG	N61 3	W159 49	4A3C4A7+
USAK	120	BEAR CREEK	C	PLOR	AU	AG	N60 55	W149 34	4A3C4A8
USAK	75	BEAR CREEK & COLORADO CREEK	C	PLOR	AU		N63 35	W156 4	4A3C4A8
USAK	13	BEAR CREEK (HOGATZA)	C	PLOR	AU	SN PT	N66 12	W155 42	4A3C4A8
USAK	46	BEAR GULCH-LONG CREEK AREA	C	PLOR	AU	SN	N64 24	W155 32	4A3C4A8
USAK	153	BERNERS BAY DISTRICT	C	STOK	AU		N58 52	W135 5	4A456C5A
USAK	36	BIG HURRAH CREEK & SOLOMON RIVER MINE	C	VEIN	AU	W	N64 39	W164 19	4AC7A
USAK	101	BOBTAIL CREEK	C	PLOR	AU	HG	N61 55	W161 25	4A3C4A8
USAK	138	BUTTE CREEK & KOWKOW CREEK	C	PLOR	AU	PT	N59 29	W161 27	4A3C4A7
USAK	91	CACHE CREEK AREA	C	PLOR	AU	AG PT TH	N62 31	W150 55	4A3C4A
USAK	10	CALIFORNIA CREEK	C	PLOR	AU		N66 58	W156 37	4A3C4A8
USAK	38	CANDLE AREA	C	PLOR	AU		N65 54	W161 59	4AC4A8
USAK	82	CANDLE CREEK	C	PLOR	AU HG	W	N62 53	W155 47	4A3C4A8
USAK	104	CANYON CREEK	C	PLOR	AU		N60 11	W160 0	4A3C4A6+
USAK	122	CANYON CREEK ET AL.	C	PLOR	AU	AG	N60 46	W149 26	4A3C4A8
USAK	32	CASADEPAGA AREA	C	PLOR	AU		N64 54	W164 15	4A3C4A8
USAK	15	CHANDALAR (MIKADO ET AL.)	C	VEIN	AU		N67 32	W148 14	4A15C7A
USAK	163	CHICHAGOF & HIRST-CHICHAGOF MINES	B	VEIN	AU	AG	N57 40	W136 6	4A45B7A4+
USAK	72	CHICKEN CREEK	C	PLOR	AU	W	N64 6	W141 56	4A3C4A8
USAK	99	CHISANA (BONANZA) DISTRICT	C	PLOR	AU		N62 6	W141 53	4A3C4A8
USAK	135	CHITITU CREEK (AND TRIBUTARIES)	C	PLOR	AU	AG CU	N61 16	W142 36	4A3C4A8
USAK	58	CIRCLE DISTRICT	C	PLOR	AU	SN W	N65 27	W145 3*	4A3C4B8
USAK	127	CLIFF MINE	C	VEIN	AU	CU	N61 9	W146 37	4A5C7A
USAK	66	COAL CREEK & TRIBUTARIES	C	PLOR	AU	TH	N65 18	W143 11	4A3C4A8
USAK	118	CROW CREEK	C	PLOR	AU	AG CU	N60 59	W149 5	4A3C4A
USAK	168	CRYSTAL & FRIDAY MINES	C	VEIN	AU		N57 58	W133 48	4A456C7A
USAK	134	DAN CREEK	C	PLOR	AU	AG CU	N61 22	W142 34	4A3C4A8
USAK	33	DOVE CREEK, TELEGRAPH CREEK ET AL.	C	PLOR	AU		N64 52	W164 38	4A3C4A8
USAK	154	EAGLE RIVER AREA	C	VEIN	AU		N58 31	W134 47	4A45C7A5
USAK	21	EMMA CREEK	C	PLOR	AU		N67 20	W150 12	4A3C4A8
USAK	55	ESTER DOVE AREA	C	VEIN	AU	SB AG	N64 52	W148 3*	4A145C7B5
USAK	60	FAIRBANKS CREEK AREA	C	PLOR	AU		N65 4	W147 11	4A3C4A8
USAK	63	FAIRBANKS DISTRICT	B	PLOR	AU	AG SB SN W B I	N64 57	W147 50*	4A3B4B8
USAK	74	FLAT CREEK	C	PLOR	AU	HG	N62 4	W160 59	4A3C4A8



USAK	79	FLAT CREEK AREA	C	STOK	AU	AG	HG	SB	W	N62	25	W157	59	4A4C5A6+	
USAK	67	FOURTH OF JULY CREEK	C	PLOR	AU		AG	PT		N65	8	W141	58	4A3C4A8	
USAK	53	GLEN CREEK AREA	C	PLOR	AU		HG	W		N65	11	W150	15	4A3C4A8	
USAK	16	GOLD CREEK, MAGNET CREEK	C	PLOR	AU					N67	31	W149	40	4A3C4A8	
USAK	90	GOLDEN ZONE MINE ET AL.	C	STOK	AU	CJ	AG			N63	13	W149	38	4B45C5A6+	
USAK	119	GRANITE MINE	C	VEIN	AU			FB	ZN	AS	SB	N60	58	4A45C7A6+	
USAK	48	GREENSTONE CREEK & MIDNIGHT CREEK	C	PLOR	AU			CJ				N64	19	4A3C4A8	
USAK	57	HOMESTAKE CREEK AREA	C	PLOR	AU			SN				N64	1	4A3C4A	
USAK	54	HOT SPRINGS & TOFTY TIN BELT	C	PLOR	AU							N65	4	4A3C4A8	
USAK	4	KLERY CREEK AND 3 OTHERS	C	PLOR	AU							N67	15	4A3C4A8	
USAK	159	KODIAK ISLAND-WEST COAST BEACHES	C	PLOR	AU			PT				N57	8	4A3C4A8	
USAK	25	KOUGAROK RIVER AREA	C	PLOR	AU							N65	41	4AC4A8	
USAK	51	LIVENGOOD CREEK	C	PLOR	AU			SB	SN	W	OR	REE	N65	32	4A3C4A8
USAK	123	LYNX CREEK	C	PLOR	AU							N60	42	4A3C4A8	
USAK	112	MARVEL CREEK	C	PLOR	AU							N60	55	4A3C4A8	
USAK	17	MASCOT CREEK	C	PLOR	AU							N67	30	4A3C4A8	
USAK	124	MILLS CREEK & JUNEAU CREEK	C	PLOR	AU							N60	40	4A3C4A8	
USAK	78	MOORE CREEK	C	PLOR	AU			HG	OR	W		N62	36	4A3C4A8	
USAK	56	MOOSE CREEK & LITTLE CREEK	C	PLOR	AU							N64	3	4A3C4A	
USAK	50	MOOSE CREEK-POORMAN CREEK AREA	C	PLOR	AU			AG	SN			N64	5	4A3C4A8	
USAK	96	NABESNA MINE	C	SKAR	AU			CJ	AG	FE		N62	22	4A45C3A5+	
USAK	37	NOME BEACHES	B	FLOR	AU							N64	30	4A37B4B8	
USAK	59	NOME CREEK	C	PLOR	AU			SN	TH			N65	21	4A3C4A8	
USAK	146	NUKA BAY AREA	C	VEIN	AU							N59	32	4A45C7A6+	
USAK	43	OPHIR CREEK AREA	C	PLOR	AU							N64	59	4AC4A8	
USAK	76	OPHIR CREEK AREA	C	PLOR	AU							N63	6	4A3C4A8	
USAK	35	OREGON CREEK AREA	C	PLOR	AU							N64	40	4A3C4A8	
USAK	61	PEDRO DOME AREA	B	VEIN	AU			W	B	I		N65	1	4A145B7B5	
USAK	39	PINNEL RIVER AREA	C	PLOR	AU			SB	AG	W		N65	52	4AC4A	
USAK	191	PYRAMID PEAK AREA	C	VEIN	AU			FB	ZN	SN		N53	54	4A45C7A7	
USAK	52	RAMPART DIST. (LITTLE MINOOK CREEK ET AL.)	C	PLOR	AU							N65	28	4A3C4A8	
USAK	126	RAMSAY-RUTHERFORD MINE	C	VEIN	AU							N61	14	4A5C7A	
USAK	150	REID INLET AREA (LE ROY ET AL.)	C	VEIN	AU			AG				N58	52	4A4C7A	
USAK	121	RESURRECTION CREEK	C	PLOR	AU			AG				N60	52	4A3C4A8	
USAK	69	SEVENTY MILE RIVER DISTRICT	C	PLOR	AU			SN	PT			N64	56	4A3C4A8	
USAK	9	SHUNGNAK RIVER AREA	C	PLOR	AU							N67	3	4A3C4A8	
USAK	139	SLATE CREEK & WATTAMUSE CREEK	C	PLOR	AU							N59	19	4A3C4A8	
USAK	93	SLATE CREEK, MILLER GULCH	C	PLOR	AU			PT				N63	10	4A3C4A6+	
USAK	22	SLATE CREEK, MYRTLE CREEK ET AL.	C	PLOR	AU							N67	14	4A3C4A8	
USAK	19	SPRING CREEK & LAKE CREEK	C	PLOR	AU							N67	29	4A3C4A8	
USAK	49	SPRUCE CREEK	C	PLOR	AU							N64	10	4A3C4A8	
USAK	64	TENDERFOOT CREEK AREA	C	PLOR	AU			AG				N64	18	4A3C4A8	
USAK	47	TRAIL CREEK MINE	C	PLOR	AU	AG	SN	FB	W			N64	24	4A3C4A8	
USAK	103	TULUKSAK RIVER & CALIFORNIA CREEK	C	PLOR	AU			AG	PT			N61	0	4A3C4A8	
USAK	44	UNGALIK RIVER & BONANZA CREEK	C	PLOR	AU	W		SB				N64	34	4A3C4A8	
USAK	86	UPPER CARIBOU CREEK & CREVICE CREEK	C	PLOR	AU			AG				N63	36	4A3C4A8	
USAK	14	UTOPIA CREEK-INDIAN RIVER AREA	C	PLOR	AU			AG	FB	ZN	BA	N66	2	4A3C4A8	
USAK	92	VALDEZ CREEK	C	PLOR	AU							N63	12	4A3C4A	
USAK	71	WADE CREEK	C	PLOR	AU			SN	W	HG		N64	8	4A3C4A8	
USAK	20	WILD RIVER AREA	C	PLOR	AU							N67	26	4A3C4A8	
USAK	102	WILLOW CREEK	C	PLOR	AU			PT				N61	50	4A3C4A8	
USAK	116	WILLOW CREEK DISTRICT	B	VEIN	AU			CJ	TE	W	FB	ZN	N61	47	4A4B7A6
USAK	18	WISEMAN AREA (NOLAN CREEK ET AL.)	C	PLOR	AU							N67	30	4A3C4A8	
USAK	65	WOODCHOPPER CREEK	C	PLOR	AU			PT	TH			N65	18	4A3C4A8	
USAK	136	YAKATAGA BEACH	C	PLOR	AU			AG				N60	3	4A37C4A8	
USAK	77	YANKEE CREEK & GANES CREEK	C	PLOR	AU							N63	0	4A3C4A8	
USAL	14	ARBACOOCHIEE PROSPECT	C	VEIN	AU							N33	34	4A15C7A3+	
USAL	17	HOG MOUNTAIN (HILLABEE) DISTRICT	C	VEIN	AU			CJ	B	I		N33	5	4B145C7A3+	
USAZ	41	CROWN KING-TIGER-BRADSHAW DISTRICTS	C	VEIN	AU	AG		ZN	FB	CJ		N34	10	4C145C7A6+	
USAZ	63	ELLSNORTH (HARQUHALA) DISTRICT	C	VEIN	AU			FB	CJ			N33	38	4AC7A	
USAZ	61	FORTUNA MINE	C	VEIN	AU			AG	W			N32	32	4A15C7A	

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USAZ	16	GOLD BASIN-LOST BASIN DISTRICTS	C	VEIN	AU	AG CU FB	N35 55	W114 9	4A125C7A
USAZ	62	KOFA DISTRICT	C	VEIN	AU	AG	N33 18	W113 58	4A7C7A7
USAZ	56	LA PAZ DISTRICT	C	PLOR	AU		N33 38	W114 24	4AC4A8
USAZ	30	LYNX CREEK-WALKER DISTRICT	C	VEIN	AU AG	CU FB	N34 28	W112 21	4C145C7A
USAZ	37	MARTINEZ DISTRICT (CONGRESS MINE)	C	VEIN	AU		N34 12	W112 50	4AC7A
USAZ	21	SAN FRANCISCO (OATMAN) DISTRICT	B	VEIN	AU AG	CU FB F	N35 1	W114 24	4C47B7A7
USAZ	20	UNION PASS DIST. (KATHERINE MINE)	C	VEIN	AU AG		N35 14	W114 30	4C47C7A7
USAZ	66	VULTURE MINE	C	VEIN	AU AG		N33 49	W112 50	4C145C7A
USAZ	17	WEAVER DISTRICT	C	VEIN	AU		N35 32	W114 28	4A47C7A7
USAZ	38	WEAVER-RICH HILL DISTRICT	C	VEIN	AU		N34 9	W112 42	4AC7A
USCA	49	ALLEGHANY-DOWNIEVILLE DISTRICT	B	VEIN	AU		N39 28	W120 50	4A45B7A4+
USCA	119A	BALLARAT DISTRICT (RATCLIFF MINE)	C	VEIN	AU		N36 4	W117 12	4A15C7A
USCA	62	BELLOTA (CALVERAS RIVER) DISTRICTS	C	PLOR	AU		N38 3	W121 0	4A3C4A8
USCA	69	BODIE DISTRICT	B	VEIN	AU AG		N38 13	W119 1	4C7B7A7
USCA	187	CARGO MUCHACHO DISTRICT	C	VEIN	AU	AG W	N32 53	W114 49	4A15C7A
USCA	111A	CHLORIDE CLIFF DISTRICT	C	VEIN	AU		N36 40	W116 55	4A1C7A
USCA	130	COVE DISTRICT	C	VEIN	AU		N35 44	W118 26	4AC7A
USCA	30A	CRESCENT HILLS DISTRICT (GREEN MTN. ET AL.)	C	VEIN	AU		N40 5	W120 52	4A45C7A4
USCA	56	FOLSOM DISTRICT	C	PLOR	AU		N38 38	W121 13	4A3B4A8
USCA	17	FRENCH GULCH-DEADWOOD DISTRICT	C	VEIN	AU		N40 42	W122 37	4A45C7A
USCA	58	GEORGETOWN & GRIZZLY FLAT	C	PLOR	AU		N38 39	W120 29	4A3C4A6+
USCA	51	GRASS VALLEY-NEVADA CITY DISTRICT	A	VEIN	AU AG	W	N39 14	W121 3	4A45A7A4+
USCA	99	GRUB GULCH-HILDRETH DISTRICT	C	—	AU		N37 12	W119 37	4AC
USCA	50	HAMMONTON (YUBA RIVER) DISTRICT	B	PLOR	AU		N39 12	W121 26	4A3B4A8
USCA	23	HARRISON GULCH DISTRICT (MIDAS MINE)	C	VEIN	AU		N40 25	W122 55	4A3C7A
USCA	28A	HAYDEN HILL DISTRICT	C	VEIN	AU		N41 0	W120 40	4A7C7A7
USCA	92	HITES COVE DISTRICT-EAST BELT	C	VEIN	AU		N37 31	W119 58	4A45C7A
USCA	163A	HOLCOMB DISTRICT	C	VEIN	AU		N34 18	W116 50	4A14C7A4+
USCA	22	IGO DISTRICT	C	PLOR	AU		N40 29	W122 34	4A3C4A8
USCA	46	JOHNSVILLE DISTRICT (PLUMAS EUREKA DISTRICT)	C	VEIN	AU		N39 47	W120 45	4A45C7A
USCA	178	JULIAN DISTRICT	C	VEIN	AU		N33 6	W116 37	4AC7A
USCA	8	KLAMATH RIVER DISTRICT	C	PLOR	AU		N41 49	W122 42	4A3C4A8
USCA	44	MAGALIA	C	PLOR	AU		N39 48	W121 30	4A3C4A6+
USCA	68	MASONIC DISTRICT (PITTSBURGH-LIBERTY MINE)	C	VEIN	AU		N38 20	W119 3	4A145C7A
USCA	65	MONITOR DISTRICT	C	VEIN	AU AG		N38 40	W119 42	4CC7A
USCA	60	MOTHER LODE DISTRICT, AMADOR, CALAVERAS COS.	A	VEIN	AU		N38 18	W120 42*	4A45A7B4+
USCA	55	MOTHER LODE IN EL DORADO COUNTY	B	VEIN	AU		N38 43	W120 48*	4A45B7B4+
USCA	73	MOTHER LODE-EAST BELT	B	VEIN	AU		N38 0	W120 15*	4A45B7B4+
USCA	75	MOTHER LODE-WEST BELT	B	VEIN	AU		N37 53	W120 22*	4A45B7B4+
USCA	76	OAKDALE-KNIGHTS FERRY DISTRICT	C	PLOR	AU		N37 47	W120 45	4A3C4A8
USCA	47	OROVILLE DISTRICT	B	PLOR	AU		N39 27	W121 37	4A3B4A8
USCA	174	PINACATE DISTRICT	C	VEIN	AU		N33 45	W117 17	4A4C7A
USCA	151	RANDBURG DISTRICT	B	VEIN	AU	AG	N35 21	W117 40	4C145B7A
USCA	139	ROSAMOND-MOJAVE DISTRICT	C	VEIN	AU AG		N34 58	W118 14	4C7C7A7
USCA	11	SALMON RIVER DISTRICT	B	PLOR	AU		N41 13	W123 11	4A3B4A8
USCA	45	SLATE CREEK (LA FORTE) DISTRICT	B	PLOR	AU		N39 40	W120 57	4A3B4A6+
USCA	59	SLOUGHHOUSE DISTRICT	B	PLOR	AU		N38 28	W121 10	4A3B4A7+
USCA	82	SNELLING DISTRICT	C	PLOR	AU		N37 30	W120 24	4A3C4A8
USCA	163	STEDMAN DIST. (BAGDAD-CHASE, BUCKEYE ET AL.)	C	VEIN	AU AG	CU	N34 38	W116 10	4C4C7A
USCA	16	TRINITY RIVER BASIN	B	PLOR	AU		N40 53	W122 57	4A3B4A8
USCA	77	WATERFORD DISTRICT	C	PLOR	AU		N37 38	W120 37	4A3C4A7
USCA	111B	WILD ROSE DISTRICT (SKIDOO MINE)	C	VEIN	AU		N36 26	W117 7	4A4C7A
USCO	40	ALICE DISTRICT	C	STOK	AU AG CU		N39 49	W105 39	4C4C5A6+
USCO	21	ALMA DISTRICT (MOSQUITO, BUCKSKIN ET AL.)	B	VEIN	AU AG FB ZN CU		N39 18	W106 6	4C4B7A6+
USCO	19	BRECKENRIDGE DISTRICT	B	VEIN	AU AG FB ZN		N39 29	W106 1	4D4B7A6+
USCO	42	CENTRAL CITY-IDAHO SPRINGS-TRAIL CREEK	B	VEIN	AU AG	CU FB ZN	N39 45	W105 32	4C145B7A6+
USCO	28	CHALK CREEK DISTRICT (MARY MURPHY MINE)	C	VEIN	AU AG	FB CU ZN MO BE	N38 40	W106 21	4D4C7A6+

USCO	51	CRIPPLE CREEK DISTRICT	A	STOK	AU		AG F	N38 43	W105 9	4A27A5A7
USCO	43	EMPIRE DISTRICT	C	STOK	AU AG			N39 44	W105 44	4C4C5A6+
USCO	64	EUREKA DISTRICT (SUNNYSIDE ET AL. MINES)	B	VEIN	AU AG FB ZN CU		MN W F BA	N37 54	W107 36	4D47B7A7
USCO	29	GOLD BRICK-PITKIN DISTRICT	C	VEIN	AU AG FB			N38 37	W106 35	4D145C7A6+
USCO	11	GOLD HILL (SUGAR LOAF) DISTRICT	C	VEIN	AU		AG FB	N40 3	W105 23	4A145C7A6+
USCO	2	HAHNS PEAK	C	PLOR	AU			N40 50	W106 57	4A34C4A8
USCO	61	LA PLATA	C	VEIN	AU AG		FB CU	N37 20	W108 4	4C347C7A6+
USCO	58	ROSITA HILLS DIST. (BASSICK ET AL. MINES)	C	VEIN	AU AG		FB CU ZN	N38 7	W105 20	4C47C7A7
USCO	63	SNEFFEL S-RED MTN.-TELLURIDE DISTRICTS	B	VEIN	AU AG FB CU ZN			N37 56	W107 45	4C7B7A7
USCO	69	SUMMITVILLE DISTRICT	C	VEIN	AU		AG CU FB	N37 25	W106 36	4A7C7A7
USGA	9	CREIGHTON (FRANKLIN) MINE	C	VEIN	AU		CU CO	N34 20	W 84 17	4A15C7A
USGA	14	DAHLONEGA DISTRICT	C	VEIN	AU		CU	N34 30	W 84 0	4A15C7A
USGA	12	NACOOCHIEE DISTRICT	C	VEIN	AU			N34 41	W 83 42	4A15C7A
USID	54	ATLANTA (MIDDLE BOISE) DISTRICT	C	VEIN	AU AG			N43 47	W115 6	4A4C7A
USID	51	BOISE BASIN DISTRICT	B	FLOR	AU		TI	N43 53	W115 57	4A3B4A8
USID	18	IDAHO COUNTY GOLD DISTRICTS	B	FLOR	AU		TH TI REE	N45 35	W115 40*	4A3B4B7-8
USID	13	PIERCE DISTRICT	C	PLOR	AU			N46 30	W115 47	4A3C4A8
USMD	6	GREAT FALLS (FORD, WATSON, MARYLAND MINES)	C	VEIN	AU			N39 6	W 77 16	4A15C7A2+
USMT	47	BELT MTNS. (CONFEDERATE GULCH, WHITE CREEK)	C	PLOR	AU			N46 35	W111 28	4A3C4A8
USMT	16	CEDAR CREEK & TROUT CREEK DISTRICTS	C	PLOR	AU			N47 3	W114 55	4A3C4A8
USMT	23	GARNET DISTRICT (FIRST CHANCE)	C	VEIN	AU AG		CU FB	N46 49	W113 16	4C14C7A6
USMT	36	GEORGETOWN DISTRICT (CABLE ET AL. MINES)	C	STOK	AU		AG CU	N46 11	W113 14	4A347C5A6
USMT	24	GOULD-STEMPLE DISTRICT (JAY GOULD MINE)	C	VEIN	AU		AG	N46 54	W112 28	4A14C7A6
USMT	30	HELENA-LAST CHANCE DISTRICT	B	VEIN	AU		CU FB	N46 36	W112 1	4A4B7A6
USMT	27	HENDERSON GULCH DEPOSITS	C	PLOR	AU W			N46 30	W113 18	4AC4A8
USMT	81	JARDINE MINE	C	DSTR	AU		AG AS W	N45 5	W110 38	4A15C10A1
USMT	52	LITTLE ROCKIES DISTRICT	C	VEIN	AU		AG	N47 54	W108 36	4A237C7A6+
USMT	25	MARYSVILLE DISTRICT (DRUMMOND ET AL. MINES)	B	VEIN	AU AG		FB ZN CU W	N46 45	W112 19	4C14B7A6
USMT	4	MIDAS MINE & MILLER CREEK DEPOSITS	C	VEIN	AU W		AG	N48 5	W115 29	4AC7A
USMT	45	MISSOURI RIVER-YORK DISTRICT	C	VEIN	AU		AG FB	N46 42	W111 39	4A14C7A
USMT	15	NINEMILE CREEK DISTRICT	C	PLOR	AU			N47 8	W114 33	4A3C4A8
USMT	78	NORRIS	C	VEIN	AU AG			N45 33	W111 42	4C145C7A6
USMT	53	NORTH MOCCASIN (KENDALL) DISTRICT	C	STOK	AU		AG	N47 17	W109 29	4A237C5A6+
USMT	51	RADERSBURG DISTRICT	C	VEIN	AU AG FB CU ZN			N46 10	W111 42	4D47C7A6
USMT	60	RENOVA DISTRICT (MAYFLOWER MINE)	C	VEIN	AU AG			N45 47	W112 6	4C4C7A
USMT	33	RIMINI (VAUGHN) DISTRICT	C	VEIN	AU AG FB ZN		CU	N46 28	W112 15	4D4C7A6
USMT	64	ROCHESTER (RABBIT) DISTRICT	C	VEIN	AU AG			N45 37	W112 29	4CC7A
USMT	62	SILVER STAR DISTRICT	C	VEIN	AU AG			N45 41	W112 19	4CC7A
USMT	79	VIRGINIA CITY (ALDER GULCH) DISTRICT	B	VEIN	AU		AG	N45 14	W111 58	4A145B7A6
USMT	55	WARM SPRINGS DISTRICT (MAIDEN-GILT EDGE)	C	VEIN	AU			N47 10	W109 13	4A237C7A6+
USMT	34	WICKES (COLORADO) DISTRICT	B	VEIN	AU AG FB ZN			N46 22	W112 7	4D47B7A6
USMT	32	ZOSELL DISTRICT (EMERY MINE)	C	VEIN	AU AG FB		ZN	N46 22	W112 36	4D47C7A6
USNC	19	CID DISTRICT (CONRAD HILL MINE)	C	--	AU		FB AG	N35 53	W 80 12	4A5C
USNC	27	HOOVER HILL MINE	C	VEIN	AU			N35 48	W 79 57	4A45C7A
USNC	26	HOWIE MINE	C	VEIN	AU			N34 57	W 80 41	4A56C7A
USNC	31	IOLA & UWAPRA MINES	C	VEIN	AU			N35 13	W 79 46	4A5C7A
USNC	22	PHOENIX-REED MINES	C	VEIN	AU			N35 24	W 80 33	4A56C7A
USNC	30	RUSSELL & STEEL MINES	C	VEIN	AU			N35 33	W 79 59	4A5C7A
USNM	19	COCHITI DISTRICT (ALBEMARLE MINE)	C	VEIN	AU AG			N35 43	W106 33	4C4C7A6+
USNM	10	ELIZABETHTOWN-BALDY MTN. DISTRICTS	C	VEIN	AU AG CU		FE FB W	N36 39	W105 11	4A347C7A7
USNM	60	HILLSBORO DISTRICT	C	VEIN	AU			N32 58	W107 31	4A47C7A7
USNM	40	STEEPLE ROCK DISTRICT	C	VEIN	AU AG		ZN FB CU	N32 52	W108 58	4C47C7A7
USNM	71	WHITE OAKS DISTRICT	C	VEIN	AU W			N33 45	W105 45	4A347C7A6+
USNV	108	AURORA DISTRICT	B	VEIN	AU AG			N38 15	W118 54	4C7B7A7
USNV	123	BRUNER (PHONOLITE) DISTRICT	C	VEIN	AU AG			N39 5	W117 48	4C7C7A7
USNV	181	BULLFROG DISTRICT	C	VEIN	AU AG			N36 53	W116 53	4C7C7A7
USNV	58	BULLION DISTRICT	C	VEIN	AU AG		CU FB	N40 22	W116 44	4D5C7A
USNV	67	CORTEZ DISTRICT	B	STOK	AU AG FB			N40 2	W116 33	4A14B5A7
USNV	29	EDGE MONT (CENTENNIAL) DISTRICT	C	VEIN	AU AG			N41 41	W116 11	4C7C7A7
USNV	196	ELDORADO DISTRICT	C	VEIN	AU AG		FB CU	N35 40	W114 50	4C145C7A
USNV	186	FERGUSON (DEL AMAR) DISTRICT	C	STOK	AU AG			N37 24	W114 49	4C1C5A

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USNV	37	GETCHELL MINE	C	STOK	AU AS	HG	N41 12	W116 12	4A14C5A5+
USNV	63	GOLD ACRES MINE	C	STOK	AU		N40 15	W116 45	4A4C5A
USNV	192	GOLD BUTTE AREA	C	VEIN	AU		N36 6	W114 11	4A14C5C7A1
USNV	35	GOLD CIRCLE (MIDAS) DISTRICT	C	VEIN	AU AG		N41 14	W116 48	4C7C7A7
USNV	174	GOLDFIELD DISTRICT	B	STOK	AU	AG CU	N37 42	W117 15	4A7B5A7
USNV	90	HOLY CROSS DISTRICT	C	VEIN	AU AG		N39 5	W118 37	4CC7A
USNV	178	HORN SILVER DISTRICT	C	VEIN	AU AG		N37 22	W117 18	4C14C7A
USNV	122	JACKSON (GOLD PARK) DISTRICT	C	VEIN	AU AG FB		N39 9	W117 34	4D5C7A
USNV	69	JARBRIDGE DISTRICT	C	VEIN	AU AG		N41 51	W115 25	4C7C7A7
USNV	33	JERRITT (MARLBORO) CANYON	B	STOK	AU		N41 20	W116 0	4A1B5A7
USNV	57	KENNEDY DISTRICT	C	VEIN	AU AG		N40 23	W117 42	4C45C7A
USNV	46	LYNN DISTRICT-CARLIN MINE	B	STOK	AU		N40 52	W116 18	4A1B5A7
USNV	125	MAMMOTH (ELLSWORTH) DISTRICT	C	VEIN	AU AG FB ZN		N38 59	W117 45	4D5C7A7
USNV	137	MANHATTAN (GOLD HILL) DISTRICT	C	VEIN	AU AG		N38 33	W117 3	4C45C7A7
USNV	27	NATIONAL DISTRICT	C	VEIN	AU AG	SB HG	N41 50	W117 34	4C7C7A7
USNV	160	OSCEOLA DISTRICT	C	VEIN	AU AG		N39 4	W114 23	4C14C7A
USNV	30	PARADISE VALLEY DISTRICT	C	VEIN	AU AG		N41 36	W117 27	4C5C7A
USNV	155	PIERMONT DISTRICT	C	VEIN	AU AG		N39 30	W114 35	4C1C7A
USNV	99	RAND (BOWARD) DISTRICT	C	VEIN	AU AG	CU FB	N38 48	W118 24	4C7C7A6+
USNV	94	RAWHIDE (REGENT) DISTRICT	C	VEIN	AU AG		N39 2	W118 25	4C7C7A7
USNV	133	ROUND MOUNTAIN DISTRICT	C	VEIN	AU AG		N38 41	W117 4	4C7C7A7
USNV	197	SEARCHLIGHT DISTRICT	C	VEIN	AU AG	FB CU	N35 27	W114 55	4C47C7A6
USNV	12	SEVEN TROUGHS DISTRICT	C	VEIN	AU AG		N40 30	W118 38	4C7C7A7
USNV	49	SIERRA (DUNGLIN, CHAFEY) DISTRICT	C	VEIN	AU AG		N40 43	W117 52	4C6C7A
USNV	82	TALLAPOOSA DISTRICT	C	VEIN	AU AG		N39 28	W119 15	4C7C7A
USNV	158	TAYLOR DISTRICT	C	VEIN	AU AG		N39 5	W114 40	4C14C7A
USNV	100	WILSON DIST. (PINE GROVE, ROCKLAND, CAMBRIDGE)	C	STOK	AU AG	CU FB ZN	N38 40	W119 7	4C14C5A
USOR	44	ASHLAND MINE	C	VEIN	AU		N42 8	W122 40	4A15C7A
USOR	15	CORNUCOPIA MINE	C	VEIN	AU	CU ZN FB	N44 59	W117 11	4A45C7A5+
USOR	12	EASTERN BLUE MOUNTAINS REGION	B	FLOR	AU	AG	N44 47	W118 18*	4A3B4B8
USOR	34	GALICE DISTRICT (ALMEDA, BENTON ET AL.)	C	VEIN	AU	CU AG FB	N42 33	W123 34	4D45C7A4+
USOR	30	GALICE DISTRICT PLACERS	C	PLOR	AU		N42 38	W123 39*	4A3C4B7+
USOR	23	GOLD BEACH	C	PLOR	AU	OR FT	N42 25	W124 24	4A37C4A8
USOR	31	GREENBACK MINE ET AL.	C	VEIN	AU		N42 40	W123 17	4A5C7A
USOR	22	OPHIR	C	PLOR	AU	OR FT	N42 34	W124 23	4A37C4A8
USOR	35	SYLVANITE & GOLD HILL MINES	C	VEIN	AU	W	N42 25	W123 0	4A5C7A
USOR	42	UPPER APPLIGATE DISTRICT	C	PLOR	AU		N42 6	W123 7	4A3C4A
USSC	4	BREWER MINE	C	MSTR	AU	FES CU KYN	N34 37	W 80 23	4A5C11A
USSC	9	DORN MINE	C	MSTR	AU	FES CU	N33 56	W 82 18	4A5C11A
USSC	5	HAILE MINE	C	MSTR	AU	FES CU	N34 35	W 80 33	4A5C11A3
USSC	7	LAMAR	C	VEIN	AU		N34 20	W 80 44	4A5C7A
USSC	10	LANDRUM MINE	C	VEIN	AU		N33 58	W 81 57	4A5C7A
USSC	3	OPHIR MINE	C	VEIN	AU		N34 48	W 81 46	4A15C7A
USSD	3	HOMESTAKE MINE	A	DSTR	AU	AG FB	N44 22	W103 45	4A145A10A1+
USTN	15	COOKER CREEK DISTRICT	C	PLOR	AU		N35 14	W 84 16	4A3C4A8
USUT	11	CAMP FLOYD (MERCUR) DISTRICT	B	STOK	AU	AG HG	N40 18	W112 10	4A14B5A7
USUT	41	GOLD MOUNTAIN DISTRICT	C	VEIN	AU AG		N38 30	W112 23	4C47C7A7
USUT	31	STATELINE DISTRICT	C	VEIN	AU AG		N38 7	W113 58	4C7C7A7
USVA	6	FRANKLIN MINE	C	VEIN	AU		N38 28	W 77 40	4A4C7A
USVA	18	TELLURIUM, MOSS, AND BUSBY MINES	C	VEIN	AU		N37 49	W 78 9	4A15C7A
USVA	7	VAUCLUSE MINE	C	VEIN	AU		N38 21	W 77 46	4A15C7A
USVA	8	WHITEHALL MINE	C	VEIN	AU	BI TE	N38 11	W 77 49	4A5C7A
USWA	17	REPUBLIC DISTRICT (KNOB HILL ET AL. MINES)	B	VEIN	AU AG		N48 38	W118 43	4C47B7A7
USWA	5	SLATE CREEK DISTRICT (AZURITE, NEW LIGHT)	C	VEIN	AU	AG FB	N48 48	W120 50	4A4C7A7
USWA	37	WENATCHEE DISTRICT (GOLDEN KING, L-D MINES)	C	VEIN	AU	AG	N47 20	W120 20	4A34C7A6+
USWY	14	ATLANTIC CITY-SOUTH PASS DISTRICT	C	VEIN	AU		N42 28	W108 44	4A5C7A1

# PLATINUM-GROUP ELEMENTS (PGE)

Platinum-group elements (platinum, palladium, iridium, osmium, rhodium, and ruthenium) occur together in varying proportions, principally as metallic alloys but also as sulfides, arsenides, and antimonides. Their chief association is with ultramafic and mafic igneous rocks, especially with nickel-copper ores, where they are usually co- or byproducts and may be present in only very low tenors relative to the principal metals. The principal North American source of PGE's, the Sudbury nickel district (CAON 187), contains platinum but it does not appear here. A second potentially important source has been identified in the Stillwater Complex of Montana (USMT 84): platinum will be the principal product if and when this deposit is developed (American Metal Market, 1983).

Because PGE's are very heavy and inert, they may form placers if appropriate bedrock sources are present. Small quantities have been recovered from gold placers in the "eugeosynclinal" areas of the Cordillera, but in only one deposit, USAK 140, are they the principal commodity.

Only two platinum-group elements are actually cited in the data base—platinum (PT) and palladium (PL). Unspecified

platinoid metals, designated in the Metallogenic Map file listings as "PTD," are reported as major commodities in two deposits: CAON 84 (see listing for "Nickel") and CAON 97 (see "Copper").

Number of deposits containing platinum-group elements	Number of principal platinum-group element deposits	Principal major commodity of other deposits containing platinum-group elements as a major commodity				
		Cr	Ni	Au	Cu	(Total)
Total 81/	2	2	2	1	1	(6)

1/ Total includes platinum (PT), palladium (PD), and unspecified platinoid metals (PTD) in deposits.

Number of principal platinum-group element deposits	Geologic class of deposit2/	
	PLCR	STOK
Total 2	1	1

2/ Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	91	LAC DES ILES	C	STOK	PD PT	Ni CU	N49 10	W 89 37	506C5A1
USAK	140	GOODNEWS BAY (SALMON RIVER)	C	PLCR	PT	AU	N58 56	W161 44	5C38C4A8

# SILVER (AG)

Silver occurs in nature in a large number of forms: as native metal, in sulfides, sulfosalts with antimony or arsenic, antimonides, tellurides, and halides, and as minor constituents of oxide, carbonate, and sulfate minerals.

Silver probably has the greatest variety of deposit types and commodity associations of any of the elements. With few exceptions, it is always accompanied by other metals, which in by far the greatest number of deposits are lead, zinc, and (or) copper. However, silver-gold ores with no or only minor base metals form an important class of deposits, as do the relatively rare but high-grade native silver-cobalt ores of Canada (CAON 170, CAON 190, and CAON 191). If the deposits in which silver is a "minor" commodity, but one recovered, were included in the tabulation, the total number of occurrences would be increased substantially; these include the porphyry coppers and many strata-bound deposits, both disseminated and massive, that are significant sources of the metal. In contrast to gold, silver does not occur in placers except as a minor alloying element.

The majority of silver deposits are of Tertiary age and situated in the Cordillera, especially in the volcanic rocks of Mex-

ico and the Basin and Range Province of the United States, but others are hosted in carbonate or clastic sedimentary rocks, generally of "miogeosynclinal" facies, in older Cordilleran sequences. Except for the silver ores mentioned above and byproduct values of some base-metals ores, silver is not common in the other major divisions of the North American Continent.

Number of deposits containing silver	Number of principal silver deposits	Principal major commodity of other deposits containing silver as a major commodity									
		Au	Pb	Zn	Cu	F	Fe	Sb	U	W	FeS (Total)
Total	881	278	139	87	73	2	2	2	2	2	1 (588)

Number of principal silver deposits	Geologic class of deposit <sup>1/</sup>			
	VEIN	STOK	DSTR	SKAR
Total	293	222	57	7

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	247	ALBERT CANYON AREA	C	VEIN	AG PB ZN W SN		N51 12	W117 54	4D1C7A4+
CABC	81	ALICE ARM AG AREA (DOLLY VARDEN, TORBRITT, ETC.)	B	VEIN	AG PB		N55 42	W129 32	4D45B7A5+
CABC	311	BEAVERDELL AREA (HIGHLAND-BELL MINE, ETC.)	B	VEIN	AG ZN PB		N49 26	W119 3	4D487A5+
CABC	240	CHAPUT MINE	C	VEIN	AG PB ZN		N50 16	W118 56	4D15C7A
CABC	293	COLDWATER RIVER (HOPE, MAG)	C	VEIN	AG CU PB ZN		N49 43	W121 1	4D4C7A
CABC	254	FERGUSON AREA	C	VEIN	AG PB ZN		N50 42	W117 28	4D5C7A4+
CABC	233	HOMESTAKE MINE	B	DSTR	AG PB ZN BA		N51 7	W119 49	4D5B10A3+
CABC	315	HORN SILVER MINE	C	VEIN	AG		N49 3	W119 41	4D2C7A
CABC	109	HUDSON BAY MOUNTAIN	C	VEIN	AG PB ZN		N54 51	W127 22	4D45C7A6
CABC	326	KOKANEE CREEK (MOLLY GIBSON)	C	VEIN	AG PB ZN		N49 44	W117 9	4D4C7A
CABC	306A	LIGHTNING PEAK (WATERLOO)	C	VEIN	AG PB ZN		N49 53	W118 32	4D5C7A
CABC	107	MOUNT CROWN AREA	C	VEIN	AG PB ZN		N54 55	W126 48	4D45C7A6
CABC	102	MOUNT THOEN AREA	C	VEIN	AG PB ZN		N55 23	W126 54	4D45C7C
CABC	8	MOUNT VAUGHAN (ATLIN-RUFFNER)	C	VEIN	AG PB ZN		N59 44	W133 31	4D6C7A
CABC	259	PARADISE MINE	C	STOK	AG PB ZN CD		N50 29	W116 18	7D1C5A1+
CABC	56	PROUT PLATEAU (MACKAY)	C	VEIN	AG PB ZN		N56 37	W130 29	4D3C7A
CABC	328	ROSE PASS AREA	C	VEIN	AG PB SN		N49 45	W116 38	4D1C7A
CABC	87	SEVEN SISTERS AREA	C	VEIN	AG PB ZN		N54 56	W128 15	7D3C7A
CABC	101	SILVER STANDARD MINE	C	VEIN	AG ZN PB AU CD		N55 19	W127 37	4D34C7A6
CABC	325	SILVERTON-SLOCAN CITY AREA	C	VEIN	AG PB ZN		N49 47	W117 22	4D4C7A4+

CABC	296	SIWASH CREEK AREA
CABC	324	SLOCAN-AINSWORTH AREA
CABC	220	STUMP LAKE AREA (NICOLA)
CABC	126	TAKLA SILVER (LUSTDUST)
CABC	199	TENQUILLE LAKE AREA
CABC	330	TOAD MOUNTAIN (SILVER KING MINE, ETC.)
CABC	17	TOOTSEE LAKE (SILVER TIP, AMY)
CABC	118	TOPLEY AREA
CABC	299	TREASURE MOUNTAIN (SUMMIT CAMP)
CABC	54	TWIN RIVER-VERRETT MOUNTAIN AREA (ISKUT SILVER)
CAMK	27	CANSELL RIVER SILVER (SILVER BAY)
CAMK	26	CONTACT LAKE
CAMK	102	EASTER ISLAND
CAMK	8	EL BONANZA
CAMK	1	HOPE BAY (1)
CAMK	28	TERRA
CAON	94	BEAVER, BADGER, ETC...
CAON	6	BERENS RIVER (GOL SIL)
CAON	4	BORLAND LAKE (BEATRICE)
CAON	189	CASEY & HARRIS TPS.
CAON	190	COBALT DISTRICT (COLEMAN & BUCKE TPS.)
CAON	170	GONGANDA
CAON	95	SILVER ISLET
CAON	191	SOUTH LORRAIN TP.
CAYK	23	BEAVER RIVER AREA
CAYK	79	BOSWELL RIVER AREA
CAYK	43	GALENA HILL (ELSA, HECTOR-CALUMET, ETC.)
CAYK	90	INGS RIVER (TINTINA SILVER)
CAYK	44	KENO HILL DISTRICT (KENO NO. 9, ETC.)
CAYK	76	KETZA RIVER AREA
CAYK	93	LOGJAM CREEK (PURE SILVER)
CAYK	27	MOSQUITO CREEK
CAYK	50	PLATA, INCA
CAYK	24	RUSTY MOUNTAIN (KATHLEEN LAKES)
CAYK	5	RUSTY SPRINGS
CAYK	73	SEAGULL LAKES AREA
CAYK	83	WHEATON RIVER AREA
CSCS	11	AGUACATE DIST. (OREAMUNO, CASTRO ET AL.)
GTGT	21	SAN PANTALEON
HOHO	4	EL MOCHITO
HOHO	13	EL ROSARIO
HOHO	14	LAS ANIMAS
HOHO	7	OPOTECA
MXCH	141	BARRANCA DEL COBRE
MXCH	81	BUENOS AIRES
MXCH	52	CONCAMENA-YOQUIVO-COJURICHIC
MXCH	11	COÑEJOS
MXCH	80	CUSIHUIRIACHIC
MXCH	86	LA REYNA
MXCH	88	LAS CRUCES
MXCH	186	PAJARITO
MXCH	33	SAN JOAQUIN
MXCH	171	SAN JUAN CORDERO
MXCH	100	SIERRA CHILICOTE
MXCH	59	YOQUIVO
MXCO	38	P.V. 3-VILLA BILBAO
MXCP	14	NUEVA MORELIA
MXCP	16	PACAYAL
MXCP	13	PIPIJIAPAN
MXDR	46	ADELA
MXDR	64	ALAMITO
MXDR	102	CEBOLLAS
MXDR	105	CERRO DE SACRIFICIOS
MXDR	77	COYOTERA
MXDR	81	DTO. CUENCA, VELARDENA, PEDRICENO
MXDR	58	DTO. EL SALITRE

C	VEIN	AG	CU	PB	ZN	N49 46	W120 20	404C7A
B	VEIN	AG	PB	ZN	CO	N49 58	W117 13*	4045B7B4+
C	VEIN	AG	PB	ZN		N50 20	W120 22	405C7A4+
C	VEIN	AG	PB	SB	ZN	N55 33	W125 24	4045C7A
C	VEIN	AG	PB	ZN	CU	N50 32	W122 55	40147C7A
C	VEIN	AG	CU			N49 26	W117 19	3A45C7A4+
C	VEIN	AG	PB	ZN		N59 55	W130 25	401C7A
C	VEIN	AG	PB	ZN	CU	N54 35	W126 14	403C7A
C	VEIN	AG	PB	ZN		N49 25	W121 5	4034C7A
C	VEIN	AG	PB	ZN		N56 43	W131 6	4025C7A
C	VEIN	AG				N55 36	W117 59	4E167C7A3+
C	VEIN	AG	U			N55 59	W117 47	4E4C7A2+
C	VEIN	AG	NI	CO		N61 44	W112 52	4E6C7A2+
C	VEIN	AG	U			N66 0	W118 5	4E147C7A3+
C	VEIN	AG				N68 11	W106 33	4035C7A
C	VEIN	AG	CU	BI	CO	N55 36	W118 7	4E17C7A3
C	VEIN	AG	AU			N48 19	W 89 38	40367C7B4+
C	VEIN	AG	AU	ZN	PB	N52 51	W 93 38	4C35C7A1
C	DSTR	AG	PB			N52 56	W 94 7	4035C10A
C	VEIN	AG	CO			N47 35	W 79 35	4E367C7A2
A	VEIN	AG	CO		NI	N47 22	W 79 39	4E367A7A2
B	VEIN	AG	CO		NI	N47 40	W 80 44	4E367B7A2
C	VEIN	AG				N48 19	W 88 49	4E367C7A4+
B	VEIN	AG	CO		NI	N47 12	W 79 30	4E356B7A2
C	VEIN	AG	PB	ZN		N54 25	W135 20*	4016C7C1+
C	VEIN	AG	PB			N61 3	W133 48	40145C7A5
B	VEIN	AG	PB	ZN	CO	N53 54	W135 26	4015B7A5+
C	VEIN	AG	PB	ZN		N61 9	W131 9	4014C7A5
B	VEIN	AG	PB	ZN	CO	N63 57	W135 13	4015B7A5+
C	STOK	AG	PB		ZN	N61 32	W132 12	401C5A5+
C	VEIN	AG	PB	ZN		N60 1	W131 35	4056C7A4+
C	VEIN	AG	PB			N63 55	W140 48	4015C7A
C	VEIN	AG	PB	ZN		N63 35	W132 1	401C7A4
C	VEIN	AG	PB	ZN		N64 18	W133 44	4016C7A5+
C	VEIN	AG	PB	ZN	CU	N66 29	W140 25	401C7A3+
C	VEIN	AG	PB			N61 39	W132 48	405C7A3+
C	VEIN	AG	PB			N60 17	W135 3	4034C7A5
C	VEIN	AG	PB	ZN		N 9 58	W 84 28	407C7A7
B	VEIN	AG				N14 29	W 89 24	407B7A7
B	STOK	AG	PB	ZN	PB	N14 51	W 88 4	701B5A6
B	VEIN	AG	AU		CO	N14 15	W 87 4	4C14B7A6
B	STOK	AG	PB	ZN		N14 9	W 87 2	401B5A6
C	VEIN	AG	PB	ZN		N14 35	W 87 44	401C7A6
C	STOK	AG	PB	ZN	CU	N27 29	W107 35	407C5A7
C	VEIN	AG				N28 14	W106 45	407C7A7
C	VEIN	AG	PB	ZN	AU	N28 17	W108 8	407C7A7
C	VEIN	AG	AU			N31 17	W107 11	4C7C7A7
C	VEIN	AG	PB	ZN	CU	N28 15	W106 52	407C7A7
C	VEIN	AG				N28 3	W106 27	407C7A7
C	VEIN	AG				N28 4	W107 10	407C7A7
C	VEIN	AG	PB	ZN	CU	N26 42	W105 15	407C7A7
C	VEIN	AG	AU	CU	F	N30 5	W107 45	4C7C7A7
C	VEIN	AG	AU	PB	ZN	N27 15	W105 34	407C7A7
C	VEIN	AG	PB	CU		N29 2	W104 49	401C7A7
C	VEIN	AG	PB	ZN		N28 9	W108 12	407C7A7
C	DSTR	AG	PB	CU		N25 26	W102 50	401C10A7
C	VEIN	AG	PB	ZN	AU	N15 44	W 92 18	4015C7A7
C	VEIN	AG	PB	ZN	AU	N15 38	W 92 0	4015C7A7
C	VEIN	AG	PB	ZN	AU	N15 40	W 93 13	4015C7A4
C	VEIN	AG	PB			N25 25	W104 17	4047C7A7
C	VEIN	AG	PB	AU		N24 46	W105 6	407C7A7
B	VEIN	AG	PB	ZN	AU	N23 20	W104 45	401B7A7
C	SKAR	AG	CU			N23 53	W103 55	4014C3A7
C	STOK	AG	PB			N25 39	W103 57	401C5A7
B	STOK	AG	PB	ZN	AU	N25 5	W103 40	4017B5A7
C	VEIN	AG	PB			N25 8	W105 20	407C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXDR	5	EL AGUILA (Z. EL CARMEN)	C	VEIN	AG CU		N26 12	W105 50	4D7C7A7
MXDR	57	EL CRESTON	C	VEIN	AG PB ZN		N25 16	W105 47	4D7C7A7
MXDR	96	EL LIMONCITO (Z. MALA NOCHE)	B	VEIN	AG	AU	N23 59	W105 35	4C7B7A7
MXDR	38	EL TREBOL	C	VEIN	AG PB		N25 40	W104 30	4D1C7A7
MXDR	86	FALLA AL ORIENTE DE LUNA LLENA	C	VEIN	AG CU		N24 51	W102 31	4D1C7A7
MXDR	27	LA ALIANZA	C	VEIN	AG CU PB		N24 23	W106 31	4D7C7A7
MXDR	100	LA CANDELARIA	C	VEIN	AG AU PB		N23 25	W105 23	4D4C7A7
MXDR	15	LA COBRIZA Y AMPLIACIONES	C	VEIN	AG PB ZN		N25 15	W106 22	4D7C7A7
MXDR	37	LA COLORADA	C	VEIN	AG PB	CU	N25 43	W104 20	4D1C7A7
MXDR	79	LA ESPERANZA	C	VEIN	AG CU		N25 28	W103 35	4D7C7A7
MXDR	21	LA MELESIA (Z. SAN ANDRES DE LA SIERRA)	B	VEIN	AG PB ZN	AU CU	N24 54	W106 17	4D5E7A7
MXDR	8	LAS COLORADAS	C	VEIN	AG AU PB ZN		N26 3	W105 17	4D4C7A7
MXDR	23	LAS PALOMAS	C	VEIN	AG		N24 45	W106 25	4D7C7A7
MXDR	80	LAS TRANCAS	C	VEIN	AG PB		N25 12	W103 40	4D1C7A7
MXDR	3	MURCIELAGOS	C	VEIN	AG PB ZN	AU CU	N26 15	W105 31	4D4C7A7
MXDR	68	OTAEZ	B	VEIN	AG PB ZN	AU CU	N24 34	W105 54	4D7B7A7
MXDR	41	PENA DEL GRINGO	C	VEIN	AG		N25 37	W104 12	4D15C7A7
MXDR	49	PESCADORES	C	VEIN	AG PB CU		N25 23	W104 47	4D4C7A7
MXDR	99	SAN JOSE DE LA PARRILLA	B	VEIN	AG PB ZN	AU CU	N23 45	W104 10	4D7E7A7
MXDR	89	SAN JOSE DE REYES	A	VEIN	AG PB ZN		N24 40	W103 14	4D14A7A7
MXDR	87	SAN JUAN DE GUADALUPE	C	VEIN	AG PB ZN	AU CU	N24 40	W102 50	4D4C7A7
MXDR	48	SANTA BARBARA	C	VEIN	AG		N25 19	W104 14	4D1C7A7
MXDR	13	SANTA RITA	B	VEIN	AG PB ZN	AU CU	N25 25	W106 37	4D4B7A7
MXDR	85	SIERRA DE RAMIREZ	B	STOK	AG PB ZN	AU CU	N24 55	W102 40	4D16B5A7
MXDR	97	TEBICOS	C	VEIN	AG CU		N23 59	W105 28	4D7C7A7
MXDR	55	ZONA SIERRA DE SAN FRANCISCO	C	VEIN	AG AU		N25 12	W105 2	4C7C7A7
MXEM	2	TIERRA COLORADA	C	VEIN	AG	FE	N18 36	W100 13	4D4C7A7
MXGN	17	GUANAJUATO (LA VALENCIANA, ETC.)	A	VEIN	AG AU		N21 2	W101 14	4C17A7A7
MXGN	5	XICHU (ZONA MAJADA DE ESPIRITU SANTO)	B	VEIN	AG PB ZN	AU	N21 27	W100 9	4D4E7A7
MXGN	7	ZONA PROVIDENCIA	C	VEIN	AG AU	HG SN	N21 24	W101 18	4C1C7A7
MXGR	15	DISTRITO MINERO DE TAXCO	A	VEIN	AG AU PB ZN	F	N18 37	W 99 35	4D14A7A7
MXGR	23	REAL DE GUADALUPE	C	VEIN	AG PB ZN	AU CU	N17 58	W101 19	4D4C7A7
MXHD	11	PACHUCA-REAL DEL MONTE	A	VEIN	AG AU PB ZN		N20 7	W 98 43	4D147A7A7
MXJL	10	CINCO MINAS	B	VEIN	AG AU	PB ZN CU	N21 5	W103 59	4C7B7A7
MXJL	4	CUALE-AMALTEA O DESMORONADO DISTRICT	B	STOK	AG ZN PB	AU	N20 23	W105 4	4D47E5A
MXJL	2	ETZATLAN DISTRICT	B	VEIN	AG PB ZN	AU CU	N20 45	W104 7	4D7E7A7
MXJL	3	MASCOTA	C	VEIN	AG PB ZN	AU CU	N20 30	W104 44	4D7C7A7
MXMC	27	ANGANGUEO	A	VEIN	AG PB ZN		N19 40	W100 15	4D7A7A7
MXMC	10	EL MARQUEZ, CANITAS	C	VEIN	AG PB ZN CU		N18 47	W102 8	4D7C7A7
MXNA	13	HUAYNAMOTA GROUP, ODOTAN	C	VEIN	AG PB ZN	AU CU	N21 50	W104 30	4D7C7A7
MXNA	20	SANTA MARIA DEL ORO	C	VEIN	AG AU PB ZN		N21 17	W104 35	4D4C7A
MXNL	18	DULCES NOMBRES	C	VEIN	AG PB ZN		N23 48	W 99 35	4D1C7A7
MXNL	2	MINERAL DE SAN ANTONIO	C	SKAR	AG PB ZN		N26 57	W100 5	4D14C3A7
MXNL	8	MONSERRAT, VALLE ALTO	C	VEIN	AG PB ZN		N25 36	W100 18	4D1C7A7
MXOX	81	EJUTLA	C	VEIN	AG PB ZN	AU CU	N16 5	W 96 45	4D15C7A7
MXOX	69	POBLETE	C	VEIN	AG PB AU CU		N16 38	W 96 38	4D15C7A7
MXOX	12	SAN MIGUEL PERAS	C	VEIN	AG PB ZN		N17 15	W 98 17	4D7C7A7
MXOX	55	SAN PABLO MITLA	C	VEIN	AG PB CU		N16 55	W 96 20	4D7C7A7
MXOX	3	TEQUITEPEC	C	VEIN	AG PB CU AU		N18 5	W 97 40	4D15C7A7
MXOX	39	VILLA ALTA Y YAA	C	VEIN	AG PB		N17 19	W 96 7	4D46C7A7
MXOX	41	ZONA DE TLACOTEPEC	C	VEIN	AG PB ZN AU		N17 25	W 97 54	4D7C7A7
MXQR	1	RIO BLANCO	C	VEIN	AG AU		N21 12	W 99 45	4C5C7A7
MXSL	27	EL CHICH	C	VEIN	AG PB AU		N24 48	W107 23	4D4C7A
MXSN	66	BAROLLEGA	C	VEIN	AG AU		N27 27	W109 23	4C7C7A7
MXSN	68	EL MANTO	C	SKAR	AG ZN AU		N27 25	W108 45	4D14C3A7
MXSN	71	JAPON EN MEXICO	C	VEIN	AG ZN AU		N27 23	W108 47	4D7C7A7
MXSN	70	LA ANTIGUA	C	VEIN	AG		N27 16	W109 2	4D4C7A7
MXSN	45	LAMPAZOS	B	VEIN	AG PB ZN		N29 27	W109 30	4D1B7A7
MXSN	48	LOS CRESTONES	C	VEIN	AG PB ZN		N29 11	W109 39	4D7C7A7
MXSN	24	SIERRA HACHITA HUECA	C	VEIN	AG PB		N30 35	W108 52	4D7C7A7
MXSP	1	SIERRA DE CATORCE	A	VEIN	AG PB ZN		N23 44	W100 55	4D14A7A7
MXZC	18	AVALOS-OTO, CONCEPCION DEL ORO	A	STOK	AG PB ZN	AU CU	N24 37	W101 30	4D14A5A7



MXZC	42	FRESNILLO	A	VEIN	AG	FB	ZN	AU	CU	N23	15	W102	50	4D1A7A7	
MXZC	46	LA CALDERONA Y EL AGUILA	C	VEIN	AG	FB	ZN	SB		N22	55	W102	16	4D1C7A7	
MXZC	52	MINAS DE MILAGROS	C	VEIN	AG			FB	ZN	AU	N22	30	W102	12	4D7C7A7
MXZC	26	P.V. 2	C	VEIN	AG	FB					N23	58	W103	3	4D1C7A7
MXZC	53	P.V. 6 (LA BLANQUITA)	C	VEIN	AG	FB					N22	27	W102	7	4D4C7A7
MXZC	16	P.V. 27	C	VEIN	AG	FB					N24	53	W101	50	4D1C7A7
MXZC	29	P.V. 27 (SAN MARTIN)	B	VEIN	AG	FB	CU				N23	40	W103	45	4D1B7A7
MXZC	44	SANTA ELENA	C	VEIN	AG						N22	48	W103	33	4D4C7A7
MXZC	28	SOMBRERETE	B	VEIN	AG	FB	ZN	AU	CU		N23	40	W103	40	4D1B7A7
MXZC	47	ZACATECAS	A	VEIN	AG	FB	ZN	AU	CU		N22	45	W102	35	4D15A7A7
NUNU	10	MACUEL IZO 2	C	VEIN	AG	FB	ZN				N13	37	W 86	37	4D145C7A5+
USAK	87	HILLSIDE, BANJO, EUREKA, EUREKA CREEK	C	VEIN	AG	FB	ZN	CU	AU		N63	33	W150	55	4D145C7A
USAZ	114	CALIFORNIA DIST. (HILLTOP MINE)	C	VEIN	AG	FB	ZN				N31	59	W109	14	4D4C7A
USAZ	60	CASTLE DOME DISTRICT	C	VEIN	AG	FB	F	AU	BA		N33	2	W114	11	4D4C7A6+
USAZ	105	EMPIRE DISTRICT	C	STOK	AG	FB	ZN	AU	CU		N31	53	W110	36	4D347C5A6+
USAZ	107	ORO BLANCO DISTRICT (MONTANA MINE)	C	VEIN	AG	FB	ZN	AU	CU		N31	28	W111	14	4D4C7A
USAZ	59	SILVER (RED CLOUD, BLACK ROCK) DISTRICT	C	VEIN	AG	FB			ZN	MO	N33	4	W114	35	4D4C7A
USAZ	115	SWISSHELM DISTRICT	C	STOK	AG	FB					N31	42	W109	32	4D347C5A
USAZ	112	TOMBSTONE DISTRICT	B	STOK	AG	FB	ZN	AU	CU		N31	42	W110	4	4D347B5A7
USAZ	113	TURQUOISE DISTRICT	C	STOK	AG	FB	CU	AU	ZN	MO	N31	44	W109	49	4D347C5A
USAZ	108	TYNDALL DISTRICT	C	VEIN	AG	FB			ZN	CU	N31	36	W110	52	4D4C7A
USCA	96	BLACK CANYON DISTRICT	C	VEIN	AG	FB			AU		N37	20	W118	12	4D4C7A
USCA	90	BLIND SPRING DISTRICT	C	VEIN	AG	FB					N37	46	W118	29	4D14C7A4
USCA	157	CALICO DISTRICT	C	VEIN	AG	BA					N34	58	W116	49	4D7C7A7
USCA	110	CERRO GORDO DISTRICT	B	STOK	AG	FB	ZN				N36	32	W117	48	4D14B5A5
USCA	66	PATTERSON DIST. (SILVERADOR & KENTUCK MINES)	C	VEIN	AG						N38	27	W119	17	4CC7A
USOD	23	ASPEN (ROARING FORK) DISTRICT	B	STOK	AG	FB			ZN	CU	N39	11	W106	49	4D347B5A6+
USOD	34	BONANZA (KERBER CREEK) DISTRICT	C	VEIN	AG	FB	ZN	CU	AU		N38	18	W106	8	4D47C7A7
USOD	17	BRUSH CREEK DISTRICT	C	VEIN	AG				CU		N39	35	W106	44	4BC7A
USOD	14	CASHIN MINE	C	DSTR	AG	CU					N38	19	W108	57	4D37C10A5+
USOD	67	CREEDE DISTRICT (AMETHYST, OH ET AL. MINES)	B	VEIN	AG	FB	ZN	AU	CU		N37	52	W106	54	4D7B7A7
USOD	37	LAKE CITY (GALENA LAKE) DISTRICT	C	VEIN	AG	FB	AU	CU	ZN		N38	1	W107	22	4D7C7A7
USOD	22	LEADVILLE DISTRICT	A	STOK	AG	ZN	FB	AU	CU	MN	N39	14	W106	15	4D347A5A6+
USOD	46	MONTEZUMA (SNAKE RIVER) DISTRICT	C	VEIN	AG	FB	ZN			AU	N39	35	W105	52	4D145C7A6+
USOD	65	OPHIR (IRON SPRINGS) DISTRICT	C	VEIN	AG	AU	FB		CU	ZN	N37	52	W107	50	4C7C7A7
USOD	60	RICO (PIONEER) DISTRICT	B	STOK	AG	ZN	FB	AU	CU		N37	42	W108	1	4D347B5A7
USOD	24	ROCK CREEK DISTRICT	C	STOK	AG	FB					N39	4	W107	6	4D347C5A6+
USOD	66	SILVERTON DISTRICT (SHENANDOAH ET AL. MINES)	B	VEIN	AG	AU	FB	ZN	CU	MN	N37	48	W107	36	4D47B7A7
USOD	27	TINICUP DISTRICT	C	STOK	AG	AU	FB		ZN	ZN	N38	43	W106	29	4D347C5A6+
USOD	36	UNCOMPAHGRE DISTRICT	C	VEIN	AG	AU	FB	CU	ZN	BA	N38	4	W107	40	4D347C7A6+
USOD	57	WEST CLIFF-SILVER CLIFF (HARDSORABBLE)	C	VEIN	AG	AU	FB		CU	ZN	N38	9	W105	27	4D1457C7A6+
USID	37	BAYHORSE DISTRICT	B	STOK	AG	FB	ZN				N44	21	W114	23	4D14B5A5+
USID	38	BOULDER CREEK (LIVINGSTON) MINE	C	STOK	AG	FB	ZN		AU	CU	N44	8	W114	36	4D14C5A
USID	50	EAST FORK DISTRICT	C	VEIN	AG	FB	ZN		AU	CU	N43	59	W114	39	4D14C7A
USID	43	JUNCTION DISTRICT (LEADVILLE MINE)	C	STOK	AG	FB	ZN		AU	CU	N44	42	W113	18	4D14C5A
USID	6	LAKE VIEW DISTRICT	C	VEIN	AG	FB			ZN	CU	N47	54	W116	27	4D14C7A
USID	65	LAVA CREEK DISTRICT	C	VEIN	AG	FB	ZN				N43	33	W113	37	4D47C7A
USID	61	MINERAL HILL (WOOD RIVER) DISTRICT	B	VEIN	AG	FB	ZN		SB		N43	29	W114	22	4D14E7A
USID	64	MULDOON (LITTLE WOOD RIVER) DISTRICT	C	STOK	AG	FB	ZN				N43	37	W113	53	4D14C5A
USID	1	PORT HILL DIST. (IDAHO CONTINENTAL MINE)	C	VEIN	AG	FB			ZN	CU	N48	56	W116	54	4D14C7A
USID	59	ROSETTA (LITTLE SMOKY) DISTRICT	C	STOK	AG	FB	ZN		AU	CU	N43	36	W114	42	4D14C5A
USID	30	SEAFOAM DISTRICT	C	STOK	AG	FB	ZN		AU	CU	N44	35	W115	4	4D14C5A
USID	49	SILVER CITY & DELAMAR DISTRICTS	B	VEIN	AG	AU	SB				N43	1	W116	46	4C7B7A7
USID	4	TALACHE DIST. (ARMSTEAD MINE)	C	VEIN	AG	FB			AU	CU	N48	8	W116	29	4D14C7A
USID	55	VIENNA DISTRICT	C	VEIN	AG	FB	ZN		AU	CU	N43	48	W114	48	4D4C7A
USID	35	YANKEE FORK DISTRICT	C	VEIN	AG	AU					N44	21	W114	43	4C47C7A7
USMT	70	ARGENTA DISTRICT	C	STOK	AG	FB	AU		ZN	CU	N45	18	W112	53	4D14C5A6
USMT	41	BARKER (HUGHESVILLE) DISTRICT (BLOCK P MINE)	B	VEIN	AG	FB	ZN	AU	CU		N47	5	W110	39	4D237B7A6+
USMT	65	BRYANT (HECLA) DISTRICT	C	VEIN	AG	FB	AU				N45	36	W112	55	4D14C7A6
USMT	50	CASTLE MTN. DISTRICT (CUMBERLAND MINE)	C	STOK	AG	FB					N46	27	W110	41	4D347C5A6+
USMT	85	COOKE CITY (NEW WORLD) DISTRICT	C	STOK	AG	FB	ZN		AU	CU	N45	2	W109	57	4D14C5A6+
USMT	18	CURLEW MINE	C	VEIN	AG	ZN	FB	AU	AU	CU	N46	28	W114	10	4D14C7A
USMT	20	HEDDLESTON DISTRICT (MIKE HORSE MINE)	C	VEIN	AG	ZN	FB	AU	CU		N47	2	W112	22	4D1C7A
USMT	9	HOG HEAVEN DISTRICT (FLATHEAD MINE)	C	STOK	AG	FB					N47	56	W114	34	4D14C5A7
USMT	14	KEYSTONE DISTRICT (IRON MTN., NANCY LEE)	C	VEIN	AG	FB	ZN				N47	16	W114	54	4D1C7A
USMT	3	LIBBY DISTRICT	C	VEIN	AG	FB	ZN				N48	13	W115	38	4D14C7A

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USMT	63	MELROSE DISTRICT	C	VEIN	AG		N45 42	W112 38	4CC7A
USMT	43	NEIHART DISTRICT (BIG BEN MO)	B	VEIN	AG	PB ZN AU MO	N46 57	W110 44	4D125B7A6+
USMT	12	PACKER CREEK DISTRICT (LAST CHANCE, BEN HUR)	C	VEIN	AG	PB	N47 27	W115 32	4D1C7A
USMT	31	PHILIPSBURG DISTRICT	B	VEIN	AG	PB ZN MN	N46 20	W113 16	4D347B7A6
USMT	59	WHITEHALL (CARDWELL) DISTRICT	C	VEIN	AG	PB ZN	N45 50	W112 0	4D145C7A
USNC	20	SILVER HILL MINE	C	DSTR	AG	PB	N55 43	W 80 14	4D5C10A3
USNM	54	CHLORIDE DIST (SILVER MONUMENT ET AL.)	C	VEIN	AG	AU CU	N53 20	W107 50	4C7C7A7
USNM	65	COOKE'S PEAK DISTRICT	C	STOK	AG	PB ZN	N52 33	W107 43	4D347C5A6+
USNM	76	HACHITA (EUREKA) DISTRICT	C	VEIN	AG	PB ZN	N51 54	W108 25	4D4C7A6
USNM	56	HERMOSA (PALOMAS) DISTRICT	C	STOK	AG	PB	N53 10	W107 43	4D37C5A
USNM	59	KINGSTON DISTRICT	C	STOK	AG	PB ZN CU AU	N52 55	W107 43	4D347C5A6+
USNM	64	LAKE VALLEY DISTRICT	C	STOK	AG	PB MN	N52 44	W107 34	4D37C5A
USNM	37	MOGOLLON DISTRICT	B	VEIN	AG	AU	N53 23	W108 48	4C7B7A7
USNM	41	SAN SIMON DISTRICT	C	STOK	AG	PB	N52 9	W109 0	4DC5A
USNM	58	SWARTZ (CARPENTER) DISTRICT	C	SKAR	AG	PB ZN CU	N52 52	W107 48	4D37C3A6+
USNV	17	ARABIA DISTRICT	C	VEIN	AG	PB SB	N40 22	W118 24	4D4C7A5
USNV	28	AURA (BULL RUN, COLUMBIA) DISTRICT	C	VEIN	AG	AU	N41 49	W116 5	4C14C7A
USNV	152	AURUM DISTRICT	C	STOK	AG	PB ZN CU	N39 37	W114 32	4D14C5A
USNV	38	BARRETT SPRINGS DISTRICT	C	VEIN	AG	PB	N41 8	W117 49	4DC7A
USNV	143	BELLEHELEN DISTRICT	C	VEIN	AG	AU	N58 5	W116 28	4C7C7A
USNV	135	BELMONT DISTRICT	C	VEIN	AG	AU HG	N58 37	W116 56	4C45C7A
USNV	167	BRISTOL (JACKRABBIT) DISTRICT	C	STOK	AG	PB ZN CU AU	N58 5	W114 36	4D14C5A7
USNV	93	BROKEN HILLS	C	STOK	AG	PB	N39 3	W116 2	4C7C5A
USNV	64	BUCKHORN DISTRICT	C	VEIN	AG	AU	N40 12	W116 28	4CC7A
USNV	168	BUENA VISTA (ONEOTA) DISTRICT	C	STOK	AG	PB ZN	N57 55	W118 19	4D14C5A
USNV	13	BUENA VISTA (UNIONVILLE) DISTRICT	C	VEIN	AG	PB SB	N40 28	W118 7	4D5C7A
USNV	111	CANDELARIA DIST. (COLUMBUS, MT. DIABLO MINES)	B	VEIN	AG	AU PB	N58 9	W118 5	4D45E7A5
USNV	148	CHERRY CREEK (EGAN CANYON) DISTRICT	C	VEIN	AG	AU PB CU	N59 54	W114 55	4D14C7A
USNV	86	COMSTOCK DISTRICT	A	VEIN	AG	AU	N59 18	W119 38	4C467A7A7
USNV	31	CORNUCOPIA DISTRICT	C	VEIN	AG	AU	N41 34	W116 17	4C7C7A7
USNV	154	EUREKA DISTRICT	B	STOK	AG	AU PB ZN	N59 30	W115 59	4D14E5A5
USNV	89	FAIRVIEW DISTRICT	C	VEIN	AG	AU	N59 13	W118 10	4C7C7A7
USNV	48	GOLD RUN (ADELAIDE) DISTRICT	C	VEIN	AG	PB	N40 47	W117 31	4D1C7A
USNV	32	GOOD HOPE DISTRICT	C	VEIN	AG		N41 28	W116 30	4D7C7A7
USNV	105	HAWTHORNE DISTRICT	C	VEIN	AG	AU PB	N58 28	W118 40	4D14C7A4
USNV	11	HUMECLOT (IMLAY) DISTRICT	C	VEIN	AG	AU	N40 35	W118 13	4C1C7A
USNV	151	HUNTER DISTRICT	C	STOK	AG	PB	N59 37	W115 0	4D14C5A
USNV	132	JEFFERSON CANYON DISTRICT	C	VEIN	AG	AU	N58 44	W117 1	4C147C7A
USNV	121	KINGSTON DISTRICT	C	VEIN	AG	AU	N59 11	W117 8	4C5C7A
USNV	172	KLONDYKE DISTRICT	C	VEIN	AG		N57 54	W117 13	4C14C7A
USNV	5	LEADVILLE DISTRICT	C	VEIN	AG	PB ZN	N41 7	W119 25	4D7C7A7
USNV	55	LEWIS DISTRICT	C	VEIN	AG	PB	N40 27	W116 52	4D45C7A
USNV	175	LIDA DISTRICT	C	STOK	AG	AU PB	N37 27	W117 33	4D14C5A
USNV	171	LOWE MTN. DISTRICT	C	STOK	AG	PB ZN	N57 57	W117 25	4D14C5A
USNV	107	MARIETTA (BLACK MTN.) DISTRICT	C	VEIN	AG	PB	N58 17	W118 22	4D5C7A
USNV	134	MOREY DISTRICT	C	VEIN	AG	AU PB MN	N58 40	W116 16	4D7C7A7
USNV	124	QUARTZ MTN. DISTRICT (SAN RAFAEL MINE)	C	VEIN	AG	PB ZN	N59 3	W117 58	4D14C7A7
USNV	54	RAILROAD (BULLION) DISTRICT	C	SKAR	AG	PB CU	N40 30	W116 0	4D14C3A
USNV	118	REESE RIVER (AUSTIN) DIST. (EARLY DAY MINE)	B	VEIN	AG	AU	N59 28	W117 4	4C145B7A6+
USNV	19	ROCHESTER DISTRICT	C	VEIN	AG	AU	N40 18	W118 11	4C5C7A
USNV	7	ROSEBUD DISTRICT	C	STOK	AG		N40 48	W118 36	4D7C5A7
USNV	6	SULPHUR DISTRICT	C	STOK	AG	PB	N40 54	W118 39	4D7C5A7
USNV	142	TONOPAH DISTRICT	B	VEIN	AG	AU PB	N58 5	W117 14	4C7B7A7
USNV	18	TRINITY DISTRICT	C	VEIN	AG	PB	N40 20	W118 30	4D4C7A5
USNV	34	TUSCARORA DISTRICT	C	VEIN	AG	AU	N41 18	W116 15	4C7C7A7
USNV	127	TWIN RIVER (MILLET) DISTRICT	C	VEIN	AG	PB ZN	N58 55	W117 16	4DC7A
USNV	138	TYBO DISTRICT	C	STOK	AG	AU PB ZN	N58 22	W116 24	4D4C5A7
USNV	130	UNION (GRANTSVILLE, BERLIN) DISTRICT	C	VEIN	AG	PB ZN	N58 53	W117 35	4D5C7A
USNV	159	WARD DISTRICT	C	VEIN	AG	PB ZN AU CU	N59 4	W114 52	4D14C7A
USNV	157	WHITE PINE (HAMILTON) DISTRICT	B	STOK	AG	PB	N59 12	W115 30	4D14E5A5
USNV	83	WONDER DISTRICT	C	VEIN	AG	AU	N59 27	W118 2	4C7C7A7

USOR	6	OREGON KING MINE	C	VEIN	AG AU	PB CU	N44	40	W120	41	4C7C7A7
USTX	28	SHAFTER DISTRICT (PRESIDIO MINE ET AL.)	C	STOK	AG PB ZN AU		N29	48	W104	20	4D1C5A7
USTX	19	VAN HORN MOUNTAIN DISTRICT	C	STOK	AG CU		N30	52	W104	53	4B37C5A4+
USUT	1	ASHBROOK DISTRICT (VIFONT MINE)	C	STOK	AG	AU	N41	59	W113	50	4D14C5A7
USUT	38	BRADSHAW DISTRICT (CAVE MINE)	C	STOK	AG AU PB		N38	17	W112	57	4D14C5A
USUT	59	ESCALANTE MINE	C	DSTR	AG PB	AU	N37	47	W113	43	4D37C10A5+
USUT	23	FISH SPRINGS DISTRICT	C	STOK	AG PB	AU	N39	50	W113	27	4D14C5A
USUT	7	GOLD HILL DISTRICT (AND CLIFTON AREA)	C	SKAR	AG AU PB AS BI	W	N40	10	W113	49	4D14C5A7
USUT	12	NORTH TINTIC DISTRICT	C	SKAR	AG PB ZN	AU CU	N40	2	W112	10	4D14C3A7
USUT	43	OHIO & MT. BALDY DISTRICTS	C	STOK	AG AU PB	HG	N38	23	W112	18	4D14C5A7
USUT	64	SILVER REEF (HARRISBURG, LEEDS) AREA	C	DSTR	AG	CU U	N37	15	W113	22	4D37C10A5+
USUT	37	STAR & NORTH STAR DISTRICTS	C	STOK	AG PB ZN	AU CU	N38	20	W113	6	4D14C5A7
USUT	29	TINTIC DISTRICT	A	STOK	AG PB ZN AU	CU	N39	54	W112	5	4D14A5A7
USWA	23	BOSSBURG DISTRICT (CLIGSTON CREEK)	C	STOK	AG PB ZN BA		N48	44	W117	53	4D14C5A5+
USWA	25	COLVILLE DISTRICT (OLD DOMINION MINE)	C	STOK	AG PB ZN		N48	33	W117	47	4D14C5A5+
USWA	33	MONTE CRISTO DISTRICT (MYSTERY, PRIDE ET AL.)	C	VEIN	AG PB CU AU	ZN	N47	57	W121	21	4D145C7A
USWA	18	NESPELEM DISTRICT (APACHE, LITTLE CHIEF)	C	VEIN	AG	PB	N48	9	W119	1	4D4C7A
USWA	13	OROVILLE-NIGHTHAWK	C	VEIN	AG PB	ZN CU AU	N48	57	W119	40	4D145C7A6

# NUCLEAR FUEL METALS

## THORIUM (Th)

Most thorium occurs as a minor constituent in a rare-earth phosphate, monazite, or with uranium in silicate or oxide minerals. Because these minerals are heavy and inert, they frequently accumulate with titanium oxides in placers, which have been a chief source of the element to date. Major potential bedrock sources in North America are veins—USID 20 and USMT 75 (a single district)—and uraniferous conglomerates (fossil placers?)—CAON 158, CAON 159, and others listed under "Uranium."

Number of deposits containing thorium	Number of principal thorium deposits	Principal major commodity of other deposits containing thorium as a major commodity					
		U	Ti	Nb	REE	Fe	(Total)
Total 41	10	16	8	4	2	1	(31)

Number of principal thorium deposits	Geologic class of deposit <sup>1/</sup>		
	VEIN	PEGM	SKAR
Total 10	8	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAQB	215	HUDDERSFIELD TP.	C	SKAR	TH U		N45 57	W 76 33	9E145C3A4
USAK	174	SALMON BAY AREA	C	VEIN	TH	REE	N56 17	W133 7	9D2C7A7
USCO	35	IRON HILL-GEBOLE & POWERHOUSE DISTRICTS	C	VEIN	TH REE NB FE TI		N38 16	W107 4	9D28C7A2
USCO	56	WET MOUNTAINS DISTRICT	C	VEIN	TH REE		N38 13	W105 18	9D125C7A2
USID	2	HALL MTN. AREA (GOLDEN SCEPTRE ET AL.)	B	VEIN	TH REE		N48 58	W116 26	9D14B7A
USID	42	LEMHI PASS DISTRICT	A	VEIN	TH REE		N44 55	W113 29	9D1A7A
USID	20	MINERAL HILL DISTRICT	C	VEIN	TH REE NB		N45 24	W114 11	9D15C7A
USMT	76	DEER CREEK DISTRICT	C	PEGM	TH REE		N44 52	W112 56	9DC1A
USMT	75	LEMHI PASS	A	VEIN	TH REE		N44 55	W113 29	9D1A7A
USNY	8	BEAR LODGE MOUNTAINS	C	VEIN	TH	REE	N44 27	W104 27	9DC7A7

# URANIUM (U)

The major resources of uranium in North America are in clastic sedimentary rocks underlain by cratonic areas of the continent. Relatively few deposits have a direct association with intrusive igneous rocks.

Under oxidizing conditions uranium moves readily as the hexavalent ion in ground water; precipitation occurs as tetra-valent oxide, silicate, vanadate, carbonate, or sulfate minerals where reducing conditions are encountered. The time of concentration of the uranium and other metals, if they are present, from their dispersed and generally unknown original sources can be specified only as younger than the age of the enclosing rocks—hence the large number of “+”s in the coding. Mineralization is ordinarily more or less parallel to stratification (DSTR) but may be in veins or irregular (STOK).

An oxygen-free Early Proterozoic atmosphere may have permitted the accumulation of detrital minerals to form the Elliot Lake and nearby deposits (CAON 158, CAON 159, CAON 160, and CAON 181), which strongly resemble placers although they are shown noncommittally as disseminated strata-bound.

Large high-grade deposits near Lake Athabasca (CASA 1, CASA 2, CASA 3, CASA 5, and CASA 12 to CASA 16) are just

below or above an unconformity between crystalline rocks of the Shield and cover rocks of later Proterozoic age; repeated cycles of oxidation and reduction concentrated the ore minerals into veins and irregular bodies.

Numerous districts and deposits in Colorado, New Mexico, Utah, Wyoming, and adjacent States are in rocks ranging in age from later Paleozoic to Tertiary. In the Four Corners area of the Colorado Plateau, vanadium is a prominent or dominant constituent; elsewhere the ores have little or no vanadium.

	Number of deposits containing uranium	Number of principal uranium deposits	Principal major commodity of other deposits containing uranium as a major commodity								
			Nb	V	Ag	Cu	K	Hg	Sb	Th	Ti (Total)
Total	222	197	9	6	3	2	1	1	1	1	(25)

	Number of principal uranium deposits	Geologic class of deposit <sup>1/</sup>						
		DSTR	VEIN	STOK	PEGM	LTRT	SKAR	Not reported
Total	197	110	50	20	11	1	1	4

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	227	BIRCH ISLAND (REXSPAR)	B	STOK	U F SR TH	REE	N51 34	W119 54	9A5B5A3+
CABC	307	HYDRAULIC LAKE AREA (TYEE)	B	DSTR	U		N49 47	W119 10	9A3B10A7+
CABC	308	LASSIE LAKE AREA (FUKI, DONEN, BLIZZARD)	B	DSTR	U		N49 35	W118 53	9A3B10A7+
CAKW	1	AMER LAKE	C	DSTR	U	U	N65 33	W 96 45	9A3C10A2+
CAKW	6	BISSETT LAKE AREA	C	DSTR	U	CJ FB	N63 49	W 95 34	9A237C10A3
CAKW	3	CHRISTOPHER ISLAND	B	VEIN	U	CJ MD	N64 5	W 94 33	9A237B7A3+
CAKW	7	KAZAN FALLS-THIRTY MILE LAKE AREA	B	VEIN	U	CJ FB	N63 42	W 95 50	9A15B7A3+
CAKW	2	SISSON LAKE	B	DSTR	U		N64 27	W 97 36	9A37B10A3+
CAKW	4	YATHKYED LAKE AREA	C	VEIN	U		N62 35	W 98 35	9A35C7A3+
CAMB	1	KASMERE LAKE AREA	C	DSTR	U		N59 32	W101 15	9A1C10A2
CAMK	7	ELDORADO DISTRICT (AND ECHO BAY MINE)	B	VEIN	U AG CJ	NI FB	N66 5	W118 2	9A167B7A3+
CAMK	29	HOTTAM LAKE AREA	C	VEIN	U		N64 50	W118 20*	9A147C7C
CAMK	58	MAZENOD LAKE & PRECAMBRIAN INLIER AREA	C	VEIN	U		N63 39	W117 6*	9A4C7C
CAMK	109	MCINNIS LAKE	C	VEIN	U		N61 22	W110 16	9A3C7A2+
CAMK	4	MOUNTAIN LAKE	B	DSTR	U		N67 18	W116 51	9A37B10A4+
CAMK	60	RAYROCK	B	VEIN	U		N63 27	W116 32*	9A4B7B2+
CAMK	103	SIMPSON ISLANDS	C	--	U		N61 46	W112 35	9A1C
CAMK	93	STARK LAKE (REX)	C	VEIN	U		N62 27	W110 19	9A4C7A2
CAMK	106	UNION ISLAND	C	DSTR	U		N61 58	W111 47	9A1C10A2+
CAMK	30	WOPMAY RIVER	C	VEIN	U		N64 30	W116 45*	9A15C7C

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CANB	11	MILL SETTLEMENT AREA	C	DSTR	U		N45 35	W 66 35	9A17C10A5+
CANB	7	SHIPPEGAN	C	STOK	U		N47 44	W 64 38	9A37C5A6+
CANF	11	KITTS	B	VEIN	U		N55 0	W 59 29	9A17B7A2+
CANF	12	MICHEL IN	B	STOK	U		N54 35	W 59 58	9A17B5A2+
CANF	8	MORAN LAKE AREA	C	VEIN	U		N54 29	W 60 55	9A167C7A3+
CAON	181	AGNEW LAKE DISTRICT	B	DSTR	U TH	REE	N46 26	W 81 37	9E37B10A2
CAON	213	BANCROFT AREA (FARADAY ETC...)	B	PEGM	U TH	REE	N45 1	W 77 55	9E145B1A4
CAON	159	ELLIOT LAKE DISTRICT-NORDIC ZONE	A	DSTR	U TH	REE	N46 23	W 82 35	9E37A10A2
CAON	158	ELLIOT LAKE DISTRICT-QUIRKE ZONE	A	DSTR	U TH	REE	N46 31	W 82 39	9E37A10A2
CAON	7	FAVOURABLE LAKE	C	PEGM	U		N52 50	W 93 52	9E345C1A1
CAON	200	MONMOUTH TP.	C	SKAR	U		N44 55	W 78 19	9A145C3A4
CAON	219	PALMERSTON TP.	C	PEGM	U TH		N44 55	W 76 45	9E145C1A4
CAON	179	PARDO & VOGT TPS.	C	--	U TH		N46 46	W 80 16	9E37C
CAON	160	PRONTO	B	DSTR	U TH	REE	N46 13	W 82 42	9E37B10A2
CAON	61	RICHARD LAKE (MACNICOL TP.)	B	PEGM	U TH		N49 51	W 93 56	9E4B1A1
CAON	145	THEANO POINT-MONTREAL RIVER AREA	C	VEIN	U		N47 11	W 84 42	9E46C7A4
CASA	16	KEY LAKE	A	VEIN	U NI		N57 12	W105 39	9A1A7A4+
CAQB	23	BERARD LAKE AREA	C	DSTR	U		N58 12	W 70 13	9A1C10A2+
CAQB	209	CALLIERES TP. (ST. SIMEON)	C	PEGM	U		N47 52	W 69 51	9A15C1A
CAQB	92	JOHAN BEETZ DISTRICT	C	PEGM	U		N50 25	W 62 53	9E4C1A4
CAQB	181	KIPAWA LAKE AREA (HUNTER'S PT.)	C	DSTR	U AU		N46 59	W 78 47	9A15C10A2+
CAQB	44	LAC GAYOT (DIETER LAKE)	B	DSTR	U		N55 59	W 70 34	9A37B10A2
CAQB	187	MONT LAURIER AREA	C	PEGM	U TH		N46 53	W 75 20	9E15C1A
CAQB	53	SAKAMI LAKE	B	PEGM	U TH		N53 11	W 76 57	9E37B10A2
CAQB	234	ST. ARMAND	C	DSTR	U		N45 3	W 73 2	9A1C10A
CAQB	57	OTISH MOUNTAINS	C	DSTR	U		N52 27	W 71 0	9A37C10A2+
CASA	1	BEAVERLODGE (ACE-FAY, VERNA, ETC.)	A	VEIN	U		N59 33	W108 28*	9A15A7B2+
CASA	11	BLACK LAKE (NISTO)	C	VEIN	U		N59 13	W105 26	9A15C7A2
CASA	18	BURBIDGE LAKE	C	DSTR	U		N56 46	W105 4	9A14C10A2+
CASA	8	CHARLEBOIS LAKE AREA	C	PEGM	U		N59 25	W104 50*	9A145C1B2
CASA	5	CLUFF LAKE	A	VEIN	U		N58 22	W109 31	9A15A7A4+
CASA	62	CYPRESS HILLS AREA	C	DSTR	U		N49 40	W108 40	9A37C10A7+
CASA	13	DAWN LAKE-MCCLEAN LAKE AREA	B	VEIN	U		N58 18	W103 54	9A37B7A4+
CASA	27	DUDORIDGE LAKE	B	DSTR	U		N55 33	W106 9	9A1B10A2
CASA	7	FOND-DU-LAC	C	VEIN	U		N59 18	W107 10	9A37C7A4+
CASA	3	GUNNAR	B	STOK	U		N59 23	W108 53	9A15B5A2+
CASA	2	MAURICE BAY	B	VEIN	U		N59 23	W109 54	9A37B7A4+
CASA	15	MICHAEL LAKE	B	VEIN	U		N57 52	W104 4	9A37B7A4+
CASA	12	MIDWEST LAKE	A	VEIN	U		N58 16	W104 7	9A37A7A4+
CASA	14	RABBIT LAKE-COLLINS BAY	A	STOK	U		N58 12	W103 43	9A1A5A4+
CASA	6	SUCKER BAY (FKR)	C	VEIN	U		N59 18	W106 37	9A145C7A
CAYK	20	BOND CREEK	C	STOK	U		N54 40	W134 55	9A5C5A1
CAYK	17	BONNET FLUME RIVER (WERNECKE)	C	STOK	U CU		N55 8	W134 24	9A5C5A1
CAYK	12	TOMBSTONE MOUNTAIN	C	VEIN	U		N54 24	W138 42	9A2C7A5
GLGL	28	ILIMAUSSAQ PROSPECTS (KVANEFJELD, TASEQ)	A	STOK	U TH	BE NB	N60 58	W 46 0	9E2A5A4
MXCH	71	EL NOPAL	C	VEIN	U		N29 4	W106 5	9A7C7A7
MXCH	117	EL SOTOLAR	C	VEIN	U		N29 13	W103 54	9E1C7A7
MXCH	70	LAS MARGARITAS, EL FUERTO	C	VEIN	U		N29 12	W106 4	9A7C7A7
MXDR	50	EL MEZQUITE	C	VEIN	U TH		N25 15	W104 40	9E7C7A7
MXDR	47	LA FRECIOSA	C	STOK	U		N25 21	W104 4	9A1C5A7
MXDX	67	SAACHILA (TRINIDAD)	C	PEGM	U TH		N16 50	W 96 45	9E4C1A2
MXDX	76	ZOPILOTE	C	PEGM	U TH		N16 24	W 96 39	9E4C1A2
USAK	184	BOKAN MTN (ROSS-ADAMS) MINE	B	STOK	U TH		N54 55	W132 8	9E125B5A2+
USAZ	44	AMOS CHEE MINE	C	DSTR	U		N55 31	W111 5	9A37C10A5+
USAZ	45	CALVIN CHEE MINE	C	DSTR	U		N55 19	W110 58	9A37C10A5+
USAZ	43	CAMERON AREA	B	DSTR	U		N55 45	W111 20*	9A37B10B5+
USAZ	103	DURANIUM CLAIMS	C	VEIN	U		N51 40	W111 2	9A3C7A6+
USAZ	2	HACK CANYON	C	STOK	U		N56 35	W112 47	9A37C5A5+

USAZ	8	LEES FERRY AREA	C	DSTR	U		N36	46	W111	43*	9A37C10B5+
USAZ	71	LINDA LEE CLAIMS	C	VEIN	U		N32	11	W112	9	9A3C7A6+
USAZ	49	MORALE CLAIM	C	DSTR	U		N35	34	W109	51	9A7C10A6+
USAZ	7	ORPHAN LODE MINE	B	STOK	U	CJ AG	N36	2	W112	9	9A37B5A4+
USAZ	1	RADON GROUP	C	DSTR	U		N36	49	W112	55	9A37C10A5+
USAZ	5	RIDENOUR MINE	C	STOK	U		N36	6	W113	10	9A37C5A4+
USAZ	50	ROCK GARDEN ET AL. CLAIMS	C	DSTR	U		N35	0	W109	52	9A37C10A5+
USAZ	53	ST. JOHNS AREA	C	DSTR	U		N34	30	W109	18	9A37C10A5+
USAZ	36	URANIUM AIRE GROUP	C	DSTR	U		N34	18	W113	16	9A3C10A7
USAZ	76	WORKMAN CREEK (SIERRA ANCHA) AREA	C	DSTR	U	CJ FB ZN MO	N33	52	W110	56	9A367C7A1
USCA	42	HALLELUWAH JUNCTION AREA	C	VEIN	U		N39	52	W120	1	9A4C7A
USCA	67	JUNIPER MINE	C	DSTR	U		N38	18	W119	46	9A3C10A6+
USCA	184	SOUTHERN MCCOY MOUNTAINS GROUP	C	VEIN	U		N33	39	W114	49	9A15C7A1+
USCO	54	AVERY RANCH DEPOSIT	C	DSTR	U		N38	31	W104	49	9A37C10A6+
USCO	33	COCHETOPA CREEK (LOS OCHOS) AREA	B	VEIN	U		N38	21	W106	44	9A37B7A7
USCO	7	COPPER KING MINE (PRAIRIE DIVIDE)	C	VEIN	U		N40	51	W105	29	9A15C7A7
USCO	62	GOOD HOPE & NEVADA GROUP	C	DSTR	U V		N37	18	W108	0	9CC10A5+
USCO	6	HOT SULFUR SPRINGS DEPOSITS	C	DSTR	U		N40	3	W106	8	9A37C10A6+
USCO	32	MARSHALL PASS AREA	B	VEIN	U		N38	24	W106	22	9A37B7A7
USCO	4	MAYBELL AREA	B	DSTR	U		N40	34	W107	59*	9A37B10B7
USCO	70	MCINTIRE, SANTA ROSA ET AL.	C	DSTR	U		N37	43	W105	16*	9AC10C
USCO	5	MEEKER AREA	C	DSTR	U V		N40	6	W107	43	9C37C10A
USCO	39	RALSTON CREEK (SCHWARTZWALDER MINE)	B	VEIN	U		N39	51	W105	18	9A15B7A7
USCO	53	TALLAHASSEE CREEK AREA	B	DSTR	U		N38	34	W105	31	9A37B10A7
USCO	13	URAVAN MINERAL BELT	A	DSTR	U V		N38	27	W108	44*	9C37A10B5+
USID	41	WILLIAMS CREEK AREA	C	VEIN	U		N45	4	W113	52	9A7C7A7
USMT	88	CARTER COUNTY PROSPECTS	C	DSTR	U		N45	0	W104	20*	9A37C10C
USMT	87	PRYOR MTN. (OLD GLORY MINE)	B	STOK	U		N45	0	W108	18*	9A1B5B
USMT	35	W. WILSON, LIVERPOOL MINES	C	VEIN	U	AG	N46	27	W112	0	9A4C7A6
USMT	56	WALDRON AND OTHER LEASES	C	DSTR	U		N46	36	W104	4*	9A37C10C7
USND	1	BELFIELD-NORTH AREA	C	DSTR	U		N47	4	W103	17*	9A37C10B7
USND	2	BELFIELD-SOUTH AREA	C	DSTR	U		N46	40	W103	21*	9A37C10B7
USNM	15	AMBROSIA LAKE DISTRICT	A	DSTR	U	V	N35	22	W107	50*	9A37A10B5+
USNM	33	BISH CLAIMS	C	DSTR	U		N35	39	W104	25	9A37C10A5+
USNM	29	CHARLEY 2 DEPOSIT	C	VEIN	U		N34	25	W107	1	9A37C7A7
USNM	2	CHUSKA DISTRICT	C	DSTR	U	V	N36	25	W109	0	9A37C10A5+
USNM	18	COLLINS-GOODNER GROUP	C	DSTR	U		N35	40	W106	54	9A37C10A5+
USNM	13	GALLUP DISTRICT	B	DSTR	U		N35	31	W108	33	9A37B10A5+
USNM	36	GOOD LUCK CLAIMS	C	DSTR	U		N34	51	W103	34	9A37C10A5+
USNM	28	HOOK RANCH (JARALOSA) AREA	C	DSTR	U		N34	18	W107	25	9A37C10A7
USNM	17	LA VENTANA MESA AREA	C	DSTR	U		N35	49	W106	57	9A37C10A5+
USNM	16	LAGUNA DISTRICT	A	DSTR	U	V	N35	7	W107	19	9A37A10A5+
USNM	31	LUCKY DON & LITTLE DAVIE MINES	C	STOK	U		N34	4	W106	42	9A37C5A4+
USNM	53	PITCHBLEND STRIKE CLAIMS	C	VEIN	U		N33	25	W107	25	9A7C7A7
USNM	27	RED BASIN DEPOSITS	C	DSTR	U		N34	24	W107	55	9A37C10A6+
USNM	5	RED HEAD NO. 2 AREA (COYOTE GROUP)	C	DSTR	U		N36	9	W106	39	9A37C10A4+
USNM	14	SMITH LAKE DISTRICT	B	DSTR	U	V	N35	32	W108	15	9A37B10A5+
USNM	6	WASSON (BOX CANYON) AREA	C	DSTR	U	V	N36	12	W106	25	9A37C10A5+
USNV	180	BLACK BONANZA	C	VEIN	U		N36	57	W116	49	9AC7A
USNV	165	BLUE BIRD & ATLANTA MINES	C	STOK	U AG AU		N38	27	W114	21	9A14C5A6+
USNV	101	BROKEN BOW CLAIM	C	VEIN	U		N38	38	W118	14	9AC7A
USNV	102	CAROL RIVER MINE	C	DSTR	U		N38	31	W118	27	9AC10A7
USNV	2	MOONLIGHT MINE	C	VEIN	U		N41	47	W118	10	9A7C7A6+
USNV	184	PANACA (WHITE CLOUD ET AL.) CLAIMS	C	DSTR	U		N37	48	W114	22	9A3C10A7+
USNV	80	RED BLUFF, LOWARY, ARMSTRONG MINES	C	VEIN	U		N39	52	W119	40	9AC7A7
USNV	104	RIVER ROAD CLAIM	C	VEIN	U		N38	29	W118	54	9AC7A
USNV	71	SOUTH FORK, EAST FORK, AND RIMROCK DEPOSITS	C	DSTR	U		N41	50	W115	52	9A7C10A
USNV	15	STALIN'S PRESENT	C	VEIN	U		N40	25	W118	12	9AC7A
USNV	79	TICK CANYON MINE	C	VEIN	U		N39	54	W119	51	9A7C7A7
USOK	18	BYARS & RANDLETT PROPERTIES	C	DSTR	U		N34	6	W 98	31	9A37C10A4+
USOK	15	CEMENT DEPOSIT	C	DSTR	U	V	N34	54	W 98	8	9A37C10A4+
USOK	17	MATHIAS & OBERLANDER PROPERTIES	C	DSTR	U	CJ	N34	28	W 98	49	9A37C10A4+

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USOR	45	BEAR CREEK	C	STOK	U		N43 59	W120 44	9A34C5A7
USOR	46	WHITE KING-LUCKY LASS MINES	B	STOK	U		N42 20	W120 31	9A34B5A7+
USSD	1	CAVE HILLS-FLINT BUTTE AREA	C	DSTR	U	SB HG MO	N45 50	W103 25*	9A37C10C7
USSD	7	EDGEMONT DISTRICT	B	DSTR	U		N43 23	W103 49*	9A37B10B7
USSD	1A	SLIM BUTTES AREA	C	DSTR	U		N45 30	W103 10	9A37C10C7
USTX	7	GARZA COUNTY	C	DSTR	U		N53 15	W101 20*	9A37C10B5+
USTX	1	HART-MANSFIELD RANCH	B	DSTR	U		N55 25	W102 19	9A37B10A5+
USTX	31	KARNES COUNTY AREA	B	DSTR	U		N28 52	W 98 7	9A37B10B7+
USTX	49	KELSEY RANCH	C	DSTR	U		N26 28	W 98 51*	9A37C10B7+
USTX	22	LLANO UPLIFT DISTRICT	C	--	U		N50 45	W 98 49*	9A37C
USTX	33	MCLEAN & FELDER MINES	B	DSTR	U		N28 28	W 98 6	9A37B10A7+
USTX	32	NEW RANCH	C	DSTR	U		N28 34	W 98 19	9A37C10A7+
USTX	34	PROSPECT	C	DSTR	U		N28 16	W 98 13	9A37C10A7+
USTX	35	FURSON RANCH AREA	C	DSTR	U		N28 3	W 98 31*	9A37C10B7+
USTX	2	SAUL RANCH	C	DSTR	U		N54 22	W101 10	9A37C10A5+
USUT	63	BULLOCK GROUP	C	DSTR	U		N57 21	W112 50	9A37C10A6+
USUT	47	CALF MESA AREA	C	DSTR	U		N59 3	W110 43	9A37C10A5+
USUT	21	CASTLE PEAK DRAW AREA	C	DSTR	U	CJ	N40 4	W109 54*	9A37C10B6
USUT	57	CAVE CREEK AREA	C	DSTR	U V		N58 25	W109 27	9C37C10A5+
USUT	66	CIRCLE CLIFFS AREA	C	DSTR	U		N57 53	W111 9*	9A37C10B
USUT	46	COPPER ROCK & WHITE STAR CLAIMS	C	DSTR	U		N59 4	W110 57	9A37C10A5+
USUT	71	COTTONWOOD CANYON AREA	C	DSTR	U V		N57 35	W109 36	9C37C10A
USUT	19	DEVIL GROUP	C	DSTR	U		N40 24	W109 31	9A37C10A5+
USUT	20	EAGLE NEST GROUP	C	DSTR	U		N40 23	W109 13	9A37C10A5+
USUT	48A	GREEN RIVER AREA	B	DSTR	U V		N58 56	W110 20*	9C37B10B5+
USUT	50	HENRY MOUNTAINS AREA	C	DSTR	U V		N58 0	W110 37*	9C37C10B5+
USUT	51	HORSE EAR CLAIM	C	DSTR	U		N59 51	W109 40	9A37C10A6+
USUT	61	KOLOB (SCHOOL SECTION) MINE	C	VEIN	U		N57 28	W113 14	9A37C7A5+
USUT	58	LISBON VALLEY & NEARBY AREAS	A	DSTR	U V		N53 16	W109 11	9C37A10A5+
USUT	70	MONTEZUMA CANYON AREA	C	DSTR	U V		N57 40	W109 14	9C37C10A
USUT	68A	MONUMENT VALLEY AREA	B	DSTR	U V		N57 0	W110 18*	9C37B10B5+
USUT	40	MYSTERY SNIFFER AND OTHER MINES	B	VEIN	U		N58 26	W112 34	9A7B7A7
USUT	56	POLAR MESA AREA	C	DSTR	U V		N58 41	W109 8	9C37C10A5+
USUT	48	SAN RAFAEL SWELL-GREEN RIVER DESERT AREA	B	DSTR	U V		N58 47	W110 48*	9C37B10B5+
USUT	45	SOUTH RIM NO. 1	C	DSTR	U V		N59 12	W110 45	9C37C10A5+
USUT	55	THOMPSON AREA	C	DSTR	U V		N58 52	W109 27	9C37C10A5+
USUT	68	WHIRLWIND MINE AREA	C	DSTR	U V		N57 14	W110 29	9C37C10A5+
USUT	32	WAH WAH MOUNTAINS AREA	C	VEIN	U		N58 16	W113 36	9A47C7A7
USUT	67	WHITE CANYON AREA	B	DSTR	U	CJ	N57 35	W110 14*	9A37B10B
USWA	24	LOST CREEK AREA	C	--	U		N48 38	W117 26	9A4C
USWA	39	MIDNITE MINE AREA (BOYD LEASE)	B	STOK	U		N47 57	W118 7	9A14B5A6
USWA	41	MOUNT SPOKANE AREA (DAYBREAK MINE)	C	LTRT	U		N47 57	W117 12	9A4C9A7
USWA	40	NORTHWEST URANIUM (PETER'S LEASE)	B	DSTR	U		N47 51	W118 6	9A3B10A7
USWY	6	CARLILE-NEW HAVEN AREA	B	DSTR	U	V	N44 48	W104 43*	9A37B10B6+
USWY	18	COPPER MOUNTAIN AREA	B	DSTR	U		N43 25	W107 54*	9A37B10C7
USWY	23	CROOKS GAP, GREEN MOUNTAIN, AND OTHER AREAS	B	DSTR	U		N42 22	W107 51*	9A37B10B7
USWY	19	GAS HILLS DISTRICT AND OTHER AREAS	A	DSTR	U		N42 48	W107 34*	9A37A10B7
USWY	7	HEETLAND AND OTHER MINES	C	DSTR	U		N44 40	W104 5*	9A37C10C6+
USWY	15	KAYCEE DISTRICT	C	DSTR	U		N43 45	W106 30	9A37C10C7
USWY	35	KETCHUM BUTTE AND OTHER AREAS	C	DSTR	U		N41 16	W107 25*	9A37C10B7
USWY	26	NEW HOPE AREA	C	DSTR	U		N42 55	W104 50*	9A37C10C7
USWY	5	NORTH-CENTRAL WYOMING URANIUM AREAS	C	DSTR	U		N44 30	W107 51*	9A37C10C
USWY	36	POISON BASIN (BAGGS) AREA	B	DSTR	U SE		N41 3	W107 46	9A37B10A7
USWY	1	PRYOR MTN. AREA	B	STOK	U		N45 0	W108 18*	9A1B5B
USWY	24	PUMPKIN BUTTES AREA	B	DSTR	U		N43 45	W105 55*	9A37B10B7
USWY	21	SHIRLEY BASIN	A	DSTR	U		N42 19	W106 10*	9A37A10B7
USWY	25	SOUTHERN POWDER RIVER BASIN	B	DSTR	U		N43 0	W105 32*	9A37B10B7



## OTHER METALS

## ANTIMONY (SB)

Antimony tends to occur alone as the sulfide stibnite in the simple ores that make up most of the deposits listed below or as sulfantimonides of copper or lead in complex base- or precious-metal ores. In the latter, antimony may be so subordinate as to constitute only a "minor commodity" and thus not be included in this listing; indeed the major U.S. source has been the Coeur d'Alene region (USID 7 and USID 9) in which lead is shown as the principal commodity. No deposits of North America are shown as of large size.

Number of deposits containing antimony	Number of principal antimony deposits	Principal major commodity of other deposits containing antimony as a major commodity					
		Ag	Cu	Au	Hg	W	(Total)
Total 77	69	3	2	1	1	1	(8)

Number of principal antimony deposits	Geologic class of deposit <sup>1/</sup>		
	VEIN	STOK	DSTR
Total 69	57	9	3

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	131	KASAW BAY (SNOWBIRD)	C	VEIN	SB	AU SE	N54 27	W124 30	8B58C7A4+
CAMB	10	LAKE GEORGE	B	VEIN	SB U		N45 42	W 67 2	8B5B7A4
CANF	40	MORETON'S HARBOUR	C	VEIN	SB AS	AU	N49 33	W 54 53	8B45C7A
CANS	28	WEST GORE	B	VEIN	SB	AU	N45 5	W 63 47	8B1B7A4+
CAQB	237	SOUTH HAM TP.	C	VEIN	SB		N45 51	W 71 31	8B58C7A
CAYK	82	CARBON HILL (BECKER-COCHRAN)	C	VEIN	SB AG		N50 11	W135 13	8B4C7A5+
GTGT	7	IXTAPUACAN (ANABELLA MINE)	C	VEIN	SB W		N15 27	W 91 48	8B1C7A6
HOHO	2	EL QUETZAL	C	VEIN	SB		N14 47	W 88 58	8B15C7A6
MXCH	132	CARIGHIC	C	VEIN	SB		N27 58	W106 59	8B7C7A7
MXCH	157	LA REYNA, GUACHOCHIC	C	VEIN	SB AG		N26 32	W107 17	8B7C7A7
MXCH	172	VIRGINIA	C	VEIN	SB		N27 10	W105 57	8B15C7A7
MXDR	94	CRUZ DE MAYO	C	VEIN	SB		N24 8	W103 52	8B7C7A7
MXDR	92	EL CABALLO	C	VEIN	SB	HG	N24 28	W103 49	8B7C7A7
MXDR	73	EL SAGAL	C	VEIN	SB		N24 12	W104 20	8B7C7A7
MXDR	88	EL ZORRILLO	C	VEIN	SB		N24 30	W103 7	8B7C7A7
MXDR	34	EYANGELINA	C	VEIN	SB		N25 53	W104 31	8B7C7A7
MXDR	43	LA VIRGINIA	C	VEIN	SB		N25 26	W104 57	8B7C7A7
MXDR	32	OLIVIA	C	VEIN	SB		N25 58	W104 23	8B7C7A7
MXDR	40	SAN FRANCISCO DE LOS FOBRES	C	VEIN	SB		N25 38	W104 23	8B7C7A7
MXDR	52	SAN GABRIEL	C	VEIN	SB		N25 1	W104 25	8B7C7A7
MXDR	65	SAN LUCAS	C	VEIN	SB		N24 43	W104 37	8B7C7A7
MXDR	39	SANTA ISABEL	C	STOK	SB		N25 39	W104 36	8B1C5A7
MXDR	35	SANTO NINO, LOS VICTORINOS	C	VEIN	SB		N25 51	W104 12	8B5C7A7
MXDR	90	ZONA CUENCAME	C	VEIN	SB		N24 45	W103 31	8B7C7A7
MXGN	19	ALLEDE	C	VEIN	SB		N20 58	W100 57	8B7C7A7
MXGN	22	SAN MARTIN	C	VEIN	SB		N20 56	W100 27	8B7C7A7
MXGN	13	ZONA BONANZA	C	VEIN	SB		N21 10	W100 15	8B7C7A7
MXGR	34	BARRANCA DE CUBA	C	VEIN	SB	PB AG	N17 32	W100 1	8B15C7A7
MXGR	40	CAMOTLA	C	STOK	SB		N17 38	W 99 50	8B4C5A7
MXGR	20	SAN JERONIMO	C	VEIN	SB		N18 10	W 99 53	8B7C7A7
MXHC	50	SAN LUCAS	C	VEIN	SB		N18 35	W100 48	8B7C7A7
MXOX	20	CAMATLAN Y HUEJOTITLAN	C	STOK	SB		N17 38	W 97 40	8B14C5A7
MXOX	43	LLANO DE SAN VICENTE	C	STOK	SB		N17 8	W 97 54	8B14C5A7
MXOX	47	SINDIHUI	C	STOK	SB		N17 0	W 97 22	8B14C5A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXOX	42	ZONA DIQUIYU-MIXTEPEC-LOS TEJOCOTES	B	STOK	SB		N17 17	W 97 55	8B1 4B5 A7
MXOX	71	ZOQUITLAN	C	DSTR	SB		N16 33	W 96 24	8B1 4C10A7
MXPB	6	ALBINO ZERTUCHE	C	VEIN	SB		N18 5	W 98 30	8B7C7A7
MXPB	13	ZAPOTITLAN	C	VEIN	SB		N18 15	W 97 30	8B7C7A7
MXQR	4	SOYATAL	B	STOK	SB		N21 0	W 99 43	8B1 B5 A7
MXSN	20	ARISPE	C	VEIN	SB		N30 20	W110 7	8B7C7A7
MXSN	8	CABORCA	C	VEIN	SB		N30 43	W112 10	8B1C7A7
MXSN	7	EL ANTIMONIO	B	VEIN	SB		N30 37	W112 37	8B1 4B7A7
MXSN	17	VALEDORA	C	VEIN	SB		N30 22	W111 30	8B1C7A7
MXSP	12	COXCATLAN	C	VEIN	SB		N22 0	W 98 58	8B1 4C7A
MXSP	3	SAN JOSE DE MINAS PRIETAS Y MATANZAS	B	DSTR	SB		N23 36	W100 59	8B1 B1 0B7
MXZC	56	LA CARDONCITA	C	VEIN	SB		N23 42	W101 51	8B5 C5 A7
MXZC	58	LA SOLEDAD (VILLA HIDALGO)	B	VEIN	SB		N22 24	W101 40	8B7 B7 A7
MXZC	12	P. V. 47	C	VEIN	SB		N24 8	W102 44	8B1C7A7
MXZC	14	PACHECO	C	STOK	SB		N24 2	W102 30	8B1C5A7
MXZC	8	SAN FRANCISCO	C	STOK	SB		N24 18	W103 0	8B1C5A7
NUNJ	11	PALACAGUINA	C	VEIN	SB		N13 29	W 86 25	8B1 5C7A7
USAK	34	NOME RIVER AREA (MCDUFFEE ET AL.)	C	VEIN	SB	AU	N64 46	W165 23*	8B1 5C7B
USAK	88	SLATE CREEK (TAYLOR) MINE	C	VEIN	SB		N63 29	W151 4	8B1 5C7A
USAK	85	STAMPEDE MINE	C	VEIN	SB		N63 44	W150 23	8B1 5C7A
USCA	136	SAN EMIGDIO (ANTIMONY PEAK)	C	VEIN	SB		N34 52	W119 6	8B5 C7A7
USCA	84	STAYTON DISTRICT (TRENCH, QUIEN SABE MINES)	B	VEIN	SB		N36 55	W121 13	8B7 B7 A7
USCA	132	TOM MOORE, ERSKINE CREEK	C	VEIN	SB		N35 34	W118 24	8BC7A
USCA	117	TRANSPORTATION (OLD DEPENDABLE)	C	VEIN	SB		N36 17	W117 3	8BC7A
USCA	116	WILDROSE CANYON	C	VEIN	SB		N36 14	W117 10	8B1 5C7A7
USID	53	HERMADA	C	VEIN	SB		N43 52	W115 22	8BC7A
USID	24	YELLOW PINE, MEADOW CREEK, ANTIMONY RIDGE	C	VEIN	SB		N44 55	W115 27	8BC7A
USMT	10A	BABBIT MINE	B	VEIN	SB		N47 35	W115 35	8B1 B7 A
USNV	115	BERNICE CANYON AREA (ANTIMONY KING)	C	VEIN	SB		N39 47	W117 47	8B1C7A
USNV	119	BIG CREEK DISTRICT	C	VEIN	SB		N39 22	W117 7	8B1C7A
USNV	20	PERSHING	C	VEIN	SB		N40 13	W118 16	8BC7A
USOR	19	COYOTE	C	VEIN	SB		N44 18	W117 44	8BC7A
USOR	18	GRAY EAGLE (KOEHLER)	C	VEIN	SB		N44 47	W117 45	8B5 C7A
USOR	11	STIBNITE (PARKER)	C	VEIN	SB		N45 3	W118 13	8B4 C7A
USUT	49	ANTIMONY CANYON (COYOTE CREEK)	C	DSTR	SB		N38 5	W111 53	8B37C10A

# BERYLLIUM (Be)

Beryllium concentrates in late-stage magmatic fluids, forming the silicate mineral beryl that, in certain coarse-grained pegmatites, can be hand picked from the enclosing rock. In North America these deposits are typically small. In the far larger deposit of Spor Mountain (USUT 26), the ore mineral is a hydrous silicate, bertrandite, that impregnates rhyolitic ash. Chrysoberyl, an aluminum-beryllium oxide, is an ore mineral at Lost River (USAK 29), a multicommodity district listed under "Tin" that could become an important source of beryllium.

Number of deposits containing beryllium	Number of principal beryllium deposits	Principal major commodity of other deposits containing beryllium as a major commodity					
		Li	Nb	Fe	Sn	U	(Total)
Total 20	10	5	2	1	1	1	(10)

Number of principal beryllium deposits	Geologic class of deposit <sup>1/</sup>				
	PEGM	DSTR	SKAR	STOK	VEIN
Total 10	6	1	1	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	27	HORSERANCH RANGE	C	PEGM	BE		N59 21	W128 50	1C14C1A
CABC	31	NEEDLEPOINT MOUNTAIN (LOW GRADE)	C	SKAR	BE		N59 8	W129 46	1C14C3A5
CAMK	68A	BLAISDELL LAKE (2)	C	PEGM	BE NB TA		N62 49	W113 36	1C345C1A1
CAMK	70	PRELUDE LAKE	C	PEGM	BE NB TA		N62 39	W113 58	1C345C1A1
CANF	7	TEN MILE LAKE	A	STOK	BE NB REE ZN		N54 14	W 62 24	1C1278A5A2+
CANS	45	SHELburne DISTRICT	C	PEGM	BE		N43 46	W 65 21*	1C4C1B4
CAON	204	LYNDOCH TP.	C	PEGM	BE		N45 20	W 77 24	1C145C1A4
GLGL	11	KANGATSIAQ	C	PEGM	BE		N68 15	W 53 30	1C4C1A2
USCO	49	TARRYALL SPRINGS DISTRICT	B	VEIN	BE W		N39 1	W105 27	1C145B7A2
USUT	26	SPOR MOUNTAIN	A	DSTR	BE F		N39 43	W113 10	1C47A10A7

## LITHIUM (Li)

Nearly all the lithium deposits listed are granite pegmatites containing one or more lithium silicate minerals and, in some, significant quantities of other metals. Important sources of lithium presently include the spodumene pegmatites in North Carolina (USNC 24) and several Canadian Provinces, most notably Bernic Lake, Manitoba (CAMB 51), and Barraute (and elsewhere) in Quebec (see CAQB 131 and others).

Lithium also occurs in some brines in closed, epicontinental basins. By far the most important known deposit of this type in North America is below a dry lake bed at Silver Peak (Clayton Valley) in Nevada (USNV 173). The brine contains several hundred parts per million of lithium apparently leached from a lithium-bearing clay mineral (Kunasz, 1976, p. 27, 28). Lithium is also recovered as a byproduct from brines at Searles Lake (see listing for "Boron," USCA 147).

Number of deposits containing lithium	Number of principal lithium deposits	Principal major commodity of other deposits containing lithium as a major commodity		
		HAL	Nb	(Total)
Total 33	30	2	1	(3)

Number of principal lithium deposits	Geologic class of deposit <sup>1/</sup>	
	PEGM	EVAP
Total 30	29	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAMB	51	BERNIC LAKE AREA (CHEMALLOY, ETC.)	A	PEGM	LI CS TA SN BE		N50 26	W 95 27	1E345A1A1
CAMB	48	CAT LAKE AREA	B	PEGM	LI	BE	N50 37	W 95 35	1E345B1A1
CAMB	54	FALCON LAKE-WEST BRAINTREE AREA	C	PEGM	LI		N49 39	W 95 29	1E345C1A1
CAMB	34	GODS LAKE (BIL)	C	PEGM	LI		N54 52	W 94 10	1E345C1A
CAMB	35	NO NAME	C	PEGM	LI		N54 45	W 95 11	1E345C1A
CAMB	24	WEKUSKO LAKE AREA	B	PEGM	LI	BE	N54 52	W 99 38	1E345B1A2
CAMK	74	BIG HILL LAKE	B	PEGM	LI		N62 29	W114 1	1E345B1A1
CAMK	68	BLAISDELL LAKE (1)	C	PEGM	LI		N62 50	W113 34	1E345C1A1
CAMK	82	BUCKHAM LAKE AREA	B	PEGM	LI		N62 20	W112 39	1E345B1A1
CAMK	75	REID LAKE & HIDDEN LAKE	B	PEGM	LI		N62 28	W113 25	1E345B1A1
CAMK	81	TANCO LAKE	B	PEGM	LI		N62 26	W112 11	1E345B1A1
CANS	44	BRAZIL LAKE	C	PEGM	LI BE		N43 59	W 65 59	1E4C1A4
CAON	104	GEORGIA LAKE-JEAN LAKE DISTRICT	B	PEGM	LI		N49 21	W 87 56	1E145B1A1
CAON	86	LAC LA CROIX	B	PEGM	LI		N48 21	W 91 59	1E145B1A1
CAON	90	POSTAGONI DISTRICT (BIG NAMA, ETC.)	B	PEGM	LI		N49 27	W 88 3	1E145B1A1
CAON	34	ROOT LAKE DISTRICT	B	PEGM	LI		N50 57	W 91 41	1E345B1A1
CAON	137	STEELE TP.	C	PEGM	LI		N49 2	W 79 55	1E4C1A1
CAQB	173	DELBREUIL TP. (LAC SIMARD)	C	PEGM	LI		N47 40	W 78 39	1E4C1A1
CAQB	54	EASTMAIN RIVER	B	PEGM	LI		N52 18	W 77 3	1E345B1A1
CAQB	131	LAC CORNE TP. (QUE LITHIUM)	A	PEGM	LI		N48 24	W 77 48	1E4A1A1
CAQB	70	LAC DES MONTAGNES	C	PEGM	LI		N51 40	W 75 50	1E345C1A1
CAQB	74	TP. 1219 (ASSINICA LAKE)	C	PEGM	LI BE		N50 37	W 75 27	1E345C1A1
CAQB	73	TP. 1222 (LAC ANNE)	B	PEGM	LI		N50 44	W 74 54	1E345B1A1
MXCP	4	JICOTAL	C	PEGM	LI		N17 1	W 92 50	1E4C1A4
MXSN	2	SIERRA PINTA	C	PEGM	LI		N31 41	W113 10	1E15C1A4
USCA	175A	PALA DISTRICT (STEWART MINE)	C	PEGM	LI		N33 29	W117 2	1E4C1A
USNC	24	KINGS MOUNTAIN DISTRICT	B	PEGM	LI	BE SN	N35 21	W 81 17	1E4B1A
USNM	11	HARDING MINE	C	PEGM	LI BE TA		N36 11	W105 46	1E145C1A2-
USNV	173	SILVER PEAK (CLAYTON VALLEY) MINE	A	EVAP	LI		N37 46	W117 34	1E3A6A8
USSD	5	HARNEY PEAK AREA	B	PEGM	LI BE	NB SN	N43 58	W103 36*	1E4B1B1

# MERCURY (Hg)

Most mercury occurs as the sulfide cinnabar in veins, irregular replacement bodies, or disseminated along bedding in sedimentary or tuffaceous rocks. Deposition was at shallow depths and fairly low temperatures, which reflect, however, an increased geothermal gradient. Few deposits seem to have a direct relationship to intrusive igneous rocks, but some, notably the McDermitt Caldera district (USNV 26), are associated spatially with volcanic phenomena. Virtually all the deposits of North America are in the Cordilleran region and are geologically young, probably because any older ones have been destroyed by erosion.

By mining standards, mercury mines are generally small, and most deposits are worked for their mercury content alone. In the past, large deposits such as New Almaden (USCA 83) and New Idria (USCA 86) were important sources of supply. But today, McDermitt, smaller deposits in California, and more productive districts in Mexico (MXZC 10, MXZC 31, MXZC 60,

MXGR 19, and MXSP 7) provide most of North American mercury production.

Number of deposits containing mercury	Number of principal mercury deposits	Principal major commodity of other deposits containing mercury as a major commodity					
		Au	Ag	Cu	Sn	W	(Total)
Total	102	96	2	1	1	1	(6)

Number of principal mercury deposits	Geologic class of deposit <sup>1/</sup>				
	VEIN	STOK	DSTR	SKAR	
Total	96	79	11	5	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	213	COPPER CREEK AREA	C	VEIN	HG		N50 49	W120 47	8A3C7A6+
CABC	130	PINCHI LAKE MERCURY MINE	B	VEIN	HG		N54 37	W124 24	8A5B7A7-
CABC	127	TAKLA MERCURY	C	VEIN	HG		N55 33	W125 21	8A5C7A7-
CABC	216	TUNKWA LAKE	C	VEIN	HG		N50 36	W120 49	8A5C7A
CABC	194	TYAUGHTON LAKE AREA (MANITOU, PHILLIPS)	B	VEIN	HG	W	N51 3	W122 46	8A58B7A7-
CABC	195	YALAKOM RIVER (EAGLE)	C	VEIN	HG		N50 56	W122 16	8A5C7A6+
HQHO	11	VICTORIA DE ORIENTE (LOS IZOTES)	C	VEIN	HG		N14 29	W 87 12	8A1C7A6+
MXCH	122	BATOPIL ILLAS	C	VEIN	HG		N27 53	W108 26	8A7C7A7
MXCH	176	CERROS COLORADOS	C	VEIN	HG		N26 57	W104 36	8A7C7A7
MXCH	79	FEDERNALES	C	VEIN	HG		N28 26	W107 6	8A7C7A7
MXCH	177	PILONCILLOS	B	VEIN	HG		N26 53	W104 8	8A1B7A7
MXCH	118	SAN CARLOS	C	SKAR	HG		N29 10	W103 58	8A14C3A7
MXCH	114	SIERRA DE ENCINILLAS	C	VEIN	HG		N28 15	W104 10	8A167C7A7
MXCH	129	TEMORIS	C	VEIN	HG		N27 17	W108 16	8A7C7A7
MXDR	82	QUENCAME	B	VEIN	HG		N24 53	W103 32	8A1B7A7
MXDR	6	EL CUARENTA	B	VEIN	HG		N26 8	W105 32	8A7B7A7
MXDR	91	MINA SONRISA	C	VEIN	HG		N24 38	W103 42	8A7C7A7
MXDR	7	SAN PEDRO	C	VEIN	HG		N26 5	W105 42	8A47C7A7
MXGN	24	ATARJEJA	C	VEIN	HG		N21 14	W 99 52	8A7C7A7
MXGN	1	MELCHOR	C	VEIN	HG	SN	N21 40	W101 17	8A7C7A7
MXGR	18	HUAHUAXTLA	B	VEIN	HG		N18 26	W 99 35	8A1B7A7
MXGR	19	HUITZUCO	A	VEIN	HG		N18 15	W 99 20	8A1A7A7
MXGR	11	LAS FRAGUAS	C	VEIN	HG		N18 11	W100 28	8A4C7A7
MXJL	1	EL MORAL	C	VEIN	HG		N20 40	W105 5	8A7C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXOX	18	CACALOTEPEC	C	VEIN	HG	W FB	N17 42	W 97 42	8A7C7A7
MXQR	6	SAN JOAQUIN	C	VEIN	HG		N20 55	W 99 33	8A7C7A7
MXQR	5	ZONA DE AZOGUES	C	VEIN	HG		N21 0	W 99 34	8A4C7A7
MXSP	7	GUADALCAZAR	C	VEIN	HG		N22 42	W100 11	8A1C7A
MXZC	60	CANOA	B	VEIN	HG		N22 12	W101 55	8A7B7A7
MXZC	57	EL ALACRAN	C	STOK	HG		N22 28	W101 56	8A1C5A7
MXZC	61	EL CAOLIN	C	STOK	HG		N22 6	W101 50	8A7C5A7
MXZC	22	GRUNIDORA	C	STOK	HG		N24 15	W101 58	8A1C5A7
MXZC	23	MAHOMA	C	STOK	HG		N24 10	W101 40	8A1C5A7
MXZC	41	MARAVILLAS	C	VEIN	HG		N23 19	W103 11	8A7C7A7
MXZC	10	NUEVO MERCURIO	A	VEIN	HG		N24 14	W102 10	8A1A7A7
MXZC	9	P.V. 3, EL REY BALTAZAR, LA FRINGA	C	STOK	HG		N24 15	W102 44	8A1C5A7
MXZC	27	P.V. 7	C	VEIN	HG	SB	N23 56	W102 27	8A1C7A7
MXZC	43	P.V. 23	C	DSTR	HG		N23 16	W102 17	8A1C10A7
MXZC	11	P.V. 30	C	VEIN	HG		N24 9	W102 55	8A2C7A7
MXZC	31	SAIN ALTO	A	VEIN	HG		N23 35	W103 13	8A7A7A7
MXZC	20	TANQUECITO	C	STOK	HG		N24 25	W101 40	8A1C5A7
USAK	113	CINNABAR CREEK MINE	C	VEIN	HG	SB	N60 48	W158 50	8A56C7A
USAK	80	DECOURCY MOUNTAIN MINE	C	VEIN	HG	SB	N62 4	W158 27	8A5C7A7
USAK	106	HARVISON	C	VEIN	HG		N61 57	W157 40	8A5C7A
USAK	109	KOLNAKOF PROSPECT	C	VEIN	HG		N61 40	W159 0	8A5C7A
USAK	141	MARSH MTN. (RED TOP) MINE	C	VEIN	HG		N69 17	W158 32	8A5C7A
USAK	110	MOUNTAIN TOP MINE	C	VEIN	HG	SB	N61 24	W157 59	8A5C7A
USAK	137	RAINY CREEK (ARSENIC CREEK) PROSPECT	C	VEIN	HG	AU	N69 59	W160 8	8A6C7A
USAK	108	RED DEVIL ET AL. MINES	B	VEIN	HG	SB	N61 45	W157 21	8A5B7A7
USAK	105	RHYOLITE PROSPECT	C	VEIN	HG		N61 58	W158 20	8A5C7A
USAK	84	WHITE MTN. DEPOSITS	C	VEIN	HG		N62 13	W154 58	8A1C7A7
USAK	107	WILLIS	C	VEIN	HG	SB	N61 50	W157 22	8A5C7A
USAR	9	PIKE COUNTY	C	VEIN	HG		N64 9	W 93 37	8AC7A
USAZ	57	DOVE ROCK MOUNTAINS DISTRICT	C	VEIN	HG	AU	N63 32	W114 19	8A15C7A
USAZ	74	MAZATZAL MOUNTAINS DISTRICT	C	VEIN	HG		N63 57	W111 26	8A15C7A
USCA	14	ALTOONA	B	VEIN	HG		N41 7	W122 30	8A8B7A7
USCA	140	CACHUMA	C	VEIN	HG		N64 43	W119 53	8AC7A
USCA	85	CENTRAL SAN BENITO	C	VEIN	HG		N66 37	W121 0	8AC7A
USCA	34	CLEAR LAKE DIST. (SULPHUR BANK MINE)	B	VEIN	HG		N69 0	W122 41	8A8B7A8
USCA	120	COO	C	VEIN	HG		N66 1	W117 47	8AC7A
USCA	37	GUERNEYVILLE DISTRICT (SONOMA MINE)	B	VEIN	HG		N68 34	W122 59	8A5B7A7+
USCA	124	KLAU MINE	C	VEIN	HG		N65 37	W120 52	8A5C7A7
USCA	35	KNOXVILLE DISTRICT	B	VEIN	HG		N68 51	W122 22	8A5B7A7+
USCA	141	LOS PRIETOS	C	VEIN	HG		N64 33	W119 40	8AC7A
USCA	36	MAYACMAS DIST. (OAT HILL ET AL.)	B	VEIN	HG		N68 45	W122 42*	8A5B7B7+
USCA	83	NEW ALMADEN DISTRICT	A	VEIN	HG		N67 14	W121 51	8A5A7A7
USCA	86	NEW IDRIA	A	VEIN	HG		N66 21	W120 36	8A5A7A7
USCA	38	OAKVILLE	C	VEIN	HG		N68 27	W122 26	8AC7A
USCA	123	OCEANIC MINE	C	VEIN	HG		N65 35	W121 0	8A5C7A7
USCA	122	PARKFIELD	C	VEIN	HG		N65 53	W120 12	8AC7A
USCA	134	TEHACHAPI	C	VEIN	HG		N65 13	W118 32	8AC7A
USID	26	HERMES MINE	B	VEIN	HG		N44 55	W115 12	8A14B7A
USID	17	IDAHO-ALMADEN (WEISER) MINE	B	DSTR	HG		N44 13	W116 39	8A3B10A7
USNV	21	ANTELOPE SPRINGS	C	VEIN	HG		N40 10	W118 7	8A1C7A7
USNV	4	BOTTLE CREEK	C	VEIN	HG		N41 23	W118 17	8A7C7A4+
USNV	39	DUTCH FLAT	C	VEIN	HG		N41 8	W117 28	8AC7A
USNV	169	FISH LAKE VALLEY	C	DSTR	HG		N67 53	W118 18	8A3C10A7
USNV	40	IVANHOE	C	DSTR	HG		N41 7	W116 35	8A3C10A7
USNV	26	MODERMITT CALDERA (CORDERO ET AL.) DISTRICT	A	STOK	HG	U	N41 55	W117 47	8A3A5A7
USNV	60	MOUNT TOBIN	C	VEIN	HG		N40 21	W117 32	8AC7A

USNV	141	PILOT MOUNTAINS	C	VEIN	HG	N38 18	W117 55	8AC7A
USNV	129	UNION	C	VEIN	HG	N38 54	W117 31	8AC7A
USNV	113	WILD HORSE	C	VEIN	HG	N39 51	W117 24	8AC7A
USOR	9	BEAR CREEK DISTRICT	C	VEIN	HG	N44 1	W120 43	8A7C7A
USOR	26	BLACK BUTTE	B	STOK	HG	N43 33	W123 1	8A7B5A7
USOR	27	BONANZA-NONPAREIL MINES	B	STOK	HG	N43 23	W123 10	8A37B5A7
USOR	50	BRETZ OPALITE	B	DSTR	HG	N42 2	W117 56	8A3B10A7
USOR	7	HORSE HEAVEN MINE	B	STOK	HG	N44 40	W120 35	8A7B5A7
USOR	10	MAURY MOUNTAIN DISTRICT	C	VEIN	HG	N44 5	W120 25	8A7C7A
USOR	33	MEADOWS DISTRICT (WAR EAGLE ET AL.)	C	VEIN	HG	N42 38	W122 58	8A15C7A7
USOR	5	OAK GROVE DISTRICT	C	VEIN	HG	N45 4	W121 58	8A7C7A7
USOR	8	OCHOCO DISTRICT	C	VEIN	HG	N44 24	W120 30	8A7C7A
USOR	48	STEENS-PUEBLO MOUNTAINS	C	VEIN	HG	N42 35	W118 32	8AC7A
USTX	30	MARISCAL	C	VEIN	HG	N29 7	W103 12	8A1C7A
USTX	29	TERLINGUA DISTRICT	B	STOK	HG	N29 16	W103 36	8A1B5A7
USWA	30	MORTON DISTRICT (ROY & BARNUM-MCDOWELL)	C	VEIN	HG	N46 35	W122 18	8A367C7A7

# NIOBIUM (Nb)

Niobium, also known as columbium in its industrial uses, forms oxides with a variety of elements. The most common ore mineral is pyrochlore, essentially a sodium-calcium-niobium oxide that typically occurs in carbonatite associated with alkaline or alkalic-mafic complexes. Important niobium-bearing carbonatites in the data base include Oka (CAQB 229), St. Honoré (CAQB 161), and the Iron Hill-Gem Park area (see listing for "Thorium," USCO 35). An iron-manganese-niobium-tantalum series, columbite-tantalite, occurs in some granite pegmatites (see "Lithium," CAMB 51); these minerals are now relatively unimportant except as a source of tantalum. Multiple oxides containing titanium, uranium, thorium, and rare-earth elements have provided some niobium as a co-product of uranium from placers at Bear Valley (USID 33) and

elsewhere. (Also see "Tantalum," in section on "Major Commodities Not Reported as the Principal Mineral Commodity.")

Number of deposits containing niobium	Number of principal niobium deposits	Principal major commodity of other deposits containing niobium as a major commodity						
		Be	Th	Ti	REE	U	Zr	(Total)
Total 29	19	3	2	2	1	1	1	(10)

Number of principal niobium deposits	Geologic class of deposit <sup>1/</sup>				
	STOK	DSTR	PEGM	VEIN	PLCR
Total 19	12	2	2	2	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	257	BUGABOO CREEK	B	PLCR	NB U		N50 49	W116 39	1D3B4A8
CABC	125	GRANITE CREEK (LONNIE)	C	DSTR	NB U		N55 41	W124 24	1D125C10A
CABC	170	LEMPRIERE (VERITY)	C	DSTR	NB U		N52 22	W119 9	1D12C10A
CAMK	63	BIG SPRUCE LAKE	C	STOK	NB		N63 33	W115 55	1D28C5A2
CAMK	84	BLACHFORD LAKE COMPLEX	C	VEIN	NB TA U TH		N62 7	W112 35	1D2C7A2
CAMK	83	HEARNE CHANNEL-DREYER	C	PEGM	NB TA LI BE SN		N62 12	W112 15	1D345C1A1+
CAMK	76	UPPER ROSS LAKE-REDOIT LAKE AREA (PEG)	C	PEGM	NB TA BE		N62 44	W113 7	1D145C1A1
CAON	54	ARGOR ALKALINE COMPLEX	A	STOK	NB		N50 53	W 80 35	1D28A5A2
CAON	10	BIG BEAVERHOUSE LAKE ALKALINE COMPLEX	C	STOK	NB P		N52 54	W 89 55	1D28C5A4
CAON	1	CARB LAKE ALKALINE COMPLEX	C	STOK	NB REE		N54 48	W 92 0	1D28C5A
CAON	152	LACKNER ALKALINE COMPLEX	A	STOK	NB FE P U TH	REE	N47 47	W 83 8	1D28A5A4
CAON	195	LAKE NIPISSING ALKALINE COMPLEXES	B	STOK	NB U		N46 16	W 79 34	1D28B5A6
CAON	121	NEMEGOSENDA ALKALINE COMPLEX	A	STOK	NB FE P U TH	REE	N48 0	W 83 4	1D28A5A4
CAON	105	FRAIRIE LAKE ALKALINE COMPLEX	B	STOK	NB U P FE		N49 2	W 86 43	1D28B5A4
CAQB	155	GREVIER-LAGORCE TPS.	B	STOK	NB TA U ZR P		N49 29	W 72 48	1D28B5A
CAQB	229	OKA (ST. LAWRENCE, ETC.)	A	STOK	NB REE FE		N45 30	W 74 1	1D2378A5A6
CAQB	228	ST. ANDRE	B	STOK	NB	F BA LA	N45 34	W 74 17	1D2378B5A6
CAQB	161	ST. HONORE (NIOBEC)	A	STOK	NB REE P		N48 32	W 71 9	1D28A5A5
USMT	57	SHEEP CREEK DISTRICT	C	VEIN	NB TH		N45 31	W114 22	1D1C7A



# RARE-EARTH ELEMENTS<sup>8</sup> (REE)

The chief ore minerals of the rare-earth elements are bastnaesite, a fluocarbonate in carbonatite associated with alkaline complexes, especially that at Mountain Pass (USCA 165), and monazite, the phosphate that also contains thorium. Monazite is an accessory mineral in both igneous and metamorphic rocks, but nearly all production has been from placer concentrations with other heavy minerals, particularly those of titanium. The rare-earth elements are also present in multiple oxides with uranium, thorium, titanium, niobium, and tantalum. Minor quantities in apatite (essentially calcium phosphate) constitute a major potential source of rare earths because of the large tonnages of phosphorite mined and processed

<sup>8</sup>Not specified.

for agricultural use; certain apatite-bearing iron ores could also furnish them.

	Number of deposits containing rare-earth elements	Number of principal rare-earth element deposits	Principal major commodity of other deposits containing rare-earth element as a major commodity						
			Ti	Th	U	Nb	Be	Fe	(Total)
Total	33	6	10	7	5	3	1	1	(27)

	Number of principal rare-earth element deposits	Geologic class of deposit <sup>1/</sup>	
		PEGM	STOK
Total	6	4	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

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Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXOX	30	LA CARBONERA	C	PEGM	REE		N17 27	W 96 58	11C4C1A2
MXOX	32	LA JOYA	C	PEGM	REE		N17 15	W 96 53	11C15C1A4
USCA	165	MOUNTAIN PASS AREA	A	STOK	REE	BA	N35 27	W115 31	11C2A5A1
USCO	48	SOUTH PLATTE DISTRICT	C	PEGM	REE TH		N39 21	W105 13	11CC1A2
USMT	5	ROCKY BOY AREA	C	STOK	REE NB TH		N48 10	W109 45	11C2C5A7
USWY	38	PLATT PEGMATITE	C	PEGM	REE		N41 6	W106 32	11C4C1A1

# STRONTIUM (SR)

Strontium, an alkaline-earth metal, occurs as a sulfate or, less commonly, as a carbonate in sedimentary rocks, generally of the postorogenic, successor-basin type—essentially unconsolidated materials unconformable on platform sediments (North American Metallogenic Map Committee, 1981). The principal North American deposit, Lake Enon (CANS 12), is in an upper Paleozoic evaporite sequence.

Number of deposits containing strontium	Number of principal strontium deposits	Principal major commodity of other deposits containing strontium as a major commodity		
		Ba	U	(Total)
Total 6	4	1	1	(2)

Number of principal strontium deposits	Geologic class of deposit <sup>1/</sup>	
	EVAP	VEIN
Total 4	3	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CANS	12	LAKE ENON	A	EVAP	SR		N45 48	W 60 33	8E3A6A5-6
MXCO	45	RAMOS ANISPE	C	VEIN	SR		N25 33	W100 52	8E1C7A6
USAZ	68	MONTEZUMA CLAIMS	C	EVAP	SR		N32 45	W112 47	8E3C6A6+
USAZ	65	VULTURE MTNS. DISTRICT	C	EVAP	SR		N33 52	W112 59	8E3C6A6+

## TUNGSTEN (W)

Nearly all tungsten deposits in North America are associated with and genetically related to granitic rocks or their related porphyries. Where these intruded calcareous sediments to form skarn (SKAR), the ore mineral is scheelite, the calcium-tungsten oxide. Deposits of this type, sometimes called contact-metamorphic or tactite, are important commercial sources of tungsten in the Western Hemisphere; important examples include the Pine Creek (USCA 95), Flat River (or Cantung—CAMK 95), MacMillan Pass (CAYK 52), and Emerald (CABC 335) deposits.

Vein deposits typically have wolframite, iron-manganese-tungsten oxide, as the ore mineral. Exceptions to this rule include Atolia (USCA 152), a quartz monzonite cut by quartz-calcite veins, and Minerva (USCA 164), quartz-scheelite veins cutting carbonate beds, where scheelite is the only ore mineral present. Tungsten-bearing manganese oxides are present in a few "modern" hot-spring aprons, notably Golconda (USNV 45).

The Cordilleran region, and especially the eastern part underlain by continental crust, contains most of the tungsten

deposits of the continent, but the Appalachian region has a few important deposits as well (USNC 5). In contrast, the Precambrian rocks of the Shield are essentially lacking in tungsten, except for a few minor amounts in some gold veins. (The important Nederland district (USCO 38), which seems to constitute an exception to the preceding statements, is associated with Tertiary intrusions into Early Proterozoic crystalline rocks along the Colorado mineral belt and thus is related to Cordilleran orogeny.)

Number of deposits containing tungsten	Number of principal tungsten deposits	Principal major commodity of other deposits containing tungsten as a major commodity									
		Au	Cu	Pb	Mo	Ag	Be	Fe	Sb	Sn	(Total)
Total 164	142	9	3	3	2	1	1	1	1	1	(22)

Number of principal tungsten deposits	Geologic class of deposit <sup>1/</sup>							
	SKAR	VEIN	PEGM	DSTR	STOK	MSTR	PLCR	Not reported
Total 142	79	47	5	5	3	1	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	159	COLUMBIA TUNGSTEN MINE	C	VEIN	W		N53 10	W121 35	1A1C7A
CABC	335	EMERALD-INVINCIBLE MINE	B	SKAR	W		N49 6	W117 13	1A14B3A5
CABC	18	JENNINGS LAKES (BLUE LIGHT)	C	SKAR	W		N59 37	W130 28	1A145C3A5
CABC	106	RED ROSE	B	VEIN	W	AU CU MO	N55 7	W127 39	1A34B7A6
CAMK	95	FLAT RIVER (CANADA TUNGSTEN)	A	SKAR	W CU		N61 57	W128 15	1A15A3A+
CAMK	49	LEVED	C	SKAR	W CU	MO	N62 22	W128 38	1A14C3A5
CAMK	47	MACMILLAN PASS (MACTUNG)	A	SKAR	W CU		N63 17	W130 9	1A14A3A6
CAMK	101	OUTPOST ISLAND	C	VEIN	W AU CU		N61 44	W113 27	1A15C7A2
CANB	4	BURNT HILL	B	VEIN	W MO SN		N46 34	W 66 49	1A45B7A4
CANB	13	MOUNT PLEASANT	B	STOK	W SN ZN MO CU	BI AG	N45 26	W 66 49	1B147B5A5
CANF	45	GREY RIVER	B	VEIN	W		N47 35	W 57 6	1A45B7A4
CAYK	91	BAILEY	B	SKAR	W CU		N60 46	W128 51	1A14B3A5
CAYK	95	BOULDER CREEK-FIDDER CREEK (YUKON TUNGSTEN)	C	VEIN	W SN CU		N60 8	W130 26	1A14C7A4+
CAYK	51	EMERALD LAKE	C	VEIN	W	CU MO	N63 36	W131 18	1A12C7A5
CAYK	56	ITSI LAKES-FREVOST RIVER AREA (CLEA, HI, MIN, OMO)	C	SKAR	W CU	ZN	N62 46	W129 52	1A14C3A6
CAYK	94	LOGTUNG	B	SKAR	W MO		N60 1	W131 16	1A14B3A4+
CAYK	52	MACMILLAN PASS (MACTUNG)	A	SKAR	W CU		N63 17	W130 9	1A14A3A6
CAYK	89	MAX	C	SKAR	W	PB ZN AG CU	N61 16	W128 41	1A14C3A5
CAYK	3	MOUNT FITTON AREA	C	SKAR	W		N68 30	W138 0	1A5C3A2
CAYK	1	MOUNT SEDGWICK AREA	C	SKAR	W		N68 50	W139 5	1A5C3A2
CAYK	4	OLD CROW RANGE	C	SKAR	W		N67 35	W140 45	1A45C3A2
CAYK	71	TWIN MOUNTAIN (RISBY)	C	STOK	W	CU	N61 52	W133 23	1A14C3A5
OUJU	16	SIGUANEA DISTRICT	C	VEIN	W		N21 40	W 82 58	1A145C7A4+

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXBN	6	EL FENOMENO, ROSA DE CASTILLA	B	SKAR	W		N31 58	W116 0	1A14B3A5
MXBN	5	LA OLIVA	C	SKAR	W		N32 5	W115 45	1A14C3A5
MXBN	3	LOS GAVILANES	C	SKAR	W		N32 10	W116 10	1A14C3A5
MXCH	178	CERRO DE SANTA ANA	C	VEIN	W		N27 3	W105 8	1A7C7A7
MXCH	156	LA DURA	C	VEIN	W		N26 36	W107 34	1A7C7A7
MXCH	155	POTRERO DE BOJORQUES, LA GPVA.	C	SKAR	W		N26 39	W107 40	1A147C3A7
MXDR	51	RODEO	C	VEIN	W HG		N25 10	W104 32	1A7C7A7
MXDR	11	SAN JOSE DEL DESIERTO	B	SKAR	W		N25 38	W106 55	1A147B3A7
MXGR	33	EL TIQUI	C	VEIN	W		N17 14	W100 27	1A15C7A7
MXSL	44	EL GUAYABO	B	VEIN	W MO		N22 57	W105 34	1A14B7A
MXSN	31	BAVIAQUORA (SAN ANTONIO Y OTROS)	A	SKAR	W		N29 40	W110 16	1A14A3A6
MXSN	40	HERMOSILLO	B	SKAR	W		N29 9	W110 58	1A14B3A6+
MXSN	77	LA VICTORIA (ALAMOS A)	C	PEGM	W		N27 3	W108 58	1A4C1A7
MXSN	55	TECORIPA	C	VEIN	W		N28 38	W109 57	1A4C7A7
MXSN	34	URES	C	SKAR	W		N29 27	W110 29	1A14C3A7
MXSN	63	ZONA TRUENO-NACIMIENTO	C	PLQR	W		N28 15	W109 44	1A37C4A8
NUNJ	9	MACUELIZO 1	C	SKAR	W MO		N13 42	W 86 37	1A145C3A5+
USAK	62	GILMORE DOME (STEFOVICH ET AL. MINES)	C	SKAR	W		N64 58	W147 21	1A145C3A
USAZ	24	AQUARIUS RANGE (WILLIAMS MINE)	C	VEIN	W		N34 47	W113 26	1AC7A
USAZ	25	BLACK PEARL & TUNGSTON MINES	C	VEIN	W	BE	N34 41	W113 2	1A4C7A1
USAZ	22	BORIANA MINE	B	VEIN	W	CJ	N34 57	W113 55	1A145B7A
USAZ	89	CAMPO BONITO DISTRICT	C	SKAR	W		N32 33	W110 44	1A4C3A
USAZ	72	GOLD CLIFF MINE	C	VEIN	W AU	MO CJ F	N33 55	W111 56	1A4C7A
USAZ	111	HUACHUCA MOUNTAINS (TUNGSTEN REEF MINE)	C	VEIN	W		N31 26	W110 19	1AC7A
USAZ	55	JACKPOT & VELMA MINES	C	--	W		N33 45	W114 19	1AC
USAZ	99	LAS GUIJAS DISTRICT	C	VEIN	W		N31 40	W111 23	1A4C7A
USAZ	93	LITTLE DRAGON MOUNTAINS (PRIMOS MINE)	C	VEIN	W		N32 2	W110 8	1A4C7A6
USCA	176	AGUANGA DISTRICT	C	SKAR	W		N33 26	W116 42	1A4C3A
USCA	63	ALPINE MINE	C	SKAR	W		N38 44	W119 58	1A4C3A
USCA	152	ATOLIA DISTRICT	A	VEIN	W		N35 21	W117 38	1A145A7A4+
USCA	91	BLACK ROCK MINE	C	SKAR	W		N37 41	W118 31	1A4C3A
USCA	129	CEDAR CREEK DISTRICT	C	SKAR	W		N35 45	W118 34	1A4C3A
USCA	106	CONSOLIDATED TUNGSTEN (HARREL HILL) MINE	C	SKAR	W		N36 38	W119 7	1AC3A
USCA	175	COTTONWOOD	C	SKAR	W		N33 44	W116 27	1A4C3A
USCA	101	DINKEY CREEK (LOBO, SADDLER) MINE	C	SKAR	W		N37 3	W119 9	1A4C3A
USCA	104	GARNET DIKE & QUIGLEY KINGS RIVER MINES	C	SKAR	W		N36 53	W119 1	1A4C3A
USCA	146	H1 PEAK MINE	C	SKAR	W		N35 41	W117 53	1A14C3A
USCA	102	JACKPOT, BENSON-MCMURTRY, AND OTHER MINES	C	SKAR	W		N36 58	W119 18	1A4C3A
USCA	98	MARBLE MINE	C	SKAR	W MO		N37 12	W118 23	1AC3
USCA	100	MUD LAKE (GARNET) DEPOSIT	C	SKAR	W		N37 7	W119 5	1A4C3A
USCA	105	OBELISK MINE	C	SKAR	W		N36 54	W118 52	1AC3A
USCA	119	PANAMINT DISTRICT	C	VEIN	W AG		N36 7	W117 5	1A4C7A
USCA	95	PINE CREEK AREA	A	SKAR	W MO	AU CJ	N37 23	W118 43	1A4A3A5
USCA	107	PIONEER, ROYAL TUNGSTEN, AND MARTIN CLAIMS	C	SKAR	W		N36 20	W118 49	1A4C3A
USCA	89	SADDEBACK LAKE	C	SKAR	W		N37 58	W119 17	1A4C3A
USCA	94	SCHAELORE	C	SKAR	W		N37 32	W118 51	1A4C3A
USCA	97	SCHUBER, OOMPH, BLACK MONSTER ET AL. MINES	C	SKAR	W MO		N37 14	W118 32	1A4C3A
USCA	160	SHADOW MOUNTAINS-NORTHERN PART	C	SKAR	W		N34 45	W117 32	1A4C3A
USCA	161	SHADOW MOUNTAINS-SOUTHERN PART	C	SKAR	W		N34 40	W117 32	1A4C3A
USCA	156	STARBRIGHT	C	SKAR	W		N35 7	W116 55	1A4C3A
USCA	108	TULARE COUNTY TUNGSTEN MINE	C	SKAR	W		N36 17	W118 55	1A4C3A
USCA	133	TUNGSTEN CHIEF MINE	C	SKAR	W		N35 28	W118 31	1A4C3A
USCA	127	TUNGSTORE MINE	C	SKAR	W		N35 48	W118 40	1A4C3A
USCA	64	VALPINE MINE (BURNSIDE LAKE DEPOSIT)	C	SKAR	W		N38 43	W119 53	1A4C3
USCA	128	WOODY MINE	C	SKAR	W		N35 46	W118 49	1A4C3A
USCO	8	GRUNROCK, SPAULDING, LOOKOUT, CHALLENGER	C	DSTR	W		N40 39	W105 24	1A15C10A1
USCO	50	GUFFEY DISTRICT	C	DSTR	W		N38 44	W105 32	1A15C10A1

USCO	9	MASONVILLE (CARTER TUNNEL & MASON RANCH)	C	DSTR	W	AU		N40	30	W105	10	1A15C10A1
USCO	38	NEDERLAND (BOULDER COUNTY) DISTRICT	A	VEIN	W			N39	59	W105	27	1A145A7A7
USCO	55	OLIVER PROSPECT	C	DSTR	W			N38	20	W105	30	1A15C10A1
USCT	3	TRUMBULL MINE	C	SKAR	W			N41	23	W73	16	1A15C3A
USID	21	BIG CREEK DISTRICT	C	VEIN	W			N45	8	W115	22	1AC7A
USID	44	BLUE WING DISTRICT (IMA MINE)	B	VEIN	W		AG FB OU	N44	32	W113	42	1A145B7A
USID	25	YELLOW PINE DEPOSIT	B	VEIN	W	AU SB		N44	55	W115	20	1A4B7A
USID	32	MERRY BLUE DEPOSIT	C	VEIN	W			N44	21	W115	35	1AC7A
USID	3	QUEEN MTN. DEPOSITS	C	VEIN	W			N48	54	W116	17	1AC7A
USID	27	SPRINGFIELD DEPOSIT	C	SKAR	W			N44	47	W115	23	1AC3A
USID	56	SUMMIT CREEK DISTRICT	C	SKAR	W			N43	52	W114	12	1AC3A
USID	57	WILDHORSE DISTRICT	B	SKAR	W			N43	47	W114	6	1A4B3A
USME	12	TUNK POND	C	PEGM	W			N44	45	W67	58	1A4C1A
USMO	20	SILVER MINE	C	VEIN	W		AG FB SN	N37	30	W90	28	1A4C7A2
USMT	26	ARGO MINE	C	VEIN	W	AU		N46	35	W113	34	1AC7A
USMT	66	BROWN'S LAKE (IVANHOE) DEPOSIT	B	SKAR	W			N45	31	W112	50	1A14B3A6
USMT	77	POTOSI DEPOSITS (PONY DISTRICT)	C	VEIN	W			N45	34	W111	58	1AC7A
USMT	58	RED BUTTONS (CALVERT) MINE	B	SKAR	W			N45	51	W113	10	1A4B3A
USMT	37	STORM LAKE DEPOSITS	C	VEIN	W			N46	5	W113	16	1AC7A
USNC	5	HAMME (TUNGSTEN QUEEN) DISTRICT	A	VEIN	W			N36	31	W78	28	1A4A7A3
USNM	12	PICURIS DISTRICT	C	VEIN	W			N36	10	W105	41	1AC7A
USNV	149	ANTELOPE CLAIMS	C	VEIN	W			N39	45	W114	17	1AC7A
USNV	76	BATTLE CREEK MINE	C	SKAR	W			N40	30	W115	23	1A4C3A
USNV	153	BAY STATE MINE	C	VEIN	W			N39	32	W115	48	1A1C7A
USNV	147	CHERRY CREEK DISTRICT (TICUP MINE & OTHERS)	B	STOK	W			N39	56	W114	55	1A14B5A
USNV	1	DEFENSE MINE	C	SKAR	W			N41	52	W118	41	1AC3A
USNV	98	GARDNERVILLE (EAGLE) DISTRICT	C	SKAR	W			N38	52	W119	34	1A4C3A
USNV	72	GARNET TUNGSTEN	B	SKAR	W			N41	47	W115	41	1A14B3A
USNV	45	GOLCONDA	B	MSTR	W	MN		N40	57	W117	26	1A3B11A8
USNV	117	HILLTOP MINE	C	SKAR	W			N39	41	W117	43	1AC3A
USNV	161	HUB (SNAKE RANGE) MINE	C	VEIN	W			N38	58	W114	21	1AC7A
USNV	120	LINKA MINE	C	SKAR	W			N39	19	W116	50	1AC3A
USNV	126	LODI DISTRICT	C	VEIN	W			N38	58	W117	55	1A4C7A
USNV	22	LONG LEASE	C	SKAR	W			N40	5	W118	23	1AC3A
USNV	8	MILL CITY DISTRICT	A	SKAR	W			N40	47	W118	8	1A45A3A6-
USNV	164	MINERVA DISTRICT	B	VEIN	W			N38	48	W114	21	1A14B7A
USNV	95	NEVADA SCHEELITE & LEONARD MINES	B	SKAR	W			N39	2	W118	19	1A45B3A
USNV	24	NIGHTINGALE DISTRICT	C	SKAR	W			N40	1	W119	14	1A45C3A
USNV	179	OAK SPRINGS DISTRICT	C	SKAR	W			N37	14	W116	3	1A1C3A
USNV	16	OREANA (HUMBOLDT RANGE) MINE	C	PEGM	W		BE	N40	24	W118	15	1AC1A
USNV	36	OSGOOD MTNS.	B	SKAR	W	MO		N41	13	W117	15	1A45B3A
USNV	139	PILOT MOUNTAINS	C	SKAR	W			N38	20	W117	53	1AC3A
USNV	163	POLE CANYON ADIT (MT. WHEELER MINES)	C	VEIN	W		BE	N38	54	W114	20	1A1C7A
USNV	23	RAGGED TOP	C	SKAR	W			N40	3	W118	48	1AC3A
USNV	47	ROSE CREEK MINE	C	SKAR	W			N40	51	W117	51	1AC3A
USNV	88	SAND SPRINGS DISTRICT	C	SKAR	W			N39	16	W118	21	1AC3A
USNV	106	SILVER DYKE MINE	C	VEIN	W			N38	19	W118	12	1A7C7A7
USNV	78	ST. ANTHONY MINE	C	SKAR	W			N39	59	W118	42	1AC3A
USNV	77	STAR (OGILVIE, HARRISON PASS)	C	SKAR	W			N40	19	W115	28	1AC3A
USNV	14	STORMY DAY MINE	C	SKAR	W			N40	25	W119	17	1AC3A
USNV	185	TEMPIUTE DISTRICT	B	SKAR	W	AG F		N37	39	W115	37	1A14B3A
USNV	150	TUNGSTONIA DISTRICT	C	VEIN	W			N39	40	W114	10	1AC7A
USJT	2	GROUSE CREEK RANGE	C	SKAR	W			N41	34	W113	47	1A1C3A
USJT	30	HOUSE RANGE DEPOSITS	B	SKAR	W			N39	12	W113	23	1A14B3A
USJT	39	MINERAL MOUNTAINS DEPOSITS	C	SKAR	W			N38	20	W112	42	1A1C3A
USWA	28	BLUE GROUSE MTN. AREA (TUNGSTEN KING ET AL.)	C	VEIN	W			N48	6	W117	30	1A14C7A
USWA	20	GERMANIA MINE & DISTRICT	B	VEIN	W			N48	1	W118	6	1A4B7A
USWA	42	SILVER HILL	C	PEGM	W		SN	N47	34	W117	20	1A145C1A1+
USWA	19	TUNGSTEN MINES INC. (WASHINGTON METALS)	C	VEIN	W			N48	15	W118	4	1A4C7A
USWA	6	WOLFRAMITE MOUNTAIN AREA	C	VEIN	W			N48	58	W120	6	1A4C7A
USWY	27	BRANTFORD (MORMON CANYON) PROSPECT	C	DSTR	W			N42	44	W105	56	1A15C10A1
USWY	12	COPPER MOUNTAIN DEPOSITS	C	PEGM	W			N43	25	W108	1	1A15C1A1

# ZIRCONIUM (ZR)

Zircon, zirconium silicate, is the chief ore mineral; baddeleyite, zirconium oxide, is a minor source. Zircon is a fairly common accessory mineral in both igneous and metamorphic rocks, but commercial production of zirconium is entirely from placers mined for titanium. At Kringlerne (GLGL 29) the potential ore mineral is eudialite, a hydrous silicate of zirconium with sodium and other elements in a layered nepheline syenite complex.

Number of deposits containing zirconium	Number of principal zirconium deposits	Principal major commodity of other deposits containing zirconium as a major commodity	
		Ti	(Total)
Total 2	1	1	(1)

Number of principal zirconium deposits	Geologic class of deposit <sup>1/</sup>	
	IGNS	
Total 1	1	

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
GLGL	29	KRINGLERNE	B	IGNS	ZR NB	REE	N60 52	W 45 50	11C2B8M

# NONMETALLIC MINERALS

## ASBESTOS (ASB)

Most asbestos is chrysotile, a hydrous magnesium silicate formed chiefly by the alteration of ultramafic rocks; it can also result from the metamorphism of limestone by hydrothermal solutions. The chrysotile asbestos of North America occurs in three principal settings: Archean ultramafic rocks in greenstone belts of the Canadian Shield; Paleozoic ultramafic rocks of the northern Appalachians, especially eastern Quebec (CAQB 207 and CAQB 236), and ultramafic rocks of various

ages in the Cordilleran region. Additionally, Proterozoic diabase intrusions in Arizona formed many small but high-grade deposits in limestone.

	Number of principal asbestos deposits	Geologic class of deposit <sup>1/</sup>			
		STOK	DSTR	IGNS	VEIN
Total	39	27	7	4	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	24	CASSIAR (MOUNT MCDAME)	A	STOK	ASB		N59 19	W129 49	5E58A5A
CABC	37	KUTOHO CREEK (LETAIN)	B	VEIN	ASB		N58 20	W128 44	5E58B7A3
CABC	200	MOON CREEK	C	STOK	ASB		N50 45	W122 1	5E8C5A
CAMK	32	EXMOUTH LAKE	C	STOK	ASB		N65 7	W115 54	5ECSA2
CANF	27	ADVOCATE	B	STOK	ASB		N49 59	W56 11	5E58B5A3
CAON	138	GARRISON TP.	B	STOK	ASB		N48 32	W79 58	5E58B5A1
CAON	168	MIDLOTHIAN TP. (LLOYD LAKE)	B	STOK	ASB		N47 53	W81 0	5E8B5A1
CAON	130	MUNRO TP. (MUNRO)	B	STOK	ASB		N48 33	W80 15	5E58B5A1
CAON	119	REEVES TP. ASBESTOS (PENHORWOOD TP. TALC)	B	STOK	ASB		N48 12	W82 5	5E58B5A1
CAON	129	WARDEN TP. (HEDMAN)	B	STOK	ASB		N48 37	W80 11	5E58B5A1
CAQB	236	ASBESTOS (JEFFREY, NICOLET)	A	STOK	ASB		N45 46	W71 57	5E58A5A3
CAQB	4	ASBESTOS HILL	B	STOK	ASB		N61 49	W73 57	5E8B5A2
CAQB	128	CARPENTIER TP.	B	IGNS	ASB		N48 33	W77 33	5E8B8A1
CAQB	203	CRANBOURNE-BEAUCEVILLE DISTRICT	B	STOK	ASB		N46 23	W70 38*	5E58B5B3
CAQB	210	LAFONTAINE (TERRA NOVA)	C	STOK	ASB		N47 5	W69 47	5E58C5A3
CAQB	100	MAIZERETS TP. (ABITIBI ASBESTOS)	B	STOK	ASB		N49 11	W78 2	5E8B5A1
CAQB	222	FORTLAND TP. (EASTERN ASBESTOS)	C	DSTR	ASB		N45 46	W75 39	5E15C10A4
CAQB	154	ROBERT LAKE (MCADAM)	B	STOK	ASB		N49 58	W73 59	5E58B5A1
CAQB	207	THETFORD-BLACK LAKE, EAST BROUGHTON	A	STOK	ASB		N46 4	W71 19*	5E58A5B3
CAQB	46	TP. 4358 (KATHERINE LAKE)	C	IGNS	ASB		N55 26	W66 23	5E8C8A2
CAQB	1	TP. 7918	C	STOK	ASB		N61 29	W76 18	5E58C5A2
CAYK	10	CASSIAR CREEK (CALEY)	C	IGNS	ASB		N54 18	W140 13	5E58C8A3+
CAYK	9	CLINTON CREEK (CASSIAR)	B	IGNS	ASB		N54 27	W140 42	5E58B8A3+
MXBS	3	PUNTA EUGENIA	C	STOK	ASB		N27 27	W114 15	5E58C5A4
MXGR	31	LOCALIDAD LOS VOLCANES	C	STOK	ASB		N17 18	W101 4	5E14C5A7
MXOX	5	AMATITLAN	C	STOK	ASB		N17 50	W98 6	5E15C5A2
MXOX	16	CONCEPCION PAPALOS	C	STOK	ASB		N17 49	W96 52	5E15C5A5
MXSN	54	CAJON DE ONAPA	C	STOK	ASB		N28 46	W109 6	5E8C5A7
MXTM	3	CANON DEL NOVILLO	C	DSTR	ASB		N23 41	W99 16	5E158C10A2
USAK	70	SLATE CREEK (EAGLE) PROSPECT	C	STOK	ASB		N64 34	W142 30	5E158C5A3-4
USAZ	77	ASBESTOS PEAK MINE	C	DSTR	ASB		N33 46	W110 57	5E367C10A1
USAZ	6	BASS MINE	C	DSTR	ASB		N36 13	W112 22	5E367C10A2
USAZ	84	BEAR CANYON MINE	C	DSTR	ASB		N33 30	W110 22	5E367C10A1
USAZ	75	CHERRY CREEK-ROCK HOUSE AREA	C	DSTR	ASB		N33 57	W110 52	5E367C10A1
USAZ	78	SALT RIVER CHRYSOTILE AREA	C	DSTR	ASB		N33 47	W110 33	5E367C10A1
USCA	87	COALINGA AREA (VARIOUS MINES)	A	STOK	ASB		N36 19	W120 42	5E8A5A
USCA	72	COPPERPOPLIS (PACIFIC ASBESTOS) MINE	B	STOK	ASB		N37 57	W120 32	5E8B5A4
USCA	39	KOHLER & CHASE (NAPA) MINE	C	STOK	ASB		N38 29	W122 15	5E8C5A
USYT	1	RUBEROID-BELVIDERE MOUNTAIN AREA	B	STOK	ASB		N44 48	W72 30*	5E58B5B

# BARITE (BA)

Commercial deposits of barite, barium sulfate, occur chiefly in sedimentary rocks and only rarely seem to have direct igneous affiliations. The massive disseminated (MSTR) ores are generally hosted in siliceous shale or chert and commonly exhibit distinct bedding structures; they seem to be essentially syngenetic with the enclosing rocks. In the disseminated strata-bound (DSTR) ores, the barite tends to be in veins, pods, or irregular replacement masses in carbonate rocks; production is largely from clayey residuum that resulted from weathering of the limestone and concentration of the insoluble barite.

With the exception of the Shield, barite is rather widely distributed in North America. In the United States, most barite resources occur in massive strata-bound deposits, principally in Nevada and Arkansas; vein (and cavity filling) deposits predominate in the Cordillera province in rocks of Precambrian to Tertiary age; and residual deposits, derived from Cambrian and Ordovician limestone and dolomite, are found chiefly in Missouri, Georgia, and Tennessee. Large bedded deposits of barite and associated base metals occur in Paleozoic shales of the Selywn basin, Yukon Territory (CAYK), and elsewhere in the Cordillera of British Columbia (CABC).

Few detailed descriptions of the barite resources in Mexico have been published. Deposits are reported in about 20

Cordilleran States and probably contain extensive resources (Brobst, 1970, p. 12). Only the major resources are reported in the data base. These are located in the States of Coahuila (MXCO) and Nuevo León (MXNL). Most occur as vein deposits in sedimentary rocks of the miogeosynclinal type. Large deposits of black bedded barite similar to those of Nevada have been reported in northern Mexico (Brobst, 1983, p. 492).

Number of deposits containing barite	Number of principal barite deposits	Principal major commodity of other deposits containing barite as a major commodity					
		Zn	Pb	F	Ag	(Total)	
Total	92	70	8	6	5	3	(22)

	Number of principal barite deposits	Geologic class of deposit <sup>1/</sup>				
		VEIN	DSTR	MSTR	STOK	CHEM
Total	70	32	17	15	4	2

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
BHBH	2	FIRST CREEK	C	VEIN	BA		N16 50	W 89 0	8D1C7A7
CABC	258	BRISCO	B	VEIN	BA		N50 50	W116 19	8D1B7A2+
CABC	39	LEGUIL CREEK (BEAR, MOOSE)	B	VEIN	BA		N59 45	W127 16	8D1B7A1+
CABC	43	MUNCHO LAKE	C	VEIN	BA F		N58 55	W125 43	8D1C7A2
CABC	42	NONDA CREEK	C	DSTR	BA		N58 57	W125 31	8D1C10A2
CABC	249	PARSON	B	VEIN	BA		N51 1	W116 39	8D1B7A2+
CABC	44	SCATTER RIVER	C	DSTR	BA		N59 48	W125 27	8D1C10A3
CAMK	90	MARY GROUP	C	VEIN	BA		N62 22	W110 52	8D1C7A2+
CANF	50	COLLIER COVE	C	VEIN	BA		N47 36	W 53 41	8D17C7A
CANF	22	PORT AU PORT PEN. (BOSWARTLOS)	B	CHEM	BA SR		N48 34	W 58 49	8D3B2A5
CANS	26	BROOKFIELD	B	STOK	BA		N45 16	W 63 10	8D3B5A5+
CANS	35	WALTON	A	STOK	BA	AG PB ZN CU	N45 12	W 64 2	8D3A5A5
CAON	122	HORWOOD LAKE (PENHORWOOD TP.)	C	VEIN	BA		N48 5	W 82 9	8D4C7A2+
CAON	133	PREMIER LANGMUIR	C	VEIN	BA		N48 17	W 80 59	8D35C7A
CAON	96	SOUTH MCKELLAR ISLAND	C	VEIN	BA		N48 11	W 89 7	8D6C7A4+
CAYK	72	BARITE MOUNTAIN	C	VEIN	BA		N61 50	W133 0	8D1C7A2+



CAYK	54	MOOSE	B	MS TR	BA		N63	4	W130	12	8D1B11A3
CAYK	57	ORO (TANG)	A	MS TR	BA		N62	37	W129	48	8D1A11A3
CAYK	55	TEA	A	MS TR	BA		N63	2	W130	37	8D1A11A3
CUQU	5	ISABEL MARIA	C	VEIN	BA	FB ZN	N22	28	W 83	51	8D1C7A4+
CUQU	1	NORTHWEST PINAR DEL RIO BARITE DISTRICT	C	VEIN	BA		N22	35	W 84	2	8D1C7A4+
MXBN	20	MINAS DE BARITA	C	VEIN	BA		N30	0	W114	40	8D4C7A7
MXCH	107	LA AMARGOSA	C	DSTR	BA		N28	35	W105	11	8D1C10A4
MXCO	42	BIZNAGA Y BACON	C	DSTR	BA		N25	45	W101	37	8D1C10A5
MXCO	49	P. V. 12	C	VEIN	BA		N25	11	W101	37	8D1C7A7
MXCO	56	SANTA MARIA	C	CHEM	BA		N24	52	W101	10	8D1C2A5
MXCO	26	SANTA RITA	B	VEIN	BA		N27	7	W101	30	8D1B7A7
MXCO	20	SANTA ROSA	B	VEIN	BA		N27	50	W101	36	8D1B7A7
MXCP	7	CINTALAPA	C	DSTR	BA		N16	42	W 93	45	8D1C10A5
MXDR	36	CERRO PRIETO Y CERRO BLANCO	C	STOK	BA	SB	N25	45	W104	13	8D14C5A7
MXGR	47	ZONA QUECHULTENANGO	C	VEIN	BA		N17	22	W 99	15	8D1C7A7
MXMC	1	ZONA DE TEPOLCATEPEC	C	VEIN	BA		N19	11	W102	50	8D7C7A7
MXNL	15	ZONA DE ARAMBERRI	B	VEIN	BA		N24	5	W 99	48	8D1B7A7
MXNL	11	ZONA SAN LUCAS	C	VEIN	BA	SR	N24	56	W100	12	8D1C7A7
MXNL	12	ZONA SAN MARCOS-SANTA CLARA	B	VEIN	BA	SR	N24	40	W100	4	8D1B7A7
MXZC	4	CAOPAS	C	VEIN	BA		N24	37	W102	0	8D1C7A7
MXZC	2	P. V. 45 (EL CARRIZO)	C	VEIN	BA		N24	48	W102	4	8D1C7A7
UKUK	1	BEL MONT BARYTES QUARRY	C	VEIN	BA		N17	5	W 61	50	8D7C7A7
USAK	172	CASTLE ISLAND MINE	B	MS TR	BA		N56	39	W133	14	8D5B11A4
USAK	3	FROST PROSPECT	B	MS TR	BA	ZN OJ	N67	29	W160	40	8D1B11A2+
USAK	149	GLACIER CREEK DEPOSITS	C	MS TR	BA	ZN FB OJ	N59	23	W136	24	8D5C11A3+
USAK	183	LIME POINT PROSPECT	C	MS TR	BA		N55	0	W132	30	8D15C11A
USAL	12	ANGEL STATION DISTRICT	C	DSTR	BA		N33	52	W 85	50	8D1C10A4+
USAL	10	SINKS DISTRICT	C	DSTR	BA		N33	2	W 87	1	8D1C10A4+
USAR	8	DIERKS AREA	B	DSTR	BA		N34	9	W 93	57	8D37B10A
USAR	5	MAGNET COVE	A	MS TR	BA		N34	28	W 92	49	8DA11A4
USAZ	73	GRANITE REEF (MACCO) MINE	B	VEIN	BA		N33	33	W111	39	8DB7A
USCT	2	CHESHIRE AREA	C	VEIN	BA		N41	29	W 72	54	8D3C7A7+
USGA	10	CARTERSVILLE BARITE DISTRICT	B	DSTR	BA	OJ FB ZN	N34	10	W 84	47	8D1B10A3+
USGA	2	ETON-RURALVALE DISTRICT	B	DSTR	BA		N34	48	W 84	47	8D1B10A4+
USGA	8	WALESKA AREA	C	DSTR	BA		N34	17	W 84	34	8D1C10A2+
USID	60	SUN VALLEY MINE	C	MS TR	BA		N4	33	W114	28	8DC11A
USKY	8	BURKESVILLE AREA	C	DSTR	BA ZN	FB	N36	51	W 85	17	8D37C10A
USKY	1	GRATZ VEIN AREA	C	DSTR	BA	FB ZN	N38	25	W 84	55	8D37C10A3+
USKY	2	PARIS-MILLERSBURG AREA	C	DSTR	BA ZN	FB	N38	16	W 84	10	8D37C10A3+
USMO	1	CENTRAL DISTRICT	B	STOK	BA FB ZN		N38	22	W 92	48*	8D37B5B4+
USMO	14	POTOSI DISTRICT	A	DSTR	BA	FB ZN	N37	58	W 90	46	8D37A10A3+
USMT	22	ELK CREEK & COLOMA DEPOSITS	C	VEIN	BA		N46	52	W113	22	8D1C7A
USMT	8	KENNELTY MINE	C	VEIN	BA		N47	57	W115	6	8D1C7A
USNC	11	HOT SPRINGS DISTRICT	C	VEIN	BA		N35	53	W 82	50	8D1C7A
USNV	50	ARGENTA & SHELTON MINES	C	MS TR	BA		N40	41	W116	44	8D5C11A2
USNV	128	EAST NORTHUMBERLAND CANYON DEPOSIT	A	MS TR	BA		N38	55	W116	46	8D5A11A3
USNV	41	ESTABROOK & ROSSI MINES	C	MS TR	BA		N41	7	W116	23	8D5C11A
USNV	62	GREYSTONE MINE	C	MS TR	BA		N40	16	W116	52	8D5C11A2
USNV	144	JUMBO MINE	C	MS TR	BA		N38	4	W116	42	8DC11A
USNV	53	SLAVEN CANYON & BATEMAN CANYON MINES	C	MS TR	BA		N40	30	W116	48	8D5C11A
USPA	9	BUCKMANVILLE AREA	C	VEIN	BA		N40	18	W 74	58	8D3C7A7
USPA	13	CHAMBERSBURG AREA	C	DSTR	BA		N39	55	W 77	40	8D1C10A3+
USTN	2	CENTRAL TENNESSEE BARITE AREA	C	VEIN	--	BA	N36	12	W 86	19*	8D37C7B3+
USTN	14	SWEETWATER DISTRICT	B	DSTR	BA	F	N35	34	W 84	31	8D1B10A3+

# BORON (B)

The ore minerals of boron are hydrated borates of sodium and (or) calcium; interstitial boron-bearing brines are also sources. Deposits of North America are restricted to geologically young continental basins with internal drainage (not connected to the sea) in the Basin and Range province of the Cordillera. The categorization of the largest deposit, Kramer (USCA 154), as a chemical precipitate and the others as evaporites is not particularly significant and may not be valid, as all depend on desic-

cation of large quantities of boron-bearing water under arid conditions.

	Number of principal boron deposits	Geologic class of deposit <sup>1/</sup>	
		EVAP	CHEM
Total	18	17	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USCA	158	CALICO BORATES	C	EVAP	B		N34 56	W116 52	6E3C6A7
USCA	155	FOUR CORNERS	B	EVAP	B		N35 1	W117 28	6E3B6A7
USCA	137	FRAZIER MOUNTAIN	C	EVAP	B		N34 47	W119 4	6E3C6A7
USCA	118	FURNACE CREEK GROUP	B	EVAP	B		N36 18	W116 36*	6E3B6B7
USCA	154	KRAMER	A	CHEM	B		N35 3	W117 40	6E3A2A7
USCA	142	LANG	C	EVAP	B		N34 28	W118 22	6E3C6A7
USCA	112	OWENS LAKE	B	EVAP	B		N36 20	W117 52	6E3B6A8
USCA	121	SHOSHONE-GERSTLEY	C	EVAP	B		N36 1	W116 14	6E3C6A7
USNV	191	CALLVILLE WASH	B	EVAP	B		N36 13	W114 42	6E3B6A7
USNV	146	COLUMBUS MARSH	C	EVAP	B		N38 0	W117 55	6E3C6A8
USNV	170	FISH LAKE	C	EVAP	B		N37 57	W117 53	6E3C6A7
USNV	9	GERLACH	C	EVAP	B		N40 40	W119 21	6E3C6A7
USNV	109	RHODES MARSH	C	EVAP	B		N38 14	W118 2	6E3C6A8
USNV	87	SAND SPRINGS	C	EVAP	B		N39 17	W118 25	6E3C6A
USNV	110	TEELS MARSH	C	EVAP	B		N38 9	W118 17	6E3C6A8-
USNV	190	WHITE BASIN	B	EVAP	B		N36 20	W114 34	6E3B6A7
USOR	49	LAKE ALVORD	C	EVAP	B		N42 20	W118 40	6E3C6A8
USCA	147	SEARLES LAKE	A	EVAP	B K HAL	W	N35 45	W117 20	6E3A6A8

# CRYOLITE (CRYOLITE)

Cryolite, the sodium-aluminum fluoride, has been found in commercial quantities only at one place in the world, Ivigtut, West Greenland. The Ivigtut deposit (GLGL 24) occurs in an alkaline, postorogenic intrusive of Middle Proterozoic age (Nielson, 1973, p. 34-36). The deposit, which has been exhausted, was mined from the middle of the 19th century until 1962. Total production came to 3.5 million metric tons. Synthetic cryolite now satisfies industrial demand.

	Number of principal cryolite deposits	Geologic class of deposit <sup>1/</sup>
		PEGM
Total	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
GLGL	24	IV IGTUT	A	PEGM	CRYOLITE		N61 12	W 48 12	10B2A1A4

# DIAMOND (DIA)

The principal host rock of diamond is kimberlite, an alkalic-mafic rock derived directly from the mantle, where the diamonds formed under the ultra-high pressures and temperatures existing there. Kimberlites and to a lesser extent lamproites, another type of diamond-bearing rock, occur as volcanic pipes, fissures, and vents that are windows through the crust into the lithosphere and upper mantle. These "windows" range in depth from 120 to 200 km. In addition to the one kimberlite in North America that has yielded diamonds, USAR 10, a few presently noncommercial diamondiferous pipes have been found in the Front Range near the Colorado-Wyoming border (McCallum and Mabarak, 1976; Hausel and others, 1981). The discovery, from time to time, of alluvial diamonds in

Canada and the Eastern United States suggests that other diamond-bearing rocks are present in the Shield and perhaps the Platform regions of the continent. In a recent summary of kimberlite/lamproite finds, 23 potential diamondiferous sites were reported in parts of North America and Greenland (Gold, 1984, p. 41).

	Number of principal diamond deposits	Geologic class of deposit <sup>1/</sup>
		STOK
Total	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USAR	10	MURFREESBORO KIMBERLITE	C	STOK	DIA		N34 3	W 93 42	11D28C5A6

# FLUORITE (F)

Fluorite, calcium fluoride, is widely distributed in a variety of both igneous and sedimentary environments. Generalizations are difficult, but it is noteworthy that no deposits in North America are in the Shield or in the outer, "eugeosynclinal," parts of the Cordillera. Of the major districts, Saint Lawrence (CANF 48) consists of veins in a late-orogenic or postorogenic granite; Illinois-Western Kentucky (USIL 2 and USKY 5) is in upper Paleozoic limestone at the intersection of major lineament swarms and intruded by very small alkalic-mafic stocks (Grogan and Bradbury, 1968); and the Mexican deposits are veins or mantos in Cretaceous limestone, some of them associated with granitic intrusions of Tertiary age.

Number of deposits containing fluorite	Number of principal fluorite deposits	Principal major commodity or other deposits containing fluorite as a major commodity							
		Ag	Ba	Be	Mn	Sn	U	W	(Total)
Total 79	72	1	1	1	1	1	1	1	(7)

Number of principal fluorite deposits	Geologic class of deposit <sup>1/</sup>						
	VEIN	STOK	DSTR	MSTR	SKAR	PEGM	Not reported
Total 72	43	16	2	2	1	1	7

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	40	LOWER LIARD CROSSING (GEM, ETC.)	B	DSTR	F BA		N59 26	W126 5	8C1B10A2
CABC	165	QUESNEL LAKE (EAGLET)	B	VEIN	F		N52 34	W120 59	8C14B7A4+
CABC	320	ROCK CANDY MINE	C	VEIN	F		N49 16	W118 29	8C4C7A6+
CANF	48	SAINT LAWRENCE	A	VEIN	F		N46 54	W 55 25	8C4A7A5
CANS	5	LAKE AINSLIE	B	VEIN	F BA		N46 7	W 61 7	8C17B7A5+
CAN	230	MADOC DISTRICT	B	VEIN	F		N44 29	W 77 28	8C37B7A6+
MXCH	64	AGUA NUEVA	C	MSTR	F		N29 52	W106 22	8C14C11A7
MXCH	147	LA PERLA	C	VEIN	F		N26 48	W106 21	8C147C7A7
MXCH	40	LAS MANCHAS	C	MSTR	F		N30 56	W105 52	8C14C11A7
MXCH	187	PIEDRAS BLANCAS	C	STOK	F BA		N26 37	W104 30	8C14C5A7
MXCO	1	AGUACHILE	B	STOK	F	BE	N29 15	W102 32	8C14B5A7
MXCO	34	CANALONES VOLADERO, AGUIJAN 77	A	STOK	F BA		N26 5	W101 40	8C1A5A7
MXCO	4	EL ALAZAN	C	VEIN	F		N28 45	W103 10	8C1C7A7
MXCO	33	ESPERANZA Y FORTUNA, LEON DOS	A	STOK	F		N26 25	W101 40	8C1A5A7
MXCO	24	HERMANAS	C	STOK	F		N27 15	W101 10	8C1C5A7
MXCO	6	LA ENCANTADA-BUENAVISTA	A	STOK	F		N28 37	W102 22	8C14A5A7
MXCO	7	LA MARIPOSA	C	STOK	F		N28 10	W102 0	8C14C5A7
MXCO	12	MINAS DEL TULE	A	STOK	F		N28 29	W101 35	8C14A5A7
MXCO	50	P.V. 14-VENADOS	C	VEIN	F		N25 9	W101 48	8C1C7A7
MXCO	43	P.V. 27	C	VEIN	F		N25 45	W101 27	8C1C7A7
MXCO	3	SANTA ANITA, EL MELON	B	VEIN	F		N28 58	W102 55	8C1B7A7
MXCO	37	SIERRA DE PARRAS	A	STOK	F		N25 27	W102 18	8C1A5A7
MXCO	2	SIERRA DE SAN VICENTE	C	VEIN	F		N29 0	W102 3	8C1C7A7
MXDR	1	CERRO GORDO, SAN FERMIN	C	VEIN	F		N26 23	W104 48	8C1C7A7
MXDR	53	CUATRO REALES, EL APACHE	C	VEIN	F		N25 11	W104 44	8C7C7A7
MXDR	70	LA PALMA	C	STOK	F		N24 35	W104 3	8C1C5A7
MXDR	72	M. NIAGARA	C	VEIN	F		N24 5	W104 2	8C7C7A7
MXDR	31	NAVIDAD	C	VEIN	F		N25 54	W105 8	8C7C7A7
MXGN	4	EL RIALITO DISTRICT	A	STOK	F		N21 35	W100 8	8C1A5
MXGR	50	LA ANGELINA	C	VEIN	F		N17 14	W 99 33	8C4C7A7
MXSN	23	ESQUEDA DISTRICT	B	VEIN	F		N30 50	W109 22	8C7B7A7
MXSP	11	DISTRITO DE ZARAGOZA	A	VEIN	F		N21 58	W100 35	8C17A7A7
MXZC	30	DISTRITO FRIO	C	VEIN	F		N23 39	W103 32	8C1C7A7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXZC	62	LA GALATEA, LA MONTOSA, RICARDO, ETC.	C	VEIN	F		N21 40	W103 5	8C7C7A7
MXZC	45	LA TRINCHERA	C	VEIN	F		N22 40	W103 40	8C7C7A7
USAZ	97	DUNCAN (STEEPLE ROCK) DISTRICT	C	VEIN	F AU AG		N32 50	W109 6	8C7C7A7
USAZ	106	LONE STAR MINE	C	VEIN	F		N31 51	W110 23	8C15C7A
USCO	30	BROWNS CANYON-PONCHA SPRINGS DISTRICTS	B	VEIN	F		N38 35	W106 4	8C1457B7A7
USCO	3	CRYSTAL (GREEN CRYSTAL) MINE	C	VEIN	F		N40 41	W106 35	8C145C7A7
USCO	45	EVERGREEN	C	VEIN	F		N39 36	W105 18	8CC7A
USCO	10	JAMESTOWN DISTRICT	B	VEIN	F AU AG	FB ZN	N40 7	W105 23	8C145B7A6+
USCO	47	JEFFERSON AREA	C	VEIN	F		N39 26	W105 48	8C145C7A
USCO	1	NORTHGATE DISTRICT (CAMP CREEK ET AL. MINES)	B	VEIN	F		N40 55	W106 16	8C15B7A7
USCO	68	WAGONWHEEL GAP DISTRICT	B	VEIN	F		N37 43	W106 47	8C7B7A7
USID	19	BIG SQUAW CREEK	C	VEIN	F		N45 29	W114 58	8C145C7A
USID	28	MEYERS COVE	C	VEIN	F	BA	N44 50	W114 30	8C47C7A7
USIL	2	ILLINOIS-KENTUCKY FLUORSPAR DISTRICT	A	STOK	F	ZN FB BA	N37 30	W 88 17	8C2378A5 4-6
USKY	7	CENTRAL KENTUCKY FLUORITE DISTRICT	B	VEIN	F BA	ZN FB	N37 54	W 84 28*	8C37B7B3+
USKY	5	WESTERN KENTUCKY FLUORSPAR DISTRICT	A	STOK	F	ZN FB BA	N37 19	W 88 11	8C2378A5 A4-6
USMT	38	CRYSTAL MTN. MINE	B	PEGM	F	REE SC	N46 1	W113 53	8C145B1 A5
USMT	17	SNOWBIRD MINE	C	--	F		N46 50	W114 50	8CC
USMT	13	SPAR MINE	C	--	F		N47 14	W115 16	8CC
USNM	43	BURRO MTN. DIST. (BURRO CHIEF & SHRINE)	B	VEIN	F		N32 38	W108 25	8CB7A6
USNM	7	EL RITO DEPOSIT	C	--	F		N36 15	W106 10	8CC
USNM	66	FLUORITE RIDGE DISTRICT	C	VEIN	F MN		N32 24	W107 43	8C4C7A
USNM	39	GILA DISTRICT	B	VEIN	F		N33 2	W108 30	8C7B7A7
USNM	38	HUCKLEBERRY DEPOSIT	C	VEIN	F		N33 16	W108 49	8C7C7A7
USNM	8	LA MADERA DEPOSIT	C	--	F		N36 27	W105 58	8CC
USNM	25	MANZANO MTNS. DEPOSITS	C	--	F		N34 58	W106 23	8CC
USNM	57	NORTHERN SIERRA CABALLO DISTRICT	C	VEIN	F PB MN	V	N33 6	W107 14	8C37C7A7
USNM	55	SIERRA CUJUILLO PROSPECTS	C	--	F		N33 15	W107 35	8C37C
USNM	62	SOUTHERN SIERRA CABALLOS DEPOSITS	C	--	F MN		N32 52	W107 12	8CC
USNM	69	TORTUGAS DEPOSIT	C	VEIN	F		N32 12	W106 39	8C37C7A
USNM	26	ZUNI MOUNTAINS DISTRICT	B	VEIN	F		N35 2	W108 0	8C4B7A
USNV	92	BROKEN HILLS DISTRICT (BAXTER MINE)	B	VEIN	F		N39 3	W118 12	8C7B7A7
USNV	84	DIXIE MINE	C	SKAR	F		N39 26	W118 20	8C4C3A
USNV	182	FLUORINE DISTRICT (DAISY MINE)	B	STOK	F		N36 52	W116 41	8C1B5A7
USNV	114	IOWA CANYON MINE	C	VEIN	F		N39 48	W116 57	8C47C7A7
USNV	166	QUINN CANYON RANGE	B	STOK	F	AG AU	N38 9	W115 40	8C1B5A7
USNV	81	REVENUE GROUP	C	VEIN	F		N39 42	W118 15	8C1C7A7
USNV	188	WELLS CARGO MINE	C	STOK	F		N37 13	W114 17	8C1C5A
USOR	47	ROME AREA	C	DSR	F		N42 50	W117 45	8C3C10A7

# GRAPHITE (GRF)

Most graphite occurrences of the continent resulted from regional metamorphism of carbonaceous material in sediments to produce flake graphite in paragneisses and schists; most of these are of Precambrian age. Metamorphism of Upper Triassic coal by granitic intrusions was responsible for the large deposits of amorphous graphite in Mexico (MXSN 42 and MXSN 43) which now furnish much of the North American production of natural graphite. Commercial deposits in Ontario (CAON)

and Quebec (CAQB) are disseminated in graphitic schists, gneisses, and crystalline limestone.

	Number of principal graphite deposits	Geologic class of deposit <sup>1/</sup>			
		DSTR	STOK	VEIN	Not reported
Total	31	26	3	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAFK	20	BLACKHEAD ISLAND	C	DSTR	GRF		N64 59	W 66 14	11E15C10A2
CAFK	21	BRUCE HARBOUR	C	DSTR	GRF		N62 45	W 70 10	11E15C10A2
CANF	2	SAGLEK BAY	C	--	GRF		N58 19	W 63 30	11E15C-A1+
CAON	227	BEDFORD TP. (DESERT LAKE)	B	DSTR	GRF		N44 34	W 76 35	11E1B10A4-
CAON	209	BLACK DONALD	B	DSTR	GRF		N45 13	W 76 55	11E15B10A4-
CAON	205	MONTEAGLE TP.	C	DSTR	GRF		N45 13	W 77 52	11E1C10A4
CAQB	194	AMHERST TP.	C	STOK	GRF		N46 2	W 74 44	11E15C5A4-
CAQB	188	BOYER TP.	C	DSTR	GRF		N46 32	W 75 13	11E15C10A4-
CAQB	226	BUCKINGHAM TP. (BELL, ETC.)	B	DSTR	GRF		N45 36	W 75 21	11E15B10A4
CAQB	192	JOLY TP. (LAC CASTOR)	C	STOK	GRF		N46 16	W 74 41	11E15C5A4-
CAQB	193	MCGILL TP. (NOTRE DAME DU LAUS)	B	STOK	GRF		N46 8	W 75 33	11E15B5A4-
CASA	24	DEEP BAY	B	DSTR	GRF		N56 23	W103 7	11E1B10A2
CASA	32	KAKABIGISH LAKE	C	DSTR	GRF		N55 51	W103 59	11E15C10A
GLGL	31	AMITSQ	C	DSTR	GRF		N60 18	W 45 8	11E15C10A2
GLGL	25	ARSUK	C	DSTR	GRF		N61 8	W 48 40	11E15C10A2
GLGL	13	DISKO BUGT GRAPHITE	C	DSTR	GRF		N68 37	W 52 0	11E15C10A2
GLGL	10	KEKERTARSSUATSIAQ	C	DSTR	GRF		N68 29	W 53 19	11E15C10A2
GLGL	2	LANGO	C	DSTR	GRF		N72 45	W 56 3	11E15C10A2
GLGL	9	MANERMIUT	C	DSTR	GRF		N68 36	W 53 11	11E15C10A2
GLGL	3	NIKORNAT	C	DSTR	GRF		N70 47	W 53 45	11E37C10A7
GLGL	15	NORDRE STROMFJORD	C	DSTR	GRF		N67 35	W 53 35	11E15C10A2
GLGL	1	NUNATARSUIT	C	DSTR	GRF		N73 22	W 56 9	11E15C10A2
GLGL	4	QAERSUT	C	DSTR	GRF		N70 44	W 52 40	11E37C10A7
GLGL	16	SUNGOQ	C	DSTR	GRF		N67 10	W 53 25	11E15C10A2
GLGL	8	UIVFAQ	C	DSTR	GRF		N69 25	W 54 10	11E37C10A7
GLGL	17	UTORKAIT	C	DSTR	GRF		N66 58	W 53 5	11E15C10A2
MXMX	31	ZONA DE TELIXTLAHUACA	C	DSTR	GRF		N17 20	W 96 54	11E15C10A4
MXSN	42	SAN JOSE DE MORADILLAS	A	DSTR	GRF		N28 35	W110 29	11E15A10A4
MXSN	43	SAN MARCIAL	B	DSTR	GRF		N28 30	W110 20	11E15B10A4
USAK	30	GLACIER CANYON MINE	C	DSTR	GRF		N65 2	W165 34	11E15C10A
USMT	73	CRYSTAL GRAPHITE MINE	C	VEIN	GRF		N45 3	W112 28	11E15C7A1

# GYPSUM (GYP)

The sulfates of calcium, anhydrite and the hydrated form, gypsum, are very widely distributed in evaporite basins covering hundreds of thousands of square miles on the Platform and in less extensive basins along both the Appalachian and Cordilleran chains. Although, with a few exceptions, only areas where gypsum has been mined are indicated on the map and identified in the file, an idea of the total extent of the major basins may be gained from the outlines shown on the Metallogenic Map for salt (sodium chloride—NaCl). Deposits have varying ages: Cambrian near the Arctic Circle, Devonian in the mid-continent, and Permian in the basin extending from the Central United States nearly to the border with Mexico. Triassic and Jurassic evaporites rim the Gulf of Mexico and extend into northern Central America.

Number of deposits containing gypsum	Number of principal gypsum deposits	Principal major commodity of other deposits containing gypsum as a major commodity	
		Mg	(Total)
Total 80	79	1	(1)

Number of principal gypsum deposits	Geologic class of deposit <sup>1/</sup>		
	EVAP	STOK	VEIN
Total 79	76	2	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAAL	4	FORGETMENOT PASS (FETHERSTONHAUGH CR.)	B	EVAP	GYP		N53 46	W119 53	6A1B6A4
CAAL	10	MOUNT INVINCIBLE	C	EVAP	GYP		N50 40	W115 11	6A1C6A3
CAAL	1	PEACE POINT REGION	A	EVAP	GYP		N59 10	W112 33	6A37A6A3
CAAL	5	STARLIGHT RANGE	B	EVAP	GYP		N53 27	W118 38	6A1B6A4
CABC	338	BULL RIVER	--	EVAP	GYP		N49 43	W115 10*	6A1-6C3
CABC	237	FALKLAND	C	VEIN	GYP		N50 32	W119 33	6A5C7A
CABC	168	FORGETMENOT PASS (AND FETHERSTONHAUGH CR.)	B	EVAP	GYP		N53 46	W119 53	6A1B6A4
CABC	264	JOFFRE CREEK-WHITE RIVER	--	EVAP	GYP		N50 33	W115 15*	6A1-6C3
CABC	265	KOOTENAY RIVER	B	EVAP	GYP		N50 14	W115 41	6A1B6A2
CABC	266	LUSSIER RIVER	B	EVAP	GYP		N50 1	W115 31*	6A1B6C2
CABC	341	MAYOOK	C	EVAP	GYP		N49 28	W115 32	6A1C6A3
CABC	3	O'CONNOR RIVER	B	EVAP	GYP		N59 39	W136 44	6A5B6A3
CABC	263	WINDERMERE CREEK	B	EVAP	GYP		N50 30	W115 54	6A1B6A2
CAFK	1	SVERDRUP BASIN	--	EVAP	GYP S		N79 30	W 92 0*	6A3-6C4
CAMB	43	AMARANTH	A	EVAP	GYP		N50 34	W 98 44	6A37A6A5
CAMB	42	GYPSUM HILL	B	EVAP	GYP		N51 46	W 98 38	6A37B6A5
CAMB	52	SILVER FLAINS	A	EVAP	GYP		N49 27	W 97 16	6A37A6A5
CAMB	17	HILLSBOROUGH & CUMBERLAND BASIN	A	EVAP	GYP		N45 54	W 64 40*	6A3A6B5
CAMB	9	MONCTON BASIN	A	EVAP	GYP		N46 0	W 65 0*	6A3A6C5
CAMB	3	PLASTER ROCK	B	EVAP	GYP		N46 54	W 67 23	6A3B6A5
CANF	42	CODROY RIVER DISTRICT	B	EVAP	GYP		N47 52	W 59 15	6A3B6A5
CANF	24	FLAT BAY	A	EVAP	GYP		N48 23	W 58 33	6A3A6A5
CANS	9	BRAS D'OR LAKE DISTRICT	A	EVAP	GYP		N45 55	W 60 55	6A3A6A5
CANS	3	CHETICAMP	B	EVAP	GYP		N46 38	W 60 58	6A3B6A5
CANS	2	DINGWALL	B	EVAP	GYP		N46 53	W 60 29	6A3B6A5
CANS	31	MILFORD	A	EVAP	GYP		N45 0	W 63 25	6A37A6A5
CANS	37	WINDSOR DISTRICT & CHEVERIE	A	EVAP	GYP		N44 59	W 64 5	6A3A6A5
CAON	236	CALEDONIA-HAGERSVILLE-CAYUGA DISTRICT	B	EVAP	GYP		N43 5	W 79 57	6A37B6A3
CAON	53	MOOSE RIVER DISTRICT	A	EVAP	GYP		N50 51	W 81 17	6A37A6A3
CAON	235	PARIS-DRUMBO DISTRICT	B	EVAP	GYP		N43 15	W 80 30	6A37B6A3



CAQB	214	MADELEINE ISLANDS (3)	C	EVAP	GYP	N47	23	W 61	52	6A3C6A5
CAYK	66	BULL ION CREEK	B	STOK	GYP	N61	1	W138	42	6A5B5A3
GTGT	2	BUENA VISTA	B	EVAP	GYP	N17	16	W 90	4	6A1B6A6
GTGT	1	PASO CABALLOS	B	EVAP	GYP	N17	16	W 90	13	6A1B6A6
GTGT	3	UAXACTUN	B	EVAP	GYP	N17	27	W 89	42	6A1B6A6
JMUM	11	BULL BAY	B	EVAP	GYP	N17	59	W 76	39	6A5B6A6
MXBS	8	SAN MARCOS	A	EVAP	GYP	N27	13	W112	5	6A37A6A7
MXCH	169	CAMARGO	C	EVAP	GYP	N27	41	W105	14	6A1C6A5
MXCH	170	GUADALUPE	C	EVAP	GYP	N27	37	W105	5	6A1C6A5
MXNL	6	SIERRA DEL FRAILE	C	EVAP	GYP	N25	54	W100	34	6A1C6A4
USAK	164	GYP SUM CREEK MINE	C	EVAP	GYP	N57	54	W135	0	6A06A
USCA	180	FISH CREEK MINE	B	EVAP	GYP	N33	4	W116	6	6A37B6A7
USCA	131	LOST HILLS MINE	B	EVAP	GYP	N35	38	W119	42	6A37B6A8
USCA	182	MIDLAND (LITTLE MARIA MOUNTAINS) MINE	B	EVAP	GYP	N33	55	W114	51	6A86A3
USIA	5	ALBIA AREA	C	EVAP	GYP	N41	3	W 92	48	6A37C6A4
USIA	4	BUSSEY AREA	C	EVAP	GYP	N41	12	W 93	1	6A37C6A4
USIA	6	CENTERVILLE AREA	C	EVAP	GYP	N40	42	W 92	52	6A37C6A4
USIA	1	FORT DODGE MINE	B	EVAP	GYP	N42	31	W 94	7	6A37B6A4
USIA	7	SPERRY MINE	C	EVAP	GYP	N40	54	W 91	7	6A37C6A4
USID	15	SNAKE RIVER DEPOSITS	C	EVAP	GYP	N44	29	W117	13	6A37C6A4
USIN	1	SHOALS	C	EVAP	GYP	N38	41	W 86	41	6A37C6A4
USKS	3	BLUE RAPIDS AREA	B	EVAP	GYP	N39	42	W 96	39	6A37B6A4
USKS	4	DILLON AREA	B	EVAP	GYP	N38	39	W 97	12	6A37B6A4
USKS	6	SUN CITY MINE	B	EVAP	GYP	N37	18	W 98	56	6B37B6A4
USLA	2	WINNFELD MINE	C	EVAP	GYP	N31	55	W 92	42	6A3C6A5
USMI	16	ALABASTER MINE	B	EVAP	GYP	N44	12	W 83	35	6A37B6A4
USMI	14	BEAVER ISLAND	C	EVAP	GYP	N45	44	W 85	31	6A37C6A3
USMI	18	GRAND RAPIDS ET AL. MINES	B	EVAP	GYP	N42	57	W 85	42	6A37B6A4
USMI	15	NATIONAL CITY ET AL. MINES	B	EVAP	GYP	N44	16	W 83	43	6A37B6A4
USMI	13	SAINT IGNACE DEPOSITS	C	EVAP	GYP	N45	53	W 84	45	6A37C6A3
USMT	40	CENTRAL MONTANA AREA	B	EVAP	GYP	N47	7	W111	0*	6A37B6B4
USMT	54	HANOVER DEPOSIT	C	EVAP	GYP	N47	6	W109	32	6A37C6A5
USOH	2	OTTAWA COUNTY	B	EVAP	GYP	N41	30	W 82	54	6A37B6A3
USOH	1	TOLEDO	C	EVAP	GYP	N41	41	W 83	45	6A37C6A3
USOK	7	BLAINE COUNTY	C	EVAP	GYP	N35	46	W 98	14	6A37C6A4
USOK	6	BUCHER MINE	C	EVAP	GYP	N35	56	W 98	23	6A37C6A4
USOK	10	ELM RIVER AREA	C	EVAP	GYP	N34	55	W 99	54	6A37C6A4
USOK	3	SOUTHARD & WEST OF OKENE MINES	B	EVAP	GYP	N36	8	W 98	30	6A37B6A4
USOK	8	WEATHERSFORD	C	EVAP	GYP	N35	32	W 98	46	6A37C6A4
USOK	2	WOODWARD COUNTY	C	EVAP	GYP	N36	30	W 99	5	6A37C6A4
USTX	3	ACME MINE	C	EVAP	GYP	N34	22	W 99	45	6A37C6A4
USTX	48	FALFURRIAS MINE	C	STOK	GYP	N27	11	W 98	6	6A3C5A5+
USTX	24	FREDERICKSBURG AREA	C	EVAP	GYP	N30	23	W 99	0	6A37C6A6
USTX	26	HOCKLEY MINE	B	EVAP	GYP	N30	3	W 95	52	6A3B6A5+
USTX	9	LONGWORTH MINE	C	EVAP	GYP	N32	37	W100	20	6A37C6A4
USTX	21	MENARD AREA	C	EVAP	GYP	N30	54	W 99	48	6A37C6A6
USTX	8	ROTAN MINE	C	EVAP	GYP	N32	51	W100	19	6A37C6A4
USTX	10	SWEETWATER MINE	C	EVAP	GYP	N32	26	W100	14	6A37C6A4
USVA	10	PLASTERCO	B	EVAP	GYP	N36	53	W 81	47	6A37B6A5

# KYANITE GROUP (KYN)

Kyanite and the related minerals sillimanite and andalusite, which are aluminum silicates, result principally from the regional metamorphism of siliceous-aluminous sediments. Although most production is from bedrock deposits, kyanite group minerals may also be concentrated in placers.

Number of deposits containing kyanite	Number of principal kyanite deposits	Principal major commodity of other deposits containing kyanite as a major commodity	
		Ti	(Total)
Total 10	9	1	(1)

Number of principal kyanite deposits	Geologic class of deposit <sup>1/</sup>	
	DSTR	
Total 9	9	

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	194	CROCAN & TIMBER LAKES	B	DS TR	KYN		N46 33	W 79 0	10C15B10A4
CAON	188	DRYDEN TP.	B	DS TR	KYN		N46 30	W 80 44	10C15B10A4
CAQB	183	LAC BEAUCHENE	B	DS TR	KYN		N46 33	W 79 0	10C15B10A4
USCA	188	OGILBY MINE	C	DS TR	KYN		N32 50	W114 47	10C15C10A
USCA	91A	WHITE MOUNTAINS MINE	C	DS TR	KYN		N37 37	W118 18	10C15C10A
USID	12	GOAT MOUNTAIN DISTRICT	B	DS TR	KYN		N46 56	W115 52	10C15B10A
USNC	23	CLUBB MTN.-REESE MTN.	B	DS TR	KYN		N35 24	W 81 5	10C15B10A
USSC	8	LITTLE MOUNTAIN	C	DS TR	KYN		N34 12	W 81 24	10C15C10A
USVA	23	FARMVILLE DISTRICT (WILLIS MTN. ET AL.)	B	DS TR	KYN		N37 24	W 78 35*	10C15B10B

# PHOSPHORUS (P)

Phosphorus ores consist of one or more minerals of the apatite group, which is essentially calcium phosphate that contains small and variable amounts of hydroxyl, fluorine, and (or) chlorine and a number of metals, including uranium and the rare-earth elements, in the molecular structure. Apatite occurs in igneous rocks, especially of the alkalic-mafic type; in extensive marine sedimentary deposits commonly known as phosphorites; and in "guano type" deposits derived from the excrement of birds or, to a minor extent, of bats (see Hutchinson, 1950). Secondary enrichment of each type may take place by leaching of associated minerals, with or without formation of new apatite by reaction of phosphoric solutions with underlying rocks, usually limestone.

Phosphorites are by far the most important; they range in age from Precambrian to late Tertiary and are no doubt forming today. The chief North American phosphorites are in the Phosphoria Formation and others of late Paleozoic age in Idaho and adjacent States, in upper Tertiary strata along the South-

eastern United States from Florida to North Carolina, and in very young rocks in Baja California Sur (Krauss and others, 1984). These Mexican deposits have been found to be far more extensive than was recognized when the map was compiled.

Number of deposits containing phosphorus	Number of principal phosphorus deposits	Principal major commodity of other deposits containing phosphorus as a major commodity			
		Nb	Fe	Ti	(Total)
Total 44	34	6	2	2	(10)

Number of principal phosphorus deposits	Geologic class of deposit <sup>1/</sup>				
	CHEM	LTRT	STOK	DSTR	VEIN
Total 34	25	3	3	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CABC	343	FERNIE AREA	C	CHEM	P		N49 30	W115 0*	2E1C2C3-4
CAON	116	CARGILL ALKALINE COMPLEX	B	LTRT	P	NB REE	N49 18	W 82 50	2E28B9A7+
CAQB	223	BUCKINGHAM AREA	C	STOK	P		N45 42	W 75 28	2E15C5A4
MXBS	15	SAN HILARIO NORTE	B	CHEM	P		N24 28	W111 9	2E37B2B7
MXBS	16	SAN HILARIO SUR	B	CHEM	P		N24 17	W111 0	2E37B2B7
MXCO	53	BANUELOS	C	CHEM	P		N25 5	W101 10	2E1C2A4
MXCO	22	MINA HONDA	C	CHEM	P		N27 44	W101 0	2E1C2A4
MXCO	25	SAN JUAN	C	CHEM	P		N27 15	W101 5	2E1C2A4
MXCO	55	SIERRA GOMEZ FARIAS-CARBONERAS	B	CHEM	P		N24 55	W100 57	2E1B2A4
MXCO	51	SIERRA LA CATANA	B	CHEM	P		N25 11	W101 19	2E1B2A4
MXHD	2	SAN FRANCISCO	C	CHEM	P		N20 59	W 99 20	2E1C2A5
MXNL	14	CHAPOPOTE 1 Y 2	C	CHEM	P		N25 42	W 99 44	2E1C2A5
MXNL	4	MERCEDES Y HERMINIA (SABINAS HGO.)	C	VEIN	P		N26 32	W100 14	2E1C7A7
MXNL	10	MITRA Y ARTEAGA	B	CHEM	P		N24 50	W100 48	2E1B2A4
MXZC	55	FOSFORITA	C	STOK	P		N23 54	W101 59	2E7C5A7
MXZC	32	P.V. 13	C	STOK	P		N23 41	W102 50	2E4C5A7
MXZC	48	P.V. 26 (2)	C	DSTR	P		N22 46	W102 9	2E7C10A7
USCA	135	COAST RANGE PHOSPHATE AREA	C	CHEM	P		N34 55	W120 0*	2E1C2B7
USFL	9	BRONSON (EAST OCALA HARD ROCK) DISTRICT	B	CHEM	P		N29 20	W 82 30*	2E37B2C7
USFL	14	SOUTH-CENTRAL (MAIN) DISTRICT	A	CHEM	P	U F REE	N27 40	W 81 53*	2E37A2B7
USFL	10	SOUTH GEORGIA-NORTH FLORIDA DISTRICT	B	CHEM	P	U F REE	N29 45	W 82 8*	2E37B2B7
USFL	8	STEINHATCHEE (NORTH OCALA HARD ROCK) DISTRICT	B	CHEM	P		N29 54	W 83 19*	2E37B2C7
USGA	25	NORTH FLORIDA PHOSPHATE DISTRICT	B	CHEM	P		N30 45	W 83 0*	2E37B2C7
USGA	23	SAVANNAH DISTRICT	B	CHEM	P		N32 3	W 81 5*	2E37B2B7

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
USID	66	SOUTHEAST IDAHO PHOSPHATE DISTRICT	A	CHEM	P		N42 53	W111 45*	2E37A2B3
USKY	3	CENTRAL KENTUCKY BROWN ROCK DISTRICT	C	LTRT	P		N38 6	W 84 43*	2E37C9B8
USMT	29	GARRISON AREA (RELYEA ET AL. MINES)	B	CHEM	P		N46 39	W112 50*	2E37B2B3
USNC	32	BEAUFORT COUNTY (LEE CREEK) DISTRICT	A	CHEM	P		N35 19	W 76 50*	2E37A2B7
USSC	12	CHARLESTON-BEAUFORT DISTRICT	C	CHEM	P		N32 45	W 80 0*	2E37C2C8
USSC	13	RIDGELAND BASIN-BEAUFORT DISTRICT	B	CHEM	P		N32 35	W 80 55*	2E37B2B7
USTN	12	BROWN ROCK (COLUMBIA-MT. PLEASANT) DIST.	B	LTRT	P		N35 35	W 87 0*	2E37B9B6+
USJT	13	CRAWFORD MOUNTAINS MINE	B	CHEM	P		N41 53	W111 17	2E37B2A3
USJT	18	VERNAL MINE	B	CHEM	P		N40 37	W109 31*	2E37B2B4
USWY	29	LEEFE MINE	B	CHEM	P		N41 53	W110 58	2E37B2A3

# POTASSIUM (K)

Ore minerals of potassium are chlorides and sulfates, with or without other metals, principally magnesium, that result from the progressive concentration of seawater in evaporite basins. As these minerals are among the last to form, they tend to localize in the central parts of basins within an outer zone of sodium chloride. (Even here they occur as layers or replacement masses in or mixed with the salt.) By far the largest North American potassium resource is in the Devonian basin in Saskatchewan (CASA), Canada (Adams, 1975); the nine entries for this Province show mine sites only, indicated by "--"; the map indicates the area underlain by potassium ores.

Potassium that has not crystallized to ore minerals is also recovered from brines as a co- or byproduct; some of these are of nonmarine origin.

The sole exception to an evaporate source cited in the listing is the Marysvale district (USUT 42), where alunite, hydrous

potassium-aluminum sulfate, was formed by hydrothermal alteration of volcanic rocks (Hall, 1978, p. A3, A4).

Number of deposits containing potassium	Number of principal potassium deposits	Principal major commodity of other deposits containing potassium as a major commodity		
		HAL	B	(Total)
Total 20	16	3	1	(4)

Number of principal potassium deposits	Geologic class of deposit <sup>1/</sup>	
	EVAP	STOK
Total 16	15	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CANB	22	SALT SPRINGS	B	EVAP	K		N45 34	W 65 36	6C3B6A5
CANB	19	SUSSEX	A	EVAP	K		N45 44	W 65 27	6C3A6A5
CASA	54	ALLAN	--	EVAP	K		N51 56	W106 4	6C37-6X3
CASA	58	BELLE PLAINE	--	EVAP	K HAL		N50 24	W105 12	6C37-6X3
CASA	60	ESTERHAZY	--	EVAP	K HAL		N50 42	W101 53	6C37-6X3
CASA	57	LANIGAN	--	EVAP	K		N51 51	W105 13	6C37-6X3
CASA	44	PATIENCE LAKE	--	EVAP	K		N52 5	W106 23	6C37-6X3
CASA	61	ROCANYILLE	--	EVAP	K		N50 28	W101 33	6C37-6X3
CASA	43	SASKATOON	--	EVAP	K		N52 6	W106 51	6C37-6X3
CASA	53	VANSCOY (VADE)	--	EVAP	K		N52 0	W107 5	6C37-6X3
CASA	56	VISCOOUNT (COLONSAY)	--	EVAP	K		N51 56	W105 46	6C37-6X3
MXVR	5	TANCAMI CHAPAN	A	EVAP	K		N17 45	W 94 45	6C37A6A4
USAZ	51	SUPAI POTASH BEDS	B	EVAP	K HAL		N34 48	W109 46*	6C37B6B4
USNM	74	CARLSBAD DISTRICT	A	EVAP	K		N32 30	W103 57	6C37A6A4
USUT	54	CANE CREEK ANTICLINE	A	EVAP	K		N38 42	W109 42*	6C37A6B4
USUT	42	MARYSVALE DISTRICT	B	STOK	K AL U	F	N38 30	W112 12	6C47B5A7

# PYROPHYLLITE (PYF)

Pyrophyllite, hydrated aluminum silicate, results from hydrothermal alteration of acidic volcanic rocks. The largest North American deposit, Manuels (CANF 53), is in the contact zone of a Proterozoic granite.

	Number of principal pyrophyllite deposits	Geologic class of deposit <sup>1/</sup>
		STOK
Total	3	3

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CANF	53	MANUELS	A	STOK	PYF		N47 29	W 52 57	10D45A5A2
CAQB	130	CARPENTIER TP.	B	STOK	PYF		N48 30	W 77 27	10D35B5A1
USNC	28	NORTH CAROLINA PYROPHYLLITE BELT	B	STOK	PYF		N35 52	W 79 15*	10D5B5B

The sodium minerals of commerce are chlorides (halite or common salt), sulfates, and carbonates. All deposits are evaporites, generally defined as marine or nonmarine (Smith and others, 1973). Production is by conventional mining, by pumping and evaporation of natural (noncrystallized) brines, or by injection of water into ore horizons to create new brines (solution mining).

The file attempts to distinguish the various ore types, but because of uncertainties concerning the mineral species present, and perhaps because mixtures occur, a few entries have been shown simply as sodium (NA). (Very little elemental sodium is produced, however; these entries undoubtedly contain one or more of the compounds mentioned above.)

Halite, the most abundant species, occurs principally in very extensive marine evaporites of Paleozoic and Early Mesozoic ages. The file does not give an adequate idea of their size and location because, with a few exceptions, only areas where mining has been carried out are cited; consequently, the map should be consulted. The largest basins are in platform cover rocks; others are in miogeosynclines and successor basins.

The other sodium minerals occur principally in much smaller nonmarine evaporite basins of Cenozoic age. These may contain appreciable quantities of sodium chloride also, but they are mined for the less common (and more valuable) minerals. Some deposits yield by- or coproduct elements, including boron, potassium, lithium, magnesium, and (or) other commodities; they vary greatly in their compositions (see, e.g., Mannion (1975) and Weisman and Tandy (1975)).

The chief sulfate minerals are mirabilite (hydrous) and thenardite (anhydrous) sodium sulfate. The deposits cited are associated with lakes or playas near the western edge of the Great Plains in Southern Canada and the Northern United States, but many other occurrences are known (e.g., Searles

Lake, see listing for "Boron," USCA 147; Great Salt Lake, USUT 5) in the Basin and Range province and elsewhere.

Numerous minerals contain sodium carbonate with or without varying amounts of water of crystallization, chloride, sulfate, or carbonate radicals, or other elements (aluminum, calcium, magnesium, potassium). The chief ore mineral, however, is trona, sodium bicarbonate, which occurs in very extensive lake beds of Eocene age in Wyoming. These now provide, with brine from Searles Lake, most of the world production of natural sodium carbonate, which is replacing the manufactured variety that was formerly the chief source (Mannion, 1975). Little information is available on the occurrence and purity of the other deposit listed, MXSN 1, except that it is of recent age in the arid environment at the head of the Gulf of California; it seems possible that much of it consists of halite.

Sodium salt	Number of principal sodium salts deposits	Geologic class of deposit <sup>2/</sup>
		EVAP
Sodium (NA) <sup>2/</sup>	5	5
Halite (HAL)	49	49
Mirabilite (MBL)	14	14
Trona (TRONA)	2	2
Total	70	70

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

<sup>2/</sup> Sodium salt not specified.

	Number of deposits containing halite	Number of principal halite deposits	Principal major commodity of other deposits containing halite as a major commodity		
			K	B	(Total)
Total	53	49	3	1	(4)

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
MXBS	13	ISLA DEL CARMEN	C	EVAP	NA		N24 54	W111 11	6B37C6A
MXCH	95	CUCHILLO PARADO	C	EVAP	NA		N29 20	W104 55	6B1C6A8
MXCO	17	LAGUNA DEL REY	B	EVAP	NA		N27 0	W103 25	6B37B6A8
MXSN	44	ORO BLANCO	B	EVAP	NA		N29 47	W109 8	6B3B6A7
MXSP	8	SALINAS	C	EVAP	NA		N22 36	W101 46	6B1C6A
CAAL	8	DUVERNAY	A	EVAP	HAL		N53 47	W111 41	6B37A6A3
CAAL	7	LINDBERGH	A	EVAP	HAL		N53 53	W110 40	6B37A6A3
CAAL	3	WATERWAYS	A	EVAP	HAL		N56 42	W111 20	6B37A6A3
CAFK	4	BATHURST ISLAND	B	EVAP	HAL		N75 33	W 98 45	6B1B6A3
CAMK	25	MACKENZIE BASIN	--	EVAP	HAL		N66 0	W126 0*	6B37-6C3
CAMK	62	MACKENZIE TROUGH	A	EVAP	HAL		N62 15	W117 45*	6B37A6C3
CANF	26	FISCHIELLS	B	EVAP	HAL		N48 18	W 58 42	6B3B6A5
CANS	15	ANTIGONISH	B	EVAP	HAL		N45 39	W 61 53	6B3B6A5
CANS	6	MABOU	B	EVAP	HAL		N46 2	W 61 27	6B3B6A5
CANS	34	NAPPAN	B	EVAP	HAL		N45 47	W 64 14	6B3B6A5
CANS	17	PORT RICHMOND	B	EVAP	HAL		N45 35	W 61 16	6B3B6A5
CANS	19	FUGWASH	B	EVAP	HAL		N45 50	W 63 40	6B3B6A5
CANS	20	WALLACE	B	EVAP	HAL	K	N45 47	W 63 27	6B3B6A5
CAON	234	GODERICH DISTRICT	--	EVAP	HAL		N43 44	W 81 43	6B37-6X3
CAON	232	SARNIA DISTRICT	--	EVAP	HAL		N42 58	W 82 24	6B37-6X3
CAON	233	WINDSOR-AMHERSTBURG DISTRICT	--	EVAP	HAL		N42 15	W 83 6	6B37-6X3
CAQB	212	MADELINE ISLANDS (1)	A	EVAP	HAL	K	N47 37	W 61 33	6B3A6A5
CASA	41	UNITY AREA	A	EVAP	HAL		N52 25	W109 6	6B37A6A3
USAL	17A	MCINTOSH WELL	B	EVAP	HAL		N51 32	W 88 5	6B3B6X5
USAZ	52	SUPAI SALT BASIN	B	EVAP	HAL		N54 40	W109 50*	6B37B6C4
USKS	1	ELLSWORTH AREA	B	EVAP	HAL		N58 47	W 98 11	6B37B6X4
USKS	5	HUTCHINSON AREA	B	EVAP	HAL		N58 2	W 97 57	6B37B6X4
USKS	2	LYONS AREA	B	EVAP	HAL		N58 23	W 98 12	6B37B6X4
USLA	6	LAFAYETTE AREA	B	EVAP	HAL		N50 15	W 91 55	6B3B6X5
USLA	5	PLAQUEMINE AREA	B	EVAP	HAL		N50 17	W 91 17	6B3B6X5
USLA	8	WEEKS ISLAND-GRANDE COTE	B	EVAP	HAL		N29 51	W 91 47	6B3B6X5
USMI	19	DETROIT SALT	--	EVAP	HAL		N42 23	W 83 0	6B37-6X3
USMI	17	MIDLAND	--	EVAP	HAL	K	N43 24	W 84 28	6B37-6X3
USND	3	WILLISTON BASIN	--	EVAP	HAL		N48 0	W103 0*	6B37-6C3
USNM	75	DELAWARE BASIN	--	EVAP	HAL K		N32 30	W103 30*	6B37-6C4
USNY	12	GAINSVILLE	--	EVAP	HAL		N42 39	W 78 6	6B37-6X3
USNY	15	ITHACA	--	EVAP	HAL		N42 28	W 76 34	6B37-6X3
USNY	14	LUDLOWVILLE	--	EVAP	HAL		N42 34	W 76 34	6B37-6X3
USNY	13	TULLY	--	EVAP	HAL		N42 48	W 76 7	6B37-6X3
USNY	16	WATKINS	--	EVAP	HAL		N42 25	W 76 53	6B37-6X3
USOH	5	AKRON (KENMORE)	--	EVAP	HAL		N41 3	W 81 32	6B37-6X3
USOH	6	BARBERTON	--	EVAP	HAL		N40 58	W 81 34	6B37-6X3
USOH	4	CLEVELAND	--	EVAP	HAL		N41 29	W 81 40	6B37-6X3
USOH	3	FAIRPORT HARBOR	--	EVAP	HAL		N41 45	W 81 15	6B37-6X3
USOH	7	RITTMAN	--	EVAP	HAL		N40 52	W 81 45	6B37-6X3
USOK	11	HARMON COUNTY	--	EVAP	HAL		N54 51	W 99 54	6B37-6X4
USOK	9	ROGER MILLS COUNTY	--	EVAP	HAL		N55 13	W 99 38	6B37-6X4
USOK	1	WOODS COUNTY	--	EVAP	HAL		N56 49	W 99 16	6B37-6X4
USTX	5	BAILEY COUNTY	--	EVAP	HAL		N52 51	W102 46	6B37-6X4
USTX	6	TERRY COUNTY	--	EVAP	HAL		N53 1	W102 17	6B37-6X4
USJT	6	BONNEVILLE BASIN	A	EVAP	HAL	MG K L I	N40 32	W113 37*	6B3A6B8
USJT	5	GREAT SALT LAKE DEPOSITS	A	EVAP	HAL	MG K L I	N41 5	W112 30*	6B3A6B8
USJT	52	PARADOX SALT BASIN	A	EVAP	HAL		N58 0	W108 0	6B37A6C4
USNV	1	OHIO RIVER	--	EVAP	HAL		N59 33	W 80 47	6B37-6X4



CAAL	9	METISKOW	B	EVAP	MBL	N52 21	W110 45	6B3B6A8
CASA	49	AL SASK	B	EVAP	MBL	N51 21	W109 52	6B3B6A8
CASA	65	CEYLON (SALT) LAKE	C	EVAP	MBL	N49 18	W104 42	6B3C6A8
CASA	55	CHARL IN LAKE	B	EVAP	MBL	N50 26	W106 40	6B3B6A8
CASA	59	FREDERICK LAKE	B	EVAP	MBL	N50 1	W105 48	6B3B6A8
CASA	63	HORSESHOE (ORMISTON) LAKE	B	EVAP	MBL	N49 43	W105 21	6B3B6A8
CASA	50	INGEBRIGHT	A	EVAP	MBL	N50 22	W109 19	6B3A6A8
CASA	47	MUSKIKI LAKE	B	EVAP	MBL	N52 19	W105 44	6B3B6A8
CASA	51	SNAKEHOLE LAKE	B	EVAP	MBL	N50 31	W108 29	6B3B6A8
CASA	64	SYBOUTS	B	EVAP	MBL	N49 2	W104 25	6B3B6A8
CASA	52	VINCENT LAKE	B	EVAP	MBL	N50 13	W108 57	6B3B6A8
CASA	42	WHITESHORE LAKE	A	EVAP	MBL	N52 7	W108 17	6B3A6A8
USMT	7	SE BRUSH LAKE DEPOSIT	B	EVAP	MBL	N48 34	W104 6	6B3B6A8
USMT	6	WESTBY B. LAKE DEPOSIT	B	EVAP	MBL	N48 53	W104 3	6B3B6A8
MXSN	1	BAHIA DE ADAIR	A	EVAP	TRONA	N31 35	W113 45	6B3A6A8
USWY	31	WESTVADO	A	EVAP	TRONA	N41 25	W109 29	6B37A6A7

# SULFUR (S)

Sulfur is widespread and is produced from many sources, including as a by- or coproduct of metallic sulfide ores, of natural gas and petroleum, and of coal. Only deposits of elemental (native) sulfur are listed here. Small occurrences of volcanic origin are known in Central America, but the overwhelming proportion of native sulfur resulted from the action of anaerobic bacteria on calcium sulfate (anhydrite or gypsum) in the presence of hydrocarbons. The process involves reduction of the sulfate to hydrogen sulfide and the subsequent oxidation of the sulfide to elemental sulfur. A number of conditions must be met for this process to be effective: the evaporite must be at a fairly shallow depth, petroleum or natural gas must be available (the bacteria use hydrocarbon as their energy source), and impermeable strata must be present to prevent escape of the hydrogen sulfide gas to the atmosphere (Bodenlos, 1973, p. 610-613).

Two structural situations in North America meet these conditions: (1) Piercement of overlying strata by lower Mesozoic salt containing minor quantities of sulfate formed domes along the Gulf Coast in Louisiana, Texas, and the State of Veracruz in Mexico. Anhydrite accumulated in a porous cap rock as the more soluble chloride was removed by ground water. Only rel-

atively few domes have sulfur deposits, however. (2) Moderately deformed upper Paleozoic anhydrite in west Texas lies near the surface and has in places been brecciated sufficiently to permit accumulation of the necessary petroleum from nearby sources. These two environments have been distinguished in the coding as stockwork (STOK) and strata-bound (DSTR), respectively. A small deposit in Nova Scotia, CANS 24, is similar to those in west Texas.

Number of deposits containing sulfur	Number of principal sulfur deposits	Principal major commodity of other deposits containing sulfur as a major commodity	
		GYP	(Total)
Total 35	34	1	(1)

Number of principal sulfur deposits	Geologic class of deposit <sup>1/</sup>			
	STOK	DSTR	EVAP	VEIN
Total 34	24	8	1	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CANS	24	HILDEN	C	EVAP	S		N45 19	W 63 19	11A3C6A5
CSCS	4	FOAS	C	DSTR	S		N10 18	W 84 18	11A7C10A8
CSCS	3	POCO SQL	C	DSTR	S		N10 22	W 84 39	11A7C10A8
ESES	4	LAGUNA DE ALEGRIA	C	DSTR	S		N13 30	W 88 30	11A7C10A8
GTGT	14	LAGUNA DE IXPACO	C	DSTR	S		N14 13	W 90 26	11A7C10A8
MXBN	15	SAN FELIFE (EL APACHE)	C	VEIN	S		N31 0	W114 50	11AC7A7
MXDR	10	AZUFRE TLAHUALILO	C	STOK	S		N26 15	W103 30	11A1C5A7
MXDR	9	EL CONEJO	C	DSTR	S		N26 16	W103 50	11A1C10A7
MXSP	10	HUAXCAMA	B	STOK	S		N22 14	W100 18	11A1B5A7
MXVR	3	JALTIPAN-MINATITLAN	A	STOK	S		N17 57	W 94 45	11A37A5A7
USLA	9	CHACAHOUA MINE	B	STOK	S		N29 48	W 90 58	11A3B5A5+
USLA	13	GARDEN ISLAND BAY	A	STOK	S		N29 7	W 89 9	11A3A5A5+
USLA	12	GRAND ISLE (BLK. 18) MINE	A	STOK	S		N29 12	W 89 57	11A3A5A5+
USLA	7	JEFFERSON ISLAND MINE	B	STOK	S		N30 1	W 91 58	11A3B5A5+
USLA	10	LAKE PELTO MINE	B	STOK	S		N29 6	W 90 36	11A3B5A5+
USLA	11	LAKE WASHINGTON (GRAND ECAILLE) MINE	A	STOK	S		N29 21	W 89 44	11A3A5A5+
USLA	3	STARKS DOME	B	STOK	S		N30 18	W 93 37	11A3B5A5+
USLA	4	SULPHUR MINE	A	STOK	S		N30 18	W 93 22	11A3A5A5+

USTX	39	BIG CREEK MINE	C	STOK	S		N29 35	W 95 46	11A3C5A5+
USTX	36	BOLING DOME	A	STOK	S		N29 18	W 96 0	11A3A5A5+
USTX	44	BRYAN MOUND	B	STOK	S		N28 57	W 95 24	11A3B5A5+
USTX	20A	CHRISTOVAL WEST AREA	C	DSTR	S		N31 12	W100 33	11A37C10A4+
USTX	43	CLEMENS DOME	B	STOK	S		N29 3	W 95 39	11A3B5A5+
USTX	38	FANNETT DOME	B	STOK	S		N29 54	W 94 15	11A3B5A5+
USTX	20	FORT STOCKTON AREA	B	DSTR	S		N31 8	W102 44	11A37B10A4+
USTX	45	GULF HILL MINE	A	STOK	S		N28 45	W 95 57	11A3A5A5+
USTX	42	HOSKINS MOUND	A	STOK	S		N29 10	W 95 14	11A3A5A5+
USTX	40	LONG POINT	B	STOK	S		N29 22	W 95 48	11A3B5A5+
USTX	37	MOSS BLUFF	A	STOK	S		N29 56	W 94 41	11A3A5A5+
USTX	41	NASH DOME	B	STOK	S		N29 19	W 95 42	11A3B5A5+
USTX	35A	ORCHARD DOME	B	STOK	S		N29 38	W 96 3	11A3B5A5+
USTX	47	PALANGANA DOME	B	STOK	S	U	N27 42	W 98 25	11A3B5A5+
USTX	14	RUSTLER SPRINGS (CULBERSON)	A	DSTR	S		N31 49	W104 8	11A37A10A4+
USTX	27	SPINDLETOP SPRINGS	A	STOK	S		N30 3	W 94 2	11A3A5A5+

## TALC (TLC)

Talc is a hydrous magnesian silicate formed either by hydrothermal alteration of ultramafic or, less commonly, mafic igneous rock or by metamorphism of sedimentary rock, especially dolomite. Commercial talc deposits ordinarily contain various other silicates as impurities that affect their physical properties and the uses for which they are suited. Most North American deposits are in Grenvillian (Proterozoic) dolomite, in ultramafic rocks or sediments along the Appalachians from southeastern Quebec to Georgia, or in the Cordillera. The largest producing district in the United States is not included

in the listing because it lies so close to the Balmat-Edwards zinc deposits (USNY 3) that it could not be shown on the map.

	Number of principal talc deposits	Geologic class of deposit <sup>1/</sup>			
		STOK	MSTR	DSTR	Not reported
Total	35	18	14	2	1

<sup>1/</sup> Abbreviations are listed in table A-5 of Appendix A.

Country/ State code	No.	Deposit name	Size	Class	Commodities		Coordinates		Geologic code
					Major	Minor	Lat.	Long.	
CAON	224	HUNTINGTON TP. (HENDERSON-CONLEY)	B	DSTR	TLC		N44 30	W 77 27	10E1 45B1 0A4
CAQB	235	SOUTH BOLTON (BAKER)	C	STOK	TLC		N45 9	W 72 23	10E5 8C5 A3
MXBN	4	MEXICALI	C	STOK	TLC		N32 35	W115 30	10E8 C5 A
MXBS	11	COMONDU	C	STOK	TLC		N26 5	W111 50	10E8 C5 A
MXSN	47	MATAPE	C	STOK	TLC		N29 10	W109 56	10E1 5C5 A5
MXZC	3	SIN NOMBRE	C	STOK	TLC		N24 45	W102 10	10E1 5C5 A6
USAL	7	TALLADEGA COUNTY DEPOSIT	C	MSTR	TLC		N33 19	W 86 13	10E1C11A3+
USCA	144	DEATH VALLEY TALC MINES	C	MSTR	TLC		N36 0	W116 55	10E16C11A
USCA	149	KINGSTON RANGE DIST. (SHEEP CREEK ET AL. MINES)	B	MSTR	TLC		N35 44	W116 20*	10E16B11B1
USCA	109A	NORTH PANAMINT RANGE MINES	C	MSTR	TLC		N36 50	W117 56*	10E1C11B
USCA	166	SILVER LAKE-YUCCA GROVE DISTRICT	C	—	TLC		N35 24	W115 48	10E1 5C
USCA	113	TALC CITY ET AL. MINES	B	MSTR	TLC		N36 21	W117 41	10E1 B11 A
USCA	111	UBHEBE AREA	C	MSTR	TLC		N36 38	W117 30	10E1C11A
USGA	4	BLUE RIDGE AREA OF MURPHY MARBLE BELT	C	MSTR	TLC		N34 50	W 84 21	10E1C11A4+
USGA	3	CHATSWORTH DISTRICT	B	MSTR	TLC		N34 45	W 84 42	10E1 5B11 A3-4
USGA	11	DILLARDS AREA	C	STOK	TLC		N34 57	W 83 26	10E8 C5 A
USGA	15	HARRIS PROSPECT	C	STOK	TLC		N33 59	W 84 52	10E8 C5 A
USGA	19	MOUNTAIN CREEK AREA	C	STOK	TLC		N32 48	W 84 59	10E1 58C5 A
USMT	74	DILLON-ENNIS DISTRICT (KEYSTONE ET AL.)	C	MSTR	TLC		N45 7	W112 20	10E1 5C11A1
USMT	82	YELLOWSTONE (JOHNNY GULCH) MINE	B	MSTR	TLC		N45 4	W111 44	10E1 5B11 A1
USNC	17	KINSEY-CAROLINA-MINERAL-METALS MINES	C	MSTR	TLC		N35 3	W 84 6	10E1C11A
USNC	10	MICAVILLE AREA	C	STOK	TLC		N35 56	W 82 12	10E8 C5 A
USNM	63	HEMBRILLO & RED ROCK MINES	C	MSTR	TLC		N32 58	W106 32	10E16C11A2
USNW	176	PALMETTO-OASIS DISTRICT	C	MSTR	TLC		N37 26	W117 43*	10E1C11B
USNY	5	NATURAL BRIDGE	C	MSTR	TLC		N44 5	W 75 24	10E1C11A4
USSC	1	FAIRVIEW CHURCH MINE	C	STOK	TLC		N34 46	W 82 56	10E1 58C5 A
USSC	6	HALSELVILLE PROSPECT	C	STOK	TLC		N34 34	W 81 15	10E8 C5 A
USTX	18	ALLAMOORE TALC DISTRICT	C	DSTR	TLC		N31 6	W105 2*	10E1 5C10B2+
USTX	23	LLANO DISTRICT	C	STOK	TLC		N30 31	W 98 38	10E8 C5 A
USYA	4	ANNANDALE	C	STOK	TLC		N38 50	W 77 12	10E8 C5 A
USYA	25	ROCKY MOUNT	C	STOK	TLC		N36 59	W 79 54	10E8 C5 A
USYA	17	SCHUYLER AREA	B	STOK	TLC		N37 49	W 78 39*	10E5 8B5 A
USYT	4	SOUTH VERMONT TALC DISTRICT (SOUTH WINDHAM ET AL.)	C	STOK	TLC		N43 10	W 72 45*	10E5 8C5 B
USYT	2	VERMONT TALC BELT (STERLING FOND ET AL.)	A	STOK	TLC		N44 33	W 72 46*	10E5 8A5 B
USYA	4	MARBLEMOUNT AREA	C	STOK	TLC		N48 32	W121 23	10E5 8C5 A3-

## MAJOR COMMODITIES NOT REPORTED AS THE PRINCIPAL MINERAL COMMODITY

Of the 56 commodities contained in deposits as major commodities, only seven metals and minerals are not reported as "principal" (see table 1). These seven metals or minerals and the number frequency of occurrences in the data base (see table 3), are cadmium (11), tantalum (8), bismuth (7), arsenic (6), selenium (3), cesium (1), and tellurium (1).

### CADMIUM (CD)

Cadmium occurs in sulfide base-metal and precious-metal ores, principally in deposits containing zinc. Deposits in the Metallogenic Map file containing cadmium as a major commodity are silver (CABC 101, CABC 259, and CABC 324), copper (CANF 29 and CAQB 134), lead (CABC 329 and CANB 6), and zinc (CABC 327, CABC 334, CANB 2, and CAYK 88).

### TANTALUM (TA)

Tantalum is found chiefly with niobium because of the strong geochemical affinity between the two metals (Parker and Fleischer, 1968). Tantalum-bearing niobium deposits in the data base include CAMK 76, CAMK 83, CAMK 84, and CAQB 155. Tantalum also occurs in pegmatites having beryllium (CAMK 68A and CAMK 70) or lithium (CAMB 51 and USNM 11) as the principal commodity.

### BISMUTH (BI)

Bismuth is obtained largely as a byproduct from ores of other metals, principally lead and copper (CAQB 169). Lesser amounts of bismuth are associated with molybdenum (CANS 10, CAQB 110, and CAQB 132), cobalt (CAMK 59), silver (CAMK 28 and USUT 7), gold, tin, tungsten, and zinc.

### ARSENIC (AS)

Geochemically, arsenic is similar to antimony and bismuth. It forms sulfosalts, arsenides, and antimonides with various heavy metals and shows a preference for combining with copper, iron, nickel, and cobalt (Gualtieri, 1973, p. 53). In the Metallogenic Map file, arsenic-bearing minerals are reported in six deposits: gold (CAQB 105,

CAQB 115, and USNV 37), silver (USUT 7), copper (CABC 270), and antimony (CANF 40).

### SELENIUM (SE)

Most selenium is recovered as a byproduct of copper refining (Edelstein, 1983, p. 941). The only occurrences of selenium reported in the data base as major commodities are those in primary copper (CAQB 113), nickel (CAON 187), and uranium (USWY 36) deposits.

### CESIUM (CS)

Cesium compounds are obtained from the mineral pollucite,  $(\text{Cs,Na})_2\text{Al}_2\text{Si}_4\text{O}_{12}\cdot\text{H}_2\text{O}$ , which is recovered as a coproduct of mining lithium pegmatites (Bascle, 1981, p. 161-162). The Bernic Lake lithium deposit (CAMB 51) contains the only reported occurrence of cesium as a major commodity in the data base.

### TELLURIUM (TE)

One occurrence of tellurium is reported in the data base. It is in the nickel-copper ore of Sudbury, Ontario (see listing for "Copper," CAON 187). Tellurium minerals are also present in minor quantities in other base- and precious-metal ores. The primary source of tellurium is as a byproduct of copper refining (Loebenstein, 1981, p. 926).

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## APPENDIX A: EXPLANATION OF DEPOSIT CODE

The tables in this appendix explain the deposit codes used in the "Commodity Directories." Table A-1 lists the four-letter abbreviation identifying the country and political subdivision of the deposit. Tables A-2 through A-7 explain the abbreviations for the geologic characteristics of each deposit. The tables are arranged in the order in which the abbreviations (numbers and letters) appear in the deposit code (see fig. 3). For some deposits, not all parts (characters) in the deposit

code have been reported. Guild (1981a, p. A3-A10) contains a more detailed discussion of the deposit codes used in this report.

Table	Contents
A-1	Country and subdivision code list
A-2	Metal/mineral content of deposits
A-3	Geologic environment of deposits
A-4	Size limits for deposits
A-5	Geologic class of deposit
A-6	Deposit map symbol
A-7	Age of mineralization

TABLE A-1.—Country and political subdivision abbreviations

Code	Country/subdivision name
BHBB	Belize
CAAL	Canada/Alberta
CABC	Canada/British Columbia
CAFK	Canada/Northwest Territories--Franklin district
CAKW	Canada/Northwest Territories--Keewatin district
CAMB	Canada/Manitoba
CAMK	Canada/Northwest Territories--Mackenzie district
CANB	Canada/New Brunswick
CANF	Canada/Newfoundland and Labrador
CANS	Canada/Nova Scotia
CAON	Canada/Ontario
CASA	Canada/Saskatchewan
CAQB	Canada/Quebec
CAYK	Canada/Yukon Territory
CSCS	Costa Rica
CUCU	Cuba
DRDR	Dominican Republic
ESES	El Salvador
FRFR	Saint Pierre and Miquelon
GLGL	Greenland
GTGT	Guatemala
HAHA	Haiti
HOHO	Honduras
JMJM	Jamaica
MXAG	Mexico/Aguascalientes
MXBN	Mexico/Baja California Norte
MXBS	Mexico/Baja California Sur
MXCP	Mexico/Chiapas
MXCH	Mexico/Chihuahua
MXCO	Mexico/Coahuila
MXCL	Mexico/Colima
MXDR	Mexico/Durango



TABLE A-1.—Country and political subdivision abbreviations—Continued

Code	Country/subdivision name
MXEM	Mexico/Estado de México
MXGN	Mexico/Guanajuato
MXGR	Mexico/Guerrero
MXHD	Mexico/Hidalgo
MXJL	Mexico/Jalisco
MXMC	Mexico/Michoacán
MXNA	Mexico/Nayarit
MXNL	Mexico/Nuevo León
MXOX	Mexico/Oaxaca
MXPB	Mexico/Puebla
MXQR	Mexico/Querétaro
MXSP	Mexico/San Luis Potosí
MXSL	Mexico/Sinaloa
MXSN	Mexico/Sonora
MXTM	Mexico/Tamaulipas
MXVR	Mexico/Vera Cruz
MXZC	Mexico/Zacatecas
NUNU	Nicaragua
PNPN	Panama
RQRO	Puerto Rico
UKUK	Antigua
USAL	United States/Alabama
USAK	United States/Alaska
USAZ	United States/Arizona
USAR	United States/Arkansas
USCA	United States/California
USCO	United States/Colorado
USCT	United States/Connecticut
USFL	United States/Florida
USGA	United States/Georgia
USID	United States/Idaho
USIL	United States/Illinois
USIN	United States/Indiana
USIA	United States/Iowa
USKS	United States/Kansas
USKY	United States/Kentucky
USLA	United States/Louisiana
USME	United States/Maine
USMD	United States/Maryland
USMA	United States/Massachusetts
USMI	United States/Michigan
USMN	United States/Minnesota
USMS	United States/Mississippi
USMO	United States/Missouri
USMT	United States/Montana
USNV	United States/Nevada

TABLE A-1.—Country and political subdivision abbreviations—Continued

Code	Country/subdivision name
USNH	United States/New Hampshire
USNJ	United States/New Jersey
USNM	United States/New Mexico
USNY	United States/New York
USNC	United States/North Carolina
USND	United States/North Dakota
USOH	United States/Ohio
USOK	United States/Oklahoma
USOR	United States/Oregon
USPA	United States/Pennsylvania
USRI	United States/Rhode Island
USSC	United States/South Carolina
USSD	United States/South Dakota
USTN	United States/Tennessee
USTX	United States/Texas
USUT	United States/Utah
USVT	United States/Vermont
USVA	United States/Virginia
USWA	United States/Washington
USWV	United States/West Virginia
USWI	United States/Wisconsin
USWY	United States/Wyoming
VIVI	British Virgin Islands

TABLE A-2.—*Metal/mineral content of deposits*

Code	A	B	C	D	E
1	W	Sn	Be	NbTa	Li
2	Fe	Ti	FeTi(V)	Fe(mgn <sup>1/</sup> )Cu	P
3	Cu	Mo	CuMo	CuZn(Ag)	CuAu
4	Au	AuCu	AuAg	AgPbZn(AuCu)	AgCo
5	Cr	Ni(Co)	Co/Pt	CuNi(Co)	Asbestos
6	Ca	Na	K	Mg	B
7	Pb	Zn	PbZn	PbZnAg(AuCu)	
8	Hg	Sb	F	Ba	Sr
9	U	V	UV	Th	UTh
10	Mn	Al	Kyanite group	Pyrophyllite	Talc
11	S	FeS	Rare Earths	Diamond	Graphite

<sup>1/</sup> Magnetite-bearing

TABLE A-3.—*Geologic environment of deposits*

[Odd-numbered codes refer to depositional environment of host rocks; even-numbered codes refer to intrusive igneous rocks, if any, believed to be related to the mineralization]

Code	Geologic Environment
DEPOSITIONAL ENVIRONMENT	
1	Predominantly sedimentary rocks of miogeosynclinal type
5	Predominantly volcanic and related sedimentary rocks of eugeosynclinal type
1-5	Thick metamorphosed sequence, original character not specified
3-7	Platform cover rocks, including coastal plains
3	Cover rocks in successor basins and/or essentially unconsolidated materials unconformable on platform sediments
7	Essentially undeformed continental volcanic rocks
1-7	Sequence of intermediate and felsic volcanic rocks with terrestrial and marine sedimentary rocks
3-5	Volcano-sedimentary sequence of old Precambrian age--tectonic environment uncertain
INTRUSIVE IGNEOUS ENVIRONMENT -- In or associated with:	
2	Alkaline rocks
4	Felsic rocks -- granite to quartz diorite
6	Gabbroic rocks, including diabase
8	Ultramafic rocks
4-6	Diorite
6-8	Anorthosite
2-8	Alkalic-mafic rocks

TABLE A-4.—Size limits for deposits

(Limits for deposits given in terms of metric tons of metal or mineral contained unless otherwise specified. Past production and (or) reserves totaled. There are no upper or lower size-class limits; the quantities reported are "greater than," "between," or "less than")

Size	Large		Medium		Small
Code <sup>1</sup> /	A	>	B	>	C
Aluminum (bauxite) -----	100,000,000			1,000,000	
Antimony -----	50,000			5,000	
Asbestos -----	10,000,000			100,000	
Barite (BaSO <sub>4</sub> ) -----	5,000,000			50,000	
Beryllium (BeO) -----	1,000			10	
Boron (B <sub>2</sub> O <sub>3</sub> ) -----	10,000,000			100,000	
Chromium (Cr <sub>2</sub> O <sub>3</sub> ) -----	1,000,000			10,000	
Cobalt -----	20,000			1,000	
Copper -----	1,000,000			50,000	
Diamond -----	10			1	
Fluorite (CaF <sub>2</sub> ) -----	5,000,000			50,000	
Gold -----	500			25	
Graphite -----	1,000,000			10,000	
Gypsum-anhydrite -----	100,000,000			5,000,000	
Iron (ore) -----	100,000,000			5,000,000	
Kyanite group (Al <sub>2</sub> SiO <sub>5</sub> ) -----	1,000,000			50,000	
Lead -----	1,000,000			50,000	
Lithium (Li <sub>2</sub> O) -----	100,000			10,000	
Magnesium (MgCO <sub>3</sub> ) -----	10,000,000			100,000	
Manganese (tons of 40% Mn) --	10,000,000			100,000	
Mercury (flasks) -----	500,000			10,000	
Molybdenum -----	500,000			5,000	
Nickel -----	500,000			25,000	
Niobium-Tantalum (R <sub>2</sub> O <sub>5</sub> ) -----	100,000			1,000	
Phosphate (P <sub>2</sub> O <sub>5</sub> ) -----	200,000,000			200,000	
Platinum group -----	500			25	
Potassium (K <sub>2</sub> O) -----	10,000,000			1,000,000	
Pyrite (FeS <sub>2</sub> ) -----	20,000,000			200,000	
Pyrophyllite -----	10,000,000			1,000,000	
Rare earths (RE <sub>2</sub> O <sub>3</sub> ) -----	1,000,000			1,000	
Silver -----	10,000			500	
Sodium (salts) -----	10,000,000			1,000,000	
Strontium (salts) -----	1,000,000			10,000	

TABLE A-4.—*Size limits for deposits*—Continued

(Limits for deposits given in terms of metric tons of metal or mineral contained unless otherwise specified. Past production and (or) reserves totaled. There are no upper or lower size-class limits; the quantities reported are "greater than," "between," or "less than"]

Size	Large		Medium		Small
Code <sup>1/</sup>	A	>	B	>	C
Sulfur -----		10,000,000		100,000	
Talc -----		10,000,000		1,000,000	
Thorium -----		10,000		1,000	
Tin -----		100,000		5,000	
Titanium (TiO <sub>2</sub> ) -----		10,000,000		1,000,000	
Tungsten -----		10,000		500	
Uranium -----		10,000		100	
Vanadium -----		10,000		500	
Zinc -----		1,000,000		50,000	

<sup>1/</sup> When the deposit map symbol is designated 'X' (table A-6), the letter for the deposit size is replaced with a hyphen.

TABLE A-5.—*Geologic class of deposit*

Code	Geologic Class	Abbreviation
1	Pegmatite deposits	PEGM
2	Chemical sediments other than evaporites	CHEM
3	Skarn or greisen deposits	SKAR
4	Placer deposits	PLCR
5	Stockworks, pipes, and deposits of irregular or indefinite shape, other than skarn or greisen	STOK
6	Evaporite deposits	EVAP
7	Veins and shear zones	VEIN
8	More or less concordant deposits in intrusive igneous rocks	IGNS
9	Laterite deposits	LTRT
10	More or less stratabound <sup>1/</sup> , mainly disseminated deposits other than known placers	DSTR
11	More or less stratabound <sup>1/</sup> massive deposits	MSTR

<sup>1/</sup> Within (bound to) certain stratigraphic units but not necessarily stratiform.

TABLE A-6.—*Deposit map symbol*

Code	Deposit/district map symbol
A	Standard deposit symbol
B	Outline of district of scattered deposits with standard symbol to represent cumulative importance of district and other geologic information
C	Outline of district containing scattered deposits without a standard symbol or outcrop of extensive stratabound deposit
X	Location of mine within an extensive evaporite basin <u>1/</u>

1/ The letter for the deposit size (table A-4) is replaced with a hyphen when the deposit map symbol is designated 'X'. For example, 6C37-6X, a potash mine location within an evaporite basin.

TABLE A-7.—Age of mineralization for the major areas (geologic provinces) of the North American continent

[The codes refer to different ages of mineralization in different regions of the map (see fig. 3)]

Geologic province <sup>1/</sup>	Code <sup>2/</sup>	Age explanation <sup>3/</sup>
Appalachians	1	Precambrian 1 (to ~ 1000 Ma)
	2	Precambrian 2
	3	Cambrian-Ordovician
	4	Silurian-Middle Devonian
	5	Late Devonian-Mississippian
	6	Pennsylvanian-Permian
	7	Mesozoic
	8	Post-Mesozoic
Cordillera	1	Precambrian
	2	Cambrian-Middle Devonian
	3	Late Devonian-Early Triassic
	4	Middle Triassic-Jurassic
	5	Cretaceous (except latest)
	6	Latest Cretaceous-Eocene (Laramide)
	7	Oligocene-Pliocene
	8	Post-Tertiary
Platform	1	Precambrian 1 (to ~ 1750 Ma)
	2	Precambrian 2
	3	Cambrian-Devonian
	4	Mississippian-Permian
	5	Triassic-Jurassic
	6	Cretaceous
	7	Tertiary
	8	Post-Tertiary
Shield	1	Archean (to ~ 2500 Ma)
	2	Proterozoic 1 (Aphebian)
	3	Proterozoic 2 (Paleohelikian)
	4	Proterozoic 3 (Neohelikian)
	5	Proterozoic 4 (Hadrynian)
	6	Paleozoic
	7	Mesozoic
	8	Post-Mesozoic

<sup>1/</sup> Geologic provinces are those of King (1959).

<sup>2/</sup> A plus sign (+) after the digit means "or younger", a minus sign (-) means "or older". Two digits separated by a hyphen indicate the possible range in ages. For example, age 3 or younger: code 3+; age 7 or older: code 7-; or from age 4 to 6: code 4-6.

<sup>3/</sup> Ages in million years (Ma). Chronostratigraphic names and age estimates are those of the North American Metallogenic Map Committee (1981).









