



THE DAYBREAKER

October 7, 2021



Today we had 13 in-person and 9 ZOOM attendees

- This quarter all Happy Bucks will benefit Home with Hope. Please be very happy to benefit this great organization.
- Daybreak Rotary is a partner club in a fundraiser involving selling Copper Moon Rotary coffee in both K-Cups and bags. Sales would be contactless on the internet. The club will make \$3 for each bag and \$5 for a box of 24 K-cups. Orders will be taken at <https://founders1905.com>
- The fall Gifts and Requests cycle is underway, and applications will be taken until October 22. A copy of the application form is attached to this newsletter mailing.
- Please keep Bob Feuer in your prayers as he deals with health issues. Bob is looking forward to getting back with us on ZOOM next week!



INVOCATION: Chris Campbell

VISITORS: None

PROGRAM: Our program was given by our own Rob Malnight. Rob has a degree in Chemical Engineering from the University of Michigan and worked most of his professional life in the ethanol industry. He retired from the Linden, IN ethanol plant owned by Valero.

Rob presented an overview of ethanol, an ethyl alcohol product which is made from corn locally. It is blended 10% to 15% in gasoline, with a 85% formula in Flex Fuel vehicles. Initially its benefit was felt to be its



ability to stretch the oil supply by using a renewable product which could be produced in the US. He explained that it is renewable since any CO2 given off is used as the corn plants produce new corn. It also produces less emissions and is an asset for the farm industry. When the USA was able to find more crude oil resources the rationale became more to boost octane without having to use environmentally unfriendly chemicals. It also fulfills the EPA mandate to put oxygenation chemicals in fuels to help them burn cleaner.

The Linden plant is one of 13 ethanol plants in the US owned by Valero, which is the largest pure refiner in the US and the second largest in the world. They produce 1.5 billion gallons of ethanol annually as well as biodiesel in one plant. Having a long history of purchasing crude oil and selling refined products both domestically and worldwide they have expertise in the sale of their products. From their ethanol plants they produce ethanol, but also corn oil for food production and Distilled Dry Grains as a by-product. This is a concentrated protein source for livestock feed and much of it is loaded on shipping containers and exported, mainly to China.

The process starts locally with 135,000 bushels of corn per day (over 125 trucks daily) of corn being delivered to the Cargill facility that is linked

to the plant. The corn is then ground into a corn flour and then made into a mash where enzymes start to break down the starch molecules. From there it is sent into one of seven 850,000-gallon fermenting tanks, where over a 56-hour cycle it is made into a “beer” which is 15% alcohol. From there it is distilled until it becomes 95% alcohol. From there it is dehydrated with reusable beads until it is 99.5% alcohol. To be allowed to ship it without being taxed as ethyl alcohol for consumption, it has to be “poisoned” with 2% gasoline.

From there the ethanol is shipped out in railroad tank cars, while the DDG’s are either sent out as a liquid to be used locally for livestock feed or dried to 10% moisture and shipped out in railroad covered hoppers or shipping containers.

60 people are employed by the plant in Linden, with 5 people per shift actually operating the plant, which is highly automated and computerized. The plant runs 24/7 and is environmentally friendly as it recycles all of its water. There is very little odor to the process, which is essentially all contained. There is also no solid waste produced by the plant.

In answers to questions, Rob explained that there have been some ups and downs to the industry, particularly as its initial popularity enticed several companies to invest heavily without a good business plan. Often the initial plants were constructed poorly, which led to further inefficiencies. As the US developed crude oil sources, the business model changed and the industry contracted, but is now on a solid financial footing. He explained that other countries, such as Brazil, with abundant sugar cane resources, produce ethanol more simply from the pure sugar and this can be used in up to 100% blends in all cars. We simply do not have the sugar sources in the US and the talk of using grasses in the US to produce ethanol did not consider the difficulty in removing the plant cellulose from the process.

UPCOMING PROGRAMS:

October 14 ~ Stafka Poweleit – Meridian Health Services

October 21 ~ Susan Kersey – Psych Nurse Practitioner Program

October 28 ~ Ray Kramp – District Governor visit. We will also be presenting 7 Purdue Nurse Practitioner Scholarships at that visit!

November 18 ~ Anita Tiemeyer – The Holocaust

