

100 Years at the Wood River Refinery

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Will Roxana Oil Refinery Be Established Here?

A number of rumors have reached Wood River that the actual purchase of the farm land in the vicinity of the Canal for which extraordinary high prices have been paid, is the Roxana Oil Refining Corporation. The Roxana Refining Company is one of the largest refining companies independent of the Standard Oil Refinery in the United States, and its location in this vicinity would be considered of great significance.

- An excerpt from the Alton Evening Telegraph
March 1917

FIRST THINGS FIRST

The simple answer to the Telegraph's opening question in the article shown above is "yes." Very soon the actual construction of the refinery would begin. However, before refinery construction could begin, construction of temporary facilities to house construction workers would be needed.

Wood River did not have hotels, and the concept of the motel was yet to be implemented. Alton was the closest town with a hotel, but the travel to and from the site was difficult, and their facilities

were unable to accommodate the large number of construction workers.

The best solution was to build temporary bunkhouses with supporting facilities such as a washhouse and dining hall. These facilities needed to be within walking distance of the refinery construction.

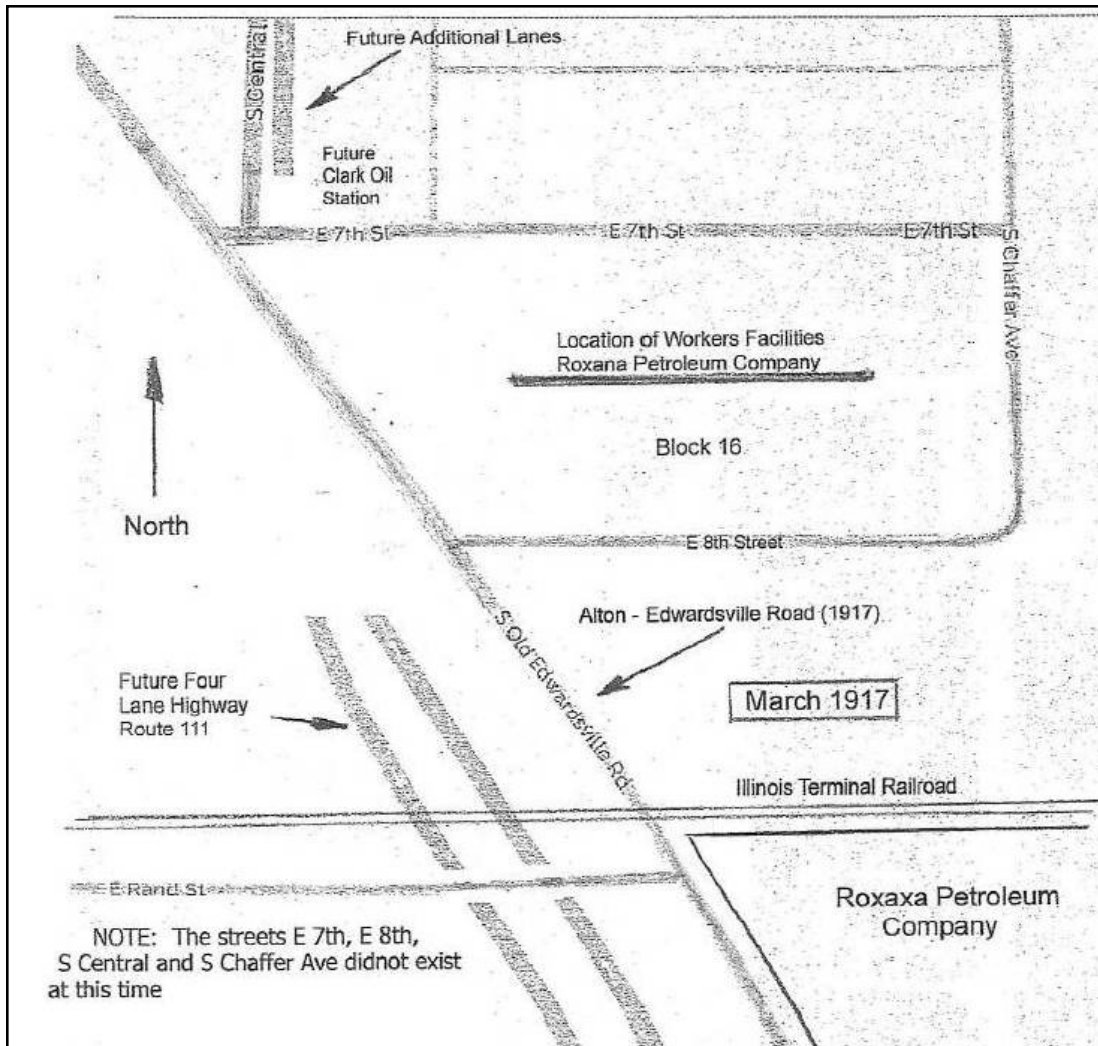
The decision was made to construct the temporary facilities north of the refinery property, specifically about 140 feet north of the Illinois Terminal Railroad Tracks and just east of the Alton-Edwardsville Road. The land was open farmland, similar to the refinery

property. This area was also envisioned to eventually accommodate 50 "cottages" for the future employees of the Roxana Refining Company.

The increase of activity due to the preparation work for the temporary facilities, the ground-leveling work on the refinery property, and the "rumored" high price of the land likely sparked high interest among the nearby residents. They were about to see the beginning of what would someday become one of the largest oil refineries in the United States.

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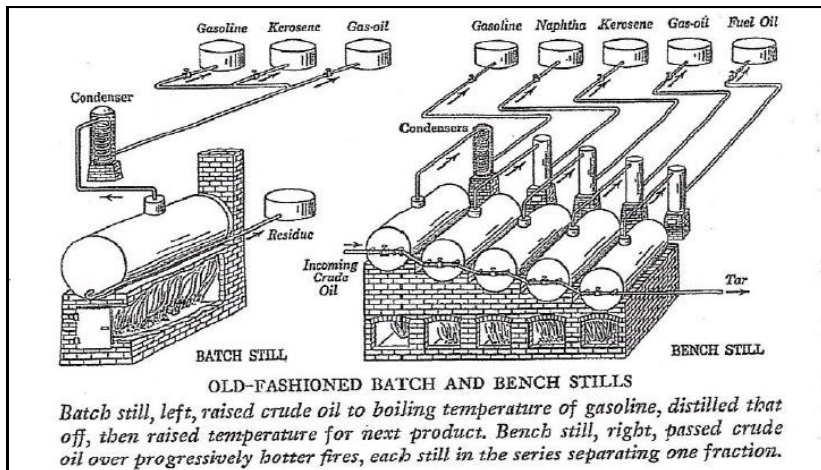


Map showing the temporary workers' facilities location

THE REFINING PROCESS IN 1917

There were two types of distillation processes used in the early days by the refining industry. The first was known as a Batch Still.

With this process the crude oil was placed in a horizontal cylindrical vessel supported by brick-work. Inside the brickwork, a fire would be produced typically using coal. The fire would cause the lighter hydrocarbon elements to "boil off." The vapors were led away by an overhead pipe



passing through a pipe coil that was cooled by water. The resulting condensation was

collected in a storage tank. This "first cut" was referred to as "naphtha."

The stillman would take specific gravity readings of the condensation, and when all the "naphtha" fraction had boiled off, the heat would be increased by adding more coal, and a second range of hydrocarbon compounds would be produced.

This "cut" was diverted to another storage tank. The stillman tested this "cut" using the same method as before.

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THE REFINING PROCESS IN 1917 (CONT.)

The fires were then extinguished when the stillman felt that the second "cut" was completed, allowing the still to completely cool.

The primary objective was to make lamp oil, better known as kerosene. In the early days, the lighter first cut was often used for cleaning fluids while the heavier residues were used for lubricating or tar. The process was then repeated after the "still" was cleaned.

The second type of distillation process was considered "more modern" and was a modification of the Batch Still process. It was called the Bench Still.

Rather than having to adjust the fire to initiate another cut of the crude, the Bench Still used multiple fires to develop the various cuts, each fire progressively hotter than the preceding fire. It also had the distinction of continuous crude oil flow.

The new Trumble process was a continuous distilling process that was considered a big improvement in the crude oil distillation process. The Trumble Units only used one fire box, with the heating capacity to distill the heaviest component of the crude oil.

Dephlegmator Section and was made up of a number of columns known as dephlegmators. A dephlegmator was a device (column) that resulted in partial condensation of a multicomponent stream.

The vapor of the heated stream flowed upward while

dephlegmator.

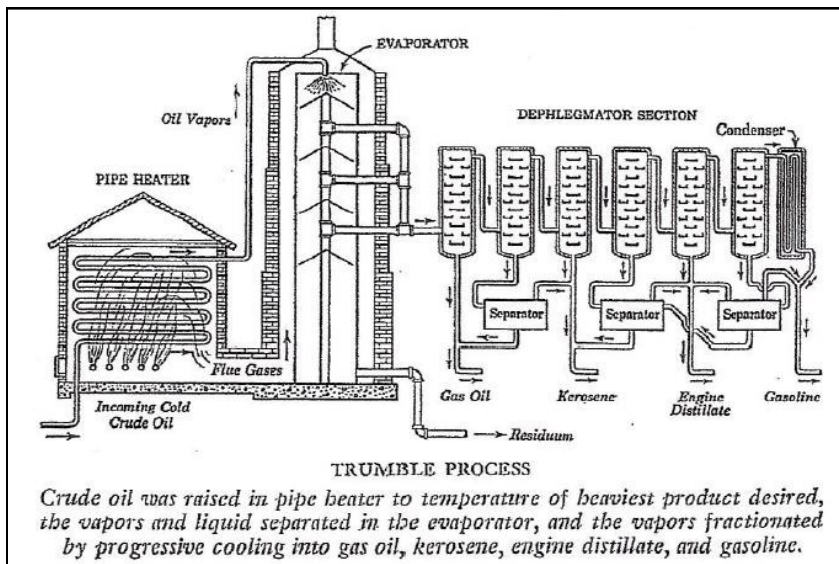
This cooler column caused the warmer light ends to split away from the heavier ends carried over stream. This continued with additional columns until the final split was obtained. This type of process would eventually

be known as fractionation.

The two Trumble Units to be constructed at the Wood River Refinery were modeled after the unit at Roxana Petroleum's temporary refinery in Cushing, OK.

The Cushing Refinery remained in service until the Wood River Refinery was "on stream." After the Wood River Refinery started, the Cushing Refinery was dismantled, and the Cushing Trumble

Unit found a new home at the Wood River Refinery.



The section that separated the components of the heated crude oil was known as the

the heavier condensate flowed downward. The vapor was then introduced into the next

SAFETY FIRST

"From the very beginning, safety has always been at the forefront..."

From the very beginning, safety has always been at the forefront of the Wood River Refinery.

The Trumble Units (shown above) were originally designed to use coal to fire the heater for the process, but the Wood River Refinery Construction Superintendent, P.A. Englebregt, instituted a design change. He declared that the heaters for Wood River Refinery Trumble Units would be

fired with oil rather than coal.

Mr. Englebregt had a safety concern that prompted this change—if the process tubes inside the firebox of the Trumble heater began leaking and the heaters were fired with coal, it would be difficult to shut down the heater, increasing the possibility of equipment damage or worse, injury to employees.

He reasoned that the heaters being fired with oil would make

the process safer to run and easier to control if something went wrong. Coal would still be used to fire the boilers in the Boiler House, but Englebregt took the initiative to revise a universally accepted process when it appeared to put the equipment and personnel at risk.

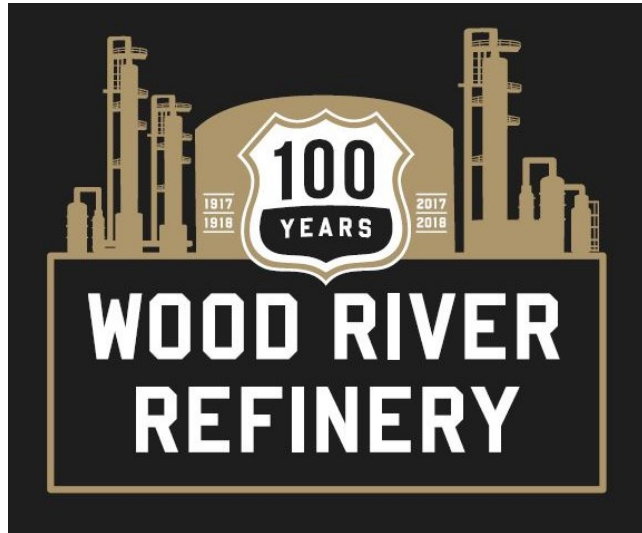
We continue this safety focus today by revising processes and utilizing available technologies to make every day a safer day.



Comments or Suggestions?

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WOOD RIVER REFINERY VISION

The original refinery construction plan included the following:

- Two Trumble Units (producing 5,000 barrels/day each)
- Trumble Pump and Receiving Houses
- Receiving Tanks
- Unfinished Product Tanks
- Finished Receiving Tanks
- Residuum* Storage Tanks
- Agitator Rundown Tanks
- Trumble Plant Fuel Tanks
- Trumble Storage Tanks
- Main Oil Pump House
- Loading Pump House
- Boiler House
- Machine Shop
- Acid and Soda Tanks and Blow Cases
- Agitator Pump and Compressor House
- Agitators
- Loading Racks
- Oil Lines
- Cooling Tower
- Water Wells
- Cooling Water Pump Houses
- Sewer Lines
- Washhouse
- Chemical Laboratory
- Car Repair Shop and Warehouses
- Tank Farm Pump House
- Rerun House

Other Notes

- The refinery operated on Mid-Continent crude supplied through the "big" ten-inch pipeline of Yarhola Pipeline Company, a distance of 428 miles to Cushing, OK.
- "Also provided will be a complete telephone system that will ensure rapid communications throughout the entire plant. All equipment is of the modern type known to refiners."
- "Six homes for the executive staff will be built on site. Also 50 cottages will be constructed nearby for the employees to obtain. Every house will be constructed and equipped in the modern style."
- "Nothing in the way of sanitary conditions, modern conveniences and cheerful surroundings for the happiness and welfare of this branch of the big Roxana family which will operate the plant will be overlooked."

*The word "Residuum" means a residual product as from the distillation of petroleum; a residue, leftovers, remains, remnant, remainder.

The quoted selections above were obtained from the publication ROXOLEUM; Vol 1 - No. 1, Dated September 1918.

WOOD RIVER REFINERY