METALLIC AND INDUSTRIAL MINERAL MINES, PROSPECTS, AND OCCURRENCES IN PUERTO RICO, AS RECORDED IN THE MINERAL RESOURCES DATA SYSTEM (MRDS)

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INTRODUCTION

This compilation summarizes the metallic and industrial mineral mines, prospects, and occurrences of Puerto Rico. The metallic and industrial mineral data discussed here have been complied and entered, in support of the mineral resource assessment of Puerto Rico, into the U.S. Geological Survey's (USGS) Mineral Resources Data System (MRDS), a database for worldwide mineral deposits and occurrences.

Metallic mines and mineral occurrences for Puerto Rico are listed in Appendix B. This table of selected MRDS data fields was extracted from MRDS records compiled from previous mineral occurrence maps (Cox and Briggs, 1973), literature searches, and public company records on file at the Puerto Rico Department of Natural Resources, San Juan. A complete listing of the MRDS records for metallic minerals in Puerto Rico can be found in Appendix E.

The fields for the Puerto Rico industrial mineral sites listed in Appendix C, were extracted from U.S. Geological Survey Open-File Report 92-244 (Center for Inter-American Mineral Resource Investigations (CIMRI) and Puerto Rico Department of Natural Resources, 1992). These records describe sites with active extraction permits in 1991, as recorded by the Corteza Terrestre/Surface Mining Permits Office of the Puerto Rico Department of Natural Resources, and previous sites displayed on 1:20,000-scale geologic maps published by the USGS during the last 30 years. The complete MRDS records for industrial minerals in Puerto Rico can be found in Appendix E.

MRDS

MRDS, originally named the Computerized Resource Information Bank (CRIB), is a database of mineral deposits and occurrences. Information on mineral deposits in MRDS includes commodity and descriptive geologic data useful for regional mineral resource assessments and reconnaissance exploration. In-depth site descriptions for some well-studied mines and deposits are also available. MRDS containes approximately 110,000 records, 76,000 of which are for deposits and occurrences in the United States.

A primary goal of MRDS is to ensure that each record faithfully reproduces the data source(s); this assumes that the data source is accurate and contains valid information. Where there are inconsistencies or questionable quality, the data have been interpreted and reflect the opinions of the record contributors and file editors. The user, therefore, is advised to check the original data source materials, as referenced in the MRDS records, whenever questions arise. Also, no claim is made for completeness of this compilation and users of the data should bear in mind that some published and unpublished sources may have been missed.

Additions and corrections to the information in this report are welcomed. Data changes or additions may be submitted to:

Mineral Resources Data Systems
U.S. Geological Survey, Mail Stop 954
12201 Sunrise Valley Drive
Reston, VA 22092 USA

MINES, PROSPECTS, AND OCCURRENCES

An inventory of known mineral deposits and less-understood mineral occurrences is essential in the evaluation of the potential mineral resource endowment of an area. For this reason, great care was used to identify and document metallic and nonmetallic industrial mineral occurrences of Puerto Rico.

Previous studies of Puerto Rico, many of which were conducted on specific commodities or in restricted areas, examined known mineral deposits and occurrences. The "Metallogenic Map of Puerto Rico" (Cox and Briggs, 1973) combined mineral sites from these studies into a comprehensive compilation. In this study, deposits and occurrences described in Cox and Briggs were augmented with additional published and unpublished information by reviewing the original literature and other sources. New MRDS records were prepared to incorporate data found in the files available at the Department of Natural Resources in San Juan, Puerto Rico.

The occurrences of metallic minerals, shows an association of mineral deposit types by spatial distribution. Each deposit type is represented by a unique symbol accompanied by a site number. Those occurrences for which a deposit type could not be determined due to lack of information are represented by the abbreviation of an element known to occur at this site. Certain mineral deposit types tend to be found in proximity to one another. If geology, geologic terrane, and metallic mineral occurrences are considered, it can be seen that granitic intrusive rocks tend to be associated with skarn and vein deposits. Gold placer deposits can be found in sediments downstream in drainage basins crossing areas that contain gold-bearing porphyry, skarn, and vein systems. Nickel laterite deposits are concentrated in southwestern Puerto Rico, where they have developed on weathered serpentinite. Volcanogenic manganese deposits display a northwest-southeast trend that corresponds to outcrops of Tertiary volcaniclastic rocks.

Industrial mineral commodities of Puerto Rico have not received the attention they deserve. No published comprehensive compilation of industrial mineral mines and occurrences was found to exist previous to this mineral resource assessment. Because of their low unit value, high transportation costs, and perception of not being "glamorous," the characteristics of formation and mode of occurrence of industrial minerals have not been very well documented. Of the industrial commodity occurrences, approximately 120 have permits active in 1991, as reported by the Corteza Terrestre Surface Mining Permits Office of the Puerto Rico Department of Natural

Resources, San Juan. Additional records for 300 occurrences were collected by the USGS from more than 40 geologic maps at a scale of 1:20,000. This compilation resulted in more than 450 industrial mineral mines and occurrences being documented for Puerto Rico. A complete listing of all industrial mineral occurrences documented in MRDS is found in Appendix E.

Patterns of occurrence for the industrial minerals show most permit sites located proximal to the coastline and, more importantly, within short distances of modern highways. Sand deposits, important to the construction industry, are contained in recent surficial sediments that blanket much of the north and south coasts.

The largest mineral production in Puerto Rico is related to the manufacture of cement, and more than 140 of the MRDS records are for limestone and limestone aggregate quarries. Most of the limestone and limestone aggregate quarries mine material from the Miocene Aymamón Limestone, but at least four other formations have significant limestone production (Center for Inter-American Mineral Resources Investigation (CIMRI) and Puerto Rico Department of Natural Resources, 1992). Other industrial minerals produced in Puerto Rico include dimension stone, silica sand, sand and gravel, aggregate and road metal, gypsum, barite, phosphate, clay, and dolomite.

EXPLANATION OF DATA FIELDS

A complete MRDS record contains as many as 240 fields for recording a wide range of attributes (U.S. Geological Survey, 1993). Selected fields from the metallic and nonmetallic MRDS records are listed in Appendix B and Appendix C, respectively. Appendix E contains the complete MRDS records for Puerto Rico, with ‘Help’ files to describe indexed fields.

REFERENCES CITED

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