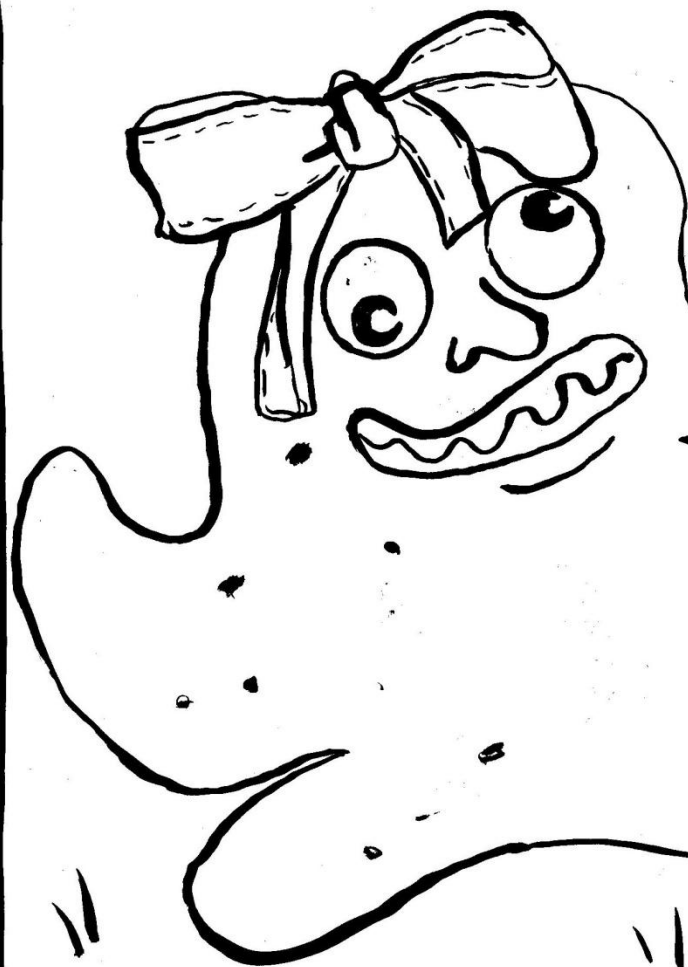
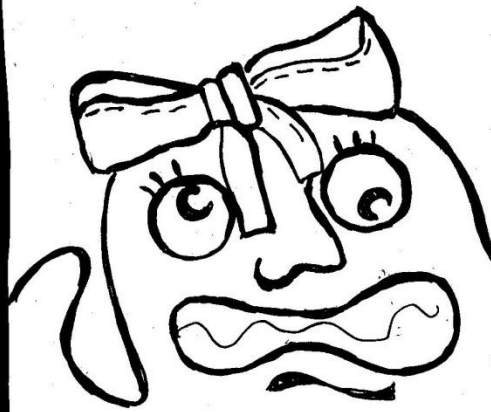


CHOOSE YOUR  
OWN  
HAZ-MAT  
ADVENTURE  
GAME!

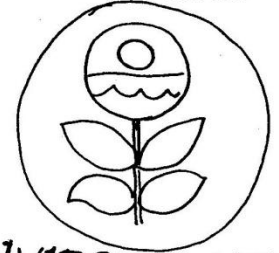


HI THERE! WELCOME  
TO CHOOSE YOUR OWN  
**HAZ-MAT ADVENTURE,**  
A GAME IN WHICH YOU  
GET TO LEARN ALL  
ABOUT **ME,** SALLY SLUDGE  
AND MY FRIENDS!



I'M A HAZARDOUS MATERIAL (HAZ-MAT) AS CLASSIFIED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND I'M REALLY COMMON IN THE DEVELOPED WORLD

UNITED STATES



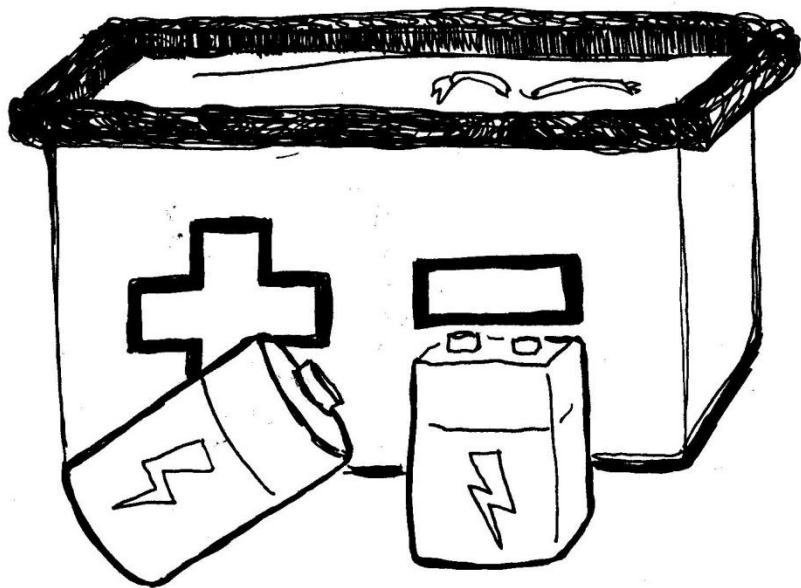
ENVIRONMENTAL PROTECTION AGENCY

WHO IS 'DEVELOPED?'



IN FACT...

you PROBABLY HAVE ME OR  
MY FRIENDS HANGING OUT IN YOUR  
GARAGE!




DEAD BATTERIES

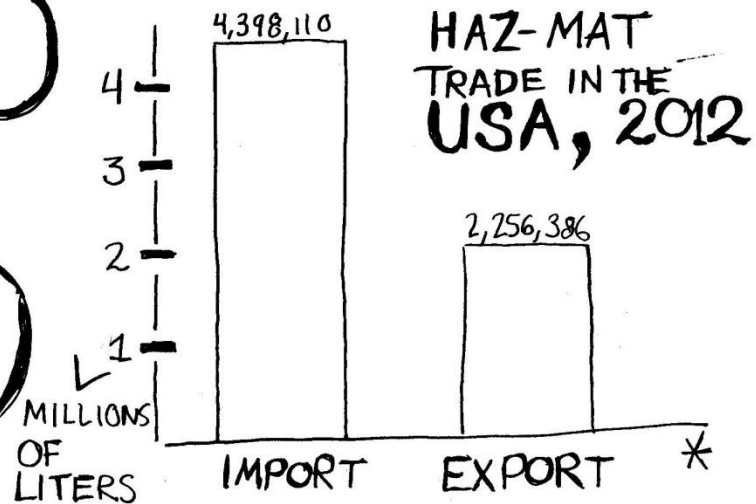
...to name a few!



PESTICIDES &  
POISONS




US HAZ-MATS ARE REALLY POPULAR IN THE UNITED STATES- BECAUSE COMPANIES CAN MAKE MONEY BY STORING US! THAT IS THE REASON THAT THE USA IS A NET IMPORTER OF HAZ-MATS.



BET YOU DIDN'T KNOW THAT ONE, DID YOU?

\* N.B. NUMBERS DO NOT INCLUDE UNITS OF MASS DUE TO ISSUES WITH THE EPA'S DATASET: SEE 'HOW THIS BOOK WAS MADE'



DO YOU WANT ME TO  
EXPLAIN WHAT A  
HAZ-MAT IS?



YES! I'M NOT  
REALLY SURE,  
SALLY!



NO! I JUST  
WANT TO PLAY  
THE GAME!

OKAY! KEEP READING!

TURN TO PAGE

# HAZ-MATS HAVE A TRICKY DEFINITION.

THE EPA HAS A COMPLICATED FLOW CHART TO DETERMINE WHETHER A WASTE CLASSIFIES AS HAZARDOUS, WHICH IS BASED ON THE CODE OF FEDERAL REGULATIONS 261.31, 261.32, 261.33 AND SUBTITLE C.

➔ If that means anything to you, then you probably know so much about haz-mats that you can skip to page to start the game!



AHH! THE EPA'S 'USER FRIENDLY' HAZ-MAT GUIDE IS 118 PAGES LONG!  
HEEEEEELP!

HAZARDOUS WASTE IS ALWAYS CLASSIFIED AS 'SOLID WASTE' AND GENERALLY HAS A 'BAD' CHARACTERISTIC THAT MAKES IT HAZARDOUS.



IGNITABLE  
IGLESIAS



TOXIC  
TINA



JENSON RADIOGRAPHY  
RADIOACTIVE  
RAYMOND



HAZ-MATS CAN BE CORROSIVE, RADIOACTIVE, REACTIVE, TOXIC, IGNITABLE, OR OTHERWISE **BAD** TO BE AROUND. THE EPA KEEPS FOUR LISTS OF HAZARDOUS WASTE:

**F** LIST

F LIST WASTES ARE FROM MANY KINDS OF MANUFACTURING PROCESSES ACROSS INDUSTRY. F-LIST WASTES ARE THEREFORE 'NON-SPECIFIC SOURCE' WASTE.

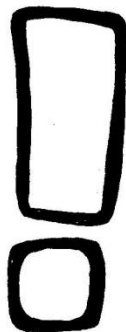
**K** LIST

K LIST WASTES COME FROM **INDUSTRY-SPECIFIC PROCESSES**, LIKE PETROLEUM REFINING.

**P+U** LISTS

(HEY, THAT'S A PUN!)

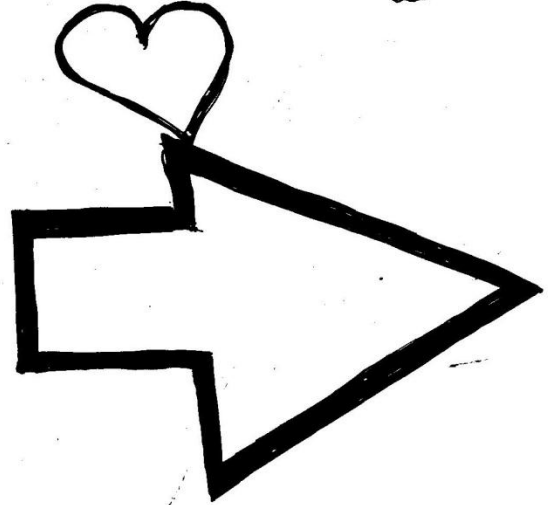
CERTAIN KINDS OF UNUSED CHEMICALS\* FALL ON THIS LIST. \*E.G. AN OLD BOTTLE OF NAIL POLISH! THESE CHEMS ARE NOT BYPRODUCTS.



If you have potentially hazardous waste, contact your state solid waste official to determine what to do about it!

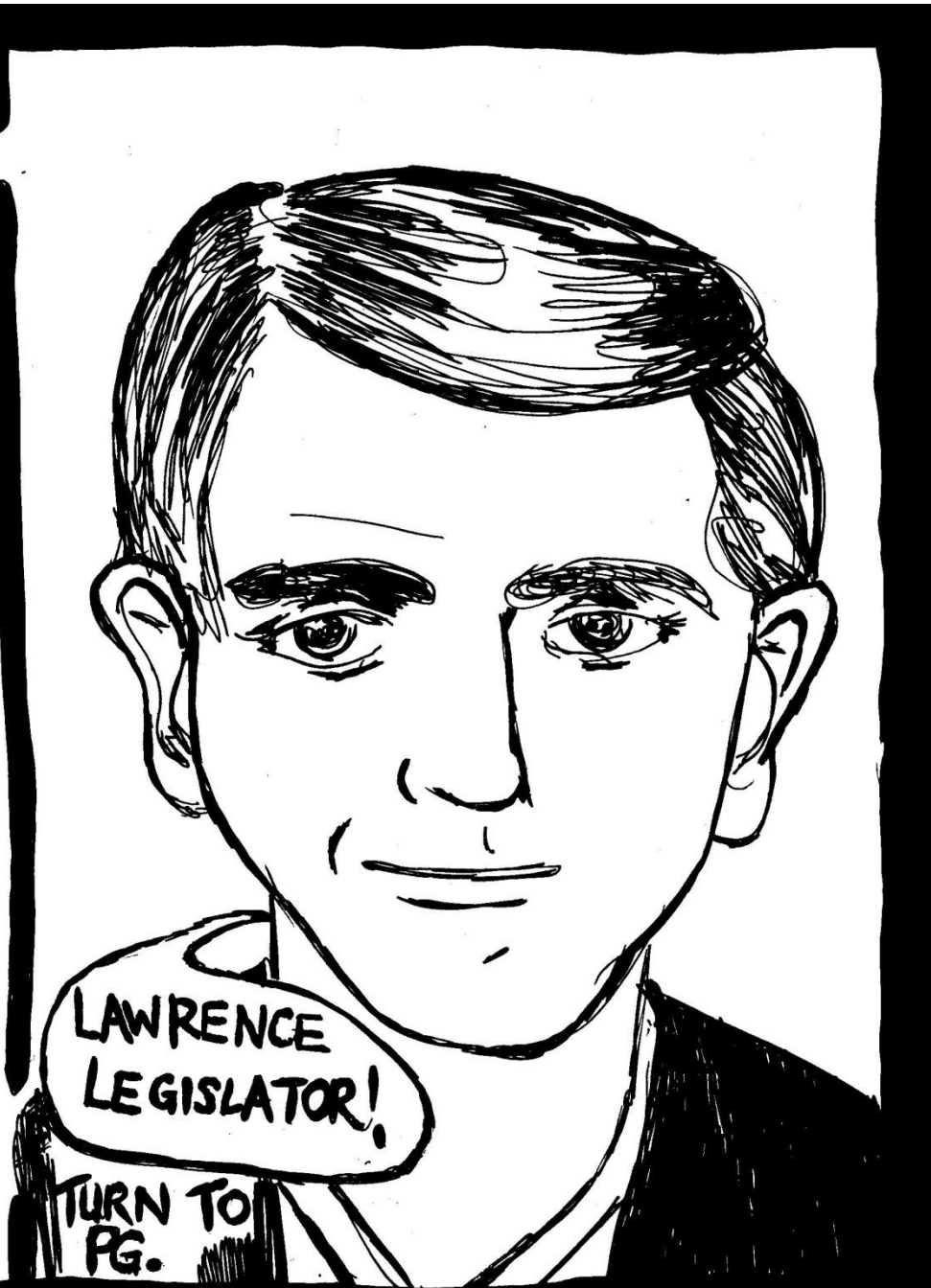
WOW! IF YOU MADE IT THIS FAR,  
YOU MUST BE REALLY INTERESTED  
IN HAZARDOUS WASTE!

LET'S BEGIN THE GAME!  
TURN TO THE NEXT  
PAGE!



# SO, WHO ARE YOU?







LAUREN  
THE  
LABORER!

TURN TO  
PG.



CHELSEA  
CARTOGRAPHER!

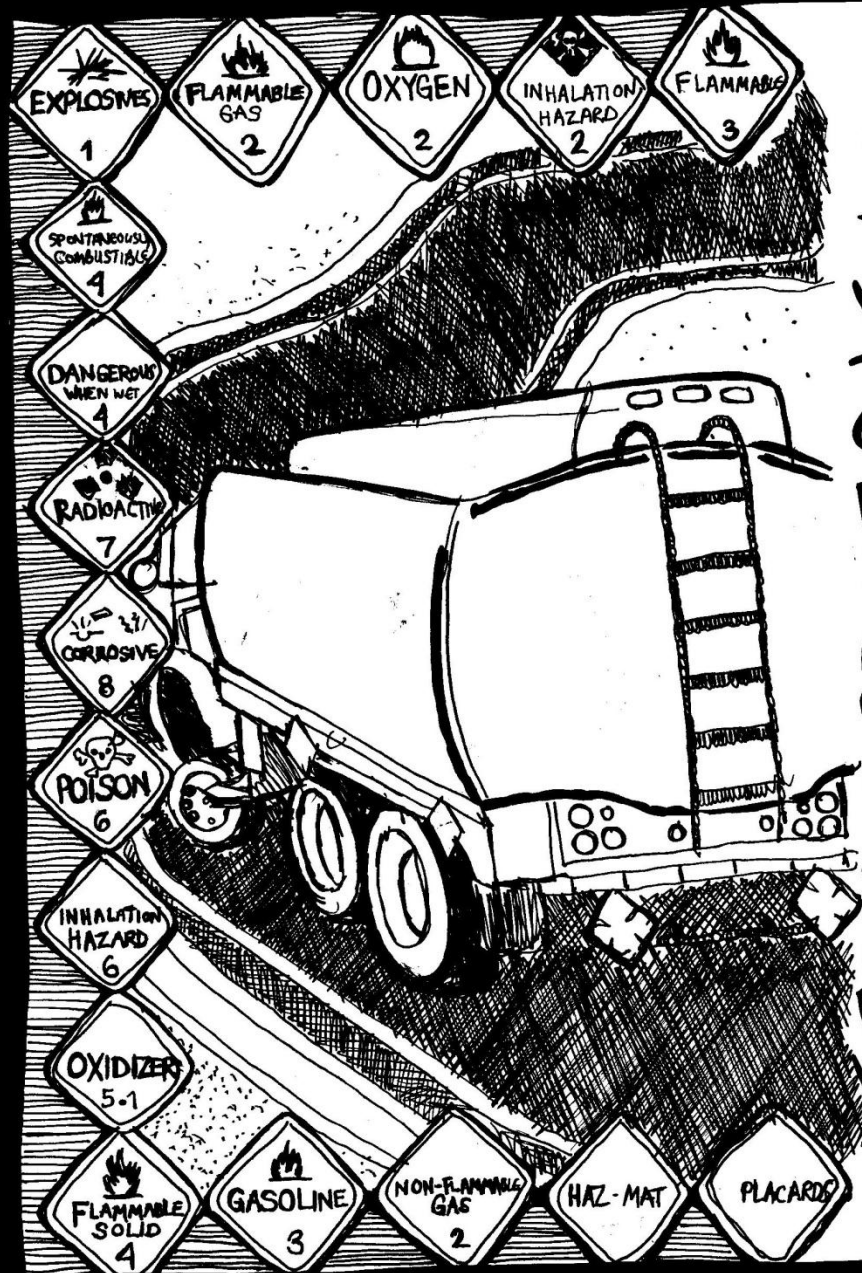
TURN TO  
PG.



HI THERE! I'M TERRY, NICE  
TO MEET YOU!

I AM A TRUCK DRIVER. YOU MAY  
THINK THAT THIS IS AN UNUSUAL  
JOB FOR A WOMAN, BUT THERE  
ARE OVER 200,000 OF US IN  
THIS PROFESSION. AND WE'RE  
GOOD AT IT! STUDIES SUGGEST  
THAT WE DRIVE LESS AGGRESSIVELY  
THAN OUR PEERS.

YOU CAN BE GLAD FOR THAT  
BECAUSE OF WHAT I  
HAUL AROUND - HAZARDOUS  
WASTE FOR A MAJOR  
IMPORTER.



I HAD TO PASS A TEST TO TRANSPORT HAZARDOUS MATERIALS. THE DEPARTMENT OF MOTOR VEHICLES CONSIDERS HAZ-MATS TO BE ANY PRODUCT THAT COULD HURT SOMEONE OR DAMAGE PROPERTY. SOMETIMES I SEE HAZ-MATS ABBREVIATED AS HME OR HM, WHICH ARE "TRUCKIE" SPEAK FOR DANGEROUS MATERIALS.

OF COURSE HAZ-MATS ARE MORE THAN JUST WASTE PRODUCTS, BUT WASTE IS WHAT I'M PAID TO DELIVER!

THERE'S A LOT OF RULES THAT TRY TO MAKE THIS SAFE...

FOR ALL OF US.

THE SHIPPER IS RESPONSIBLE  
FOR PACKING THE WASTE SAFELY.  
I HAVE TO TRUST THAT THEY DID  
IT RIGHT, BECAUSE I DON'T HAVE  
A DEGREE IN THIS STUFF, YOU  
KNOW? I JUST CARRY IT FROM  
POINT A TO POINT B AND  
MAKE SURE IT ARRIVES SAFELY.  
THE COMPANY I WORK FOR  
GAVE ME SPECIAL DRIVER'S  
TRAINING ON HOW TO DO THIS  
AFTER I WAS HIRED.



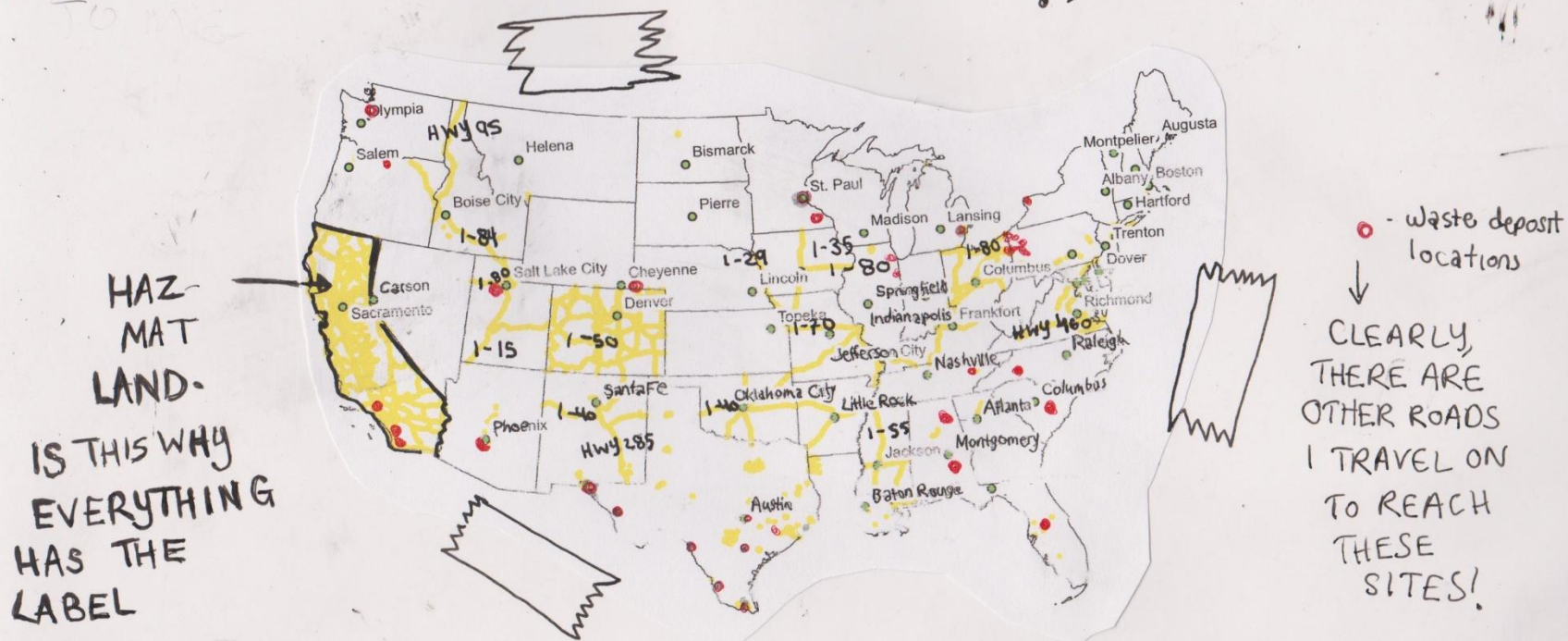


THE GOVERNMENT MAINTAINS A LIST OF ROADS THAT I AM ALLOWED TO DRIVE ON, CALLED THE USDOT (US DEPARTMENT OF TRANSPORTATION) HAZARDOUS MATERIAL ROUTES. MY COMPANY HAS PURCHASED SOFTWARE THAT TELLS ME THE ROADS I AM ALLOWED TO DRIVE ON. SINCE THE 'OKAY' ROADS CHANGE DEPENDING ON THE HAZ-MAT I AM CARRYING AND WHETHER OR NOT I'VE GOT A 'GOLDEN TICKET' - A SPECIAL PERMIT ENABLING ME TO DRIVE WHEREVER I WANT - THERE'S JUST NO WAY I CAN KEEP TRACK OF IT!

**HOWEVER, THIS HAZ-MAT ROUTING INFORMATION ISN'T REALLY AVAILABLE TO JOHN Q PUBLIC** EVEN THOUGH MY FAMILY & FRIENDS OFTEN ASK FOR IT.

THIS IS ABOUT THE BEST THAT I CAN  
PROVIDE THEM WITH- FOUND IT ONLINE.  
ROUGH, ISN'T IT? I SCRIBBLED ROUTE NUMBERS  
ON TOP OF IT- AND THE PLACES I DROP OFF WASTE.

(HOPE YOU CAN READ MY HANDWRITING!)



"KNOWN BY THE STATE OF CALIFORNIA TO CAUSE CANCER" ?

\* THIS MAP WAS MADE USING SOMETHING CALLED ARCMAP. IT MUST NOT BE VERY GOOD WITH ALL THOSE ROADS MISSING. [THAT'S THE GOV FOR YOU!]

I HAVE HEARD SOME BAD STORIES FROM HAZ-MAT TRUCKIES WHO GOT INTO ACCIDENTS.

IN FACT, JUST THIS JANUARY A HORRIBLE ACCIDENT HAPPENED ON I-94 IN MICHIGAN.

A FIREWORKS TRUCK EXPLODED AND A NEARBY TRUCK CARRYING FORMIC ACID CAUGHT FIRE



193 CARS WERE INVOLVED IN THE CRASH.

AND ONE TRUCKIE, WHO WAS NOT CARRYING  
HAZ-MATS, DIED ON THE ROAD. TWO  
OTHERS WERE ALSO KILLED. TERRIBLE.

I'M DRIVING THROUGH KALAMAZOO COUNTY  
WHERE THE PILE-UP OCCURED, AND I CAN'T  
HELP BUT FEEL A LITTLE NERVOUS. #  
THE DRIVERS ON I-94 TOLD ME THE  
ACCIDENT HAD BEEN CAUSED BY **BLACK**  
**ICE**. AND NO MATTER HOW GREAT OF  
A DRIVER YOU ARE, THERE'S SOME  
SITUATIONS IN WHICH NO AMOUNT OF  
SKILL WILL PREVENT AN ACCIDENT.

**THAT IS THE RISK.**

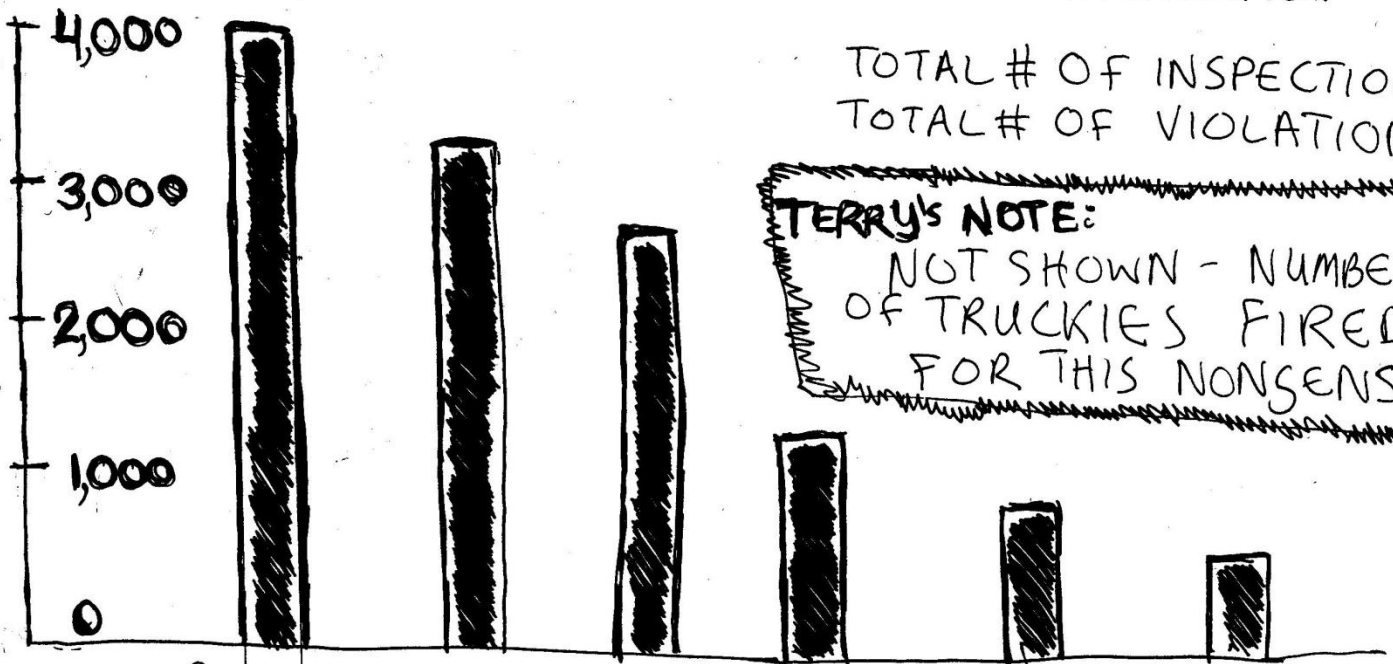
WHICH IS NOT TO SAY WE DON'T SCREW UP EVERY NOW AND AGAIN. - BUT SCREWING UP MEANS

LOSING your JOB!

# HAZ-MAT VIOLATIONS 2014

FROM THE FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

TOTAL # OF INSPECTIONS - 195,085  
 TOTAL # OF VIOLATIONS - 44,821



**TERRY'S NOTE:**  
 NOT SHOWN - NUMBER OF TRUCKIES FIRED FOR THIS NONSENSE!

VIOLATION	PACKAGE NOT SECURE IN VEHICLE	NO REGISTRATION	HAZ-MAT PLACARD DAMAGED	EMERGENCY INFO MISSING	NO SHIPPING PAPERS	RELEASE OF HAZ-MAT FROM CONTAINER
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BUT WE ARE PROFESSIONALS AND WE ARE PAID TO TAKE THE RISKS. THE PAY IS PRETTY GOOD. THE AVERAGE FOR A CLASS A CDL DRIVER (FANCY HAZ-MAT LICENSE!) IS **\$57,000** A YEAR. THAT'S PRETTY DAMN GOOD FOR A JOB THAT DOESN'T REQUIRE A DEGREE!

NEXT TO ICE ROAD TRUCKING, DRIVING HAZ-MAT TAKES THE MOST SKILL BECAUSE WE NEED TO MAKE SURE NOTHING SHIFTS AROUND IN THE BACK OF THE TRUCK. AND THAT'S WHY WE GET GOOD PAY. I LIKE MY JOB AND I'M PROUD OF THE WORK THAT I DO. I WOULDN'T PICK A DIFFERENT CAREER.

## "CHARLIE CEO"

- RUNS THE HAZ MATS SITE THAT TERRY DROPS HER LOAD OFF AT.
- 50 YEAR OLD EX-HIPPIE. KEPT THE DREADLOCKS. STILL LISTENS TO THE WHO EVERY DAY & SMOKES.

WASP

CONCERNS AROUND  
HAZ-MATS:

HOW MUCH ARE MY COMPETITORS  
IMPORTING?

WHAT KINDS OF WASTE IS DROPPED  
OFF AT MY FACILITY?

AM I MEETING OSHA STANDARDS?

IS IT HARD TO MEET THESE STANDARDS?

WHAT ARE THE LAWS WITH WHICH I  
MUST COMPLY?

DOES LOCAL LAW DIFFER FROM  
FEDERAL LAW? HAVE I TRIED TO  
GET SOME KIND OF EXEMPTION?

WHAT IS MY SALARY?

CAN I PROFIT FROM IMPORTING  
LOCALLY?

WHAT IS THE EFFICIENCY OF MY  
'SUPPLY CHAIN' OF HAZ MATS?

DO I PRODUCE ANY HAZ-MATS?

HAVE I BEEN SUBJECTED TO PRESSURE  
BY COMMUNITY ACTIVISTS?

## "MARYANNE THE MOM"

- 24, 2 KIDS, 1 W/ SPECIAL NEEDS
- HISPANIC, LOW INCOME
- LIVES NEAR CHARLIE'S PLANT BUT DOES NOT WORK IN IT
- SINGLE MOM

- RETAIL STORE MANAGER, HARDWORKING, COMMUTES TO A LARGER TOWN EVERY DAY FOR WORK.

LEAVES KIDS W/ GRANDPARENTS BUT WORRIES ABOUT HER BABY W/ SPECIAL NEEDS.

WONDERS IF PROBLEMS WERE CAUSED BY THE PLANT BUT KNOWS SHE CANT PROVE IT.

- WANTS TO MOVE AWAY BUT CANT AFFORD IT

- BEGAN TO ASK AROUND TO SEE IF DISEASE RATES WERE HIGHER AROUND CHARLIE'S PLANT.



Choropleth map of developmental disabilities & disease rates, diverging color scheme emphasizing the difference from the mean

- PEOPLE GOT PISSED OFF AT HER FOR EVEN ASKING THE QUESTION BECAUSE CHARLIE PAYS GOOD WAGES



# 'LAUREN THE LABORER'

55 YEARS OLD, BLACK,  
WORKS FOR CHARLIE AT THE  
PLANT. HAS CANCER.

EVEN THOUGH SHE IS PAID  
WELL SHE CAN'T TRAVEL  
FAR FOR TREATMENT.

CAN'T STOP WORKING OR SHE  
CAN'T PAY BILLS.

FRIENDS AT THE PLANT  
HAVE TURNED AGAINST  
HER BECAUSE SHE BLAMES  
CHARLIE!

SOME PART OF HER IS STILL  
PROUD OF HER WORK EVEN  
THOUGH IT IS KILLING  
HER

HER <sup>ADULT</sup> CHILDREN ~~PLAN TO MOVE~~  
TO THE LIVE IN A LARGE

RELIES ON THE CHURCH TO  
GET THROUGH THE DAY BECAUSE  
THERE IS NO OTHER HOPE FOR  
HER.

MAP -

FINANCIAL LIMITATIONS OF  
LAUREN'S TRAVEL

FLOW CHART OF LAUREN'S  
HEALTH DECISIONS -  
TREATMENT OR WORK?

LAWRENCE THE LEGISLATOR

~~RUN~~ MAYOR OF THE SMALL TOWN.

REPUBLICAN. HISPANIC.

KNOWS HIS CONSTITUENTS.

RELIGIOUS - CONSERVATIVE

PROTESTANT. CONVERTED

FROM CATHOLICISM.

WANTS JOB CREATION &  
INVESTMENT IN THE COMMUNITY.

CHARLIE CEO PAYS LOTS IN \$

WHICH HAS ALLOWED HIM TO COMPLETE

SEVERAL CIVIC WORKS PROJECTS

THAT WOULDN'T HAVE OTHERWISE

BEEN POSSIBLE.

INTENSELY DISLIKES THOSE WHO

TRY TO TELL HIM WHAT TO DO

WHO DON'T LIVE IN THE TOWN

(E.G. EAST COAST RICH LIBERALS)

HAS ASPIRATIONS BEYOND THE  
TOWN & LOOKS AT WHAT HAPPENS  
IN HIS CORTAGE OF REPUBLICAN  
GOVERNMENT OFFICIALS -  
TRIES TO KEEP A FINGER IN  
THE WIND.

MAPS

- PROFIT, US VS. THEM
- AMOUNT OF \$ PUMPED INTO  
THE COMMUNITY
- LOCATIONS OF CONSTITUENTS
- NATURAL RESOURCES THAT  
COULD CONTRIBUTE TO THE TOWN

# HOW THIS BOOK WAS MADE!



**CHELSEA CARTOGRAPHER**  
(otherwise known as Venth)

HI! I'M CHELSEA  
CARTOGRAPHER. I  
AM A MASTER'S  
STUDENT AT UW-  
MADISON. AS  
AN UNDERGRADUATE  
AT PENN STATE I  
TOOK A COURSE WITH  
ENVIRONMENTAL  
HISTORIAN JAMES  
MCCARTHY,  
CALLED POLITICS  
OF THE ENVIRONMENT.



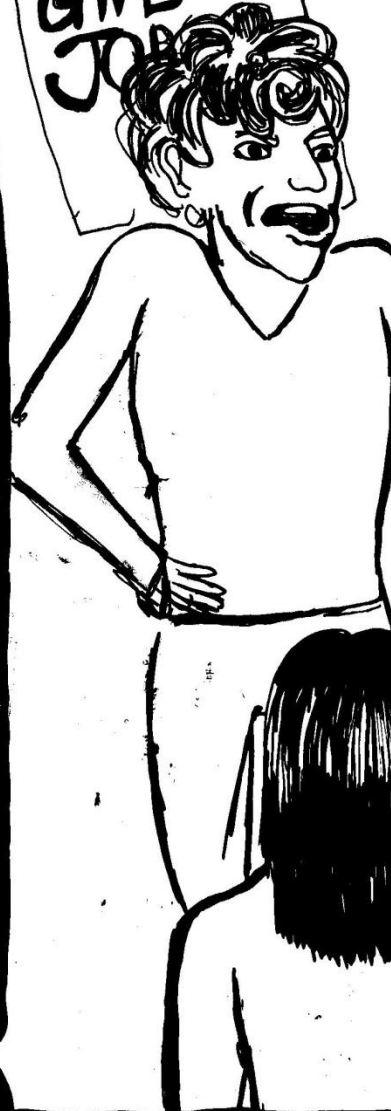
PROF. JAMES  
MCCARTHY

"POLITICS OF  
THE  
ENVIRONMENT  
MAY SEEM  
SIMPLE TO  
ENVIRONMENTALISTS:

POLLUTION BAD! CLEAN LAND  
GOOD! BUT WHEN THE  
MOTIVATIONS OF INDIVIDUAL  
ACTORS ARE EXAMINED,  
MANY PEOPLE HAVE STRONG  
REASONS TO BELIEVE  
POLLUTING THE ENVIRON-  
MENT IS OKAY."



MINES  
GIVE  
JOB



MY  
LAND  
MY  
CHOICE!

?

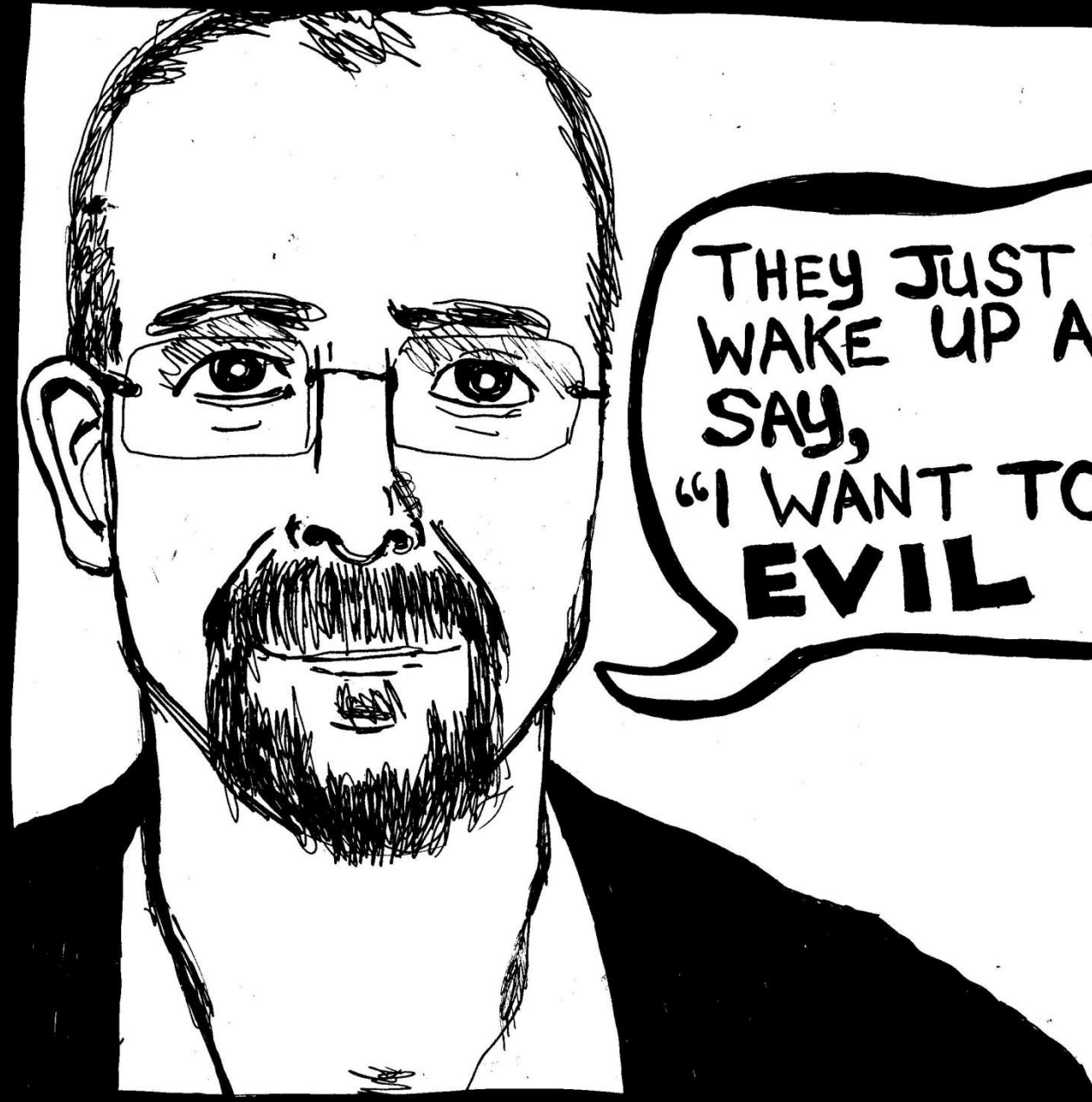
BUT YOU  
GUYS  
WILL  
GET  
CANCER!

PROF. MCCARTHY MADE A POINT WHICH  
HAS STUCK WITH ME EVER SINCE...



RIGHT. SO, PEOPLE  
LIKE TO BELIEVE  
THAT THEY ARE  
GOOD AND DO THE  
RIGHT THING.

\* This is my paraphrasing of what  
Prof. McCarthy said. Any inelegance of  
speech or misinterpretation is my own!



THEY JUST DON'T  
WAKE UP AND  
SAY,  
"I WANT TO BE  
**EVIL** TODAY."



WOAH!

# MIND BLOWN.

SINCE THEN, I HAVE BEEN INTERESTED IN EXAMINING PROBLEMS THROUGH AN ACTOR-BASED PERSPECTIVE. AS A CARTOGRAPHER, I FOUND MAPS WERE A GOOD WAY TO DO THIS BUT SOMETIMES WERE LIMITED BY THE CONSTRAINTS OF

PRESENTING EVERYTHING  
ON ONE SPACE WITH  
A MINIMUM OF TEXT. \*

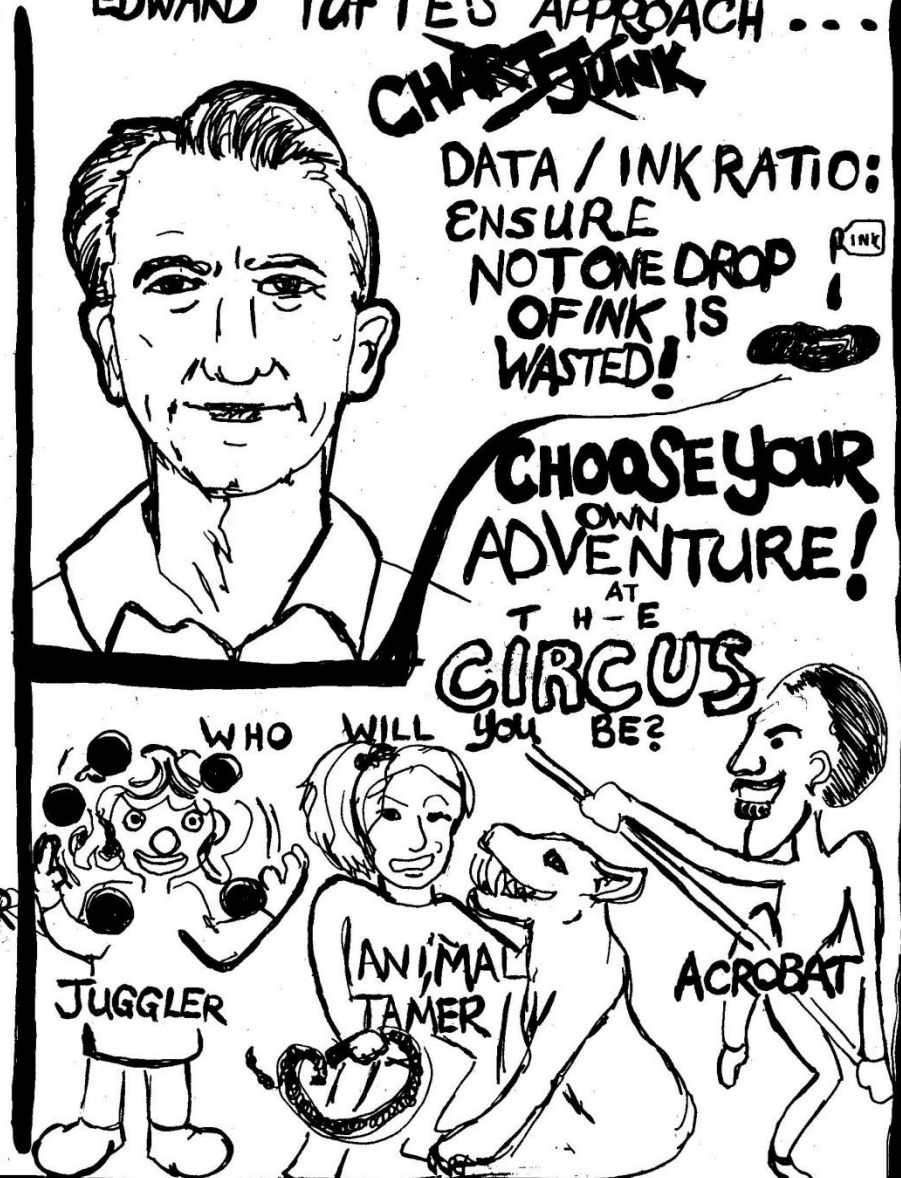
A VISUAL STORYTELLING  
APPROACH BLENDS THE  
BEST OF ALL WORLDS.  
I REMEMBERED READING  
"CHOOSE YOUR OWN  
ADVENTURE!" BOOKS AS  
A CHILD, IN WHICH THE  
CHARACTERS INHABITED  
THE SAME WORLD BUT  
HAD A VERY DIFFERENT  
EXPERIENCE OF THAT  
WORLD. EACH TIME I WOULD  
PICK A DIFFERENT CHARACTER  
AND THE STORY CHANGED  
BUT I ALSO LEARNED MORE  
ABOUT THE WORLD.

\* AND INK TOO, FOR THOSE WHO TAKE  
EDWARD TUFT'S APPROACH ...

~~CHART JUNK~~

DATA / INK RATIO:  
ENSURE  
NOT ONE DROP  
OF INK IS  
WASTED!

CHOOSE YOUR  
OWN  
ADVENTURE!  
AT  
THE  
CIRCUS





THIS SEEMED TO FIT THE ACTOR-BASED EXPERIENCES OF HAZ-MATS I WANTED TO PRESENT.

I CREATED SIX SCENARIOS AND SUPPLEMENTED THE DATASET FROM THE EPA WITH OTHER RESOURCES.

**TERRY**

TRUCK DRIVER



**CHARLIE**

CHIEF EXECUTIVE OFFICER



**MARYANNE**

THE

MOMMY



MY GOAL IS TO HUMANIZE THE DATASET FROM THE EPA, WHICH DOES NOT SHOW THE EMOTIONS AND MOTIVATIONS OF INDIVIDUAL ACTORS; WHO HAVE VERY DIFFERENT EXPERIENCES AND OPINIONS ABOUT HAZ-MATS IN THE USA. IN THE FOLLOWING PAGES I DOCUMENT MY SOURCES FOR EACH SCENARIO AND ANY CAVEATS ABOUT THE DEPICTIONS OF THE ACTORS. ALL MISTAKES ARE MY OWN. **BUT...**

**LAWRENCE**  
LEGISLATOR



**LAUREN**  
THE LABORER



**CHELSEA**  
CARTOGRAPHER



THERE ARE ALSO PROBLEMS WITH THE  
EPA DATASET AND THESE PROBLEMS  
COMPLICATED THE ANALYSIS.



PUTTING DATA IN PDFS IS NOT  
USER FRIENDLY!

WHY DIDN'T THE EPA  
STANDARDIZE THIS  
DATA?!

WHAT THE HELL  
DO THESE CODES  
MEAN?!

WHY ARE  
AMOUNTS OF WASTE  
REPORTED IN  
WEIGHT VOLUME?!  
THEY CANT BE RECONCILED!

WHY ARE THERE  
SO MANY  
MISSING OR  
DUPLICATE  
ENTRIES?

WHY IS THE 118 PAGE  
'EASY TO UNDERSTAND'  
HAZ-MAT GUIDE  
NEARLY INCOMPREHEN-  
SIBLE?!

# NUMBER CRUNCHING, DATABASE QUERIES AND GEOGRAPHIC ANALYSIS EXPOSED INCONSISTENCIES...



HOW CAN WE POSSIBLY BE IMPORTING MORE THAN WE EXPORT?! THE NUMBERS IN THE EPA'S OWN DATASET DO NOT SUPPORT THAT CONCLUSION.

SO...

## DID THE EPA FAIL TO LOG MASSIVE AMOUNTS OF HAZ-MAT IMPORTS?



### 2012

EXPORTS TO IMPORTS OF HAZ MATS

1 KILOTON = 1 MILLION <sup>KILO-</sup>GRAMS  
1 MEGALITER = 1 MILLION LITERS

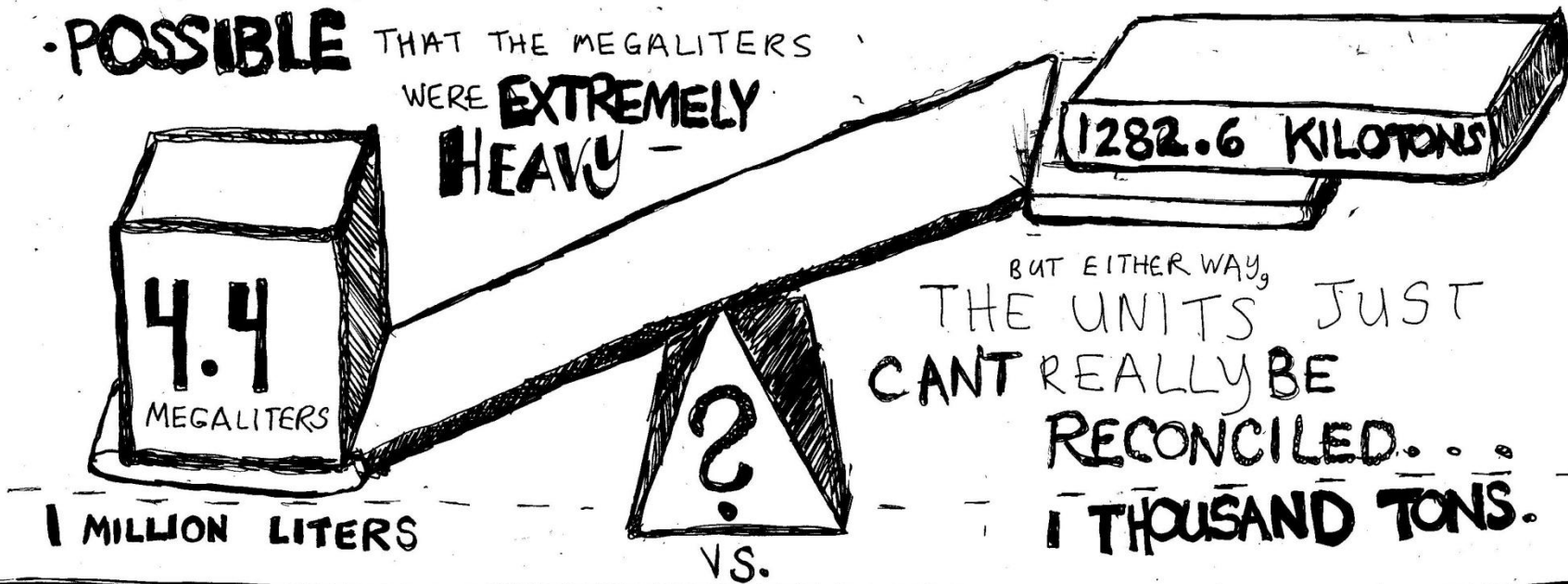
31.2 <sup>KILO-</sup>TONS = 4.4 MEGALITERS

EXPORT IMPORT (FROM THE EPA DATA!)

# OR WAS THE EPA JUST A LITTLE SLOPPY WHEN RECORD-KEEPING?

HERE'S HOW SOME OF THE IMPORTS COULD HAVE 'SLIPPED THROUGH THE CRACKS.'

- **POSSIBLE** THAT WHEN THE REMAINDER OF THE DATASET IS DIGITIZED, THE MISSING IMPORT DATA WILL APPEAR
- COULD BE LURKING IN ENTRIES WHICH ARE MISSING DATES.
- **POSSIBLE** THAT THE MEGALITERS WERE **EXTREMELY HEAVY** -



THERE ARE LOTS AND LOTS OF OTHER ANALYSES WITH THIS DATASET THAT I WANT TO DO!  
AND I CAN DO, WITH SQL! And a little researching on google...

- Who received the most shipments?
- Who received the most super dangerous shipments?
- What was the most common port of entry into the United States?
- What was the most common haz-mat imported into the United States? Does this haz-mat seem to have some kind of 'fit' (is this a really easy haz mat to destroy? is it a really profitable haz-mat to import? etc)
- Which companies are mentioned the most frequently in the data? (and is there anything in the news about these companies and their relationship to the environment / EPA?)
- Who is the biggest domestic importer? Who is the biggest exporter?
- Why was documentation so poor in the years prior to 2012?

I WOULD LIKE TO RELATE THE ANSWERS TO THESE QUESTIONS TO MY FOUR SCENARIOS, WHICH I HOPETO CENTER AROUND A PARTICULAR LOCATION – PERHAPS THE FACILITY IN DETROIT! And there will be, of course, many other questions which will come up as I continue to work on this dataset! 😊

Q QUOT HOMINES, TOT SENTENTIAE

THERE ARE AS MANY OPINIONS AS THERE ARE PEOPLE!

-TERENCE, 161 BCE

# References



# INTRODUCTION

INFORMATION ON 'DEVELOPED' COUNTRIES CAME FROM  
THE UN 2014 HUMAN DEVELOPMENT INDEX.  
HAZ - MAT INFORMATION WAS EXTRACTED FROM  
THE WEBSITE OF THE E.P.A.



# TERRY TRUCKDRIVER!

TERRY'S SCENARIO USED THE ACCOUNTS OF TRUCKERS FROM SEVERAL WEBSITES:

REALWOMENINTRUCKING | TRUCKINGTRUTH | SMART-TRUCKING | LADYTRUCKDRIVERS | LAYOVER | LIFEASATRUCKER

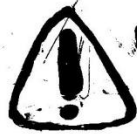
I ALSO DREW HAZ-MAT & REGULATORY INFORMATION FROM THE COMMERCIAL DRIVER'S MANUALS OF PENNSYLVANIA AND CALIFORNIA.

HAZ-MAT

ROAD INFORMATION WAS SUPPLIED BY ESRI, WHICH CLAIMED THAT THE DATA HAD BEEN-PROVIDED BY THE U.S. DOT. I WAS UNABLE TO LOCATE ANYTHING HIGHER-QUALITY AND FOUND NOTHING FROM THE GOVERNMENT. ESRI PREVENTED ANY MANIPULATION OF THIS DATA, WHICH IS WHY THE ROADS ARE LABELED BY HAND.

HAZ-MAT TRUCKING SALARY IS FROM THE NATIONAL SALARY TREND TOOL.

HAZ-MAT VIOLATIONS ARE FROM THE FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION.



# THANKS

AND

# ACKNOWLEDGEMENTS!

THIS BOOK WOULD NOT HAVE BEEN CREATED WITHOUT THE WORK OF **HEATHER ROSENFELD**, **RAFI AREFIN**, AND **EVAN APPLE GATE** WHO PAINSTAKINGLY DIGITIZED & MANIPULATED THE DATA KEPT IN THE EPA'S PDF DOCUMENTS.

**PROF. ROBERT ROTH** AND CARTOGRAPHY LAB DIRECTOR **TANYA BUCKINGHAM** ORGANIZED THE 2015 DESIGN CHALLENGE, FROM WHICH THIS BOOK WAS PRODUCED. BOTH CARTOGRAPHERS PROVIDED FORMATIVE FEEDBACK WHICH SHAPED THIS WORK.

**CARL SACK & SARAH BENNETT** PROVIDED EXCELLENT ADVICE REGARDING CASE SCENARIOS AND DESIGN.

**PROF. SARAH MOORE** & THE **MELLON HUMANITIES GRANT**. AND, AS ALWAYS, **PROF. HEBDO** (LYNDA BARRY).

THIS BOOK IS DEDICATED TO ALL THOSE WHOSE LIVES HAVE BEEN IMPACTED BY THE U.S. HAZ-MAT TRADE.

CHELSEA NESTEL (VANTH), 2015