

# Rivergate Terminal

A Deepwater Terminal for Receiving, Storing and Distributing Anhydrous Ammonia and Urea



## History

One of the few privately owned deep water terminals in the Portland area, the Rivergate Terminal is located on the Willamette River in Portland, Oregon, approximately 2 ½ miles upstream from its confluence with the Columbia River. It consists of approximately 25 acres purchased in two parcels from the Port of Portland in the late 1960s. The original marine dock was completed in 1968 and modified during subsequent projects to its current length of almost 1,400 feet. The first urea warehouse was completed in 1968 and the second in 1978. The first anhydrous ammonia atmospheric storage tank was completed in 1972 and the second in 1980. The terminal was purchased by the J.R. Simplot Company in October 2000.

## Receiving

The Rivergate Terminal is designed to receive anhydrous ammonia from gas tanker ships. The Rivergate Terminal storage system is capable of receiving up to 1,100 short tons of ammonia per hour. The ammonia is pumped from ships via a “marine arm,” then transferred to Rivergate’s two ammonia storage tanks.

The terminal also receives urea from bulk transport marine ships and barges at a rate of up to 650 short tons per hour. The bulk ships are offloaded using the ships’ cranes to move the urea from the product holds to onboard conveyors. Transferred by conveyor and telescoping chute to a shore-side belt hopper, the urea is moved by conveyor belt to the two storage warehouses.

## Storage

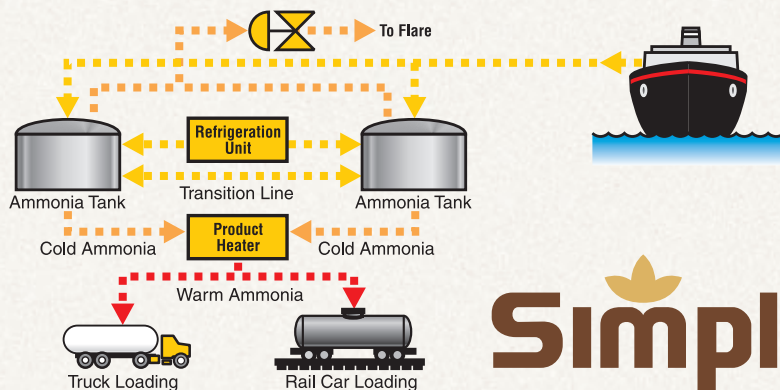
Anhydrous ammonia is a liquefied compressed gas that requires special storage, compression, and refrigeration. The Rivergate Terminal has two anhydrous

ammonia “atmospheric storage” tanks. Identical in size, each tank stores approximately 25,000 short tons of ammonia at a temperature of -28°F, and a pressure less than 1.0 PSIG. Prior to transfer to the tanks the ammonia is pre-cooled to -28°F onboard the ship. This reduces energy load on the terminal’s ammonia vapor compression and refrigeration system.

Rivergate’s ammonia tanks are equipped with a vapor compression and refrigeration system that draws ammonia vapor from the tank, converts the vapor back to a liquid state, and returns the liquid ammonia back into the tank. The walls and roofs of the tanks are insulated to reduce heat transfer, and as a safety measure, the tanks are surrounded by an earthen dike capable of containing the entire contents of one of the tanks.

Urea storage at Rivergate is extensive – the two warehouses have capacities of 30,000 tons and 40,000 tons, respectively. Rivergate employees use overhead conveyors and “tripper cars” to distribute product throughout the warehouses and to separate urea from different origins.

## How We Store and Distribute Anhydrous Ammonia





# Rivergate Terminal



Simplot Mining & Manufacturing  
**SYSTEM OVERVIEW**

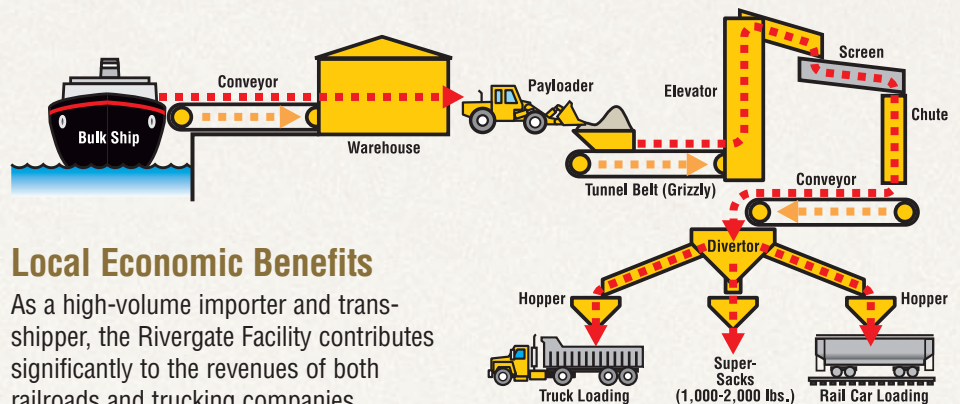
Urea shipped from the Rivergate facility reaches markets throughout the western United States. The product is delivered by conveyors from the warehouses, then passes through a screening system where undersized and oversized urea is removed prior to loading into bulk trucks and railcars. The facility has two rail and two truck loading stations. Urea loading is done directly into trucks and railcars on certified scales. Rivergate warehouse operations also include packaging urea in super-sacks up to one ton in weight for distribution.

The facility has compiled an exemplary safety and environmental record.

## Corporate Information

The J.R. Simplot Company is a privately held agribusiness company supplying premium agricultural products and services to growers, and distributing commodity chemicals to industry. Simplot's Agribusiness Group, and specifically the Rivergate Terminal facility, will remain focused on meeting the increasing demand for industrial chemicals. In meeting this requirement, Simplot Agribusiness will deliver only the highest-quality products.

## How We Store and Distribute Urea



## Rivergate Overview

### Products

Anhydrous ammonia and urea are each widely used as direct application fertilizers and as components of other fertilizer products. But each product also has numerous industrial applications. For example, both products are important to the pulp and paper industry. Both are used in water treatment, and in the manufacture of ink. Urea is also used extensively in the production of particle board and plywood resins, and it is popular as a de-icer in northern climates.

### Distribution

Anhydrous ammonia is shipped as a pressurized liquid from the Rivergate Terminal to markets throughout the western North America by railcar and truck. Before the cars or trucks are filled, the cold ammonia is warmed and pressurized.

### Local Economic Benefits

As a high-volume importer and trans-shipper, the Rivergate Facility contributes significantly to the revenues of both railroads and trucking companies. In addition, by helping to bring these fertilizer ingredients to the western North American market in an efficient manner, the facility is part of an agricultural system that leads the world in productivity.

### Safety and Environmental Record

The Rivergate Facility has a comprehensive safety and environmental system managed by a full-time Health, Environment and Safety Specialist.

Simplot products will be received, stored, and distributed with consistent attention to employee safety and environmental concerns. The employees of the Simplot Agribusiness Group, along with the rest of the J.R. Simplot Company, recognize and embrace the responsibilities that fall to a company dedicated to *Bringing Earth's Resources to Life*.

## J.R. Simplot Company – Rivergate Terminal

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