



Chemical Emergencies

Resources to Help Identify and
Respond to Hazardous Materials
Incidents

Summary

- Chemical accidents in Connecticut
- What DEEP needs from LHDs
- Being aware of chemicals in your community
- HSIN and HSIP GIS information
- Risk Management Plans
- DPH consequence assessment for RMP facilities

Chemical Accidents in Connecticut

- DEEP's spill reporting hotline received an average of 8,329 calls a year between 1997 and 2012
- There were 274 accidents involving chlorine and 111 involving ammonia Between 1996 and 2008
- Between November 2009 and January 2012 there were 142 injuries and 7 deaths
- 50 evacuations during this 2-year period

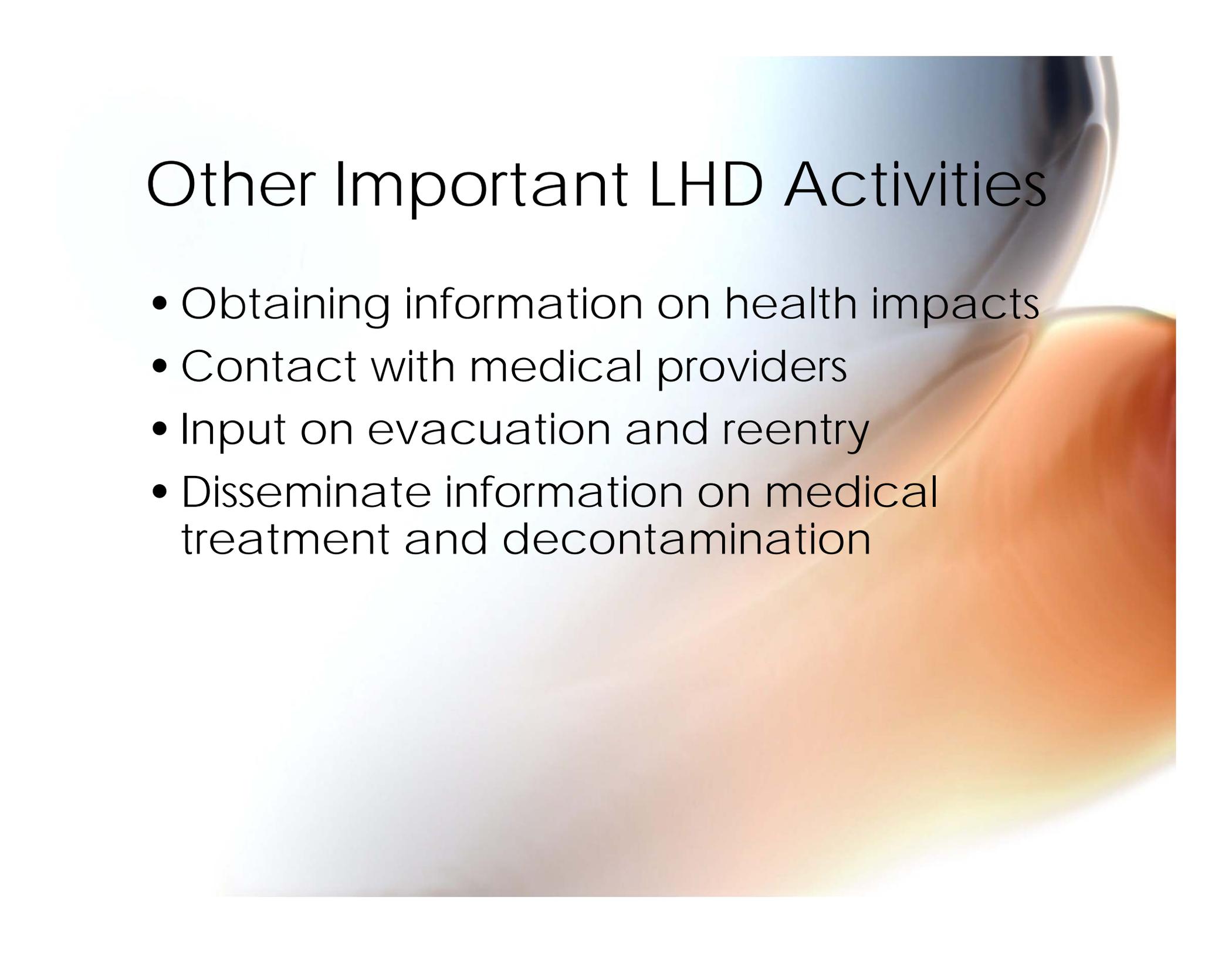


What DEEP Needs from LHDs

- The needs will be situation specific
- DEEP doesn't expect LHDs to be first responders and shouldn't rush in
- Identify hazardous chemicals in your community and be prepared for incidents
- Identify high hazard facilities
- Be able to identify sensitive populations in the area like nursing homes, schools and medical facilities
- Support the LEPC and community first responders
- Provide risk communication and health information

What DEEP Needs from LHDs

- Support Unified Command during an incident and, if possible, have a staff member assigned to it (in some instances it would be expected)
- Be careful that messaging from LHD is consistent with what is coming from Unified Command
- DEEP may want assistance with private and public potable drinking water well location(s) and possibly sampling support during large incidents
- LHDs need to identify reach-back people
 - State Level
 - Federal Level
 - Subject matter experts



Other Important LHD Activities

- Obtaining information on health impacts
- Contact with medical providers
- Input on evacuation and reentry
- Disseminate information on medical treatment and decontamination

Preparing for a Chemical Accident

- Local health departments should work to identify hazardous substances stored or moving through their communities
- Knowing what chemicals are in your community would:
 - Allow the collection of toxicology information prior to an accident
 - Provide information for drills and exercises that would better prepare a community for a real accident
 - Allow simulations to be run in order to identify vulnerable receptors in your community, such as hospitals and daycares

Sources of Hazardous Material Information

- LEPCs and fire departments
- Emergency Planning Community Right-to-Know Act (EPCRA) Tier II Database
- Toxic Release Inventory
- National Response Center
- Risk Management Plans
- State or federal hazard and vulnerability assessments

Tier II Database

- Facilities manufacturing, processing, or storing designated hazardous chemicals must report quantities used or stored above the 'threshold planning quantity' or TPO must be reported to the LEPC and fire departments for inclusion in the Tier II database.
- The Tier II Database is maintained by the SERC
- The local fire department will have information (you could coordinate with them if you want to view a facility)
- Information is sensitive and care should be taken with distribution
- Imported into EPA's CAMEO Suite

Tier II Data

The screenshot shows a web application window titled "CAMEOfm - [Facilities]". The menu bar includes "File", "Edit", "Record", "Search", "Sharing", "Scripts", and "Help". Below the menu is a navigation bar with buttons for "Home", "View Record", "New Search", "Edit", "New Record", and "Help". A search status indicator shows "2 of 2 found".

Found Facilities

Results of search for: CAS contains characters 6484-52-2

| Name | Dept | Street Address | City | State | Zip | Mail |
|-------------------------------|----------------|----------------------|-------------|-------|-------|-----------------------|
| AUSTIN POWDER NORTHEAST LLC - | Y1 | 332 Ekonk Hill Rd. | Mossup | CT | 06354 | 25800 Science Park Dr |
| Dyno Nobel Inc | Middlefield CT | 295 Powder Hill Road | Middlefield | CT | 06455 | PO Box 199 |

Tier II Data

CAMEOfm - [ChemicalsInInventory]

File Edit Record Search Sharing Scripts Help

Home View List New Search Edit New Record Help 2291 of 8610 total

Chemicals in Inventory Last Modified 4/17/2012

Facility / Route: AUSTIN POWDER NORTHEAST LLC - STERLING Report Year: 2011
Dept.: Y1 City: Mossup State: CT

CAS #: 6484-52-2 [Datasheet](#)
Chemical Name: AMMONIUM NITRATE

In Inventory In Transit EHS Substance Trade Secret MSDS:

Location Physical State & Quantity Components Dates State Fields Notes

| Physical State | | Hazards | | Health Effects | |
|--|---|--|---|----------------------------------|----------------------------------|
| <input checked="" type="checkbox"/> Pure | <input checked="" type="checkbox"/> Solid | <input checked="" type="checkbox"/> Fire | <input checked="" type="checkbox"/> Acute | <input type="checkbox"/> Mixture | <input type="checkbox"/> Chronic |
| <input type="checkbox"/> Mixture | <input type="checkbox"/> Liquid | <input type="checkbox"/> Pressure | | | |
| | <input type="checkbox"/> Gas | <input type="checkbox"/> Reactive | | | |

Weight

Max Daily Amount: 348653 pounds Max Code: 05 100,000 - 999,999 pounds
Average Daily Amount: 172932 pounds Ave Code: 05 100,000 - 999,999 pounds

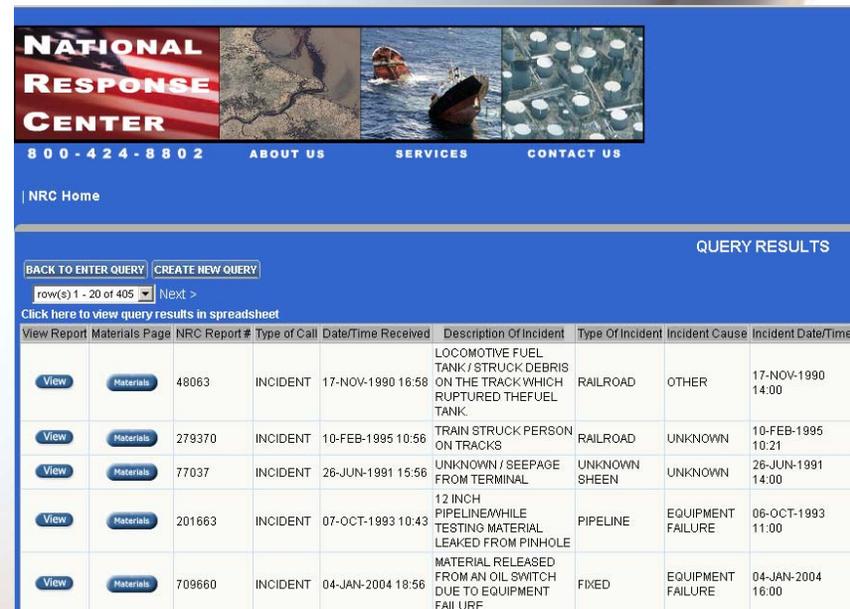
Max amount in largest container: pounds

CAMEO Suite

- CAMEO stands for Computer-Aided Management of Emergency Operations
- The CAMEO Suite is a system of software applications used widely to plan for and respond to chemical emergencies.
 - CAMEO – Database application
 - MARPLOT – GIS application
 - ALOHA – Dispersion modeling application
- Allows you to view, edit and analyze the Tier II data
- The programs are separate but work together

National Response Center

- 'Serves as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories' (at least in theory).
- You can sign up for email notifications of Connecticut incidents



The screenshot shows the National Response Center website interface. At the top, there is a blue header with the NRC logo and navigation links: '800-424-8802', 'ABOUT US', 'SERVICES', and 'CONTACT US'. Below the header, there is a 'NRC Home' link. The main content area is titled 'QUERY RESULTS' and contains a search bar with 'row(s) 1 - 20 of 405' and a 'Next >' button. Below the search bar, there is a link to 'Click here to view query results in spreadsheet'. The table below lists several incidents with columns for 'View Report', 'Materials Page', 'NRC Report #', 'Type of Call', 'Date/Time Received', 'Description Of Incident', 'Type Of Incident', 'Incident Cause', and 'Incident Date/Time'.

| View Report | Materials Page | NRC Report # | Type of Call | Date/Time Received | Description Of Incident | Type Of Incident | Incident Cause | Incident Date/Time |
|----------------------|---------------------------|--------------|--------------|--------------------|--|------------------|-------------------|--------------------|
| View | Materials | 48063 | INCIDENT | 17-NOV-1990 16:58 | LOCOMOTIVE FUEL TANK / STRUCK DEBRIS ON THE TRACK WHICH RUPTURED THE FUEL TANK | RAILROAD | OTHER | 17-NOV-1990 14:00 |
| View | Materials | 279370 | INCIDENT | 10-FEB-1995 10:56 | TRAIN STRUCK PERSON ON TRACKS | RAILROAD | UNKNOWN | 10-FEB-1995 10:21 |
| View | Materials | 77037 | INCIDENT | 26-JUN-1991 15:56 | UNKNOWN / SEEPAGE FROM TERMINAL | UNKNOWN SHEEN | UNKNOWN | 26-JUN-1991 14:00 |
| View | Materials | 201663 | INCIDENT | 07-OCT-1993 10:43 | 12 INCH PIPELINE WHILE TESTING MATERIAL LEAKED FROM PINHOLE | PIPELINE | EQUIPMENT FAILURE | 06-OCT-1993 11:00 |
| View | Materials | 709660 | INCIDENT | 04-JAN-2004 18:56 | MATERIAL RELEASED FROM AN OIL SWITCH DUE TO EQUIPMENT FAILURE. | FIXED | EQUIPMENT FAILURE | 04-JAN-2004 16:00 |

Homeland Security Information Network (HSIN)

- Homeland Security information portal
- Various groups including Public Health and GIS

The screenshot shows the HSIN website homepage. At the top left is the DHS logo and the text "HSIN | Homeland Security Information Network". To the right of the logo are links for "My HSIN", "Memberships", and the user name "David Kallander". Below this is a navigation bar with links for "About", "Governance", "Training", "HUWG Best Practices", "FAQs", and "Contact", along with a search bar labeled "Search this site...". The main content area features a large blue banner with the text "HSIN THE FRONT DOOR TO HOMELAND SECURITY INFORMATION" and a "VIDEO" badge. Below the banner is a "HSIN R3 Overview Video" player. To the right of the banner are two promotional boxes: "Take a HSIN Class!" and "Geospatial Resources". Below these is a "NTAS NO ACTIVE ALERTS" banner with the URL "www.DHS.gov/alerts". At the bottom, there are three sections: "HSIN ALERTS" (with a "View All Alerts" link), "HSIN ANNOUNCEMENTS" (with a "HSIN Case Studies Now Available on Central" link), and "HSIN EVENTS" (with a "HSIN Scheduled Site Maintenance" event listed for 11/9/2013 9:00 PM).

Geospatial Information Infrastructure



U.S. DEPARTMENT OF HOMELAND SECURITY **Homeland Security** Geospatial Information Infrastructure (GII)

[Home](#) | [OneView](#) | [GII Services](#) | [HSIP Freedom](#) | [DHS Earth](#)

Welcome

Welcome to the DHS GII, sponsored by the Office of Applied Technology/Geospatial Management Office.

OneView - Aerial Map View



Support

- [Contact](#)

Quick Launch

- [OneView](#)
- [GII Services](#)
- [HSIP Freedom](#)
- [Geocode Services](#)
- [DHS Earth](#)
- [NBIC](#)
- [Log Out](#)

The GII is a geospatial information environment for the Homeland Security community. The GII offers access to numerous geospatial capabilities to include web based map viewing, map services for web and desktop use, analytic services, and developer community support.

HSIP Freedom

The screenshot shows the HSIP Freedom web application interface. At the top is a blue header with the Department of Homeland Security logo on the left, the text "Homeland Security" in the center, and "Geospatial Information Infrastructure (GII)" on the right. Below the header is a dark blue navigation bar with buttons for "Home", "OneView", "GII Services", "HSIP Freedom", and "DHS Earth".

Under the "HSIP Freedom" button, there are three sub-sections: "Map Services", "HSIP Freedom", and "Geocode Services". The "HSIP Freedom" section contains the text "HSIP Freedom 2013 Download - How to use this page:" followed by a bullet point: "Click on any of the services and download the Zip file to your local machine".

To the right of the main content is a "Support" sidebar with a "Quick Launch" section. The "Quick Launch" section contains a list of links: "OneView", "GII Services", "HSIP Freedom", "Geocode Services", "DHS Earth", "NBIC", and "Log Out".

Below the "HSIP Freedom" section is a table with a single column labeled "Service Name". The table lists various service categories, each with a link:

| Service Name |
|---------------------------------------|
| Agriculture |
| Borders |
| Boundaries |
| Chemicals |
| Commercial |
| Communications |
| Education |
| Emergency Services |
| Energy |
| Finance |
| Food Industry |
| Geonames |
| Government |
| Landscan_USA |
| Law Enforcement |
| Mail Shipping |
| Mining |
| National Flood Hazard |

OneView

OneView Geospatial Information Infrastructure (GII)

The screenshot displays the OneView GIS application interface. At the top, the title bar reads "OneView" and "Geospatial Information Infrastructure (GII)". The main map area shows a satellite-style view of North America, with state and provincial boundaries labeled. The Great Lakes region is prominent, including Lake Superior, Lake Huron, Lake Michigan, and Lake Erie. Major cities like Ottawa and Washington are marked with red dots. The interface includes several toolbars and panels:

- Top Left:** A compass rose with cardinal directions (N, S, E, W) and a "Zoom" control.
- Top Center:** Map style selection buttons for "Road", "Aerial", and "Aerial With Labels".
- Top Right:** "Layer", "Query", "Conus", and "Find" buttons.
- Left Panel:** A vertical toolbar with icons for various GIS functions like pan, zoom, and layer management.
- Map Layers Panel (Left):** A window titled "Map Layers" with a "Default" tab. It contains a list of layers with expandable arrows:
 - Imagery Remote Sensing
 - FEMA IPAWS Alerts
 - Northcom
 - Wildfires
 - USGS Hazards
 - Red Cross
 - Weather, Ocean and Riverine
 - DHS Facilities and Assets
 - Federal
 - HSIP 2013
- Right Panel:** An "Overview Map" showing a smaller-scale view of the entire North American continent with a red box indicating the current map's location.

Risk Management Plans

- The regulation focuses on facilities with chemicals that could cause offsite health impacts
- Each regulated facility must prepare and implement a risk management program and maintain documentation of the program onsite in the form of a 'risk management plan' (RMP).
- The risk management program will include an analysis of the potential offsite consequences of an accidental release, a five-year accident history, a prevention program, and an emergency response program.
- Connecticut has 31 RMP facilities

Hazards Analysis

SENSITIVE INFORMATION
DISTRIBUTION REGULATED BY
FEDERAL LAW

Chemical Vulnerability Assessment

A GIS-Based Hazards Analysis of Selected
Connecticut Chemical Facilities



David Kallander, Ph.D.

October 2013



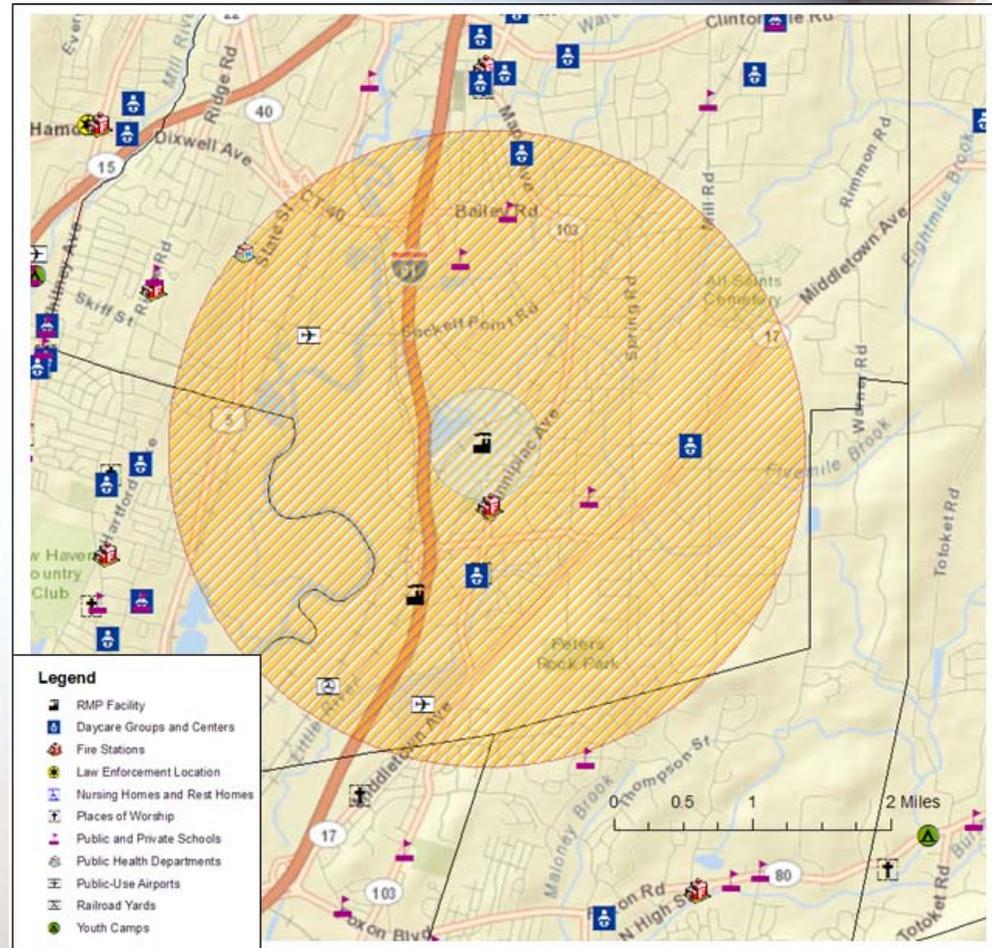
Environmental and
Occupational
Health Assessment
Program

Project Objectives

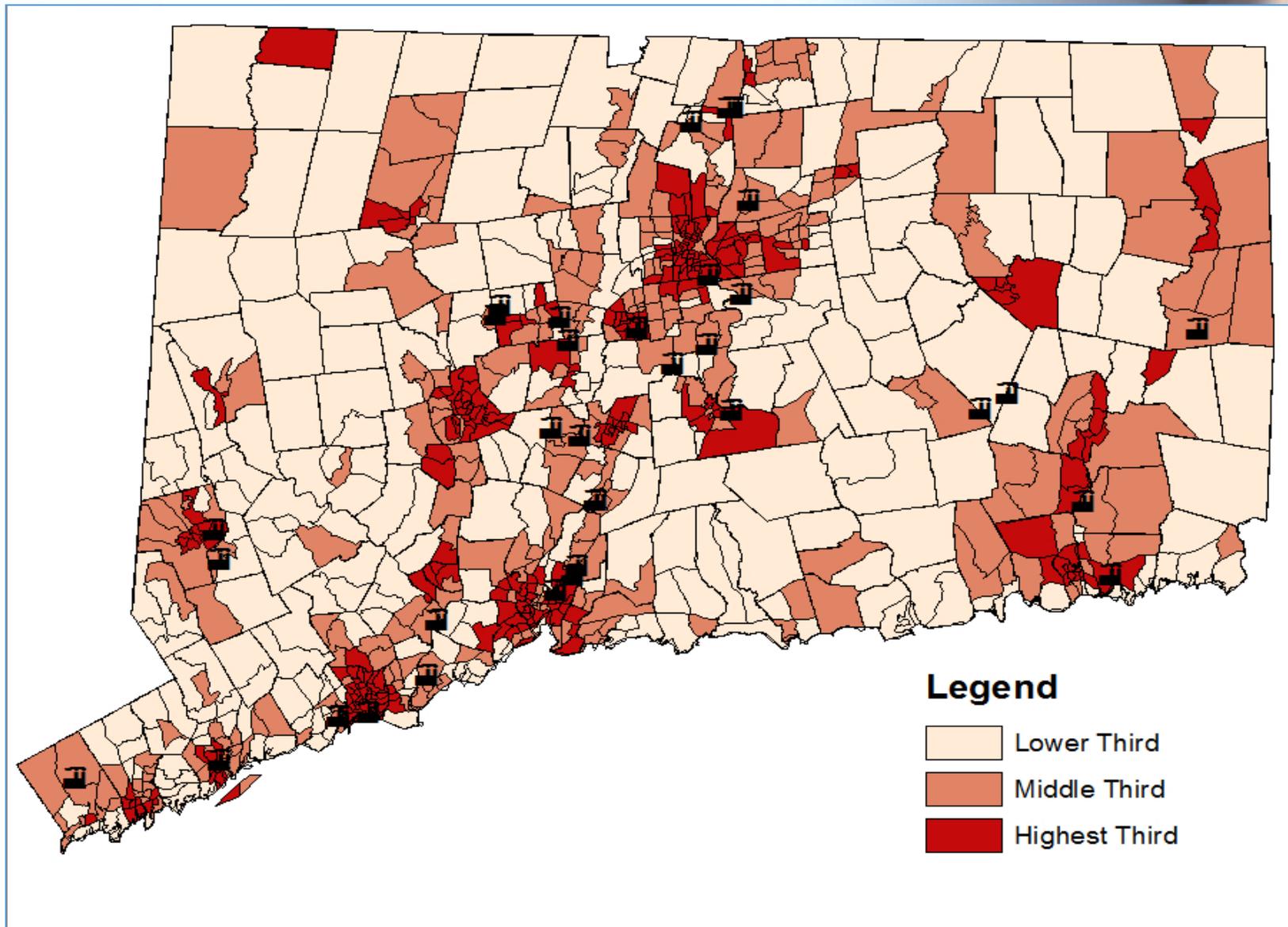
- Developed a vulnerable populations GIS that included 23 types of potentially vulnerable facilities including nursing homes, day cares and hospitals.
- Incorporated an ATSDR 'Social Vulnerability Index' that ranked census tracts based on socially vulnerable groups (elderly, poor, disabled, etc.) that might need extra assistance during an emergency
- Identify individuals and institutions vulnerable to a large-scale chemical release or vapour cloud explosion using vulnerability maps.

Vulnerability Maps

- Created vulnerability maps for 31 facilities
- Vulnerable zone radii for the 26 facilities with toxic chemicals ranged from 0.12 miles up to 45 miles, with an average radius of 3.3 miles and a median of 1.7 miles.
- Seven facilities had vulnerable zones greater than 2 miles.
- Daytime toxic releases or flammables explosions caused highest casualties for most facilities



Social Vulnerability



2007 Vulnerability Assessment

CONFIDENTIAL UNDER CSISSFERRA

Connecticut Chemical Hazard and Vulnerability Analysis 2007



David Kallander, Ph.D.
Gary Ginsberg, Ph.D.
Stewart Chute, Ph.D.
Brian Toal, M.S.P.H.



The End

- Even though Connecticut is a small state, chemical spills occur often
- Lots of tools are available for identifying hazards in the community like the Tier II Database and facility RMPs
- DPH Hazards Analysis will be sent to LHDs in (hard copy) in the next month