



Biodiesel Research,  
Manufacturing, and Marketing in  
California

Fred Wellons

Baker Commodities, Inc.

Los Angeles, CA



## Yesterday's comment:

“Those ethanol and biodiesel folks will tell you anything just to make a point.”





# Biodiesel Efforts

- Research additives for NO<sub>x</sub> neutrality or to *reduce* NO<sub>x</sub>
- Improve plant efficiencies to reduce costs
- Work through federal, state, and local legislators to lower the cost of *renewable fuels*
- One advantage that biodiesel and ethanol have over LNG and CNG is that they are *renewable*



# Biodiesel Efforts

- Comment about farmers in the midwest?
- We don't have a lot of oilseeds in California.
- A California solution for a California problem.
  - 50 billion pounds per year processed
  - Fill up the nation's landfills in four years
  - Energy Life Cycle for soy estimated 3 to 1
  - Energy Life Cycle for recycled cooking oil as high as 7 to 1



# General Biodiesel Info

- About 12 million gallons sold in the US last year.
- Another 2 million gallons from US exported
- This year: about 20 million gallons
- Plants, plants, plants - 30 mm gallons
- 35 million gallons
- **FREE WASTE COOKING OIL!**



# Biodiesel Info

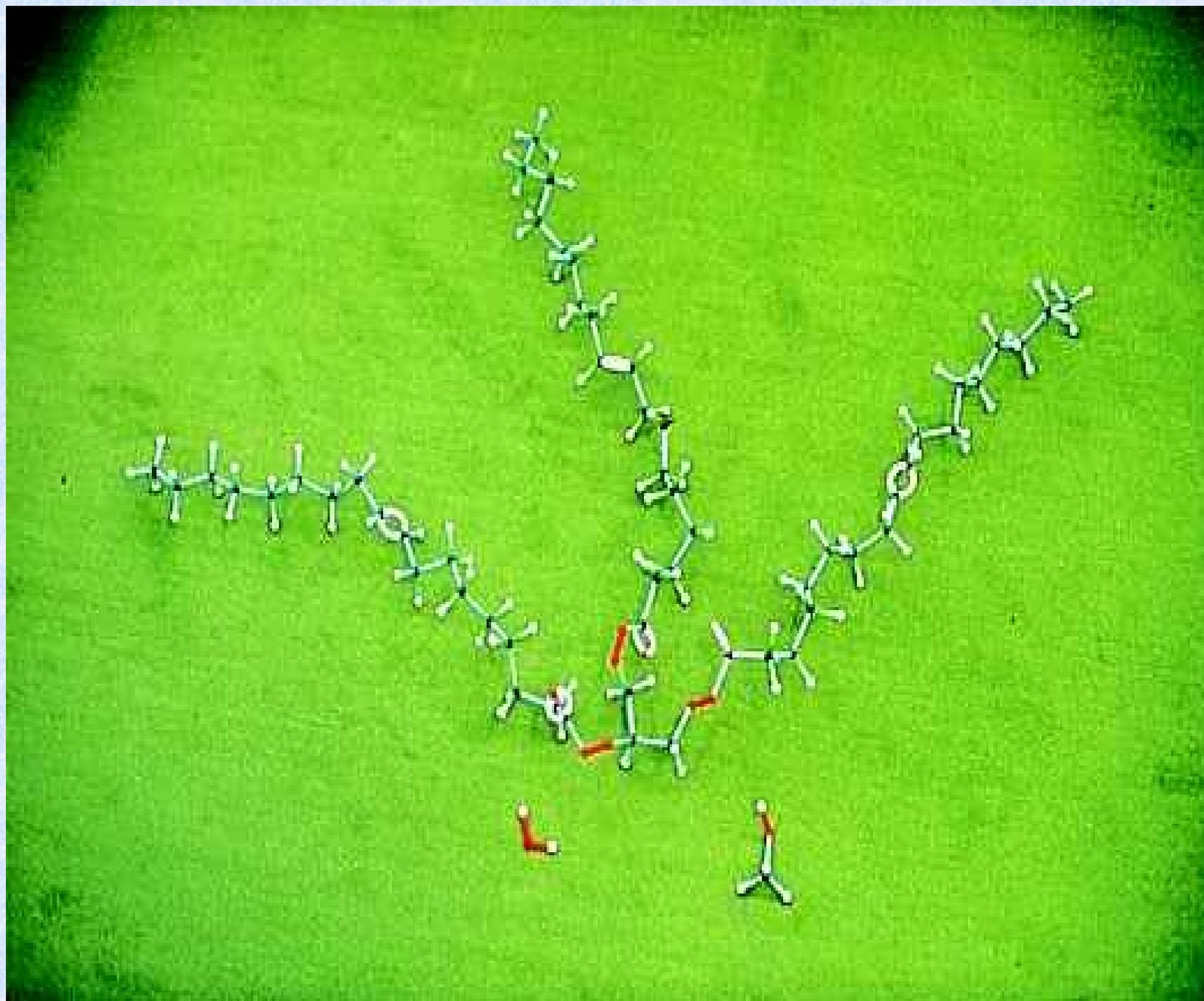
- A few companies producing biodiesel on an industrial scale.
- More people selling biodiesel **plants**.
- Even more people selling stock or investment opportunities in biodiesel plants.

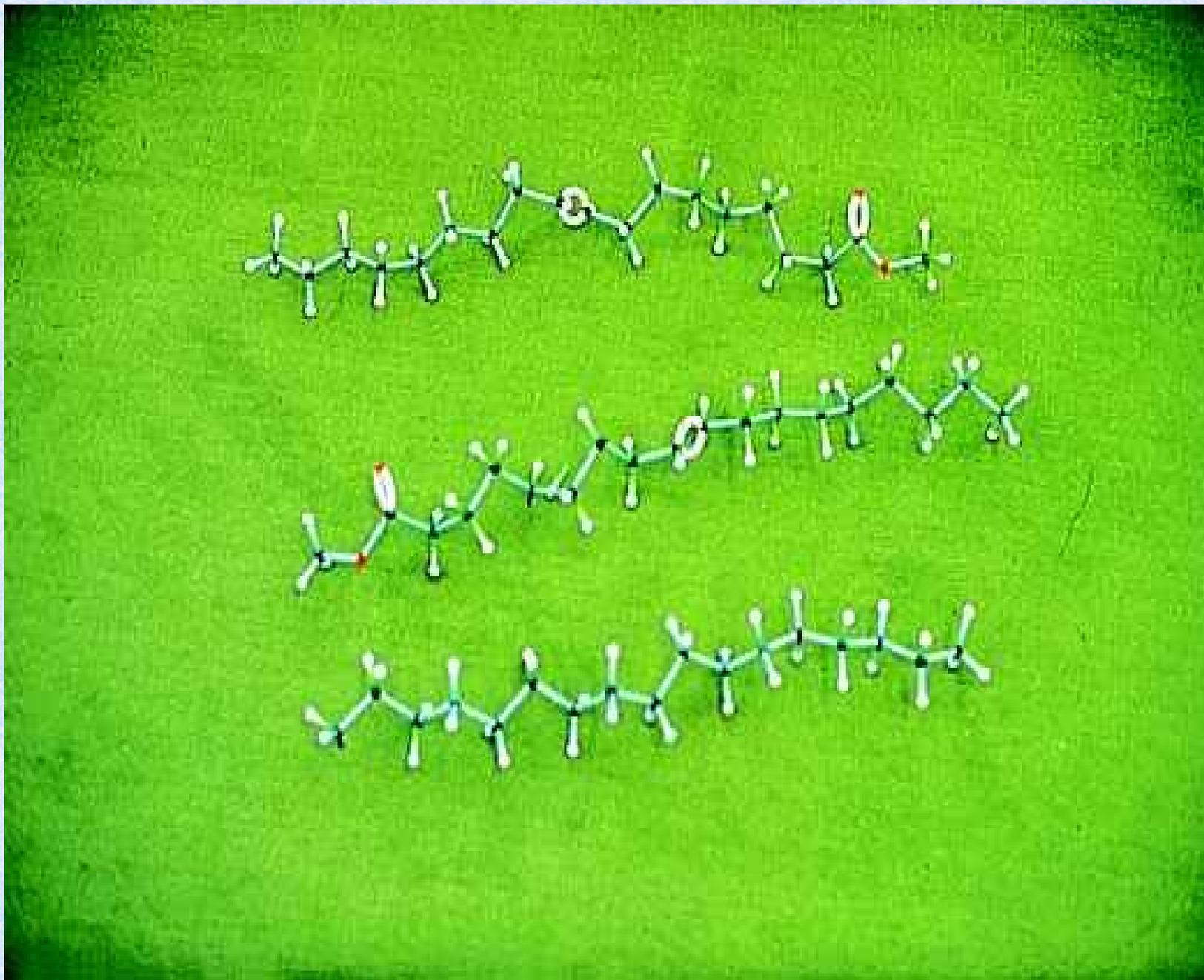


# Biodiesel is really a methyl ester of fatty acids



To make methyl ester, react methanol (also known as wood alcohol) with animal fat or vegetable oil. Can be fresh or recycled.







# Recycled Vegetable Oils vs. Virgin Vegetable Oils

- Recycled oils are less expensive
- With increased population eating out more, restaurant grease is increasing. Must find a home for this product other than landfills and wastewater.
- Recycled oils have an advantage in NOx emissions due to higher level of saturation.
- Vegetable oils have an advantage in lower cloud point and easier processing to make methyl esters. Improved quality of co-products.



Saria plant in Germany





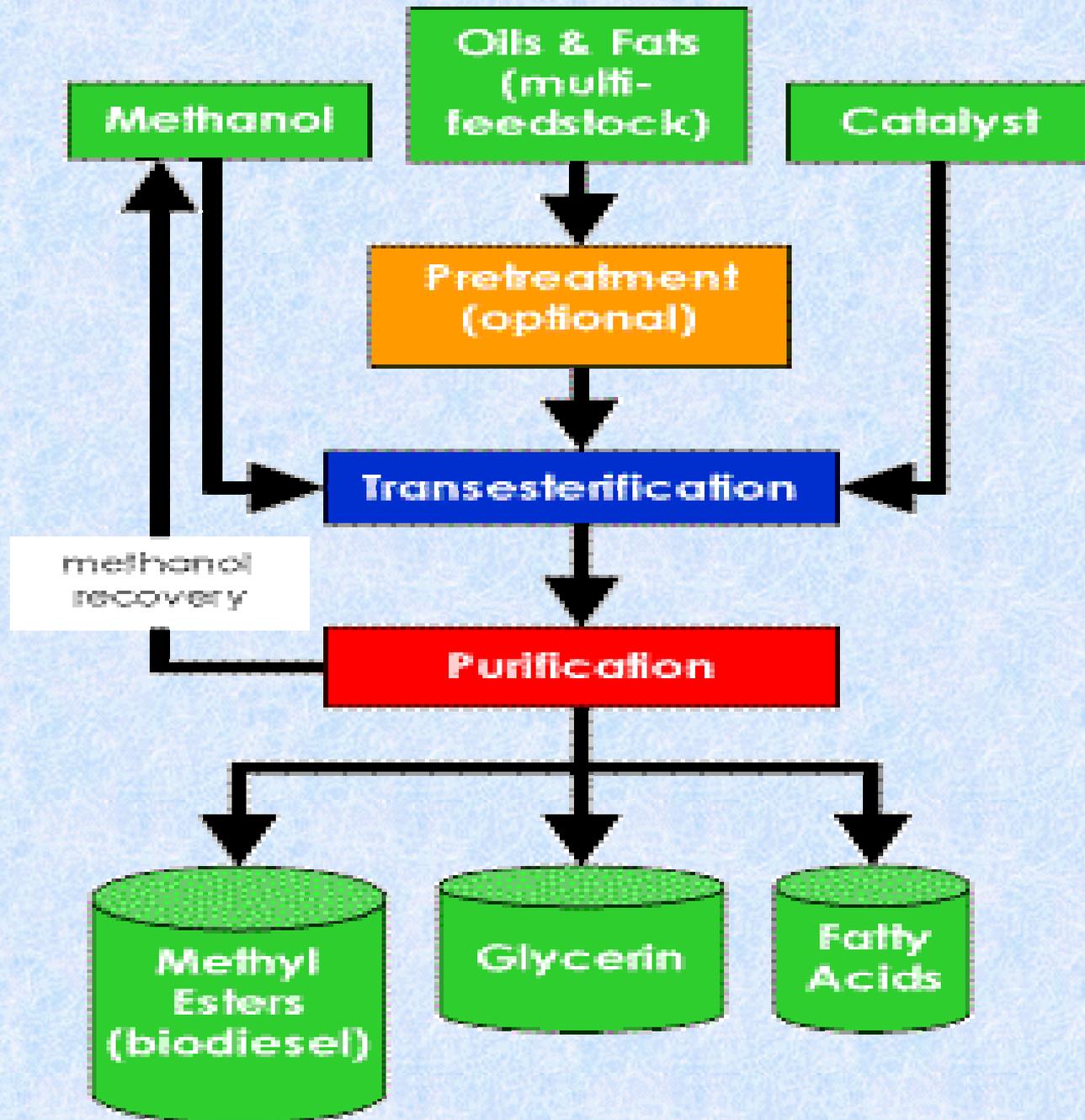
griffin plant in kentucky

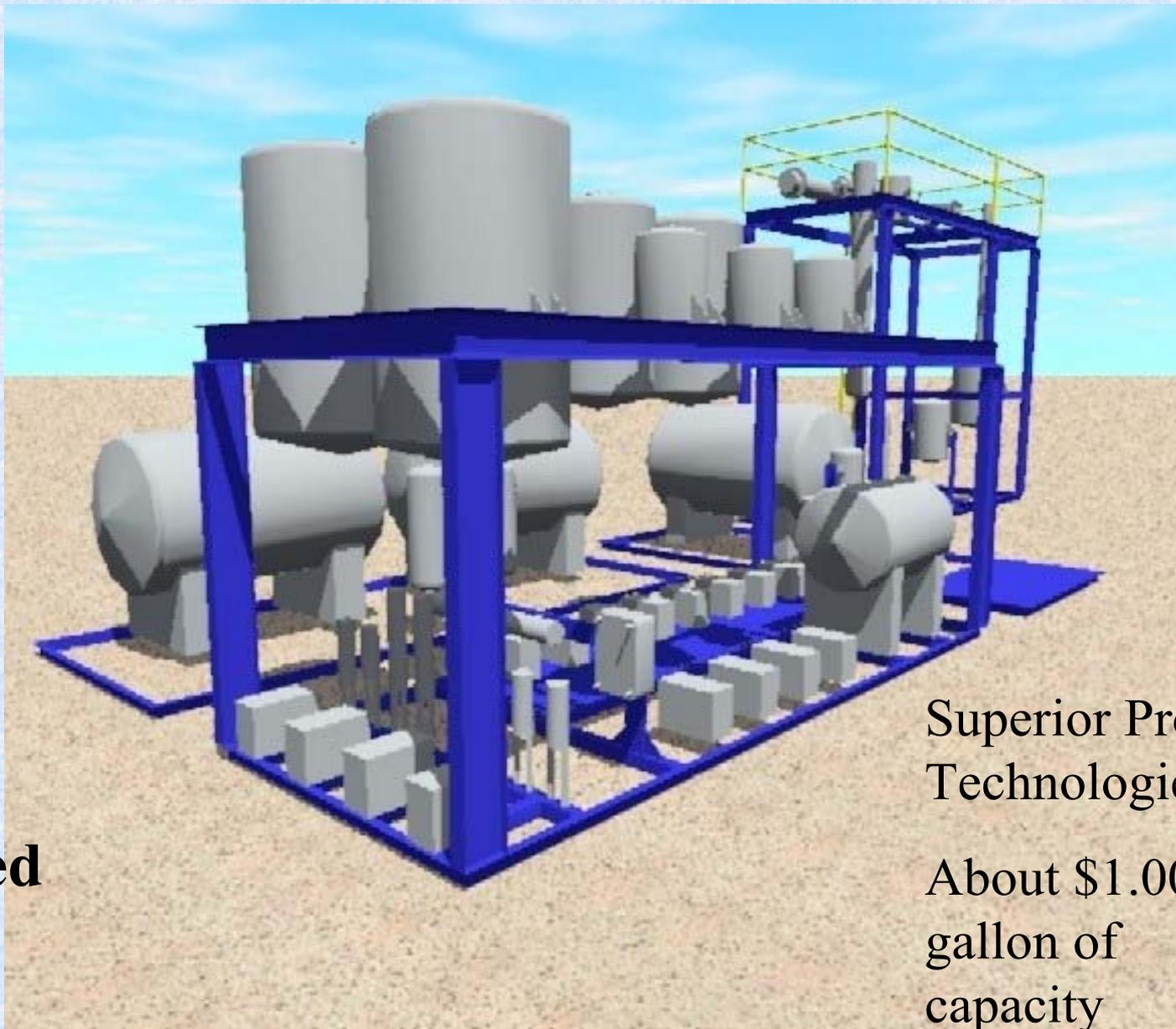




BDI plant  
cost:

About  
\$1.25 per  
gallon of  
capacity





**New  
Trend:  
Skid-  
mounted**

Superior Process  
Technologies:

About \$1.00 per  
gallon of  
capacity



# IWP/Baker capital cost for plant

Estimated capacity = 8 mm gallons per year

Estimated cost at a new facility = \$6 mm

Calculates to \$0.75 per gallon of capacity











book







**Bio Bug**



**Mustard Bug**



## **Biodiesel Veggie Rabbit**



**Biodiesel Jetta**



## **Biodiesel Mercedes**



**Biodiesel PickUp Truck**



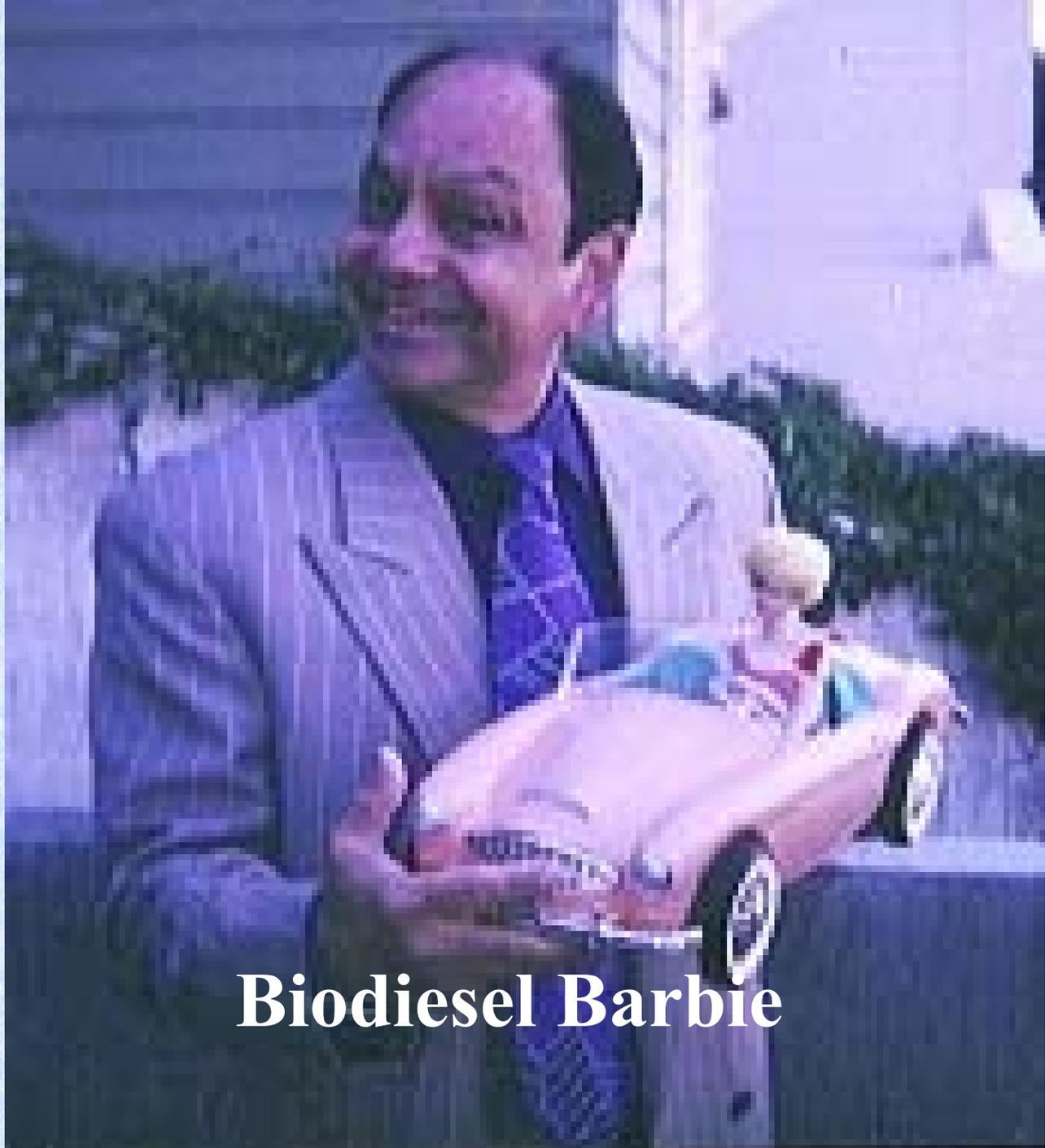
**Biodiesel Utility Vehicle**



**Biodiesel Tractor (B&B)**



**Biodiesel Boat**



**Biodiesel Barbie**



**Biodiesel Barbie**





# IWP/Baker plant in Coachella, CA...

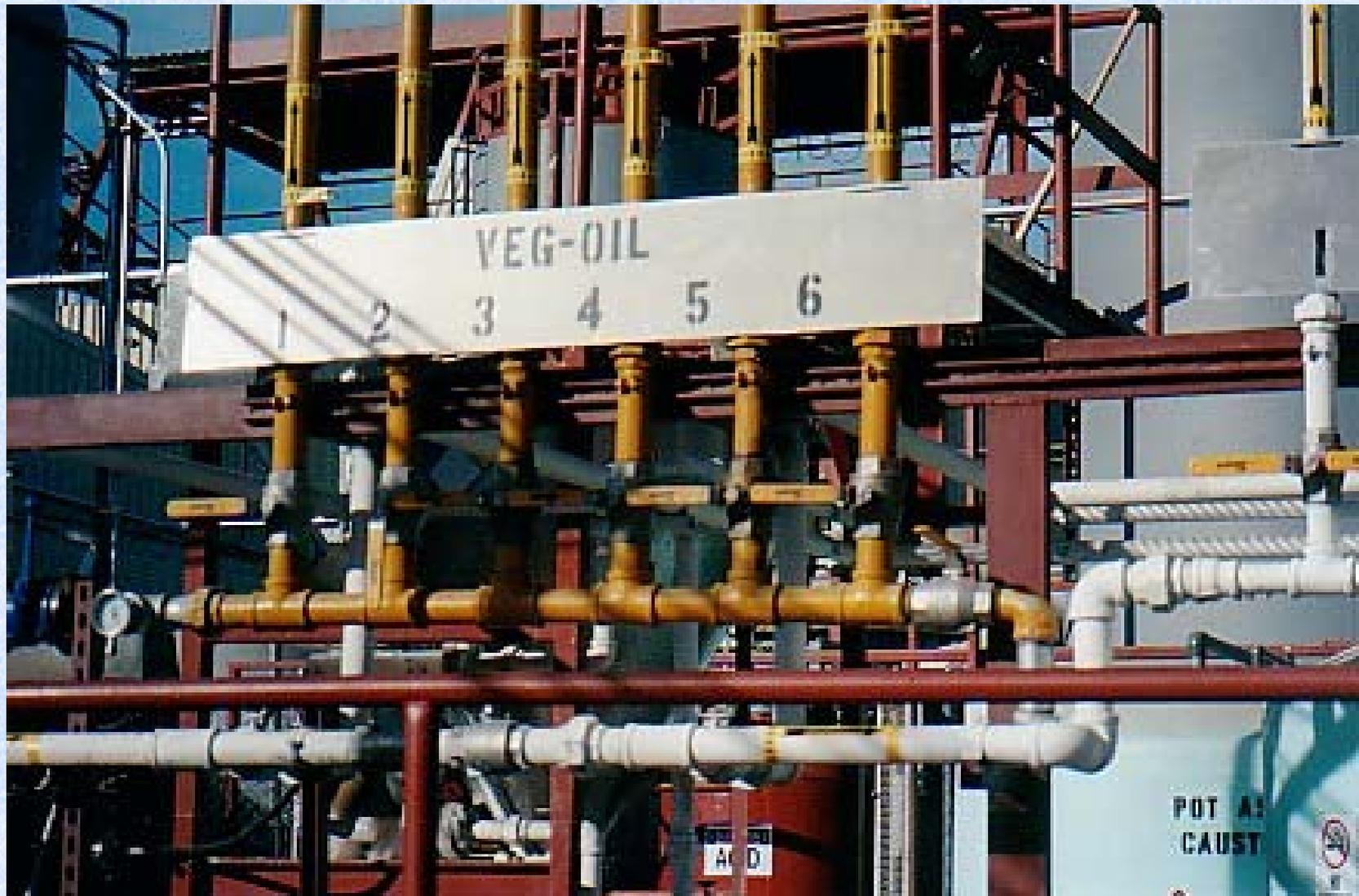
Capacity: 8 mm gal/yr recycled  
or: 10 mm gal/yr virgin oils

Storage capacity: 180,000 gallons  
Present pricing: \$1.60/gal FOB T/L or R/C









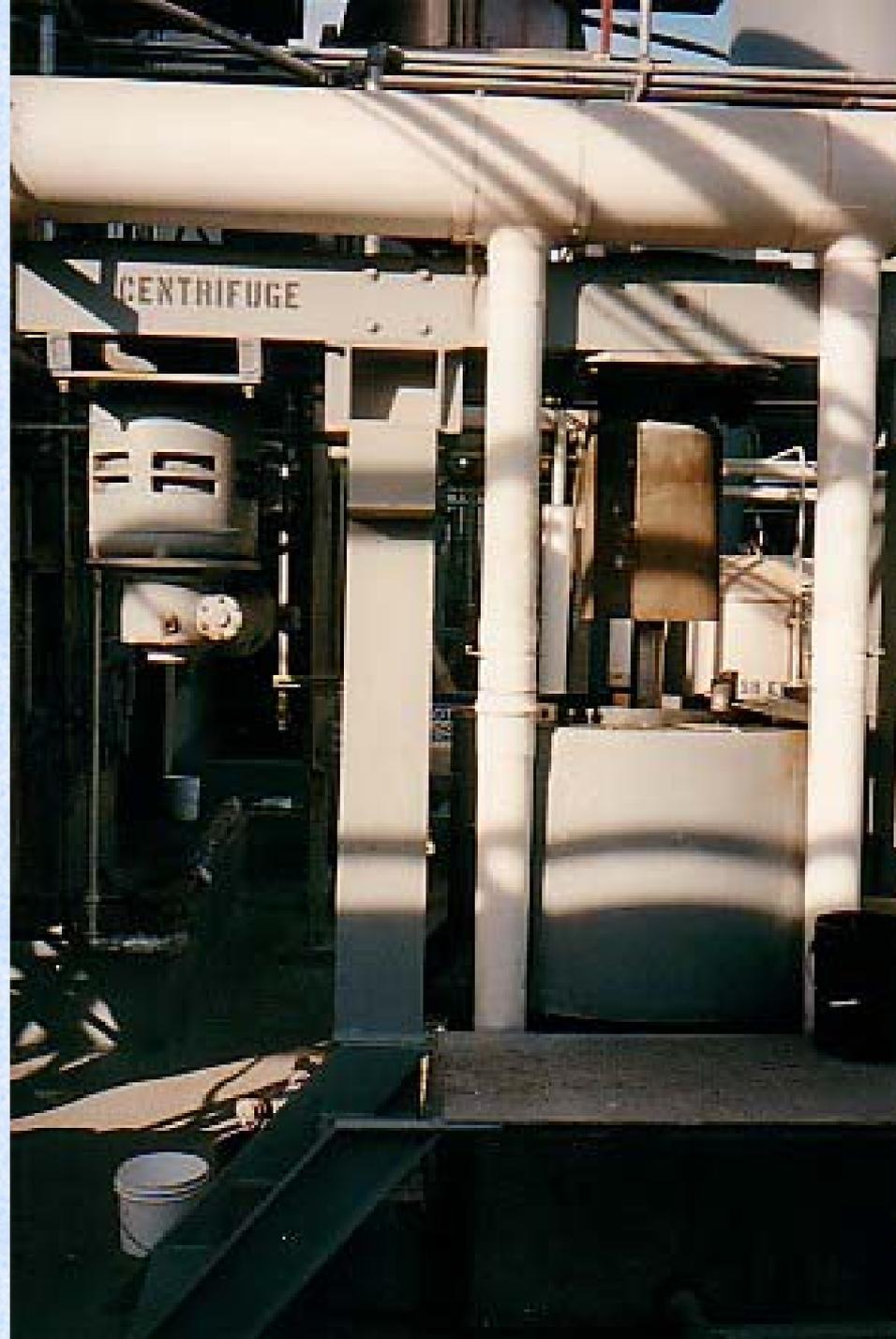




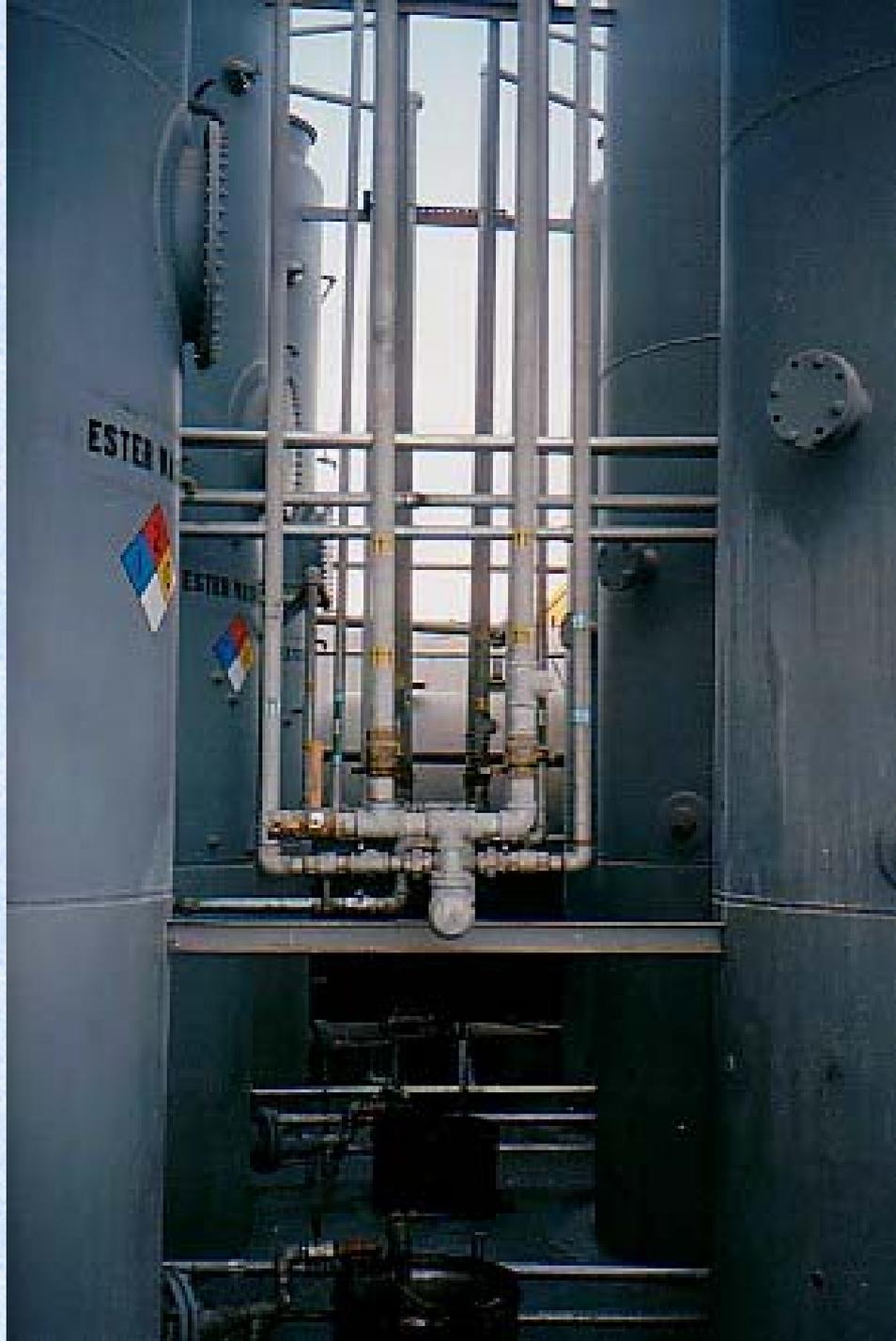




















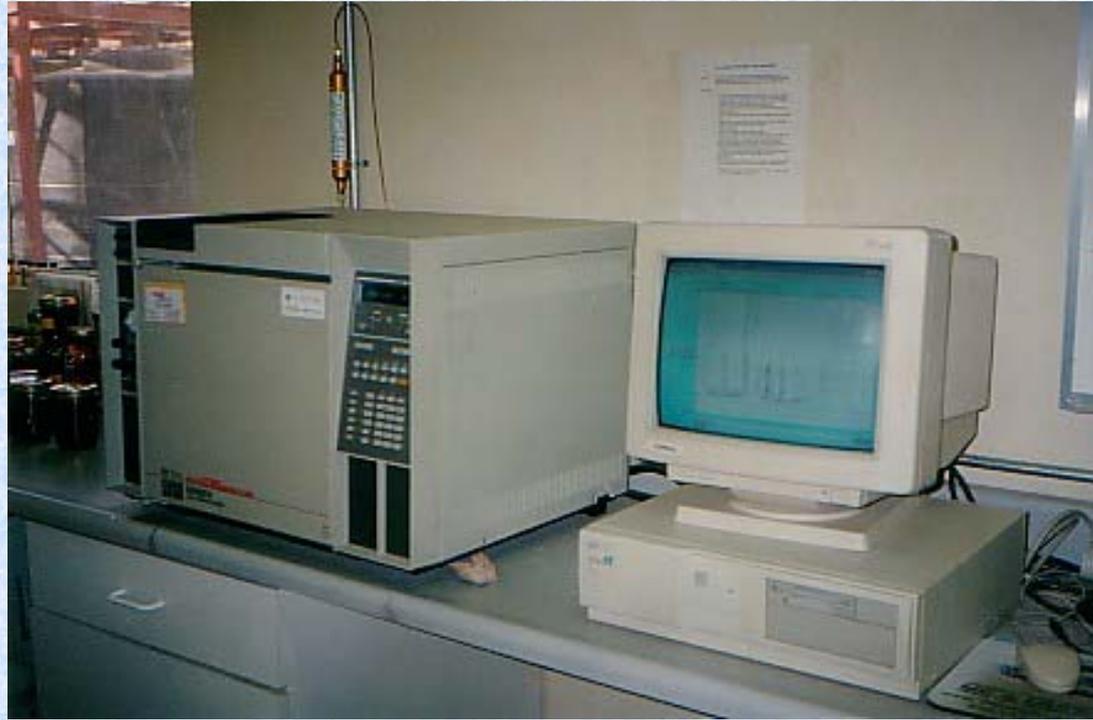












## Recommendations: Quality Issues

- National Biodiesel Board Member
- EPA registered fuel additive
- ASTM standard biodiesel (Williams Lab – glycerin)



## Other Players Ideas...

- Smithfield Foods... hog manure – methane – methanol
- Anaerobic Digestion of trap grease to make LNG



## What next? Strategy considerations

- The Los Angeles fleet is already using Biodiesel, B2. Cost: Additional cost is only about \$500 per month. Plan to go to B20.
- Will need cooperative involvement of the local fuel distributors.
- Processing, cost control, efficiency improvements in the Baker/IWP plant.
- Standardization of Biodiesel production facility by Baker/IWP in preparation for expansion in Washington, Nevada, Massachusetts, New York.