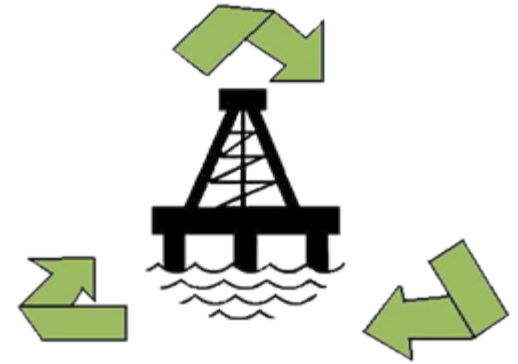**United States of America**

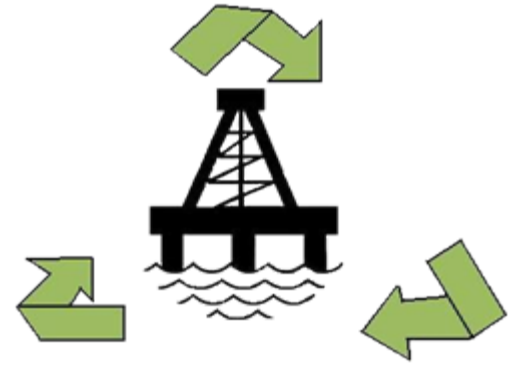**Mr. Michael Eason**

easonm@berkeley.k12.sc.us

UVC OIL

The Mission:

To design a database for a retailer of consumer goods (UVC) who wishes to identify and reduce the company's carbon footprint and the environmental impact of the goods provided.
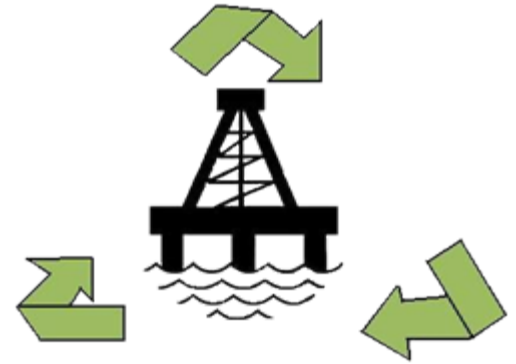
Instructor –   Mr. Eason
Team Leader –   Anthony Kemble
                          Nancy Long
                          Ryan Houseman
                          Adrienne Hughes

References

- http://web.syr.edu/~trychel/
- http://wolf.readinglitho.co.uk/mainpages/oilproducts.html
- http://www.ciesin.org/TG/OZ/cfcozn.html

Business Concept

- UVC Oil is a distributor/ retailer of oil and oil based products. Every year, oil companies waste natural resources in the processes regarding the distribution and handling of oil. UVC wants to reduce that.

- The company needs to track where the oil is coming from. Our oil can come from many sources. We refer to our sources as suppliers. We need to track the supplier's company name, location, and the current contract number. The oil needs to have a way to get to us. The oil can be transported by different methods: boat by sea, truck by road, train by tracks, or pipe line by ground, or a combination of methods. Each oil shipment also has a specified weight. We would also like to know the date the oil left the expected time of arrival and any comments regarding the trip.

Business Concept
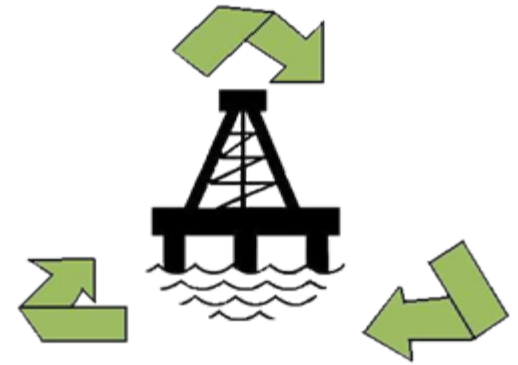
- We filter the oil we purchase ourselves so the crude oil needs to go to our filtration unit first. Our filtration unit has a location, a building unit number, and a contact number. During the three stages of filtration, different substances are produced. First light gases like butane and propane are produced, second more dense gases are extracted like jet, diesel, and unleaded fuel, last the heavy oils are left, which are used in plastics, medicines, and dyes.

- After the filtration process, the by-products need to be shipped out again. UVC doesn't use all of the oil/ gases that we extract. We sell off jet fuel and heavy oils to individual companies. The diesel and unleaded fuel get transported to the company's stations across the country as well as a percentage of the lighter gases like butane and propane, the rest of the light gases go to individual companies. The products get shipped out on a specific shipment date so that we can keep track of our shipments.

Business Concept
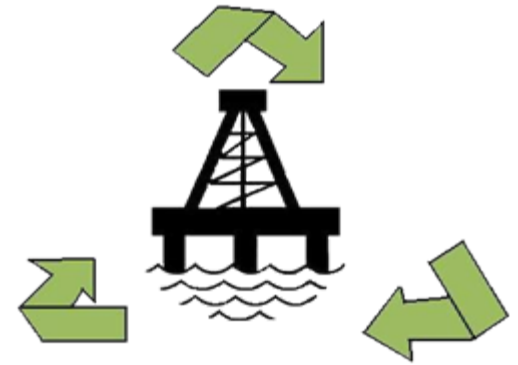
- The company station information includes a building unit number, a contact number, and operation hours. Our company has stations in four regions across the country the NW the NE the SW and the SE. When a station in a region requests an order for more products it goes on the region order form.

- Our companies that we sell to, we like to call clients. Each client has a unique id, a company name, location, and order contract. The order information includes the current order number, date of the last purchase, the price of the order, and if the order is currently enroot.

- Through out the processes of receiving the oil, filtering it, and shipping it out again our company impacts the environment. We would like to monitor how much natural resources that we use in receiving, filtering, and shipping our products and we establish a impact level based on the amount of impact. We would also like to record any comments regarding our impact on the environment so we can possibly alter our processes to better suit the environment.
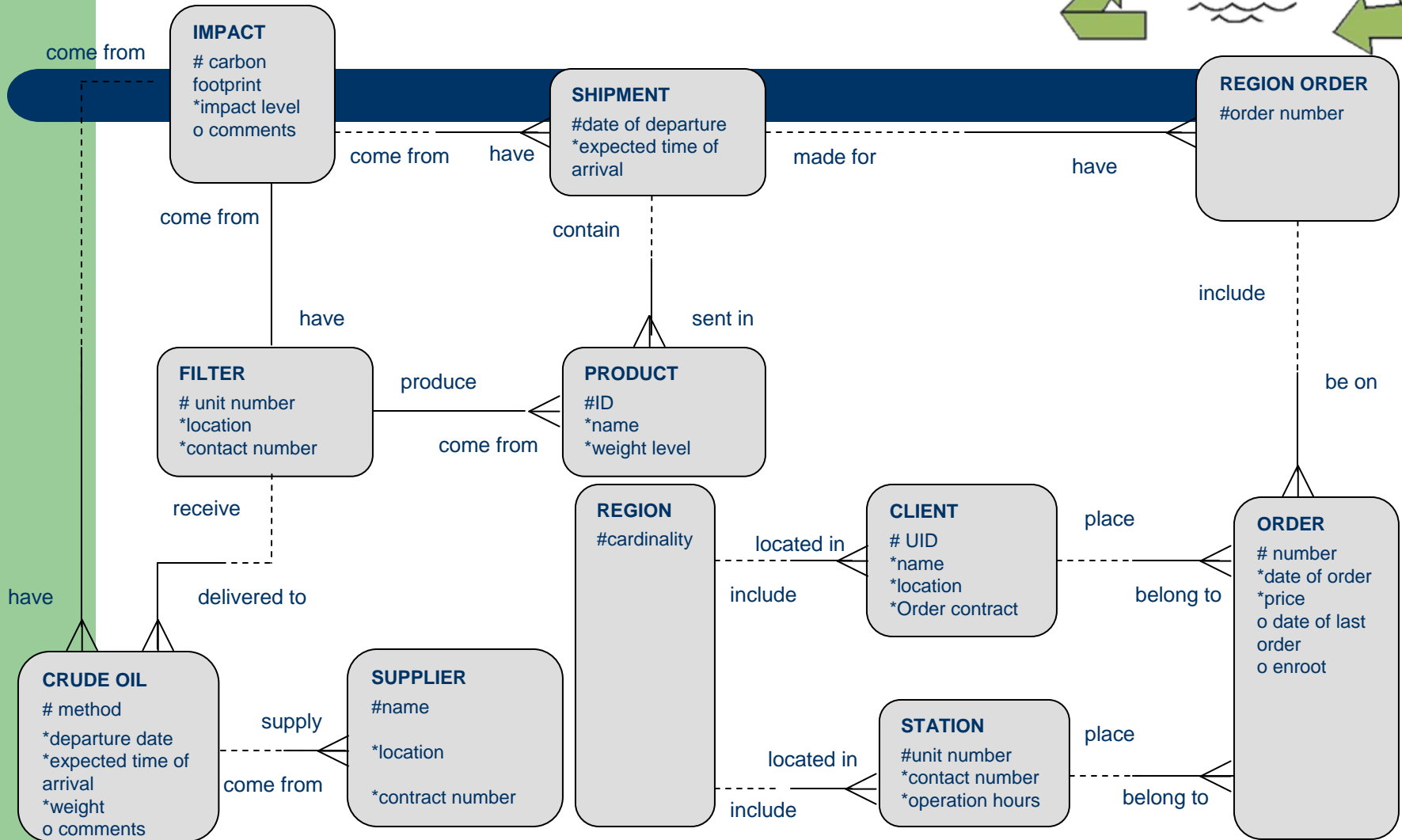
Business Needs
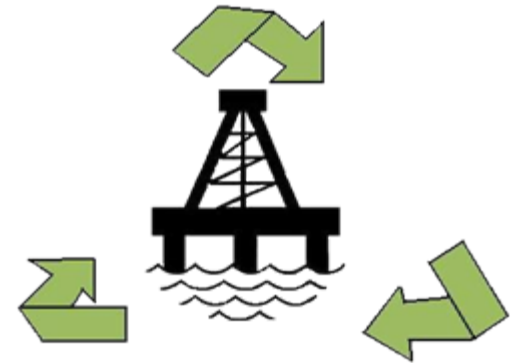
- Each one of our Suppliers needs a:
  - Name for the company
  - Location of the company based on country
  - Contract number that we have with the supplier
- When we receive Crude oil we need to track the:
  - Method of how it was transported
  - Departure date, when it left
  - Expected time of arrival, when it should arrive
  - Weight of the shipment
  - Comments regarding the trip
- Our Filtering unit needs a:
  - Building number called a unit number
  - Location based on country, state, and zip code
  - Contact number or phone number

- The Products we produce need to have a(n):
  - ID or product number
  - Name of the product
  - Weight level for the product
- Every Shipment needs a:
  - Date of departure or when it leaves our filtration unit
  - Expected time of arrival or when it is supposed to arrive at a station or to a client
- All orders go on a Region order form which needs an:
  - Order number
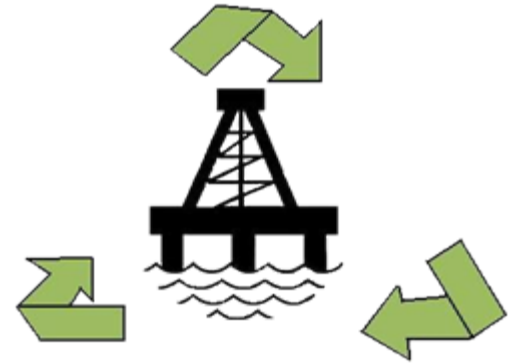
Business Needs
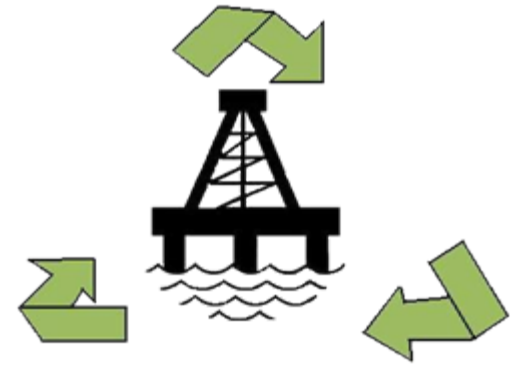
- **For each Order form we need to track the:**
  - Number or the order number
  - Date of order or when it was placed
  - Price or total cost of the order
  - date of last order
  - And whether or not the delivery is enroot

- **Each of our Clients has an:**
  - UID or client id number
  - Name of the client
  - Location of the client based on country and city
  - An Order contract that the client has established with UVC

- **Each Station includes a:**
  - Unit number called a building number
  - Contact number or phone number
  - The operation hours that the station is open

- **Each Region includes a:**
  - Cardinality or direction (NE, NW, SE, SW)

- **Every Impact is measured using a:**
  - Carbon footprint or the total amount of damage done to the environment
  - Impact level based on how much **CFCs** are produced
  - Comments on how we could reduce our natural expenditures

ERD

IMPACT
carbon footprint
*impact level
o comments

SHIPMENT
#date of departure
*expected time of arrival

REGION ORDER
#order number

come from

come from · have · made for · have

come from

contain

include

have

sent in

be on

FILTER
unit number
*location
*contact number

produce

PRODUCT
#ID
*name
*weight level

come from

receive

delivered to

REGION
#cardinality

located in

include

CLIENT
UID
*name
*location
*Order contract

place

belong to

ORDER
number
*date of order
*price
o date of last order
o enroot

have

CRUDE OIL
method
*departure date
*expected time of arrival
*weight
o comments

supply

come from

SUPPLIER
#name
*location
*contract number

located in

include

STATION
#unit number
*contact number
*operation hours

place

belong to

ERD Documentation

- Impact: shows the impact that UVC Oil has on our environment
- Filter: receives the crude oil, and then produces product
- Crude Oil: displays the method of how oil was transported
- Supplier: supplies the oil
- Region: contains clients and station units
- Product: gets shipped out from the filtering unit

ERD Documentation
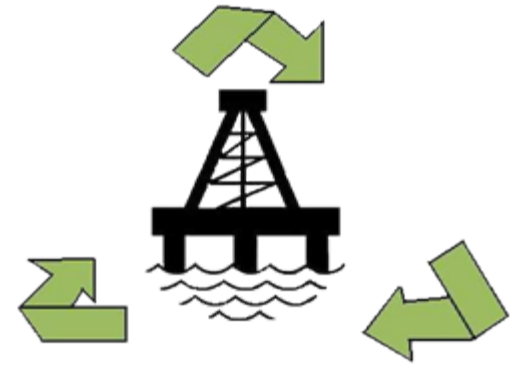
- Shipment: transports products to clients and UVC station buildings
- Region Order: accepts orders from clients and UVC stations
- Client: receives products filled out on order forms
- Station: receives products filled out on order forms
- Order: shows the product each client or station requests