

Lifecycle of Aggregates and a Quarry

Aggregates – the common term for crushed stone, sand and gravel – are natural materials. After processing, aggregates products are used for many purposes found in our daily lives: asphalt to create roads; concrete for infrastructure foundations; ballast rock to provide stability for railroads; limestone and sand to purify air and water; pulverized minerals to coat roofing tiles; and agricultural lime to provide essential nutrients for crops.

With over 9,500 quarries in the U.S., the aggregates industry provides the materials to help sustain our modern way of life, build our nation's communities and create a sustainable future.

Take a look at the journey of aggregates and quarries, as rock is transformed to be used in infrastructure projects and quarries are reclaimed into valuable spaces.

NSSGA[®]

NATIONAL STONE, SAND
& GRAVEL ASSOCIATION

WORKFORCE



The aggregates industry employs over 100,000 men and women nationwide and offers long-term careers with high paying salaries from HR to operations; environmental compliance to safety; and accounting to communications.

Companies are proud to provide employees with robust training, support and career development. The average industry salary exceeds \$75,000 annually, and many jobs don't require an advanced degree. The aggregates industry also holds safety as a key value, which is integrated into day-to-day operations and the industry's culture. The industry is safe, dedicated to its workers and is continually promoting career paths by working with students of all ages in all disciplines, and connecting with women's organizations, veteran's groups and other members of the community.

SUSTAINABILITY



Aggregates operators work diligently to protect human health and the environment and closely follow federal, state and local requirements.

Many times, operators go above these standards. Facilities aim to protect sensitive areas, build critical habitats, preserve species on land, establish inclusive diversity employee programs and increase sustainability reporting. Producers make their businesses more sustainable through the use of energy efficient crushers and lighting; improvement in screening processes; changes in haul routes through the plant; and transition to cleaner energy sources. The industry relies on the earth for aggregate materials and has a deep, inherent understanding of how important it is to do business in a sustainable way.



COMMUNITY ENGAGEMENT

Each facility plays an important role in its community from sourcing materials for local infrastructure to providing jobs.

Facilities also work to maintain strong, positive relationships with communities and enhance communication with neighbors and local officials. Additionally, operations follow rules and regulations to limit local disturbances which include creating physical buffers or setbacks from neighborhoods and waterways; and restricting hours of operation and limiting noise and dust. Facilities also give back in a variety of ways, such as donating materials for parks and playgrounds; offering spaces for events like quarry runs; and hosting community picnics and supporting schools with educational field trips.

ABOUT NSSGA

NSSGA is the leading advocate for the aggregates industry. Its members – stone, sand and gravel producers and the equipment manufacturers and service providers who support them – produce the essential raw materials found in homes, buildings, roads, bridges and public works projects. NSSGA represents more than 90 percent of the crushed stone and 70 percent of the sand and gravel produced annually in the United States.

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START AT THE QUARRY

First, aggregates are extracted from pits and quarries in the U.S., where quality material of natural deposits are located, such as granite, limestone, sandstone and traprock. The process begins with precise blasting of rocks or dredging for sand and gravel.

When blasting, explosive agents are placed in the ground to minimize vibrations, and blasts are scheduled during specific hours to minimize any impacts on the community. Companies routinely communicate with their neighbors. Facilities will share news about these extraction processes, as community and neighborhood relationships are a key component to a successful operation.

Did You Know?

There are over 9,500 quarries in the U.S. and there is at least one in every state.

FROM BIG ROCK TO SMALL ROCK

Once materials are initially broken up, the large rocks are crushed into smaller, usable aggregates. This process includes moving the rocks to an onsite processing location where they are crushed, sorted by size, washed, dried and sold to customers. Hazardous chemicals are not used in processing aggregates.

Quarries operate under strict environmental and safety regulations, but many go above and beyond the requirements. Aggregate production is an inherently low-carbon process compared to other industries, but operations take measures to reduce their energy use and carbon footprint through increasing crushing efficiency, switching to renewable forms of energy like solar and using refrigerants with lower warming potentials for air-conditioned truck cabs and offices.

Additionally, facilities control dust with suppression and collection equipment. Most wash water is recycled and reused onsite, which minimizes water use and discharges.

Did You Know?

Aggregates operations are very low contributors to greenhouse gas (GHGs) emissions due to the characteristics of the processes and products.

THE FOUNDATION OF SOCIETY

In the U.S., over 2.56 billion tons of aggregates are used every year, which is around 10 tons per person. The end products are shipped from the quarry and travel by way of truck, rail and barge.

However, the materials usually don't go very far. Due to the aggregates' weight and low cost, it's not economically feasible to transport products more than 30 miles from the quarry via truck. So, it's vitally important to have a local supply of aggregates that can be used in projects all over the country to build our neighborhoods, cities, roads, clean energy and infrastructure.

Did You Know?

Every \$1 of aggregates sales produces nearly \$4 of sales in other industries.

RECLAIMING THE LAND

All quarries have their own lifespan and will stop being used at some point. Once quarrying stops, facilities reclaim the land to protect the environment and ensure the safety of the community.

By working with their communities, facilities plan for new, innovative uses of the land such as upland wildlife habitats, wetlands, wildlife sanctuaries, water reservoirs, parks, golf courses, theme parks, amphitheaters, housing developments and agricultural land. No matter the final outcome, the goal of reclamation is to give the land a new life after the aggregate resources have been extracted.

Did You Know?

The average productive period of a gravel pit is 25 years, and the productive life of a limestone quarry is about 50 years – but some sites can produce aggregates for hundreds of years depending on the size and depth of a deposit.

