

CAMEO_{fm} EXERCISES

- 1) Open the Chemical Library
- 2) Find the following chemical information:

Chemical Name : _____
CAS # : 1314-87-4_____
UN/NA# : _____
NFPA RATINGS:
FIRE : _____
HEALTH : _____
REACTIVE : _____
SPECIAL : _____
IDLH : _____
ERPG -2 : _____
TEEL-2 : _____
OTHER INFO: _____

Chemical Name : DICHLORODIETHYL SULFIDE
CAS # : _____
UN/NA# : _____
NFPA RATINGS:
FIRE : _____
HEALTH : _____
REACTIVE : _____
SPECIAL : _____
IDLH : _____
ERPG -2 : _____
TEEL-2 : _____
OTHER INFO: _____

ALOHA EXERCISES

The chemical in # 2 from page 1 is Mustard Gas.

- 1) Can you model a Mustard Gas release using ALOHA?
- 2) Can you use “Tank” or “Puddle” for your Source option?
- 3) Use ALOHA to model a Mustard Gas release based on the following parameters.

Location	use your own location
Chemical	mustard gas
Atmospheric	
Wind speed	10 mph
Wind direction	N
Cloud cover	5
Temperature	70
Humidity	50%

Source
 Direct / Instantaneous
 10 gallons

Oops, it won't work. Why?

- 4) Repeat Question 3 using 10 pounds. Display the footprint.
- 5) Won't work. Why?
- 6) Find a useable Level of Concern for mustard gas.
- 7) Run ALOHA plumes for all 3 available LOC values.

MARPLOT EXERCISES

Create and print a MARPLOT map displaying a radius for the 3 ALOHA plumes for Mustard Gas from the above scenario.

Use your MARPLOT county map for this exercise.

- 1) Create a new map layer titled "MUSTARD GAS RELEASE"
- 2) Locate a spot for your fictitious release to occur.
- 3) Use the Sharing Menu to display the TEEL-1 ALOHA footprint
- 4) Use the Polygon Tool to trace around the footprint; when finished, select "OK"
- 5) Name the new "object" "Mustard Gas with TEEL = 0.0025 mg/m³"
- 6) Make the object color "PINK" and select a "Fill Pattern"
- 7) Select "OK".
- 8) Repeat steps 4 – 7 with these changes:
 - a. Change LOC to TEEL-2; display footprint on map
 - b. Object name is "Mustard Gas with TEEL = 0.015 mg/m³"
 - c. Make the color BLUE and the fill pattern different
- 9) Repeat steps 4 – 7 with these changes:
 - a. Change LOC to TEEL-3 display footprint on map
 - b. Object name is "Mustard Gas with TEEL = 4 mg/m³"
 - c. Make the color RED and the fill pattern different
- 10) Print the map.
- 11) Save it as a bitmap file to your desktop (use the "File" menu). Make sure to give it a name!
- 12) Minimize all screens until you can see your desktop. Use a "photo editor" program to open the bitmap you just saved. You can now "edit" the picture using the photo editor functions. Edit the photo and print it.
- 13) You should now be able to e-mail the picture. If you can, e-mail it to someone you know or someone in your office, then print it again.

You may also "Export" the picture to other MARPLOT users as a ".mie" file. The other MARPLOT users would "Import" the .mie file, and the picture will appear EXACTLY as it does on your computer.

LandView 5 EXERCISES

Use your Landview 5 CD-ROM to produce a population estimate for each Mustard Gas plume.

- 1) Use the MARPLOT Search function
 - a. select a plume,
 - b. do a search in MARPLOT for “things that are inside of or touched by” the “currently selected object” in the “Census Block Points” layer
 - c. MARPLOT will give you a list of Census Block Points, you will select the “Show All On Map” button
 - d. You should then see a group of the block points with each surrounded by the red squares indicating they are “selected”
 - e. After that, go to the “Sharing” menu, select “Landview” then “Get Info” and you should then see a page (in Landview) for one of the block points.
 - f. Select the “Summarize” button to see the numbers for all the block points added up.

- 2) Find the Hospital nearest your “release point” by doing a MARPLOT Search for objects “that are within” 10 miles of the “currently selected object”. If there are no hospital records found in this search, broaden the search area to 20 miles. Continue to broaden the search parameters until you locate the Landview 5 record for the nearest hospital.

ANSWERS

CAMEO answers

Chemical Name: ZINC PHOSPHIDE

CAS # : 1314-87-4

UN/NA# : 1714

NFPA RATINGS:

FIRE : 3

HEALTH : 3

REACTIVE : 1

SPECIAL :

IDLH : blank

ERPG -2 : blank

TEEL-2 : blank

OTHER INFO: Dangerous when wet; emits phosphine gas when wet or heated to decomposition temperature; do not add water or foam; melting point = 788 F;

Chemical Name : MUSTARD GAS
(you must run the search as “contains characters” to find the answer. “contains a word starting with” returns no answers)

CAS # : 505-60-2_____

UN/NA# : 1955_____

NFPA RATINGS:

FIRE : blank

HEALTH : blank

REACTIVE	:	blank
SPECIAL	:	blank
IDLH	:	blank
ERPG -2	:	blank
TEEL-2	:	0.015 mg/m ³
OTHER INFO:		very toxic liquid....etc....

ALOHA answers

- 1) Yes, Mustard Gas can be modeled using ALOHA when specific conditions are met.
- 2) No, the only “source” allowable is “Direct”. ALOHA does not “know” all the information needed to model Mustard Gas using Tank or Puddle options (and also for SARIN).
- 3) ALOHA will only allow the Source amount for Mustard Gas expressed in pounds (and also for SARIN).
- 4) ALOHA cannot produce a footprint without an LOC value.
- 5) The “default” for all ALOHA LOC values is IDLH, and there is no established IDLH for Mustard Gas (again, same thing for SARIN).
- 6) The only useable LOC value found in CAMEOfm Chemical Library is TEEL values.
 1. TEEL-1 = 0.0025 mg/m³ (note: these are NOT ppm!)
 2. TEEL-2 = 0.015 mg/m³
 3. TEEL-3 = 4 mg/m³

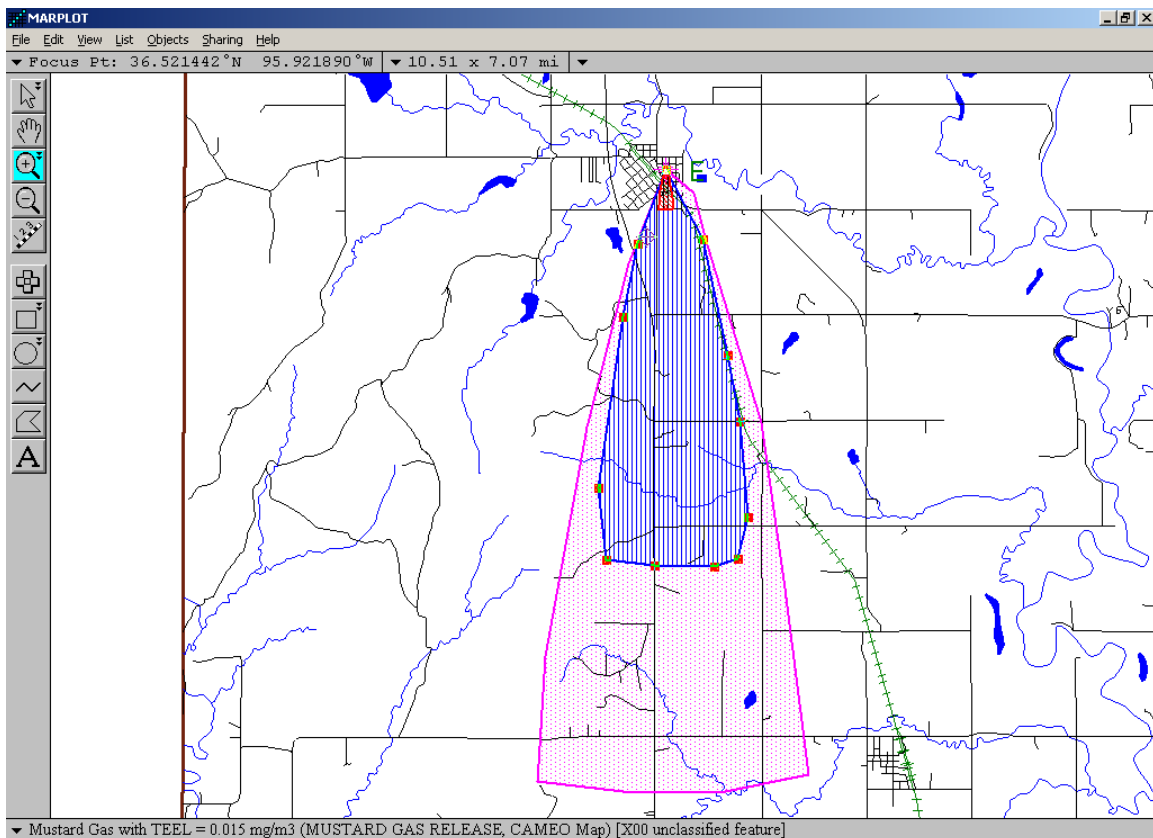
- 7) Using a Direct 10 pound release and the LOC expressed as TEEL values, my ALOHA Plume distances were:

TEEL-1	over 6 miles
TEEL-2	3.9 miles
TEEL-3	683 yards

A little Mustard Gas goes a long way!

MARPLOT answers

Here is how my MARPLOT map displayed after completing the ALOHA exercise. Of course, your own map should be similar, but not exact. It's difficult to see the TEEL-3 plume because it is so much smaller than the other footprints.



Here is my MARPLOT Search Screen setup for the Hospital Search

The screenshot shows a dialog box titled "Search Criteria" with a blue header bar. The dialog is set up for a search of hospitals. It features several input fields and buttons:

- Search for objects:** A dropdown menu set to "that are within...".
- Distance:** A text box containing "10", a unit dropdown set to "mi", and the word "of".
- Reference:** A dropdown menu set to "the currently selected object(s)".
- Layer(s) to search:** A dropdown menu set to "Individual Layer...", with a secondary dropdown menu below it set to "Hospitals".
- Map(s) to search:** A dropdown menu set to "Maps in View".
- Buttons:** "Search", "Cancel", and "Help..." are located at the bottom left.
- Collection:** A dropdown menu at the bottom right is set to "replace previous collection".