

Statement of
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Before the
Senate Committee on Finance
Subcommittee on International Trade
Field Hearing on the International Trade of Soda Ash
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Mr. Chairman and Members of the Subcommittee, thank you for this opportunity to present, on behalf of the U.S. Geological Survey (USGS), this statement regarding the history and outlook of the soda ash industry.

This year marks a significant milestone in the history of the USGS. On March 3, 2004, we celebrated the 125th anniversary of the creation of the USGS by the Organic Act enacted by the 45th Congress. The minerals information arm of USGS has collected and analyzed data and provided economic evaluation of mineral commodities since that time. The mining, quarrying, and associated primary mineral product industries represent a significant component of industrial production in the United States. In fact, the Index of Industrial Production, compiled by the Federal Reserve Board to measure the health of the U.S. economy, currently assigns a weight of about 15 percent of the index to these minerals related industries. For the minerals and mining industry components of the

Index of Industrial Production, the Federal Reserve Board relies on information compiled by the USGS Mineral Resources Program.

Today, USGS mineral commodity and country specialists work with government, industry, and university representatives to promote domestic and international partnerships. In this anniversary year, we celebrate the traditions that have shaped us, the mission that has guided us, the people who have made the science great, and the technology that will lead us into the future.

What is soda ash?

Although largely unrecognized, soda ash is used in many consumer products used every day by most Americans. These products include glass, detergents, and baking soda. Wyoming is considered the soda ash capital of the world. Not unlike the automotive, steel, and timber industries, which have encountered periods of economic difficulties and trade imbalances, the U.S. soda ash industry is now engaged in a series of competitive challenges within the world economy.

Soda ash is not new. Early Egyptians used it for making ornamental glass. Soda ash is an alkali that was first derived by burning certain types of wood and seaweed and leaching the ashes to extract the potassium and soda residues. To a *chemist*, soda ash is known as "sodium carbonate"; composed of the elements sodium, carbon, and oxygen. To a *geologist*, it is known as the refined product derived from the sedimentary mineral "trona," which is composed of sodium carbonate, sodium bicarbonate, and water. While

to most, soda ash may not have the same universal name recognition as coal, sand, clay, or salt, soda ash is a household word here in Wyoming.

In 2003, soda ash was the 11th largest chemical in terms of production of all domestic inorganic and organic chemicals, excluding petrochemical feedstocks for example crude oil, natural gas or their derivatives. Although soda ash represented only 2 percent of the total estimated \$38 billion U.S. nonfuel mineral industry in 2003, its use in many diversified products contributes substantially to the gross domestic product of the United States. For example, soda ash is used to make flat glass and fiberglass, which are both used by the domestic automotive and construction industries. The Federal Reserve Board uses monthly soda ash production statistics, canvassed by the USGS to develop monthly industrial production economic indicators for the U.S. economy.

History

The U.S. soda ash industry shared in the industrial progress of the 20th Century as it increased its production capabilities beginning in the mid-1880s with the construction of the first synthetic soda ash plant using the Solvay synthetic production process in the United States at Syracuse, New York. Although limited production of natural soda ash from soda deposits in California and Nevada occurred during this time, synthetic soda ash production increased across the United States. Construction and operation of additional synthetic soda ash plants resulted in less dependence on soda ash imports from England, Germany, and Japan. To keep pace with growing demand, 10 soda ash companies

operated 12 plants in the United States during World War I; 7 were synthetic, 4 were natural, and 1 was a pulp and paper plant that produced soda ash by an alternative chemical process.

At the beginning of World War II, virtually all of the major soda ash consuming industries in the United States required more soda ash to meet the higher demand required by the war effort. To meet the surge in demand, domestic soda ash capacity was expanded by building simple, temporary plants to produce soda ash from natural sources rather than constructing large, expensive Solvay plants. Natural production was also increased in California at Searles Lake and at Owens Lake. Some people advocated developing the trona deposit that was found in 1939 in Green River, Wyoming, to help resolve the shortage. The Green River trona deposit is now known to be the world's largest underground trona deposit.

By the end of World War II, the production capacity of the U.S. soda ash industry was 42 percent greater than it was prior to the war. Post-war demand for soda ash remained strong as the military uses for the commodity began reverting to civilian uses. Economic prosperity in the United States and the economic recovery and reconstruction of Europe and Japan caused world soda ash demand to increase. In 1947 the first trona deposit would be mined in Wyoming by the Westvaco Chemical Corporation; the forerunner of FMC Corporation.

In the early 1950s, the modern day soda ash industry began in Wyoming. During the

next 3 decades, four more natural soda ash facilities would be constructed in Wyoming, utilizing the most cost-effective and safest mining and processing technology in the world. Natural soda ash from Wyoming was more competitive than the same product made by many of the aging synthetic soda ash plants elsewhere in the country and the world.

In the 1970s, the synthetic soda ash industry in the United States began to decline. Of the nine plants that were in operation in 1970, eight closed by the end of the decade because of higher energy costs, the costs of anti-pollution equipment, and competition from the natural soda ash producers in California and Wyoming. In 1986, 5 years after the 100th anniversary of being the first synthetic soda ash plant constructed in the United States, the last synthetic soda ash plant closed in Syracuse, New York.

World production

World soda ash production for 2003 was estimated at 38 million metric tons. Of the 31 countries that produce natural and synthetic soda ash, the United States was the world's largest producer, accounting for 28 percent of total world output. Only the United States, Botswana, China, Ethiopia, and Kenya produce soda ash from natural sources—the remainder manufacture soda ash through various chemical processes, primarily the Solvay synthetic soda ash production process. Total world natural soda ash production represented about 31 percent of combined (both natural and synthetic) world soda ash production. The five leading producers were the United States, China, Russia, India, and

Germany, accounting for 71 percent of world production in 2003.

The industry

The U.S. soda ash industry comprises four companies in Wyoming operating four plants (a fifth plant is mothballed), one company in California with one plant, and one plant in Colorado owned by one of the Wyoming producers. The five U.S. producers have a combined annual nameplate capacity (designed production capacity) of 14.5 million tons (16 million short tons). Sodium bicarbonate, sodium sulfite, sodium tripolyphosphate, and chemical caustic soda were manufactured as co products at a few of the Wyoming soda ash plants. Sodium bicarbonate was produced as a co product at the Colorado operation. The total estimated value of domestic soda ash produced in 2003 was \$750 million.

Domestic consumption

Soda ash is considered to be a mature commodity with stable end use markets that tend to parallel population and economic trends in developed nations. Approximately 60 percent of all U.S. produced soda ash is consumed domestically; the remaining 40 percent is exported. Domestic soda ash consumption has been affected by a reduced demand in the consuming sectors that were prompted by changing preferences by consumers. One example of this trend began in the mid-1980s when changes in the domestic markets adversely affected the U.S. soda ash industry. The glass container industry faced

growing competition in the packaging markets. Cheaper and more portable plastic bottles slowly eroded dependence upon glass containers, such as beverage bottle and certain food container products. Energy shortages and costs also impacted the soda ash industry as they had the glass industry, because large amounts of fuel are required to melt the raw materials. Over-capacity, declining profitability, and a shift in consumer preferences toward plastics, were responsible for the closure of 30 glass container plants east of the Mississippi River by 1986. The closure of the glass plants also meant a reduction in soda ash consumption.

Solid waste recycling programs led to the increasing use of recycled glass, known as cullet, and further reduced soda ash consumption. Concerns about air and water pollution and landfill growth affected the next two largest soda ash markets—chemicals and detergents. Certain soda ash-based chemicals used in powdered detergents were determined to contribute to pollution, so detergent manufacturers reformulated their detergents to make compact and super-concentrated products and liquid detergents, which did not use soda ash.

Domestic apparent consumption of soda ash appears to have been flat for the past 30 years, fluctuating between 6.1 million metric tons to 6.6 million tons. However, with an associated population increase, the per capita annual consumption of soda ash has declined significantly from about 30 kilograms per person (66 pounds per person) in 1970 to 21 kilograms per person (46 pounds per person) in 2003.

Exports

The export market is considered promising for the U.S. soda ash industry. Competition from the lower priced U.S. product ultimately has caused several inefficient, uneconomic synthetic soda ash plants to close in Asia, Europe, and South America. Most of these plants were small in comparison to the large, million-plus ton-facilities in Wyoming. In the past quarter century, several former foreign soda ash competitors and consumers have become joint-venture partners in the U.S. soda ash industry. In exchange for permanently closing some of their facilities, these partners export large quantities of high-purity Wyoming soda ash to their countries.

Although U.S. soda ash exports were slowly increasing by the early 1980s, it was not until the formation of the industry's export association, the American Natural Soda Ash Corporation (ANSAC) in 1983, that a concerted effort to maximize export opportunities began. Through its efforts, the United States became the largest exporter of soda ash in the world, exporting a record high 4.45 million metric tons in 2003.

Based on export data from the U.S. Census Bureau, the percent distribution of U.S. soda ash exports to 41 countries, on a regional basis in 2003 were Asia, 35 percent; South America and North America, 22 percent each; Europe, 12 percent; Middle East, 4 percent; Oceania, 3 percent; Africa, 2 percent; and Central America and the Caribbean, less than 1 percent each. The ten leading nations for U.S. soda ash exports in 2003 were Mexico (13 percent), Canada and Japan (8 percent each), Brazil (7 percent), China (6

percent), Belgium, Indonesia, and the Republic of Korea (5 percent each); and Chile and Argentina (4 percent each). These countries represented 65 percent of total U.S. exports.

Outlook

The U.S. soda ash industry is now the second largest soda ash-producing nation in the world. In 2003, China overtook the United States' lead as the number one producer. With the world's largest deposits, the lowest production costs, and the most efficient infrastructure to transport the product to ports, the United States is nevertheless competing with a rival that has been rapidly expanding its industry with intent to promote additional exports to other Asian markets. Although China exports about one-fourth of what the United States ships, it has succeeded in exporting about 7 percent of its soda ash to the Western Hemisphere in 2002, including about 400 tons to the United States.

The average annual value of soda ash in 2003 was \$65.21 per short ton, the lowest value since 1986. The total U.S. soda ash consumption was also at its lowest since 1986.

Although production in 2003 was the second highest on record and exports were at an all-time high, the Free Alongside Ship value was \$115.61 per metric ton (\$104.88 per short ton), the lowest value since 1985 when it was \$115.81 per metric ton (\$105.06 per short ton).

Despite industry consolidation during the past few years, there are still approximately 3 million short tons of excess nameplate capacity (designed production capacity) that are

idle in the United States. Although these plants were expensive to construct, they are considered too large to permanently close, which is why they remain idle until such time as market conditions improve to justify bringing them back into service.

Rising energy costs, especially for natural gas, have had an adverse affect on the Wyoming soda ash industry. Aside from the higher energy costs associated with soda ash production, fuel costs also have risen in the railroad and ocean transportation sectors that affect the delivered price of soda ash to distant markets.

The years ahead will be challenging for the U.S. soda ash industry. Declining demand and global competition are obstacles to a thriving domestic soda ash industry. In 2004, the major issues confronting the U.S. soda ash industry include the sale of the California soda ash producer and its departure from the American Natural Soda Ash Corporation (ANSAC), and the continued competition from China in the Far East markets.

Mr. Chairman, this concludes my statement. I am happy to respond to any questions that you might have.