

100 Years at the Wood River Refinery

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WOOD RIVER REFINERY HISTORY MUSEUM

SEARCHING FOR A HOME

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*"Wood River
emerged as
the leading
contender."*

"Don't put all your eggs in one basket." While this familiar proverb originated over 300 years before the Wood River Refinery came to be, it is this basic principle that paved the way for our existence.

A decree directed to the Roxana Petroleum Company by the management of Royal Dutch stated that Roxana Petroleum would need to broaden its scope and develop into a fully integrated oil company that would encompass production, transportation, refining, and selling of petroleum rather than focusing on just one phase of the operation.

The first task for the newly expanded oil company was to locate a site on which to build a refinery. Richard Airey, a vice president for Roxana Petroleum, was sent to the heartland of the nation in 1916 by H.W.A. Detering, general managing director of the Shell Group Companies. Airey's mission was to discover suitable locations for refining, storage, and loading of the crude oil that was beginning to flow

from the company's oil fields near Tulsa, Oklahoma.

Airey's first stop was in New Orleans where in 1916 he bought 366 acres of waterfront property for the Roxana Petroleum Company to use as a loading terminal and eventually a refinery, known as the New Orleans Refining Company or NORCO. This is another example of a refinery having a strong influence on their surroundings as the area town changed its name from Sellers to Norco in the years to follow. NORCO is owned by Shell today as a division of Motiva Enterprises.

Mr. Airey's next stop probably would have been St. Louis since Roxana's management had already identified the region as the most logical spot for a permanent refinery. But

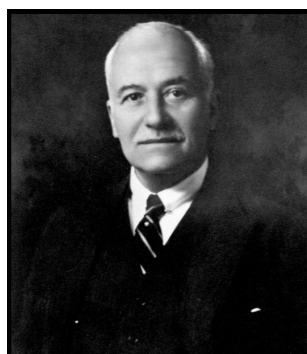
that would have meant an unacceptable delay since there wasn't a pipeline in place to transport Oklahoma



crude oil to the banks of the Mississippi, and with the country feverishly supplying arms and materials to the World War I effort, the means to construct this infrastructure was lacking.

Instead, the company decided to build a simple, temporary refining operation at Cushing, Oklahoma, one of over 50 refineries in the area. Construction began in August of 1916, and in February of 1917, the facility was handling 5,000 barrels of crude oil per day, transforming it into useful products that were placed at the disposal of the U.S. government following our entrance into WWI in April 1917.

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H.W.A. Detering, general managing director of Shell Group Companies

SEARCHING FOR A HOME (CONT.)

Eventually Mr. Airey met one of the industry's marketing pioneers - Clem Lassig, a former Standard Oil man who was credited with developing the first drive-in filling station in America. Lassig took Airey to a number of potential refinery sites in the region, and Wood River emerged as the leading contender.

Mr. Lassig pointed out that the site was near main rail lines and that it was already

home to a refinery - the plant that archrival Standard Oil had built in 1907. Airey drew up a contract on a site near the town of Wood River. By this time, Wood River was taking on the appearance of an actual town.

In very early 1917, a few months after Airey made his selection, Roxana's construction superintendent P.A. Englebrecht and his assistant Ralph B. High took an inspec-

tion tour to the proposed location of the new Roxana Refinery. They rejected the initial land chosen by Airey as being too prone to flooding.

Englebrecht and High selected a different site a couple of miles to the southeast of the Standard Oil Facility, purchasing 173 acres for \$200.00 an acre. This is the location we are familiar with today.



P.A. Englebrecht superintended construction of the Wood River, Cushing, and Martinez refineries.

AND THE RAINS CAME DOWN

Many who were raised in this region or have lived here for many years have developed a proper respect of flooding. There is a certain fear and fascination that accompanies any discussion of our historic floods.

While it is unsettling to remember the crippling effect floods have had on many families and businesses in the area, there is also a sense of awe when you consider how high the flood waters rose and what our communities did to overcome them.



1993 flood waters in Downtown Alton

The levee system we have today did not exist in 1917. The levees were considered an engineering achievement when they were constructed in the 1950s and 1960s.

During "The Great Flood of 1993", extensive care and observation of the levee system was performed by the Wood River Levee District. Twice-daily communications between the Refinery Dispatching Flood Team and the Levee District kept the refinery management team informed. At the refinery, twice-daily "flood watch" meetings were held. A review of weather forecasts, expected river heights, and levee conditions were all discussed as the water continued to rise. Contingency plans were also discussed as well as production schedules.

During the flood, the levees were protected against



1993 flood waters in West Alton

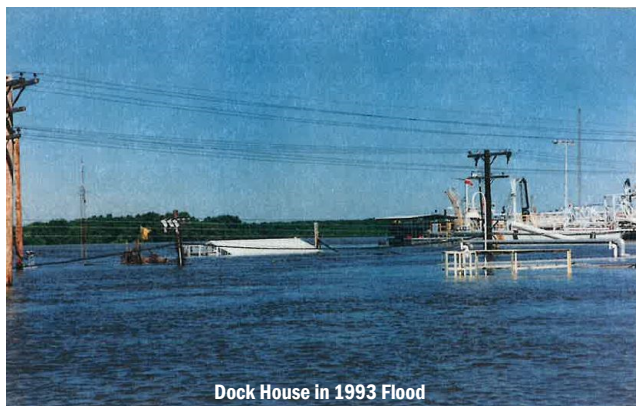
"outside damage" by the Illinois National Guard - two soldiers per team with teams placed about 300 feet apart. Everyone had to have clearance to approach the levee, and yes, the soldiers were armed!

The "wear and tear" on the levees by the constant river flow and increasing water level began to create problem spots and water leaks. The "what-if scenarios" included calculations based on water levels and the end result if a breach of the levees would occur.

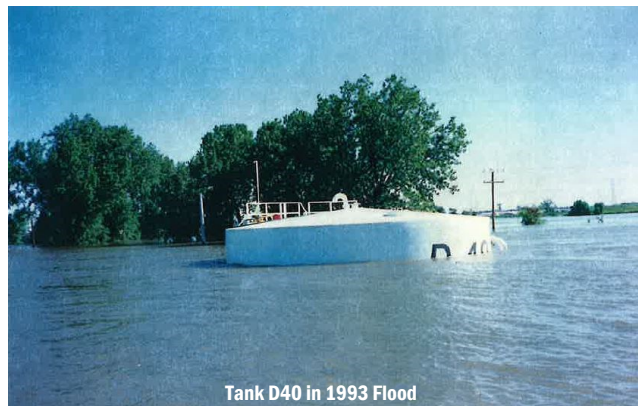
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"Calculations indicated that if a major breach of the levee system would occur, the resulting flood would approach the Refinery Main Gate."

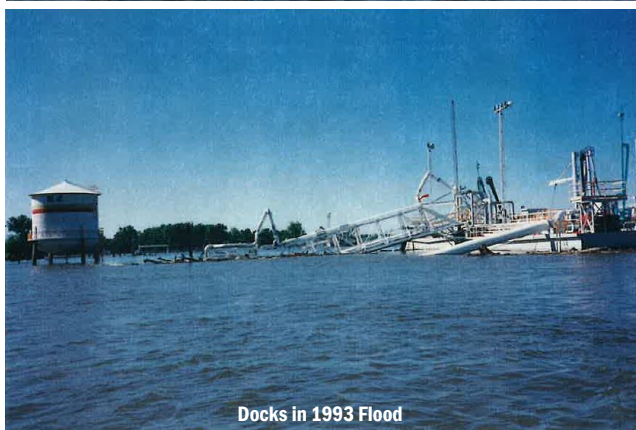
FLOODING THROUGH THE YEARS



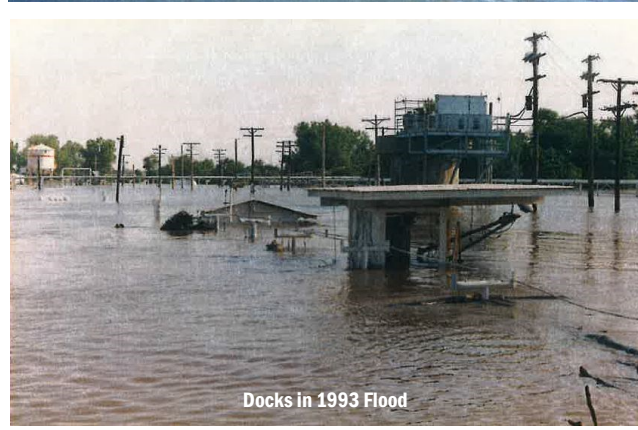
Dock House in 1993 Flood



Tank D40 in 1993 Flood



Docks in 1993 Flood



Docks in 1993 Flood



Dock House in 1993 Flood



Debris at docks after 1993 Flood



Aerial view of WRR dock facility during 2015-16 Flood



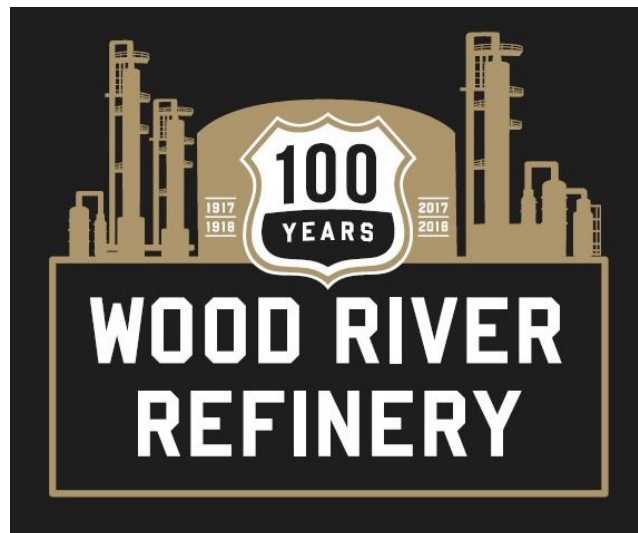
Alton Fire Chief Bernie Sebold, WRR Chief Rick Haase, and Mayor Brant Walker of Alton meet in Downtown Alton to help with 2015-16 flood fighting efforts.



Comments or Suggestions?

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AND THE RAINS CAME DOWN (CONT.)

Adding to the flow of water were the many objects washed downstream by the rapid current – items such as logs, trees, refrigerators, furniture, and sheds to name a few.

At the highest water mark, just before the water began to recede, the calculations indicated that if a major breach of the levee system would occur, the resulting flood would approach the Refinery Main Gate. A large portion of Wood River along with East Alton, Hartford, Downtown Alton, and other areas in the low lands to the north, south and east and the Missouri low lands to the west would be under many feet of water.

The towns and residents were kept up-to-date with the developments. A law firm in downtown Wood River hired movers to relocate their records to Edwardsville. Many residents and businesses had back-up plans in place.

Looks as though Englebrecht and High were on to something. Standard Oil and the proposed Roxana Oil Company site would have been many feet underwater had the levees not held.

The river crested on August 2, 1993, at 42.72 ft. The water level was about six feet below the top of the levee in Hartford. The

Great Flood of 1993 caused over \$15 billion in damages, making it one of the most costly and devastating floods in the United States.

The current Wood River Refinery dock house is a result of the Great Flood of 1993. The original dock house and the equipment inside were heavily damaged by the flood waters. The new dock house was designed such that the top floor ("the control room") was higher than the top of the levee. The lower level, at the time of construction, was considered "expendable."

In December 2015 and January 2016, the River Bend region experienced more significant flooding due to heavy rains and unusually warm winter weather. River levels

climbed to the fourth highest point in history at 35.8 ft. on January 1, 2016.

The refinery faced road closures both inside and outside the facility. The dock facility was maintained via boats until harbor activity and river traffic was suspended. Dock loading and unloading operations had to be shut down, and equipment was moved from the dock control room. The refinery offered assistance to the local communities by providing pumps and labor to the Alton Fire Department, aiding the efforts to protect Downtown Alton.

The refinery had to work together to overcome many odds during this time period. Pipelines shut down preventing crude from coming in. Production on certain products had to be minimized as there was no way to ship it out. The Waste Water Treatment Plant processed twice as much water as it does on a normal basis. But through all of this, the refinery overcame, and all operations remained in compliance.

It takes the cooperation of all refinery team members to overcome natural disasters like these historic floods and make us 100 years strong.



WRR Chief Rick Haase and Alton Fire Chief Bernie Sebold in Downtown Alton during the 2015-16 Flood