Chapter One
Introduction

This Environmental Compliance Manual has been developed under a grant from the Ohio Environmental Education Fund (OEEF) administered by the Ohio Environmental Protection Agency. At the February 2002 meeting of the Environmental Committee of the Ohio Aggregates & Industrial Minerals Association (OAIMA) it was suggested that the Environmental Compliance Manual published by the Ohio Aggregates Association (predecessor to the OAIMA) was out-of-date and in need of extensive revision.

A Compliance Manual Subcommittee was formed and the extensive process of writing this manual was begun. In a collaborative effort between the Environmental Committee and the Compliance Manual Subcommittee a list of required subject matter and chapters was developed and the OAIMA membership was polled for potential authors. Various governmental agencies and environmental organizations were requested to provide information, support, editorial assistance and collaboration in the writing of the manual. A grant application was prepared with the assistance of Hull & Associates and submitted to the OEEF on January 15, 2003.

The Director of the Ohio EPA approved a grant for $36,540 on April 30, 2003. Over and above the amount of the grant from the OEEF it is estimated that $31,760 of in-kind contributions/donations from various members of the OAIMA were required to complete the publication of the Manual. The dedicated work of the various authors, the committee members, and their employers as well as the Ohio EPA, the Ohio Department of Natural Resources, and the Ohio Alliance for the Environment is hereby acknowledged and very much appreciated.

In today's extremely competitive business climate with a myriad evolving environmental regulations, a Compliance Manual for the Industrial Mineral Industry needs to be a dynamic document. In an effort to keep pace with these needs we designed this manual to be web-based so that it is readily accessible to Ohio's industry, regulatory community, and the general public. The manual will be reviewed on a regular basis and updated to keep pace with industry needs and regulatory changes. Wherever possible web links have been inserted into the appropriate chapters to refer the users to specific statutes, rules, and web sites offering compliance assistance. The Compliance Manual itself will be available on the OAIMA web site at http://www.OAIMA.org and hard copies will be available upon request at the OAIMA Office in Columbus, Ohio.

Importance of Industrial Minerals to Ohio

The Mineral Information Institute (MII) of Golden, Colorado http://www.mii.org estimates that every American born after the year 2000 will need 3.5 million pounds of minerals, metals and fuels in his/her lifetime. Each person will require 1.62 million lbs. of stone, sand & gravel; 80,454 gallons of petroleum; 64,750 lbs. of cement; 5.7 million cubic feet of natural gas; 32,990 lbs. of iron ore; 923 lbs. of lead; 4,999 lbs. of bauxite (aluminum); 561,447 lbs. of coal; 22,224 lbs. of phosphate rock; 1.458 troy ounces of

gold; 1,615 lbs. of copper; 21,448 lbs. of clay; 29,530 lbs. of salt; 846 lbs. of zinc; and 49,601 lbs. of other minerals & metals.

Industrial minerals are a very important component of the economy of the State of Ohio. The total value of minerals produced in Ohio in the year 2000 was in excess of $1.9 billon, of which the value of non-fuel industrial minerals totaled $781,874,079. Table 1 summarizes the industrial minerals sold in Ohio in 2000.

Table 1

Commodity	Sales (tons)	Value ($)	% of Total Value
Limestone & Dolomite	**79,940,672**	**366,805,671**	**46.9**
Sand & Gravel	**55,764,489**	**252,435,626**	**32.3**
Salt	**5,084,823**	**97,774,836**	**12.5**
Sandstone & Conglomerate	**2,579,442**	**45,112,852**	**5.8**
Clay	**2,074,652**	**10,119,746**	**1.3**
Shale	**2,535,225**	**7,540,061**	**1.0**
Gypsum	**230,137**	**2,071,233**	**0.2**
Peat	**2,004**	**14,054**	**< 0.2**
Total	**148,181,444**	**781,874,079**	**100**

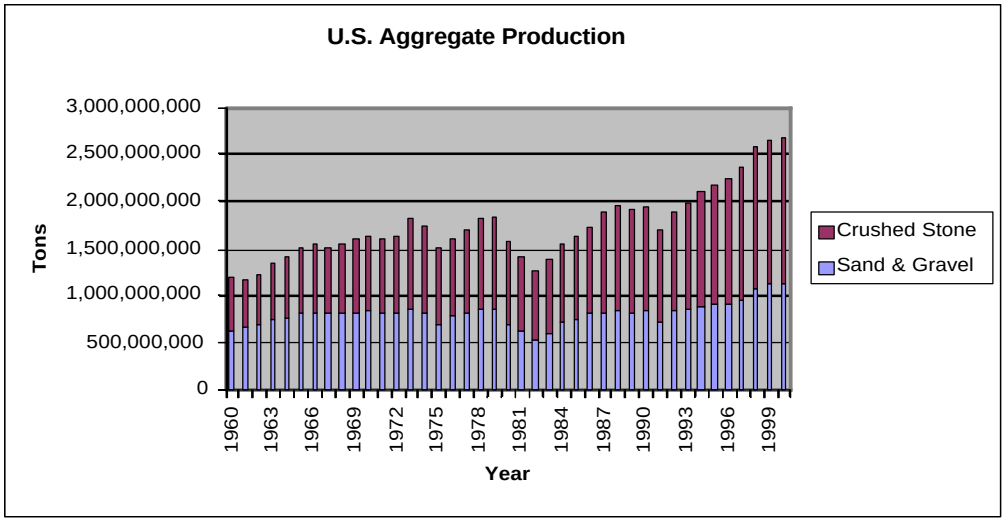
The State of Ohio contributes a significant portion of the total industrial minerals produced in the United States. Ohio ranked 4th in the production of crushed stone; 3rd in construction sand & gravel; 9th in industrial sand & gravel; 3rd in the production of total aggregates (crushed stone + sand & gravel); 3rd in sandstone dimension stone; 5th in clay & shale production; and among the top five states in the production of salt in the year 2000.

Industrial minerals were produced in 86 of Ohio's 88 counties during that period. A total of 5,481 people were employed in the production and sales of these minerals and took home wages in excess of $210 million. It has been estimated that for every job directly related to mining in Ohio five additional jobs are generated servicing the industry. These jobs include truck drivers, mechanics, equipment sales/service personnel, utility workers, parts clerks, fuel sales, etc. The total effect on the state's economy is profound. The *Report on Ohio Mineral Industries* can be accessed at http://www.ohiodnr.com/geosurvey.

Construction aggregates composed almost 80% of the value of industrial minerals for Ohio in the year 2000; 11.9 tons of aggregate was sold for every man, woman and child in Ohio. Figure 1 is a graphic representation of the growth of aggregates in the U.S. in the forty-year period from 1960 through 2000. During that period, aggregate production

more than doubled from 1.18 billion to 2.68 billion tons produced. These statistics are from the United States Geological Survey and can be accessed at http://minerals.usgs.gov/minerals/.

Table 1



Mineral aggregates, such as sand, gravel, and crushed stone are essential to the maintenance of the American lifestyle. Crushed stone products are used for construction purposes (in cement, concrete, asphalt, concrete block, and road base); for environmental purposes (erosion control, flue-gas desulfurization, and filtration); for mineral fillers (in shingles, plastics, glass, caulking, and rubber products); for chemical & pharmaceutical uses; and for agriculture products (agricultural lime (AgLime), fertilizer, and animal feed supplements).

The construction of an average new American home requires 120 tons of aggregate. Approximately 85,000 tons of aggregate is needed to build one mile of four-lane interstate highway. The construction of the Denver International Airport utilized in excess of five million tons of crushed stone and sand/gravel.

More than half of all the aggregate sold in the U. S. is utilized in public works infrastructure projects financed directly or indirectly through tax dollars. Aggregates are bulk commodities, the cost of which can easily double as transportation costs are added. For each additional ten mile haul, a community of 100,000 residents would pay an additional $1.3 to $1.5 million annually for this basic resource. Limiting the distance that aggregates have to be transported is not only beneficial to the immediate consumer but to the average taxpayer as well. Local sources of readily available, quality, construction aggregates are a major financial benefit to local communities.

In 2001 the American Society of Civil Engineers (ASCE) released a *Report Card for America's Infrastructure* assessing the status of twelve infrastructure categories: roads, bridges, mass transit, aviation, schools, drinking water, wastewater, dams, solid waste, hazardous waste, navigable waterways, and energy. The overall rating was a very disappointing D+ with an estimate of $1.3 billion in capital improvements needed to bring the infrastructure up to minimum acceptable levels, and the result of the ACSE's *2003 Progress Report for America's*

Infrastructure indicated little, if any, improvement since 2001.

Whether it's crushed stone aggregate for asphalt highways, sand & gravel produced for concrete foundations, mineral fillers for use in PVC pipe, gypsum manufactured into wallboard, clay & shale formed and baked into bricks, or salt for the dinner table, America's appetite for mineral production is insatiable. America's infrastructure requirements coupled with a burgeoning population will only increase the need for industrial minerals production in the 21st century. Industrial minerals will continue to play an integral role in maintaining a vital economy in the State of Ohio.

Industrial Minerals & Ohio's Environment

No industry has a more direct impact on the environment than one that extracts natural resources from the earth. The earth is our environment. The mining of industrial minerals directly affects the air, the groundwater, the surface water, wildlife, and the soil. The importance of a series of guidelines devised to assist in the responsible extraction and production of minerals from our environment is apparent.

Numerous governmental agencies regulate the Industrial Minerals Mining Industry in Ohio. The Ohio Department of Natural Resources (ODNR) has responsibility for the regulation of surface mining, mine safety and mine reclamation through the Division of Mineral Resource Management (DMRM); and the utilization of groundwater, the protection of flood ways and isolated wetlands through the Division of Water. The Ohio Environmental Protection Agency (OEPA) in conjunction with the United States Environmental Protection Agency (USEPA) has responsibility for air quality, water quality, storm water discharge, and the storage/use of hazardous materials. Mine safety and miners' health issues are regulated by the Mine Safety and Health Administration (MSHA) a part of the U. S. Department of Labor. The U. S. Army Corps of Engineers (COE) has jurisdiction over wetlands, stream crossings/relocations, flooding, dredging, and filling. The Federal Emergency Management Agency (FEMA) regulates issues involving the use of land in flood plains. The State Fire Marshal's Office (BUSTR) regulates fuel storage tanks. The Bureau of Alcohol, Tobacco & Firearms (ATF) and the Department of Homeland Security monitor the use and storage of explosives. Land use issues are dictated by local zoning boards on municipal, township, and/or county levels, as well as by county and regional planning agencies.

The introduction to the 1994 *Environmental Compliance Manual* published by the Ohio Aggregates Association (OAA) states that the purpose of the manual was twofold: "One,

is to inform those currently mining as to what their responsibilities are for environmental compliance, and good stewardship of the land. The second purpose of this manual is to provide guidance for those starting a mining operation, or for someone opening up a new mine site."

The purpose of this revision encompasses not only those of the original manual mentioned above but several others as well. The revised manual is intended to be an educational document not only for the producers of industrial minerals but for the general public that may be concerned about the effects that a proposed or existing mining operation may have on their community's environment. The web-based structure of the document with links to various sites is intended to provide "how to" guidance on pertinent topics. The revised manual should provide the regulatory community an overview of the total compliance issues and the overlapping authority of the multiple agencies overseeing the industry. And, hopefully it will inspire the entire industry to move a step beyond "what is required for compliance" to become stewards of the land for Ohio's future generations.

Greater than 50% of the environmental regulations affecting the industry have been revised since the original *Environmental Compliance Manual* was published by the OAA in 1994. The new manual has been reformatted and expanded to include sections on land use & zoning, wildlife habitat enhancement and post-mining development. All of the chapters have been written by one or more industry professionals with direct experience in the subject matter. The authors are a cross-section of environmental professionals, mine operators, geologists, engineers, consultants, and attorneys with years of industry experience.