Association of State and Territorial ASTSWMO Solid Waste Management Officials

ECOS

EPA United States Environmental Protection Agency

NALGEP

Long Term Stewardship Roundtable and Training

April 4th and 5th, 2007

Afternoon sessions for
Thursday, April 5

Long Term Stewardship Roundtable and Training
April 4th and 5th, 2007

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Presentation slides are not included for all presenters, and session summaries are not included for the training sessions.

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**They Did the Mash, They Did the Data Mash (Plenary)**
Date and Time:	Thursday, April 5, 2007, 1:15 p.m.
Speakers:	Gary King, IL EPA Mike Bellot, EPA OSRTI Eric Waldman, Microsoft Virtual Earth Rick Bergquist, Locus Technologies Neno Duplancic, Locus Technologies Paul Ross, ESRI

Introduction by Gary King (IL EPA)

- What makes long-term stewardship work?
- Three key points:
  - Need to have effective cleanups.
  - Need to have an effective legal structure.
  - Need to have effective monitoring systems.

Eric Waldman Presentation
New Horizons in Web Mapping Services

Eric provided the following links related to his presentation:
http://kcmiller.com/
http://maps.live.com/

Questions and comments related to the presentation were as follows:

- Is there a way to connect the ESRI GIS information with 3D information? What can I do to make this happen quickly?
  - It can happen quickly. A number of partners have tools that make it simple, so that within hours you can have data available. You can create your own collections from Virtual Earth systems (www.virtualearth.com). Mr. Waldman gave an example of someone who made this happen in just 16 hours.

- Is data updated even if it is not being used?
  - Data is updated whether it is being used or not. Depending on areas of growth, data is updated every one to two years.

- Do you obtain your data from EPA, state and local Web sites?
  - No. We do not access your data, so it is only updated as often as you update it.

- Will Microsoft consider taking environmental site data and allowing access through Microsoft's Web site? This would allow greater accessibility as Microsoft's Web site is more easily accessible than agency Web sites where IC information in typically displayed.
  - Microsoft ventured into this arena with real estate, but backed off. Microsoft is acquiring data layers of this type, but is not allowing access to the general public. They could be available in the future, however.

- Given homeland security, this technology could also be a negative tool.
  - (Reply) There have been questions about this in the past from the CIA. Most of the data is already old and shows events after they have occurred. Mr. Waldman feels there is more value in this technology than negative effects.

Rick Bergquist Presentation
Technological Changes Affecting System for Long-Term Stewardship

Questions and comments related to the presentation were as follows:

- These are very valuable tools, but we need to keep in mind the input data might be obsolete or inaccurate.

- Do you see value in multidirectional flows of information (e.g., from EPA to others)?
  - Mr. Bergquist showed the flow of information as a linear model in his slides, but it really is a circular model.

Paul Ross Presentation
Using ESRI's ArcWeb Services for Mash-Ups

Paul provided the following links related to his presentation:
http://www.arcwebservices.com/awx
http://www.cingular.com/coverageviewer/
http://plasma.nationalgeographic.com/mapmachine/
http://www.universalmind.com/demo/sfpd/SFPDDemo.html

Questions related to the presentation were as follows:

- Can we resolve down to the property level in terms of detail with this technology?
  - Yes, we can help customers find specific datasets like that. With the ArcWeb tools, there are 167 datasets that can help you build your menu.

- Is there a plan to make some of these Web services free?
  - Yes, we are going to create some simple tools to get data out there. But some will also remain for the ESRI subscribers.

- Can we take GIS data and convert it to a legal description through the use of software?
  - Mr. Ross is unsure, but he will follow up with someone who might know the answer.

- Are the parcel data provided as part of the product or do the customers provide the parcel data?
  - (Paul) Parcel data can be connected if the customer provides them. ESRI provides the software tools.
  - (Eric) Microsoft does not service the parcel data, but it plans on offering parcel data.

- How is the temporal component of data dealt with?
  - (Eric) We do not throw data away, but the simplest thing to do is show the newest. We are looking at displaying the metadata from the past. This avenue needs to be explored further.

<u>Wrap Up by Mike Bellot</u>

- When tying LTS together, collaboration is very important. We still have our IC data in stovepipes. These companies can allow us to make the data more available and we need to do this.
- It would be nice to see not only the federal, but the state and local data as well.
- Mapping this information would be extremely useful.
- Hopefully at the next LTS conference we will be giving presentations on how we are doing this.
- Truths that have come out of this meeting:
  - EPA, states, and locals are not going to have enough money to solve all problems so need to rely on each other.
  - There are shared objectives into getting ICs in place.
  - The spirit of innovation is alive at the federal, state, and local levels.
  - EPA, states, and locals can learn from one another.
  - These issues are hard—a lot of people and time are needed, but we are making progress.
  - The IT and information exchange has a lot of potential.
  - Industries and locals are underrepresented at the meeting.
  - Bridge work needs to be done to make connections.
- Top 10 reasons LTS is important to you:
  - You are now more educated than 90 percent of your peers; you are an inspiring national expert.
  - Take a look at the presentations on the Web sites and schedule meetings with your managers.
  - Look at the discussion notes from these meetings.
  - Take the ideas home and make them better.
  - Help shape the next steps. There is a high burnout rate, but the resource burnout rate is higher.
  - You know all the players now—everyone at this conference.
  - Wine tasting.
  - Omni in San Diego resort.
  - Continental breakfast.
  - Haagen Daz and cookies in the hallway.

Using ESRI's ArcWeb Services For Mash-Ups

By Paul Ross
Product Manager, ESRI

San Diego, CA
April 5, 2007

Today's Presentation

1. ArcWeb Services overview

2. Demonstrate why ArcWeb might be a collaborative solution for the communication of EPA data

3. Live demonstrations
   a. Show what's possible
   b. How *you* might collaborate using a Web-based solution

ArcWeb Services

1. Integrate mapping, routing, and geographic reporting into a Web (Browser), Wireless, or Desktop application.

2. A complete sophisticated spatial solution without hosting any of the content or software.

3. Quick and efficient development and deployment.
   Hours not days using API's for REST SOAP, Java

ArcWeb Services

- More than points on a map ... providing solutions:

1. Mapping
2. Routing
3. Find
4. Drive Times
5. Demographics and thematic mapping
6. And much more

ArcWeb Service

1. Built on ESRI's industry-leading GIS software but in a ready-to-Use format. Powerful and sophisticated in simplicity.

2. Base-level datasets provided by industry's leading data providers that we host and maintain.

3. Custom datasets easily uploaded and maintained by our customers.

4. For More Information:

www.arcwebservices.com
www.esri.com

The EPA, ESRI & ArcWeb

1. Positioned well to provide ready access to EPA data to commercial, state and local governments.

2. We can facilitate the availability of EPA information to support analysis and better decision making that affects our environment.

3. ArcWeb can be an environment for federal and state partners to provide information in a browser-based environment that is easy to deploy, maintain and *use*.

ESRI

Demonstrations

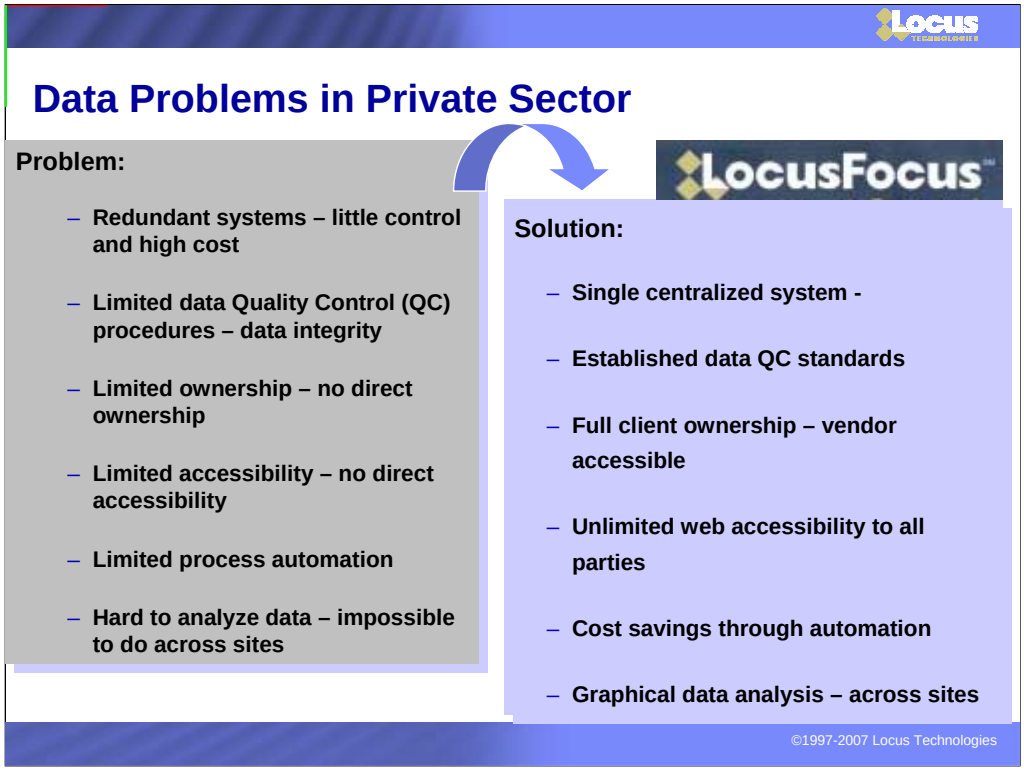
1. Easy to Use Mapping Functions
   a. Find
   b. Directions
   c. Pan & Zoom

2. Dynamic Data & User Interface
   a. Earthquake Feed from USGS
   b. EPA Data Points
   c. SF Police Demo
   d. Map Book Interface

3. Maps
   a. Types
   b. Thematic Maps

Rick Bergquist is Senior Software Adviser/Chief Evangelist for Locus Technologies headquartered in Silicon Valley . Locus provides on-demand environmental information management applications designed to reduce operational costs, enable long-term monitoring, and allow for cross-site analysis of environmental risk. Prior to Locus, Rick was Chief Technology Officer of PeopleSoft where he was responsible for product vision and direction of PeopleSoft's ERP applications. As a founding father of one of the most successful software companies in the world, Mr. Bergquist brings advanced understanding of the power of applied technology and the business benefits it can bring to Locus customers.

Rick will be identifying the technological changes affecting software applications today and how they should be applied in managing vast quantities of data coming from environmental characterization, cleanup, and Long Term Stewardship.

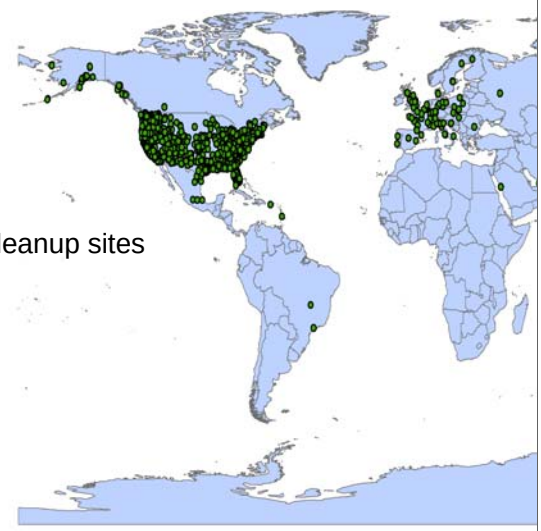


Driving Forces:

- Allow analysis of portfolio by region, manager, state, chemical, status, etc
- companies didn't have control of their own data
- inefficient processes around capture
- inadequate quality controls on the data
- Hard to see and visualize the data they were dealing with
- Poor ability to analyze information across sites within their organization

LocusFocus Solution

- System deployed worldwide
- 35,000 sites online
- Typical customers –
  large corporations with many cleanup sites
  - Exxon Mobil
  - Chevron
  - Shell
  - DOE – SLAC
  - Raytheon
  - Texas Instruments
  - Honeywell, …
- Software as a Service Implementation



Locus built a suite a products to handle this: predominate are eSite and the Environmental Information Management System (EIM) to solve these problems.

EIM contains data on about 35,000 sites.

We support companies with global operations: ExxonMobil, Chevron, Honeywell, BASF, Conoco Phillips, ….

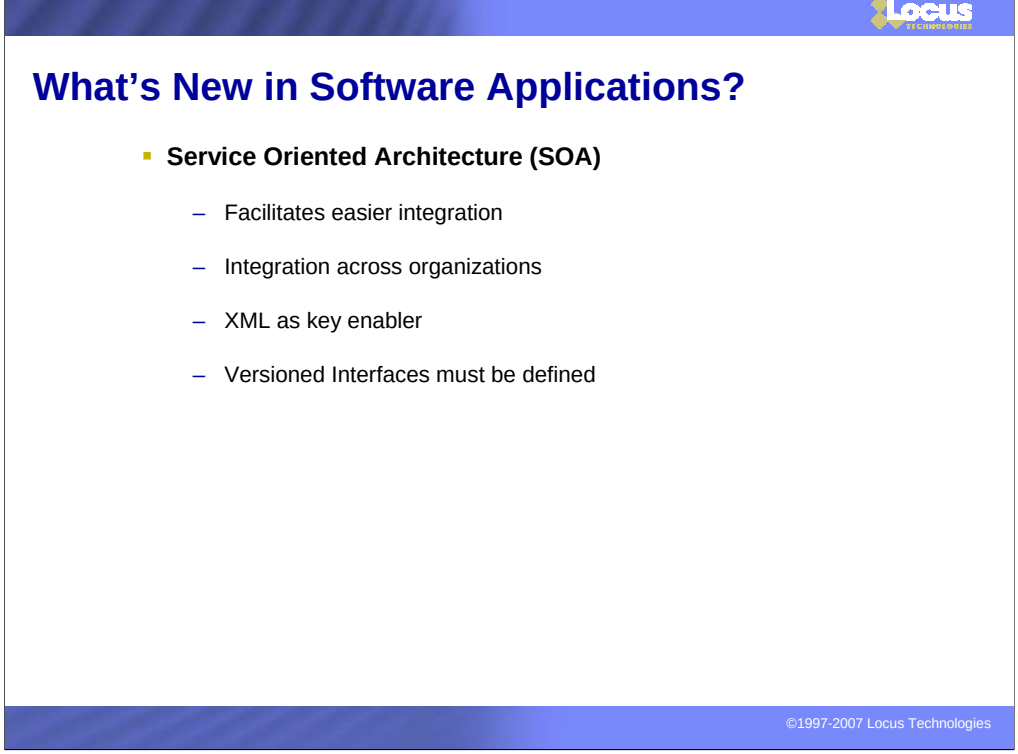
EIM is used on thousands of sites worldwide to manage analytical data, environmental data sets, prepare reports, validate data, create boring logs and cross sections, display aerial photos, and more

SAAS – Software as a Service

Where is the future of software? I have become a convert to the concept of Software as a Service. Software that runs on the vendor's machine and you access it and interface with it over the web – either through a browser or through web services.

Why is this the future? Simply it gives you a better application at a lower overall cost. I've generally found that transitions such as this stick when there are benefits for both the customer and the vendor. What are the benefits?

Customer Benefits



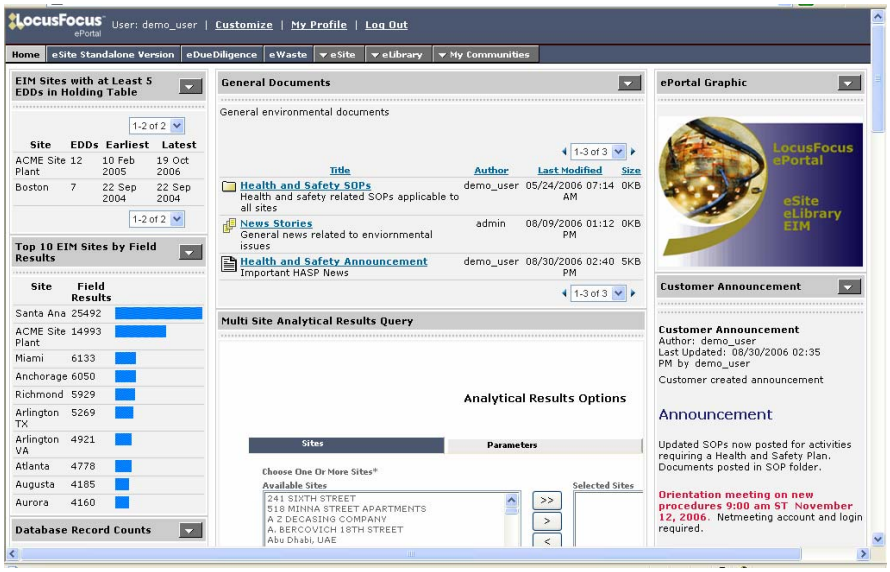
SOA – Service Oriented Architecture (aka Web Services, XML)

It has been said that "No Man is an island". Well that is even truer for applications – for them to be valuable, they need to interconnect with each other. Information needs to kept in one master, but used everywhere. In the past, interfaces were very, very tough to build and once built they were extremely rigid. They were built of compiled code or database schemas. Change meant recompiling and recoding all of your applications.

This big problem led to a relatively simple technology evolution called XML – eXtensible Markup Language whose purpose was to make interfaces less rigid. The key was the eXtensible part – you all know that applications change over time and when they do, the interfaces have to change to, but the change needs to be controlled – you need to keep the old version of the interface working so applications you're not ready to change continue to work. And for those applications that you want to change to take advantage of new features exposed by the new interface.

Now, this evolution has been going on for 5 years now. Sometimes when something has been going on for 5 years you want to say give up. But not in this case, you have to look at SOA as a journey, not a destination. SOA gets better and better as more applications embrace it. It is easier to interface that 2nd or 3rd application once you built the interfaces.

Locus Portal - Dashboard Approach

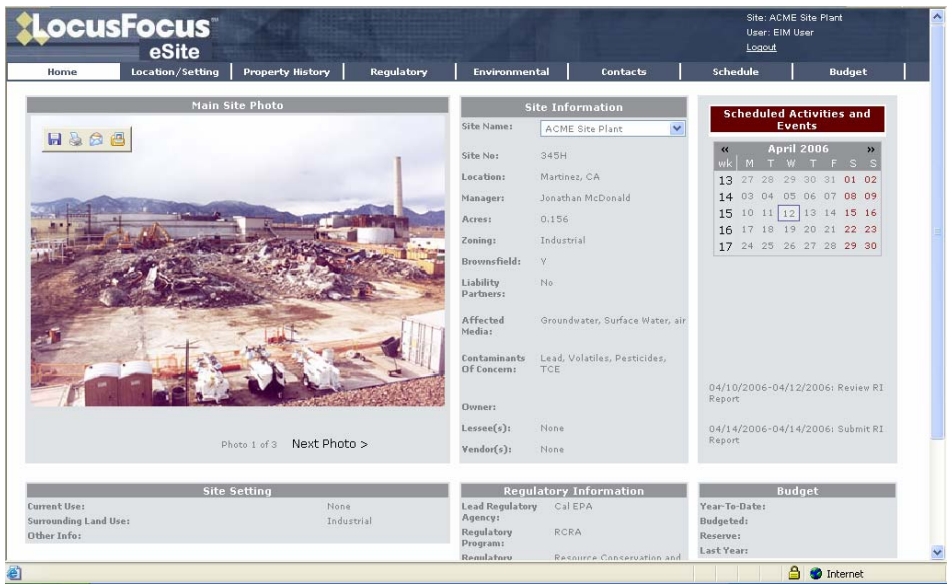


Demo of system –

•Portal provides easy access to system, display of key performance indicators

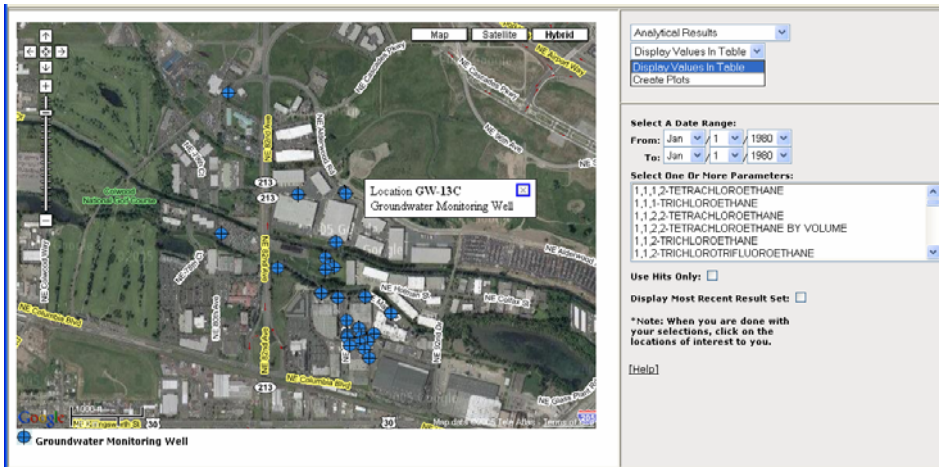
•Full access to documents – allows full collaboration.

eSite – Site management tool



Demo of system – maintain all critical data on cleanup sites.

Interaction between Google Maps & System



Demo of Locus system.

-Google map shows location of site & Monitoring wells (blue dots)

-Provides capability to do reporting & analysis from this map

-Select well (click on blue dot) & select report desired

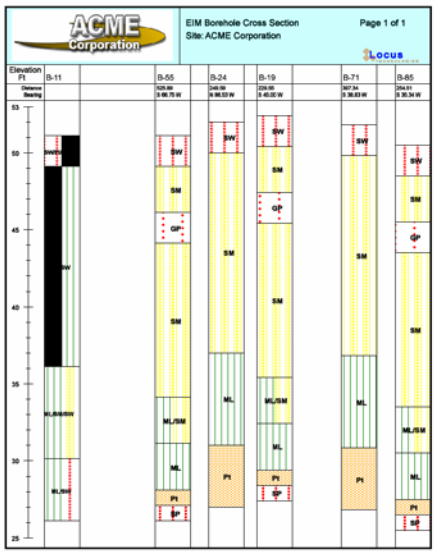
-- show exceedences – EPA, state, or custom by pollutant

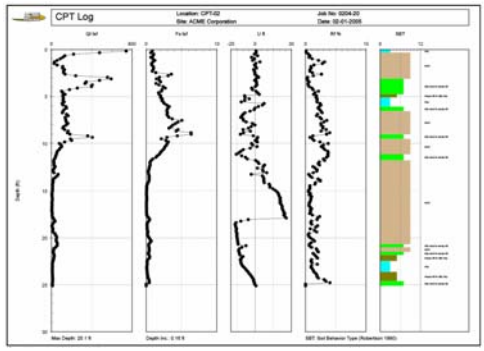
-- draw a polygon and select a set of wells – do reports based on a collection of monitoring wells

-- select a well and show a Bore Log

System doesn't display "dead dots on a map", rather its an active part of the user interface and makes people more productive in their jobs.

Automated Boring logs and CPT logs

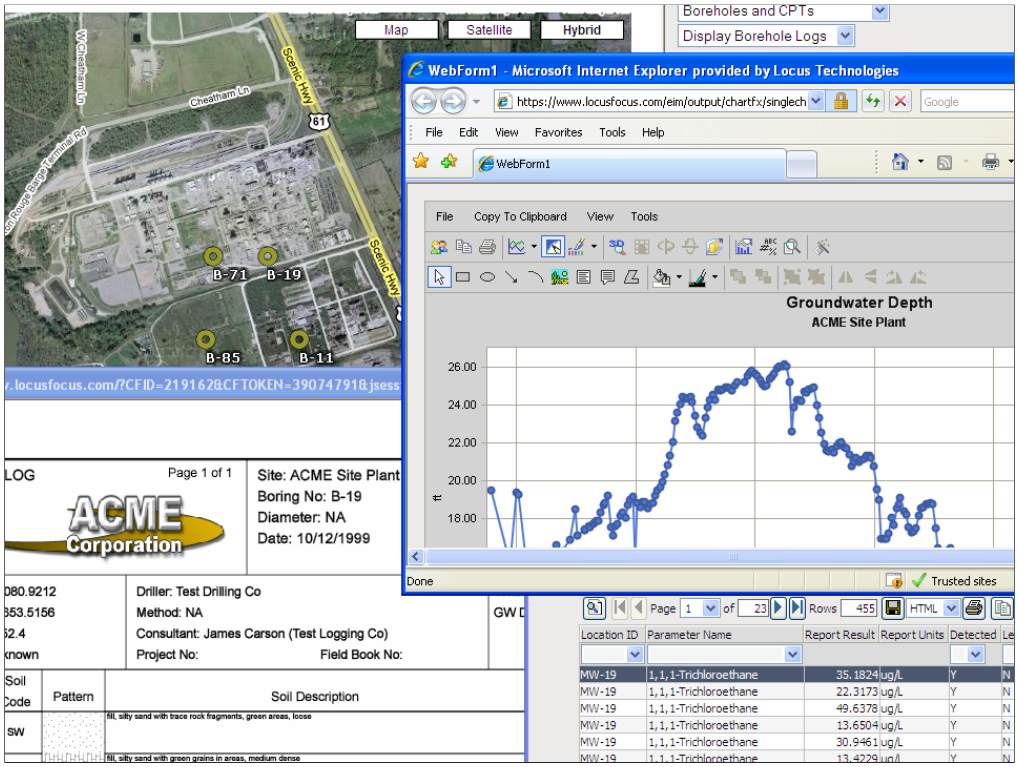




Demo of Locus system.

Dynamically created bore log that shows both geographical and chemical data in one place.

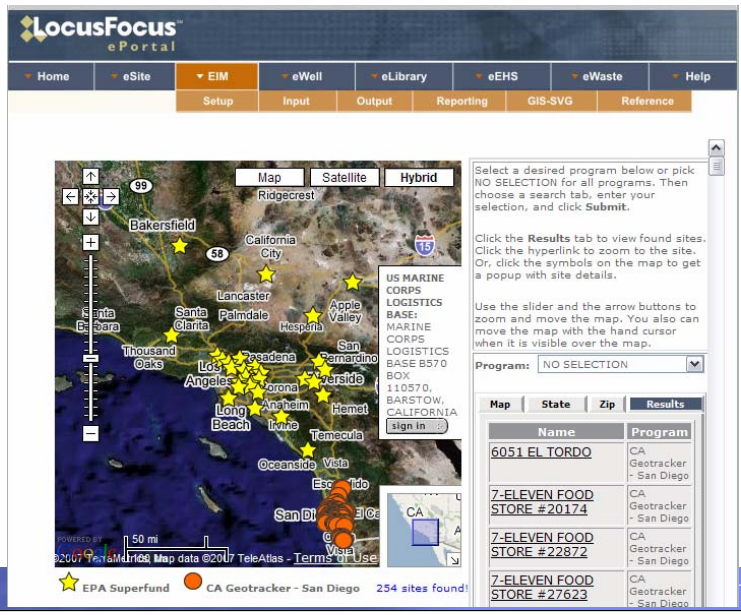
Chart is active and allows you to drill down into the data for the bore hole. Look at information at each depth.



Demo of Locus system.

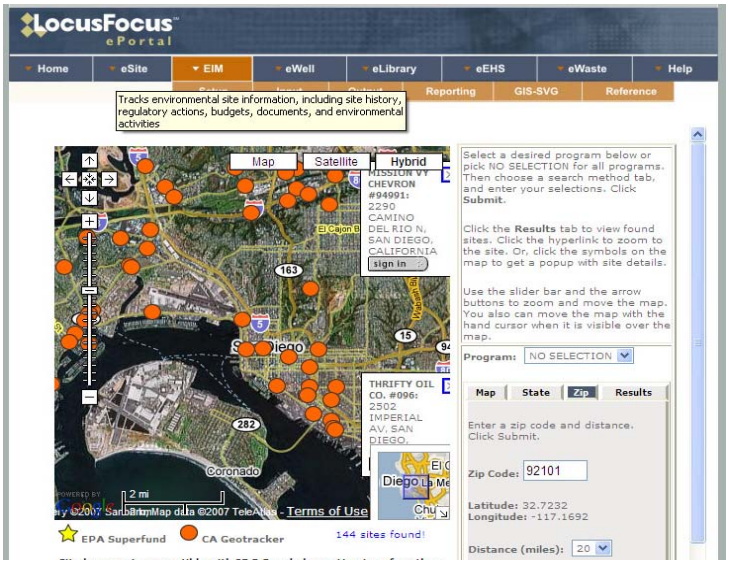
Examples of some of the analytics and reports available within the Locus System.

Superfund Sites in San Francisco, California

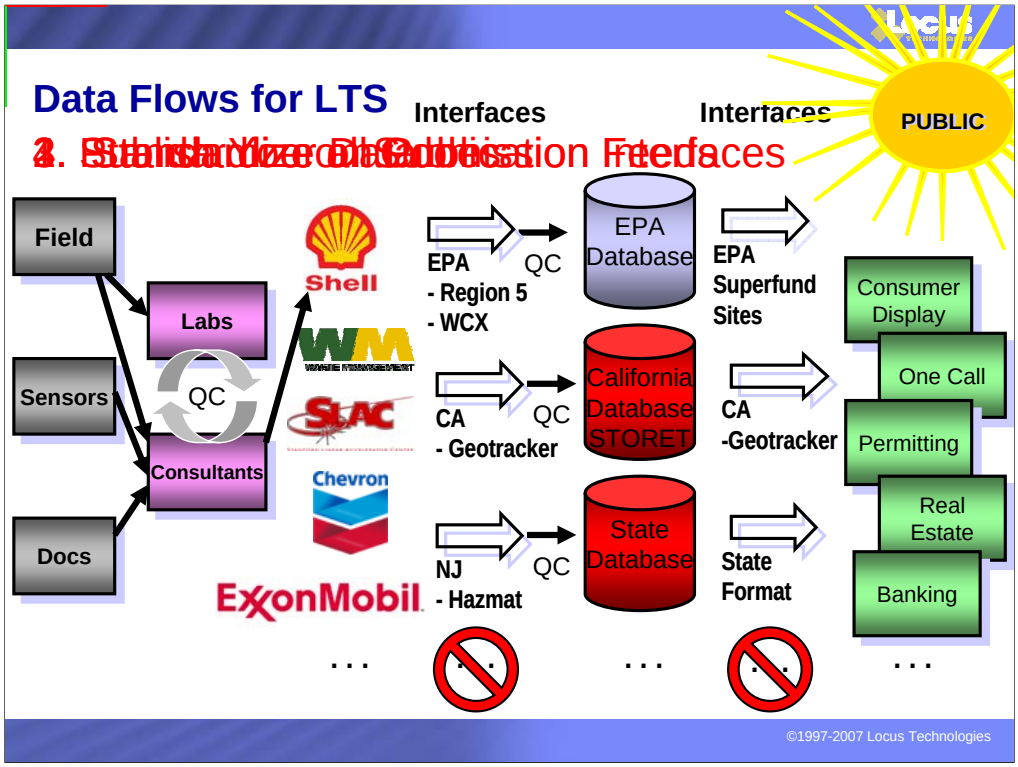


Posted on Locus' web (www.locustec.com) web-site is a mashup of sites on the EPA Superfund sites and the California Geotracker sites.

CA Geotracker Sites in San Diego, California



More detail on Geotracker sites



Initial display shows Government submittal interfaces and databases/applications.

But in reality, the data that goes into these systems usually comes from companies managing cleanup sites. The data comes from the field, sensors, or hardcopy documents. Submissions are to labs and then in the optimum scenario electronically submitted to the systems and reviewed by consultants. This results in quicker processing time and data that has gone through much higher QC standards. This data is then submitted to the appropriate regulatory authorities using a multitude of interfaces.

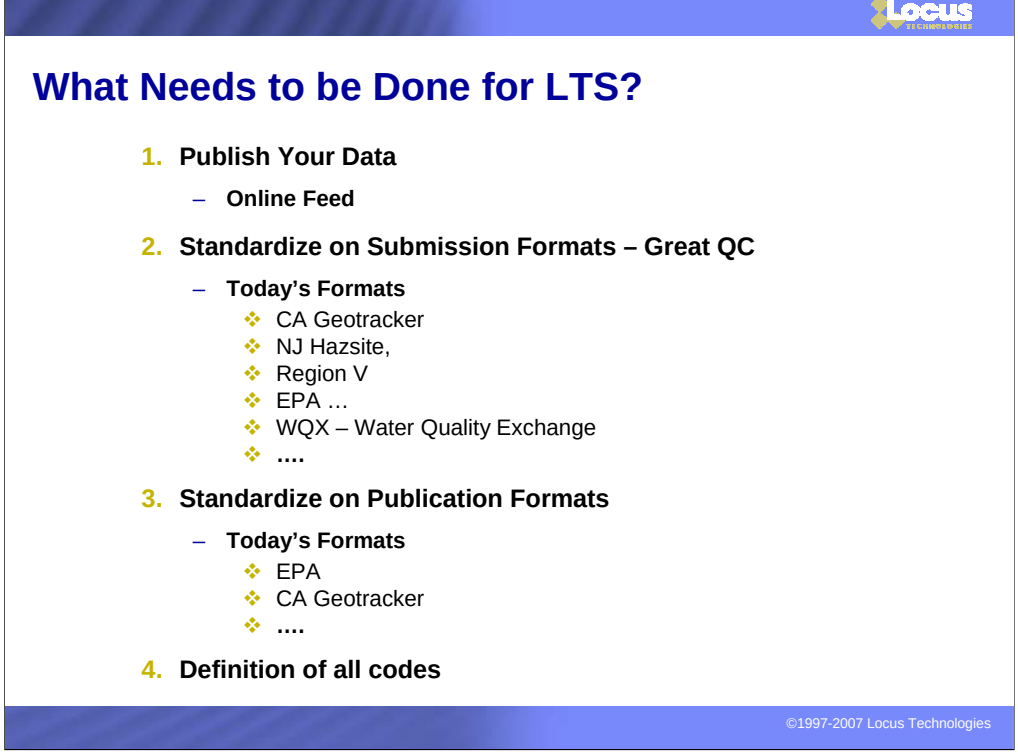
The process exists for each company reporting data.

The latest evolution has been the public disclosure of the data in well defined interfaces using web services and XML definitions.

From these public disclosure of data, an abundance of applications will be developed limited only by the imagination of the general public. Success of the disclosure will occur when you can't count the applications that have been developed. Just like the release of Google maps has led to countless mash-ups of between their maps and the public's data.

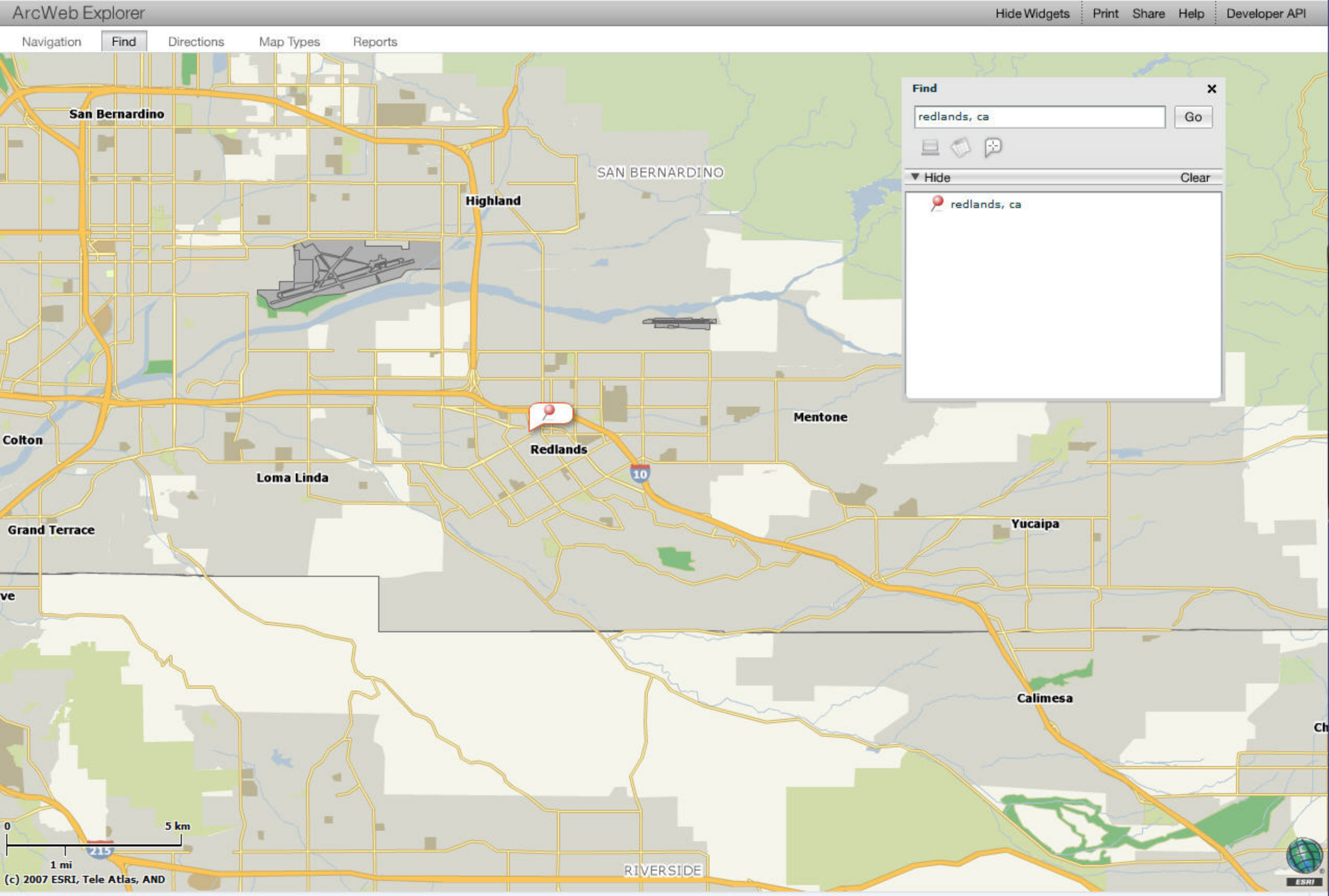
What Needs to be done for LTS?

1. **Publish Your Data** - All entities should make as much data available as possible



What Needs to be done for LTS?

1. **Publish Your Data.** All entities should make as much data available as possible. "Sunlight is the best of all disinfectants" **-** Louis D. Brandeis, noted Supreme Court Justice. From the publication of you data, the public can make use of it and the press interested individuals can be involved in making sure LTS succeeds.
2. **Standardize on Submission Formats.** Already today, Locus's applications support a number of formats – each unique, but covering the same data space. Let's stop reinventing the wheel. You'll get cleaner data into your systems quicker if you agree on a standard format.
3. **Standardize on Publication Formats.** For applications to be useful across all states or localities, you want them to be able to use the same format of data. Otherwise you have to wait for a program specific to your locale and you may be a long time in waiting. Environmental Data will be more widely used if you don't create a new format each time. Think of the analogy in the commercial space – if you are a bank, you want to publish your data in a format that Quicken supports instead of hoping that Quicken will support your unique format.
4. **Standardize Code Values.** You are working with EDSC – Environmental Data Standards Council –EPA/States/Tribes sets standards for defining XML transactions. This is good. I've looked through the standard and the XML formats are sound, but a number of fields have "Example List of Values". You need to get these evolved to "List of Acceptable Values" . You need a definitive list and it will cause problems if different orgs use different values. We need a definitive list in order to automate the processing of this processes and to do this you have to have definitive data values. You are the most qualified to define these values. If you don't who will? Who is better qualified. This is tough work, but for long term progress it has to be done. If you don't, then the less qualified will make their best guesses and you'll be stuck with the results.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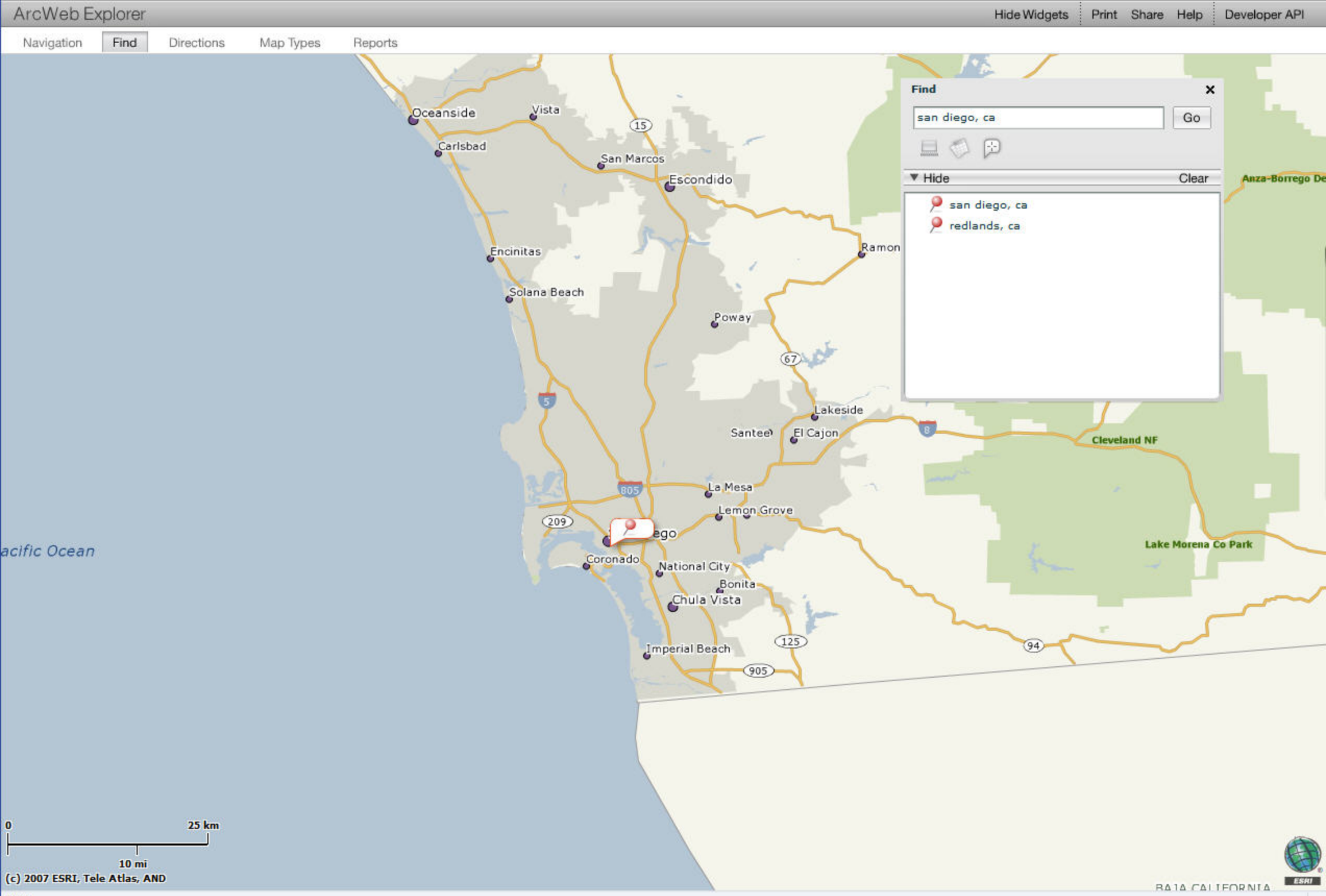
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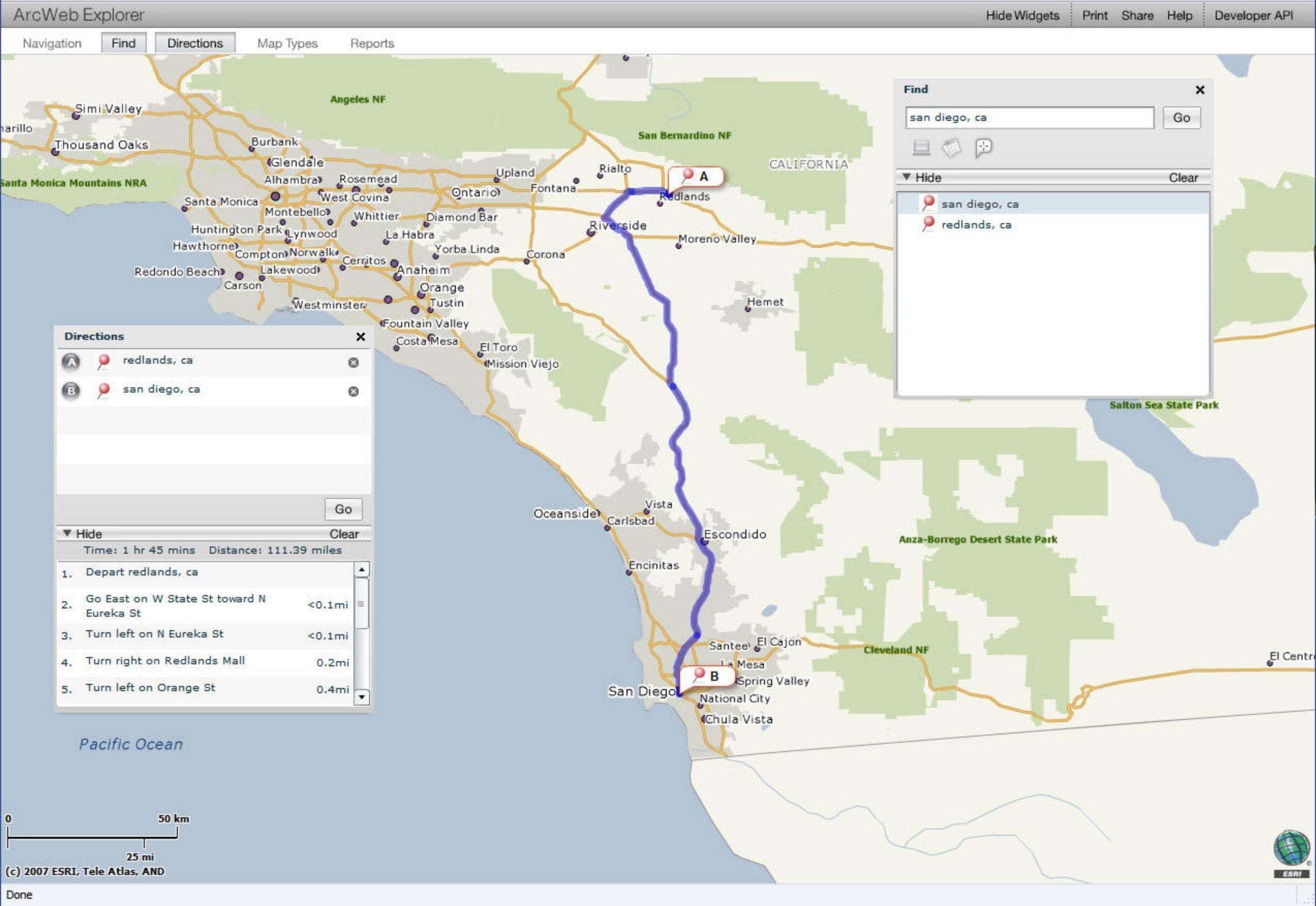
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redlands, ca
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Time: 1 hr 45 mins Distance: 111.39 miles
1. Depart redlands, ca
2. Go East on W State St toward N Eureka St <0.1mi
3. Turn left on N Eureka St <0.1mi
4. Turn right on Redlands Mall 0.2mi
5. Turn left on Orange St 0.4mi
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Angeles NF
San Bernardino NF
CALIFORNIA
Santa Monica Mountains NRA
Salton Sea State Park
Anza-Borrego Desert State Park
Cleveland NF
Simi Valley
Thousand Oaks
Burbank
Glendale
Alhambra
Rosemead
West Covina
Ontario
Upland
Fontana
Rialto
Redlands
Riverside
Moreno Valley
Santa Monica
Montebello
Whittier
Diamond Bar
Huntington Park
Lynwood
La Habra
Hawthorne
Compton
Norwalk
Yorba Linda
Corona
Cerritos
Anaheim
Redondo Beach
Lakewood
Carson
Orange
Tustin
Westminster
Fountain Valley
Costa Mesa
El Toro
Mission Viejo
Hemet
Oceanside
Vista
Carlsbad
Escondido
Encinitas
Santee
El Cajon
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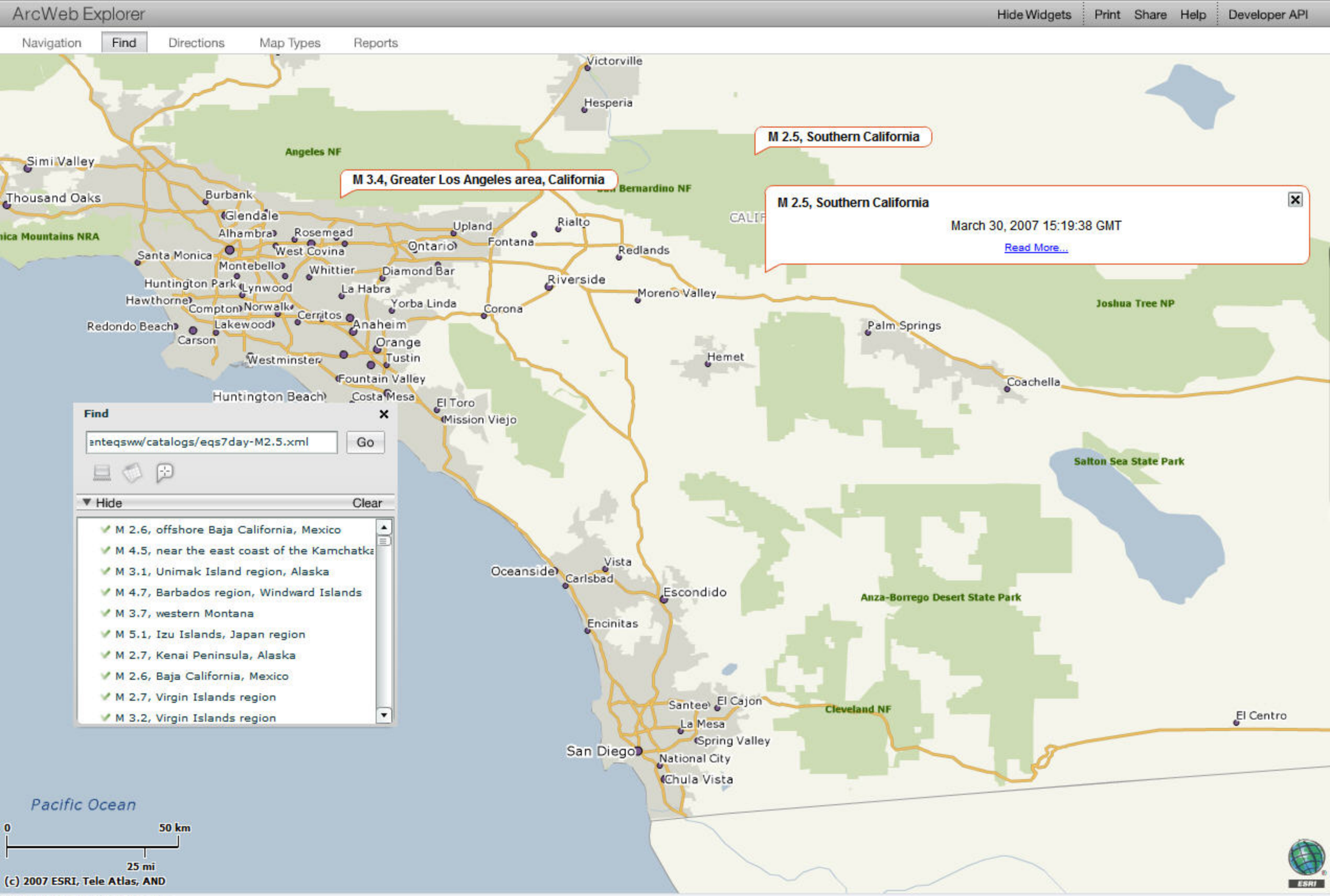
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M 4.5, near the east coast of the Kamchatka
M 3.1, Unimak Island region, Alaska
M 4.7, Barbados region, Windward Islands
M 3.7, western Montana
M 5.1, Izu Islands, Japan region
M 2.7, Kenai Peninsula, Alaska
M 2.6, Baja California, Mexico
M 2.7, Virgin Islands region
M 3.2, Virgin Islands region
Victorville
Hesperia
Angeles NF
Simi Valley
Thousand Oaks
Burbank
Glendale
Alhambra
Rosemead
West Covina
Upland
Ontario
Fontana
Rialto
Redlands
Riverside
Moreno Valley
Joshua Tree NP
Palm Springs
Coachella
Hemet
Santa Monica
Montebello
Whittier
Diamond Bar
Huntington Park
Lynwood
La Habra
Yorba Linda
Corona
Hawthorne
Compton
Norwalk
Cerritos
Anaheim
Redondo Beach
Lakewood
Carson
Orange
Tustin
Westminster
Fountain Valley
Huntington Beach
Costa Mesa
El Toro
Mission Viejo
Salton Sea State Park
Vista
Oceanside
Carlsbad
Escondido
Anza-Borrego Desert State Park
Encinitas
Santee
El Cajon
La Mesa
Spring Valley
San Diego
National City
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Navigation

Find

Incidents

Select Range:

18
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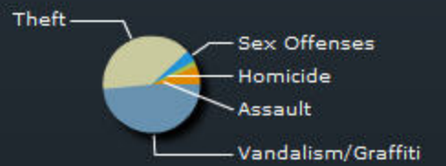
Filters: D G E J P

Incident Breakdown by Type



Select a type to display detailed breakdown.

Map

SHOW INFO SHOW BY DATE

Incident #	107	Classification	
Type	Vandalism/Graffiti	Officier	
Sub-Type	Private Business	Watch	
Date	03-14-2007	Address	3174 16th St

Timeline

PLAYBACK SPEED

March April

City and County of San Francisco

Police Department

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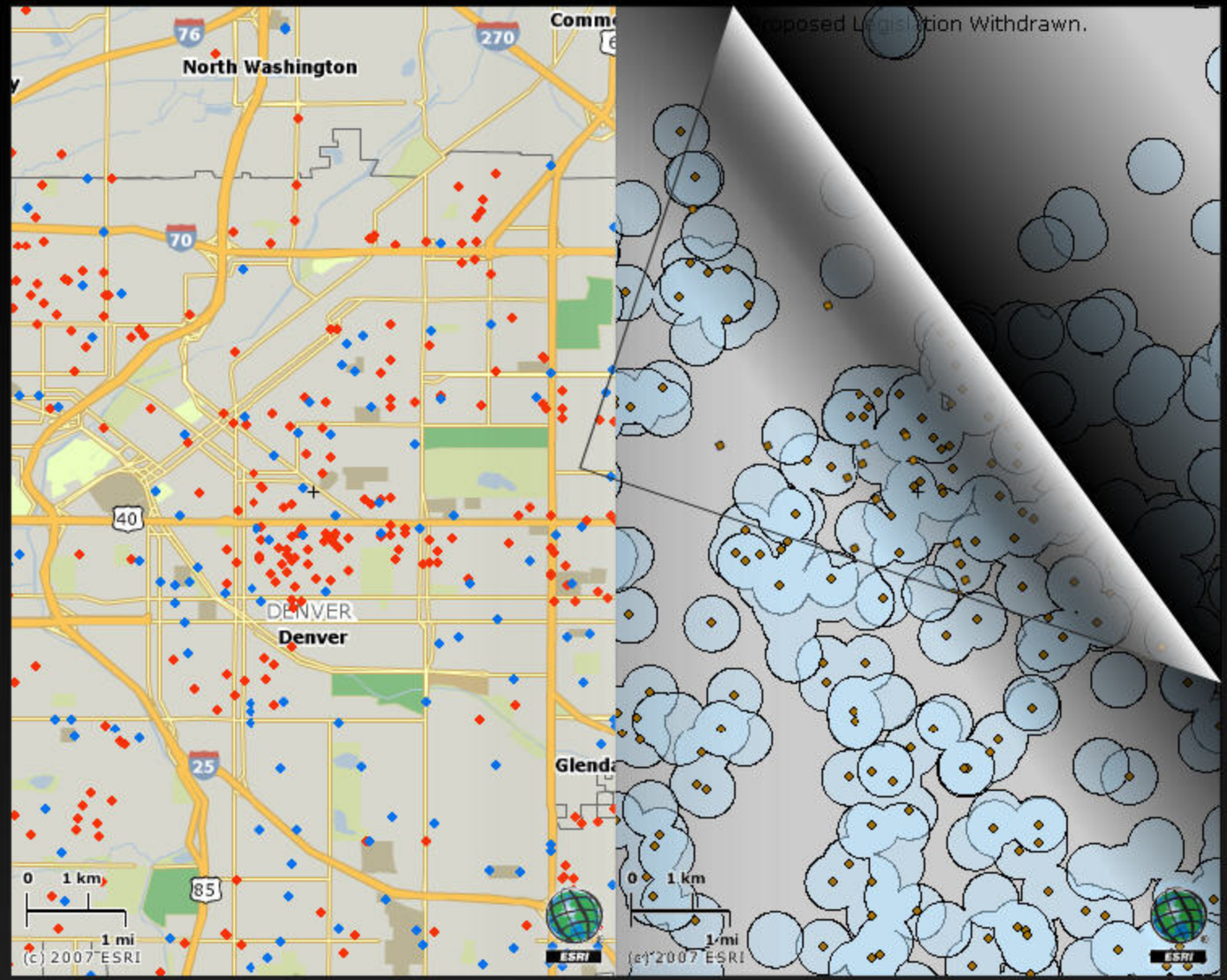
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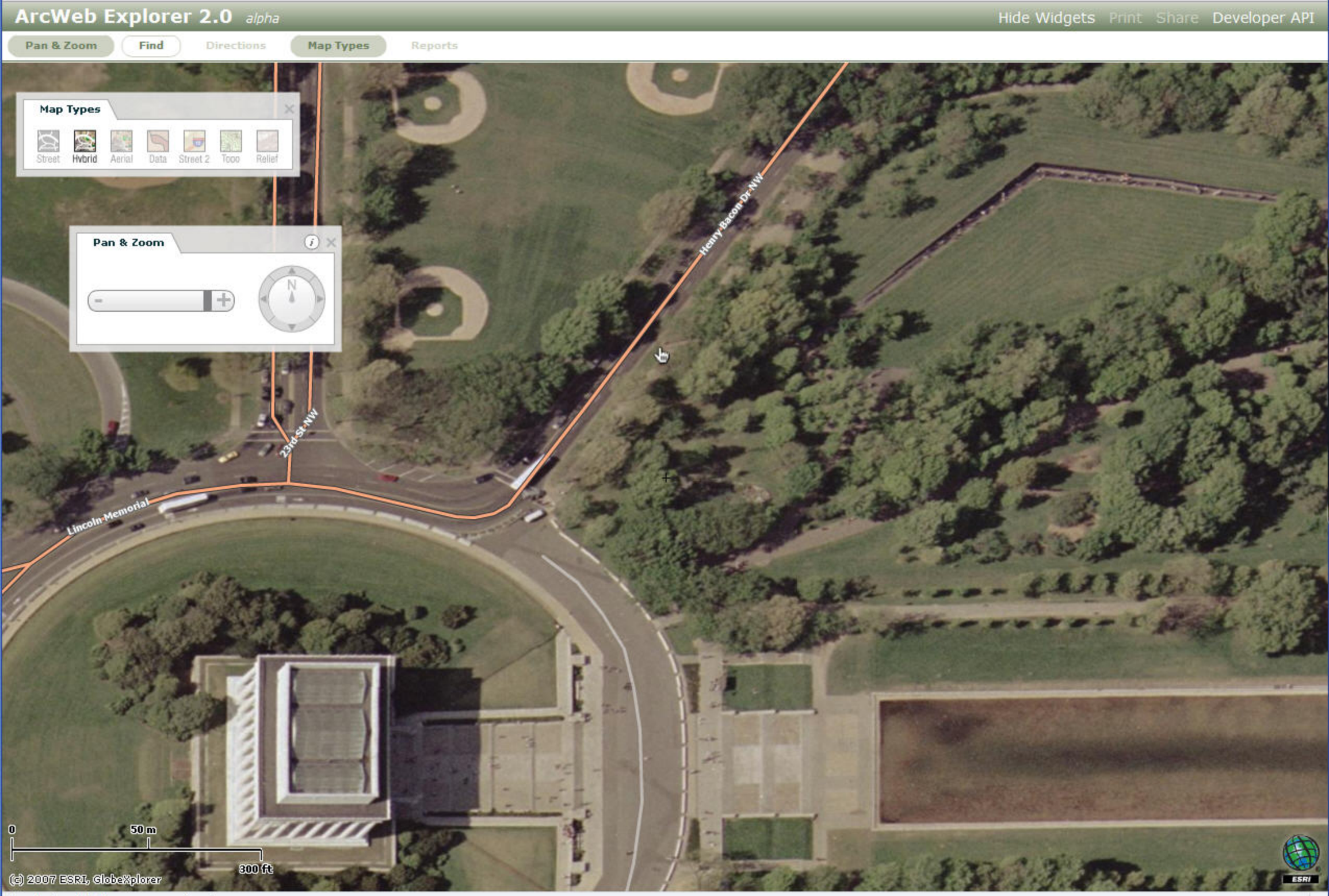
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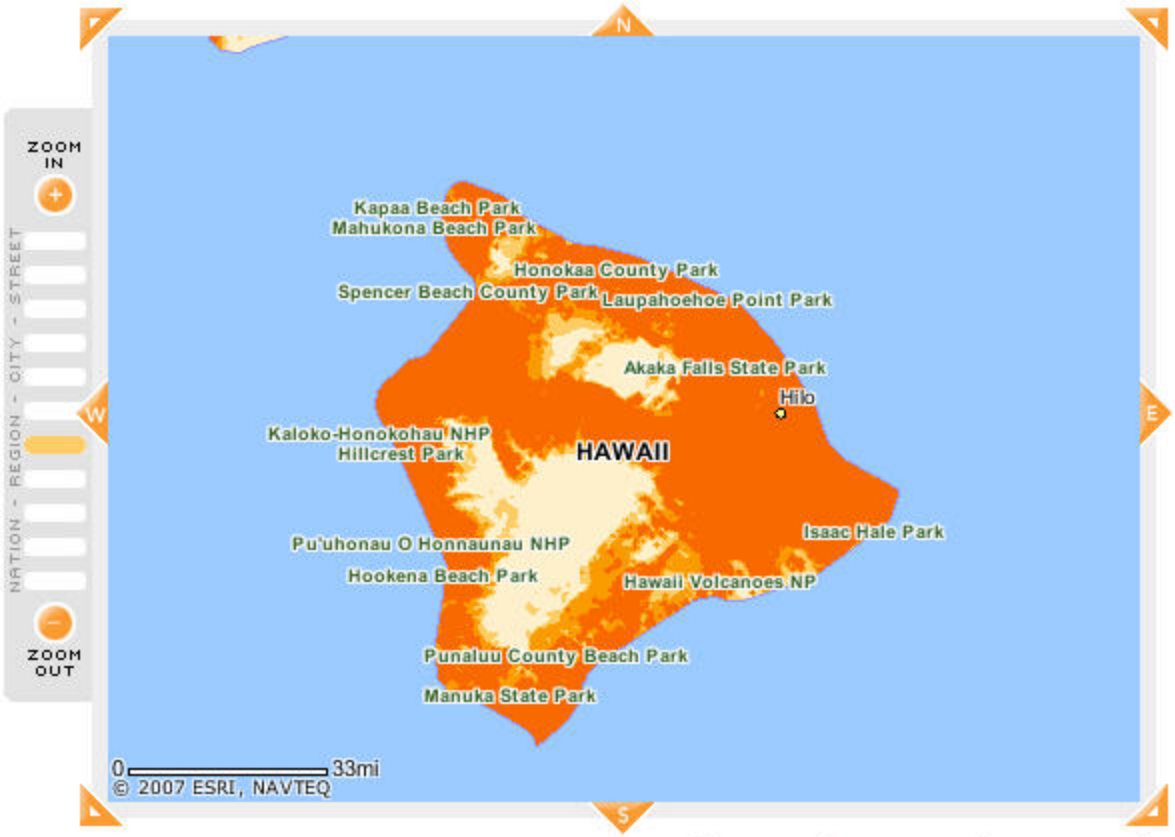

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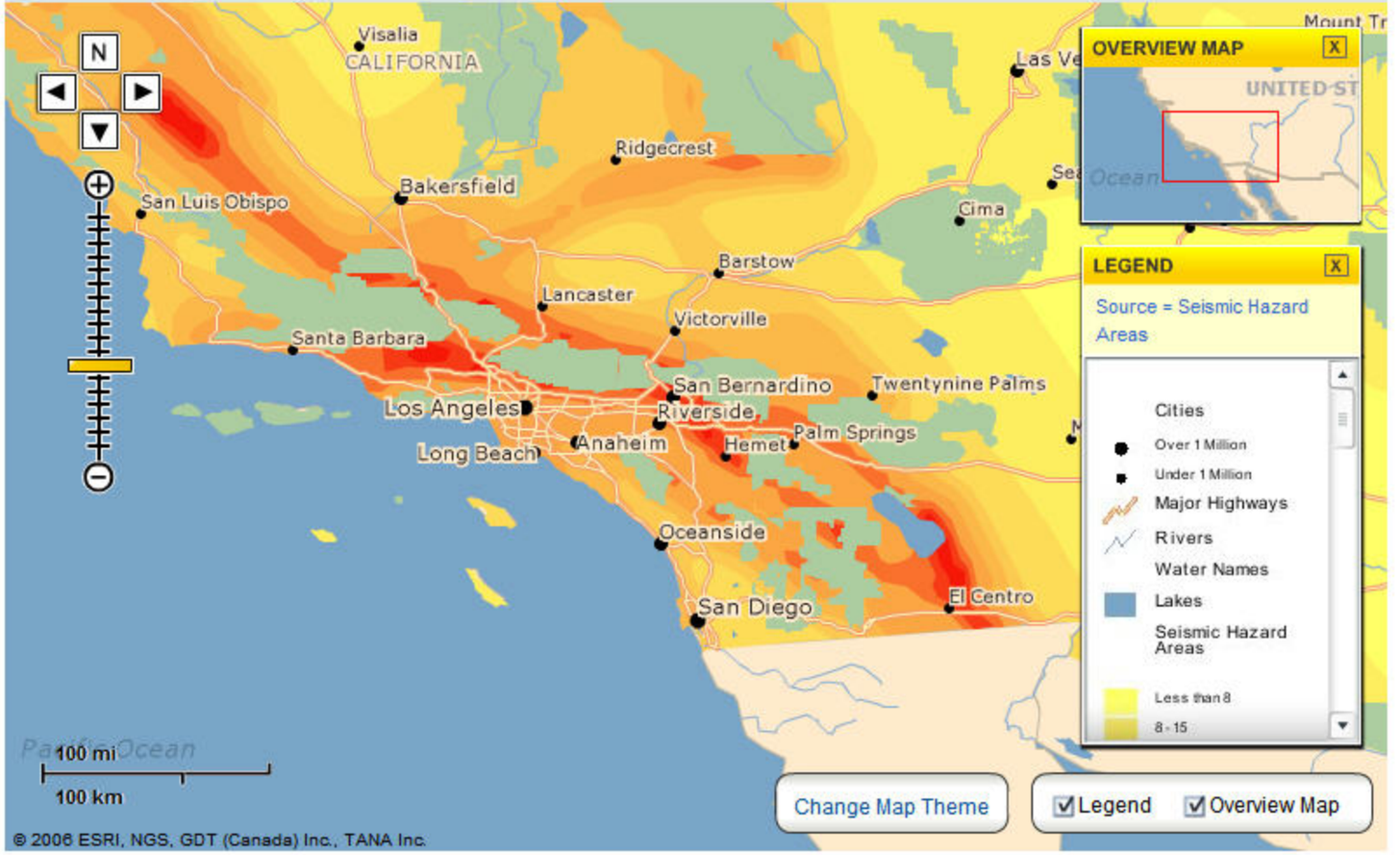

Featured Places

Featured Theme Map

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**Financial Assurance: Planning for Future Costs at Sites with Residual Waste**
Date and Time:	Thursday, April 5, 2007, 3:30 p.m., Session A
Speakers:	Larry Zaragoza, EPA OSRTI Kevin Garon, Dupont Corporate Remediation Group Scott Alfonse, City of New Bedford, Massachusetts, Dept. of Environmental Stewardship

Presentations

Presentations in this session highlighted local government, federal government and private sector approaches to planning for adequate financial assurance at sites with residual waste.

Scott Alfonse Presentation
Local Government Perspective: City of New Bedford, Massachusetts

Mr. Alfonse described how the City has been working to implement adequate financial assurance mechanisms to help finance the municipality's long-term stewardship obligations at two NPL sites, Sullivan's Ledge and the Keith Middle School sites. He outlined an approach that includes setting up an escrow account to help fund O&M obligations and developing partnerships with grant making institutions at the state level. He suggested that in the future, the careful consideration of IC costs during remedy selection could help to guarantee financial assurance for long-term stewardship obligations at contaminated sites.

Questions related to the presentation were as follows:

- Do the ICs at the Keith Middle School site run with the land?
  - Yes. Long term monitoring and maintenance requirements are integrated into the deed for the property.

- Financial assurance from a state's perspective is usually about ensuring that when PRPs go bankrupt, adequate funding exists for O&M costs. Given that cities are probably going to be around for the foreseeable future, why be concerned with financial assurance for those institutions?
  - Cities face significant challenges to taking on the O&M costs at contaminated sites. Adequate financial assurance is not guaranteed in times where budgets are tight.

- How did the City of New Bedford, MA make the decision to take on O&M obligations?
  - It was a political decision for the City. Costs could be passed on to future elected officials, and it was believed that the City did not have the resources to pay for remedial costs. O&M costs were an easy choice.

- At the middle school in New Bedford, how are LTS costs being funded through partnering with the School Building Authority?
  - The monitoring plan requires regular indoor air monitoring, soil monitoring and ground water monitoring. These monitoring obligations are being considered in the present value of the school building to make this case.

Kevin Garon Presentation
Private Sector Perspective: Dupont Corporation

Mr. Garon highlighted the ongoing efforts of the RCRA Corrective Action Projeect, an industry focus group working to develop solutions to current challenges related to ICs, financial assurance and liability. He outlined several methods of limiting potential IC failures and establishing trust funds for long-term stewardship funding. He also suggested that financial assurance tools could potentially be adapted in the future to help facilitate a complete CERCLA liability transfer.

Clarification questions from the audience followed the presentation. Comments related to financial assurance were as follows:

- There were some concerns expressed about the idea of establishing a CERCLA liability transfer trust. One participant suggested that sometimes properties wind up in the wrong hands. Transferring liability from a PRP to a church that reuses a site may not be a desirable goal.

- In Canada, the Council of Ministers of the Environment is working to address liability transfer issues from PRPs to other entities.

- There are technological limitations to contaminated site remediation, but the use of ICs to help PRPs avoid practical cleanups is a different matter. There is a concern that PRPs would prefer to implement ICs rather than conduct adequate cleanups.
  - Response: The bottom line is that PRPs want to avoid toxic tort liabilities and do not want to leave contamination in place that could potentially lead to liability exposure down the road. Keeping people safe is in the best interest of PRPs.

- It was suggested that an environmental structured settlement could be one tool to help achieve the goal of facilitating CERCLA liability transfer to a trust.

Larry Zaragoza Presentation

Financing IC Responsibilities

Mr. Zaragoza discussed a range of key issues that the Agency is working to address with regard to financing IC responsibilities. He discussed existing Agency guidance documents on financial assurance, and described ongoing efforts to develop a set of guidelines on IC costing. He also described the range of financial assurance tools that are currently used or in consideration for use to help federal, state and local governments, and responsible parties systematically plan for financing long-term stewardship obligations. Financial assurance mechanisms range from insurance and banking products to municipal bonds. EPA is working with the Environmental Financial Advisory Board (EFAB), whose membership includes representatives from banks, insurance companies, and real estate industries, to identify innovative financial assurance tools.

Group Discussion

- Several questions from participants revolved around the use of the financial test as a financial assurance mechanism. Participants expressed concerns about the financial test's viability. If EPA uses a financial test to demonstrate a company's or PRP's financial assurance capacity for long-term stewardship obligations, and the company goes bankrupt, then the financial test is not a suitable financial assurance mechanism. Currently the EFAB supports the use of the financial test as a viable mechanism.

- Panelists discussed how IC costs could be considered just like any other remedial cost during the remedy selection process. Once costing issues are resolved, and ICs are integrated properly into remedial selection process, can a fund be set up for ICs along with the funding for other remedial financing? At the local level, the cost of long-term monitoring and maintenance is critical. Building this cost into the remedy selection process would be valuable to municipalities.

- EPA OSRTI's efforts to develop an IC costing guidance revealed that pricing factors and data availability present challenges to the development of this guidance. The IC program is working to identify ways to help price IC costs out into the future. The complexity of various IC mechanisms are difficult to price.

- ICs are critical to maintaining the protectiveness of the remedy. Because many ICs rely on local governments for implementation (e.g., zoning), local government capacity is a key issue to consider in ensuring the success of ICs.

Financing IC Responsibilities

Long Term Stewardship Training and Conference

April 5, 2007
San Diego, California

Larry Zaragoza
U.S. Environmental Protection Agency

EPA

Presentation Outline

1. Describe some LTS funding considerations
2. Highlight challenges
3. Discussion of priorities on financing long term stewardship responsibilities

LTS Funding Considerations

Financing is an important issue

1. Environmental Financial Advisory Board
   a. Review of RCRA Financial Assurance
2. GAO
   a. ENVIRONMENTAL LIABILITIES: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations (August, 2005)
   b. SUPERFUND: Better Financial Assurances and More Effective Implementation of Institutional Controls Are Needed to Protect the Public (June, 2006)
   c. Environmental Liabilities: Hardrock Mining Cleanup Obligations, GAO-06-884T, June 14, 2006
3. ASTSWMO White Paper
4. ELI/RFF
5. Many others such as DOD
6. Funding for cleanups often overshadows funding needs for maintenance

Sites that may Require ICs and EC

Program	Universe of Sites	Comment
Superfund NPL	1,600	About 900 construction complete sites
RCRA Corrective Action	3,800	There is a much larger universe of generators and treatment, storage and disposal facilities that could require ICs
UST	260,000 Sites	Of these, about 900 sites are managed by EPA as Federal-lead Tribal
Brownfields/ Voluntary Cleanup	400,000-500,000	These sites are managed at the local/state level
Federal Facilities	275	Included in Superfund Universe, including BRAC

Reuse/Redevelopment

1. Maintenance of ICs/ECs will require a financial commitment
2. Consistent with the ICs and any engineering controls for the site
3. Review sites periodically to ensure that controls are effective
4. Cooperation among multiple parties of often required for success
5. Ensure ICs are implemented before the site is ready for reuse

Traditional Financial Assurance Instruments

1. Financial Test
2. Captive Insurance
3. Commercial Insurance
4. Letter of Credit
5. Bonds
6. Trusts

Each of the above could be used to plan for financing long term stewardship responsibilities

Financial Tools that have not often been used to finance responsibilities

1. Funding may be provided by Permits
2. Funding could be provided by a fee on real estate transactions such as
   a. A percentage of a point on the sale of properties as properties are refinanced
   b. Fees/assessments associated with the maintenance of property with residual contamination
3. Some states are now providing more affordable environmental insurance by bulk purchases
4. Options for long term comprehensive support by third parties

Planning for LTS Responsibilities

1. The timeframe of responsibilities should be considered
2. Some additional resources may be needed to employ some instruments as effective ICs
3. Minimize the potential for exposure to contaminants
4. Protect the integrity of the remedy
5. The long term reliability of the financing tool should be considered

Roles

1. When unlimited use/unrestricted exposure are not supported, ICs should be used
2. Historically, facility owners/operators, developers, State/Local government and new property owners all have financed LTS responsibilities
3. Examine LTS financial responsibilities early

Summary

Financing of long term stewardship obligations is a challenge.

A variety of tools are available and establishing responsibilities is an important aspect of this work.

Questions

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Zaragoza.Larry@epa.gov
703-603-8867

EPA

Financing Long-Term Stewardship: An Industry Perspective

Kevin P. Garon
DuPont Corporate Remediation Group
April 5, 2007
Long Term Stewardship Conference
San Diego, California

RCAP Overview

RCRA Corrective Action Project

1. Formed in 1998 by Fortune 50 companies
2. Current members - Ashland, BP, Chevron, ConocoPhillips, Delphi Automotive Systems, Dow Chemical, E.I. duPont de Nemours & Co., General Electric, General Motors, Pfizer, Sunoco, U.S. Steel, United Technologies, and Waste Management
3. Project contacts Michael Steinberg, Marianne Horinko or Linda Eaton

RCAP LTS Summit

1. RCAP hosted a Long Term Stewardship Summit in November 2006 for Federal, State, Local Government officials and RCAP representatives
2. Workgroups focused on 4 topics
   a. Roles & Responsibilities;
   b. Institutional Controls;
   c. Financial Assurance and Liability
   d. Liability and Enforcement

Remediation Issues

Can we Agree?

It is not practical to require full restoration of contaminated properties at all sites

1. Not always necessary to protect human health and the environment
2. Technology limited
3. Cost limited

Result: Risk-based remediation (some contaminants left in place)

What's Next?

1. If fully restored there is nothing left to do
2. If not fully restored or cleaned to a risk-based, use-based criteria, then long-term stewardship remains

Financial Questions about LTS

1. What is required going forward? IC's, EC's
2. Who is responsible?
3. What are the life cycle costs?
4. Who pays (now and into the future)?

Financial Issues of LTS

Where will costs be incurred?

1. Regulatory agency oversight of remediation remedy (already being performed)
2. Deed recordation of LUCs and restrictions (small incremental cost in most counties/municipalities)
3. Regulatory and local auditing and enforcement of controls (also small incremental cost)
4. Development and maintenance of a database

Current approach – Financial Assurance

1. required for RCRA CA, SF, TSCA, UIC, UST, but not all state programs

Financial Issues of LTS - Brownfields

LTS issues are larger for brownfield sites with potential for reuse

1. In the USA, the “polluter pays”, even for contamination that is not theirs
2. Property transfer is not necessarily liability transfer
3. What happens if land use changes or remediation standards change? Who pays?

LTS should deal with liability issues as well as financial and oversight issues

Reducing Failure Controls Costs

What can governments do to help?

1. Pass the UECA
2. Institute a “Stewardship Agreement” program that runs with the land
3. Make sure that the entity that changes land use is responsible for additional remediation (PA Act 2)
4. Pass liability transfer legislation while still requiring the polluter to pay

Mechanisms for funding

First, we must really determine what needs funding that is not already being funded

- Are these costs substantial or just small incremental costs

Possible funding mechanisms

1. Fees/assessments that run with the land
2. Insurance
3. Stewardship agreement program with a small fee
4. A Liability Transfer Trust

Liability Transfer Trust

Develop a trust that will take future liability after conditional NFA, for a fee.

The trust will:

1. Be responsible for any additional remediation resulting from new findings or from a change in standards
2. Audit controls O&M compliance
3. Defend RP from toxic tort
4. For additional fee perform IC O&M

Liability Transfer Trust

The trust will not:

1. Be responsible for any additional remediation resulting from a new owners change in use (new owner responsible and can then apply to enter trust)
2. Be responsible for new owners failure to comply with permits or controls O&M compliance
3. Defend new owner from claims resulting from their use or change of use (unless the new owner has entered the trust)

Financing LTS

1. Must be market driven
2. Must be affordable
3. Must put the costs where the responsibility lies – the current owner of the property (otherwise there is no incentive to transfer property and no incentive for the new owner to comply with and maintain controls)

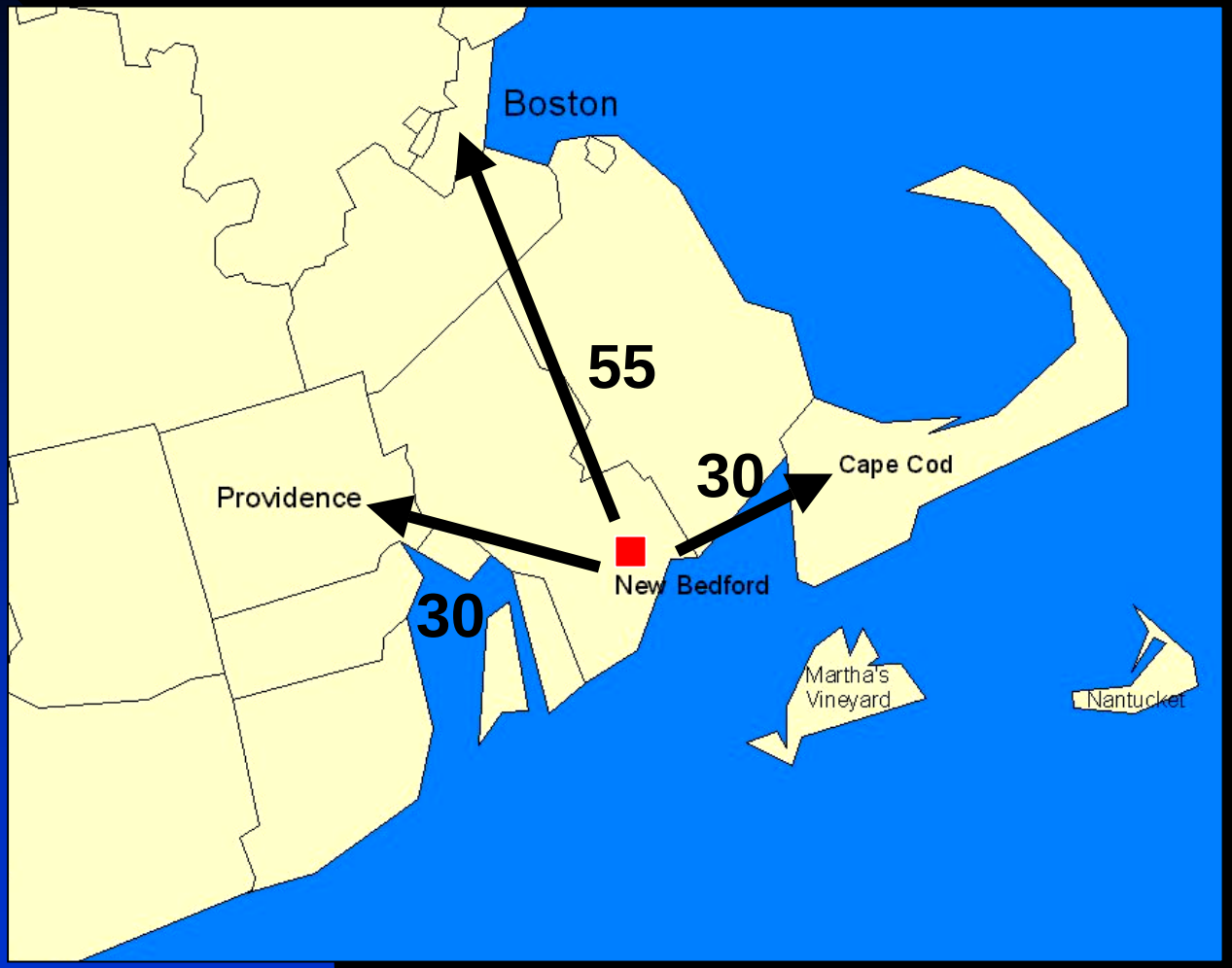
Institutional Controls - A Local Government Perspective

Scott Alfonse

Department of Environmental Stewardship

City of New Bedford, Massachusetts

Geography of Massachusetts Southcoast and New Bedford



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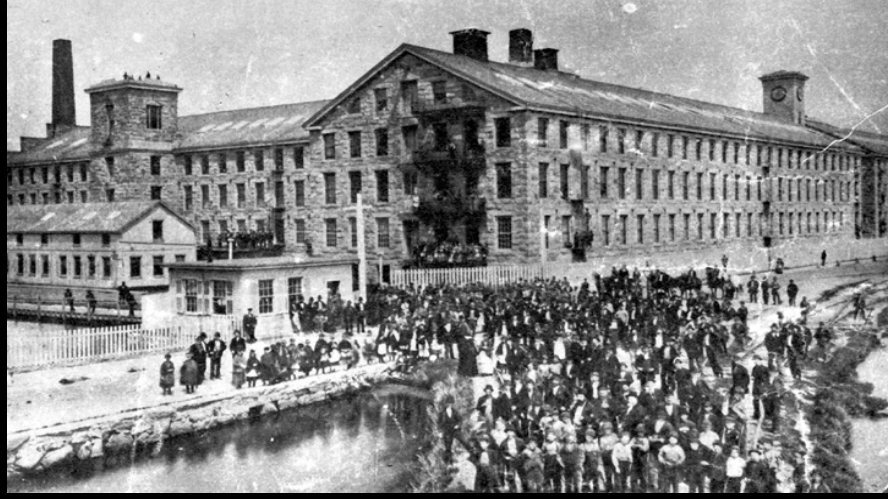


1. whaling
2. manufacture of fine cotton goods
3. fisheries
4. industrial center

New Bedford - Today

1. 2 major Superfund Sites – New Bedford Harbor and Sullivan's Ledge
2. 80 sites yet to be closed out under Massachusetts Cleanup Program

New Bedford's Brownfields Program

1. Achieve a condition of no significant risk to public health and environment
2. Cleanup - technologically feasible and consistent with site reuse
3. Move sites back onto the tax roles and into productive reuse

Institutional Controls in New Bedford

1. Range in complexity
   a. Grant of Environmental Restriction at Sullivan's Ledge Superfund site
   b. Long Term Monitoring and Maintenance at former burn dump and site of new Middle School

Institutional Controls in New Bedford

1. State Listed Sites – 22
   a. 20 private
   b. 2 City-owned

2. Superfund Site – 1 City-owned

Local Government Role

1. Private sites
   a. No enforcement authority, but we still have to protect public health
   b. No fail safe mechanism to ensure compliance by private parties
   c. The first line of defense
2. Public sites
   a. Fund monitoring and maintenance in perpetuity

Sullivan's Ledge Superfund Site

1. Owned by City
2. PRP group includes City
3. City created escrow to pay for maintenance
4. MADEP responsible for enforcing GER

Keith Middle School

1. New middle school constructed on former burn dump
2. PCBs, PAH and metal contamination in soil
3. Remedy includes clean utility corridor, cap and venting system
4. Activity and Use Limitation (deed restriction for future activities and uses)
5. Long term monitoring to ensure remedy is maintained

How do we pay for it?

1. Establish a financial assurance mechanism
2. Options for funding the FAM
   a. School construction costs
   b. City's General fund

What This Means

1. Ensures funding is available for long term monitoring and maintenance
2. Reduces public anxiety that funds might not be available in future
3. Demonstrates that the City is serious about long term maintenance

Challenges

1. Municipalities are often the first line of defense for IC compliance
2. May select least costly option without regards to financing IC monitoring and maintenance

What do we need?

1. Tools – Technical assistance and training at the local level to create better understanding of the importance of ICs
2. Funding for monitoring and maintenance
3. Require financial assurance mechanisms be established in conjunction with an IC

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**State Best Practices in ICs**
Date and Time:	Thursday, April 5, 2007, 3:30 p.m., Session B
Speakers:	Jay Naparstek, MA DEP
	Gary King, IL EPA
	Mike Bellot, EPA OSRTI
	Kevin Greene, VA DEQ
	Sara Amir, CA DTSC
	Bob Soboleski
	Wesley Turner
	Hal Cantwell
	Mike Felix
	Brent Everett
	Tom Gainer

Introduction by Jay Naparstek

- Today's discussion will be centered on what states are doing currently with IC implementation.
- ASTSWMO sent out a survey to states regarding ICs and the presentations today will discuss some of the initial results.
- A reference document may be developed related to this material.
- The next phase will be related to performance rather than implementation.

Comments from Mike Bellot

- There has been landmark activity within EPA in the last eight months with regards to ICs.
- EPA began tracking ICs in 2004 and quickly realized that there are different levels of tracking.
- At the end of April 2007, EPA is planning to release a database of IC information it has collected from RODs and interviews.
- There are three types of public reports: reports for sites where no ICs are required (less than 10 percent of sites); sites where ICs are currently implemented; sites where ICs have not yet been implemented.
- The release of this database is a big step in providing information to states and locals.

Kevin Greene Presentation

ASTSWMO State Superfund Focus Group
State Best Practices in Institutional Controls (Phase 1—who's doing what?)

- ASTSWMO developed a form to survey states on their use of institutional controls.
- The survey was developed as a means to figure out who is doing what with ICs.
- The survey was broken down into five major areas: use, management, tracking, enforcement, other.

Sara Amir Presentation

And Now the Results on Use of Institutional Controls Questionnaire...

- Thirty-seven states responded.
- Only the initial results are presented.

Questions and Comments on the Survey

- How can a Superfund IC be performed in conjunction with the states?
  - (Jay) In the survey, we made a conscious effort not to focus on Superfund. Superfund sites are important, but they were not included in the survey. Massachusetts is working on how to fit the Superfund program into its system. It is a complicated matter.

- Do your approaches exclude Superfund sites from your system?
  - (Gary) There is concern about fitting square pegs into round holes.
  - (Jay) Massachusetts is not planning on treating Superfund sites differently. We feel like we came up with a way for them to fit.

- What level of information are states really collecting? That 70 percent of states require monitoring is impressive.
  - (Jay) Our intent was to look at a few basic questions and get into more detail later.

- To whom did the questionnaires get sent?
  - The survey was sent to the ASTSWMO state Superfund contact unless the focus group had a personal contact it thought would be more apt to respond.

- ICs were required for 70 percent of states. Does this refer to statutory requirements?
  - (Sara) If the property owner is not the responsible party and the PRP does not come forward, deed restrictions or ICs may not be put into place; the site may be cleaned up instead. For example, a property owner may not agree that his or her site with soil lead contamination be capped and used as a parking lot. The PRP may then have to clean it up for residential use.

- What about PRPs not keeping track of ICs?
  - (Sara) PRPs enter into an agreement and do an inspection of the ICs and send the state a report. The state does a separate inspection to verify whether the reports are accurate. The agreements are legally defensible.

- Have you been able to identify a source of funding for sites after they run out of money?
  - (Jay) There were a few questions about funding on the survey that were not covered today. The LTS focus group is looking at funding mechanisms.
  - (Gary) Jim Tjosvold's talk earlier today referred to those issues. There are also some related documents on the California Web site.

- Some state databases are very basic and others are more detailed. States have limited resources. Extensive databases require a lot of money and time and most states do not have either. It is difficult for small states to put together extensive data systems.

- California has a good tracking system. All the ICs are recorded with the counties. Cities may issue permits for construction on land with deed restrictions and this can create barriers.

- Not all of the responses received on the survey were comprehensible, so ASTSWMO is going to have to do some followups on those responses.

General Questions and Comments

- In Puerto Rico, they built a community over a landfill. Puerto Rico would like to know what kind of regulatory things they need to do to put ICs into effect.
  - Suggestion to look at and compare inspection forms.

- What is the difference between programs that address changes in use and programs that address activity? The hard part is monitoring the little activities that involve digging, but do not require a permit. What are peoples' experiences on what the major problems are?
  - (Sara) This is a new issue to the group and so far we do not have the experience to know what works and what does not. We would like to hear from other states on this topic.
  - (Kevin) Seventy percent of states are not coordinating for the One-Call system. This is tough.
  - (Maureen) The City of Rochester (earlier presentation) has a red flag system where every activity, even small ones such as a driveway change, is noted.

- How do states control interior remodels? This is a problem for smelter sites in Montana where something like the addition of an attic fan can increase exposure to contamination. There is currently no enforcement for these types of changes. Currently, Montana is trying to educate everyone (e.g., children in schools, property owners via letters).
  - One way of enforcement might be to make owners PRPs if they do certain things in their homes.
  - This is one example of something not covered by the permit system. One-Call could be useful in this arena.

- Has anyone considered whether work for municipalities should require permits? In other words, should cities be getting permits from themselves to do work?

- The IC process is weak right now because no one has the resources to do what they want to do with ICs.
  - It is impossible to ensure that every IC is being carried out every day.
  - Example of someone installing a water line in the middle of the night over a several day period. There is no way it could be checked.

- Request to Gary King to elaborate on his statement that he would not rely on locals for IC information.
  - (Gary) In their voluntary cleanup program, they do not rely on the local government to inspect or make sure the IC is still in place. The state does it. The local governments are important for setting up some ICs, but the state is the primary monitoring force for ICs.
  - Some areas have no zoning, and limited governmental control. The state needs to be able to caution people.

- Two part comment: First, if people knew about ICs, they would not willfully violate them. Therefore, having a self-certification requirement is a good thing. One to two times a year, the person who owns a property with an IC should self-certify. Second, increasing public awareness by having a database of ICs that could be accessed for all properties would be helpful. This should be institutionalized in a multi-state coordinated system.
  - Reply (Gary) A number of states require owners that have ICs in place to self-certify. Illinois did not want self-certification because it did not want to chase paper. In the end, Illinois had to go out and check that the ICs were in place anyway. However, there are opportunities for states to do different things.

- How can Illinois go out and look at every site?
  - (Gary) By using technology to do desktop views of property.

- Is there a correlation between failures and use of certain management tools?
  - Reply (Gary) When Illinois started looking at compliance rather than ICs, I was shocked at how high the compliance rate was (~95 percent). The rate was high because the private sector thought that breaching the consequences of the agreement were too great.

- The real problem is that people go out and disturb contamination. Maybe we need to look at a local level because ICs are much easier to implement on that level.
  - Looking at locals to enforce ICs is being done in hindsight.
  - Massachusetts is not asking locals to do this.
  - There needs to be a meshing of systems whereby the state is accomplishing one set of goals, and the local governments another. These goals have not been linked together yet. This disconnect is related to the amount of data available and needs to be worked on in the future.

Jay thanked everyone for attending and encouraged attendees to contact the panel members to inquire if their state had responded to the survey.

States Use of Institutional Controls	
Does your State allow the use of institutional controls as part of a final remedial action when standards for unrestricted use are not achieved?	n/a
Which cleanup programs in your Agency allow the use of IC's as part of a final cleanup plan?	☐ None ☐ State Superfund ☐ Brownfields ☐ Voluntary Cleanup ☐ RCRA Subtitle C/Hazardous Waste ☐ RCRA Subtitle D/Solid Waste ☐ RCRA Subtitle I/UST
Does your State allow or require the use of institutional controls on residential property where contamination is left in place above residential cleanup levels?	n/a
Does your State require the use of institutional controls or other notification of previous contamination on residential property that is cleaned up to unrestricted use?	n/a
Is the use of institutional controls voluntary or involuntary? (i.e. can a party choose to do less cleanup and use institutional controls or is the use of institutional controls only an option when all available cleanup options are exhausted?)	n/a
Does your State allow or require the use of institutional controls as part of a final remedy on abandoned properties cleaned up by the State or a third party?	n/a
What authorities does your State have in place to allow or require the use of institutional controls?	n/a if other
What are the types or forms of ICs/Land Use Restrictions that can be used in your state? Please check all that apply.	☐ deed notices ☐ property easements ☐ covenants ☐ zoning restrictions ☐ orders/consent decrees

	☐ permits ☐ other, please specify
Does your State have a separate fee that is imposed when ICs are used as part of the remedy? If so, what does the fee cover?	n/a n/a
Management of Institutional Controls	
Does your state have a defined procedure in place for the development and implementation of IC's? Does the procedure vary based on the type of control? Comments	n/a n/a
Who is responsible for the implementation of institutional controls (at non-NPL sites)?	n/a
Does your State require monitoring of the ICs? a. If yes, what is the frequency of the monitoring? b. What are the reporting requirements? c. Who is responsible for conducting the monitoring?	n/a n/a if other n/a if other n/a if other

Does the State provide oversight of the IC? d. If yes list the type of oversight provided:	n/a ☐ field verification ☐ certification from PRP ☐ third party verification ☐ Federal verification ☐ other
Does the State require a financial assurance mechanism for monitoring and maintenance of the IC? If yes, what form does the mechanism *usually* take?	n/a n/a
Are IC's at sites required to be re-evaluated if cleanup standards change at a later date?	n/a
Tracking Institutional Controls	
Does your State have a tracking system for ICs?	n/a
Is the information available to the public?	n/a
What is/will be the tracking system?	n/a if other please specify
Does your state have one database for all ICs? (including local governments, etc) If yes, who is responsible for maintaining the data base? Please provide the electronic link to your data base	n/a n/a if other, please specify

When Institutional Controls are placed on properties, are there notification requirements, and if so, who is required to be notified?	☐ no notification required ☐ local government officials ☐ state environmental agency ☐ abutters ☐ legal notice in local paper ☐ other
Does your State participate in a One-Call type notification system to help inform others of the presence of Institutional Controls?	n/a comments
Institutional Controls Enforceability	
Which types or forms of ICs/ Land Use Restrictions does your state consider enforceable? Please check all that apply.	☐ deed notices ☐ property easements ☐ covenants ☐ zoning restrictions ☐ other, please specify
Does the State take easements, right of ways or property liens to ensure long term obligations are met?	n/a
Are there model IC documents is use in your state such as deed notices, land/groundwater use restrictions, covenants, O&M plans, IC Implementation and Assurance Plans? Please check all that apply.	☐ deed notices ☐ land\groundwater use restrictions ☐ covenants ☐ O&M plans ☐ IC Implementation and Assurance Plans ☐ other, please specify
Is the long-term effectiveness of Institutional Controls affected by changes in local zoning?	n/a

Is there a process for modifying and/or terminating ICs?	n/a
If an IC is approved as part of the remedy, does the IC need to be in place prior to State issuance of a No Further Action letter or equivalent?	n/a
Does the State have the authority to enforce the IC? If yes what is that authority?	n/a n/a
Alignment with Federal UECA	
Has your State adopted (in whole or in part) the Uniform Environmental Covenants Act (UECA)? If yes, did your State adopt UECA in whole or in part? If in part, how does your State environmental covenants act differ from UECA?	n/a n/a n/a if other
If your State has not adopted UECA, is your State in the process of or have future plans of adopting (in whole or in part) UECA?	n/a
Barriers to Implementation	
Has your State identified any significant barriers in the implementation of institutional controls? Please consider all aspects of IC in your answer, including monitoring, enforcement, reporting, termination, compliance, etc. If yes, please describe the identified barriers.	n/a

Additional Comments or Concerns

Please provide any additional comments or concerns you may have regarding your states use of Institutional Controls. You may also provide comments on this form and how to improve it.

ASTSWMO State Superfund Focus Group

STATE BEST PRACTICES IN INSTITUTIONAL CONTROLS

(Phase I - who's doing what ?)

State Best Practices In Institutional Controls

1. USE
2. MANAGEMENT
3. TRACKING
4. ENFORCEMENT
5. OTHER

State Best Practices In Institutional Controls

USAGE

1. Which Programs
   a. RCRA
   b. UST
   c. State Cleanup Programs
2. Authority to impose
   a. Regulation
   b. Statue
3. Types of ICs used
   a. Deed notices
   b. Easements
   c. Covenants

State Best Practices In Institutional Controls

TRACKING

1. Type of Tracking System
   a. GIS
   b. State Database

2. Notifications

3. One-Call Coordination

State Best Practices In Institutional Controls

ENFORCEMENT

1. Types of Enforceable IC's
2. Zoning Change Impacts
3. Modification/termination
4. Timing of IC placement
   a. Prior to closure
   b. At time of closure
   c. Condition of closure

State Best Practices In Institutional Controls

OTHER

1. UECA

2. Barriers to implementation

ASTSWMO

AND NOW THE RESULTS ON USE OF INSTITUTIONAL CONTROLS QUESTIONNAIRE ……

Institutional Controls (IC's) Questionnaire

1. USE
2. MANAGEMENT
3. TRACKING
4. ENFORCEMENT
5. OTHER

IC's Questionnaire

USE

1. Responses
   a. 37 States or 67% of States and/or Territories Responded to Questionnaire (~35 questions)
2. Programs Using IC's
   a. State Superfund, Brownfields, Voluntary Cleanups and RCRA Subtitles C, D and I.

IC's Questionnaire

1. Use of IC's on Residential Properties
   a. 83% allow/require use of ICs when contamination is left in place
2. Mandatory or Voluntary
   a. 57% Voluntary
   b. 27% Both
3. Part of a Final Remedy on abandoned Properties or orphan sites
   a. 62 % require IC's

IC's Questionnaires

MANAGEMENT

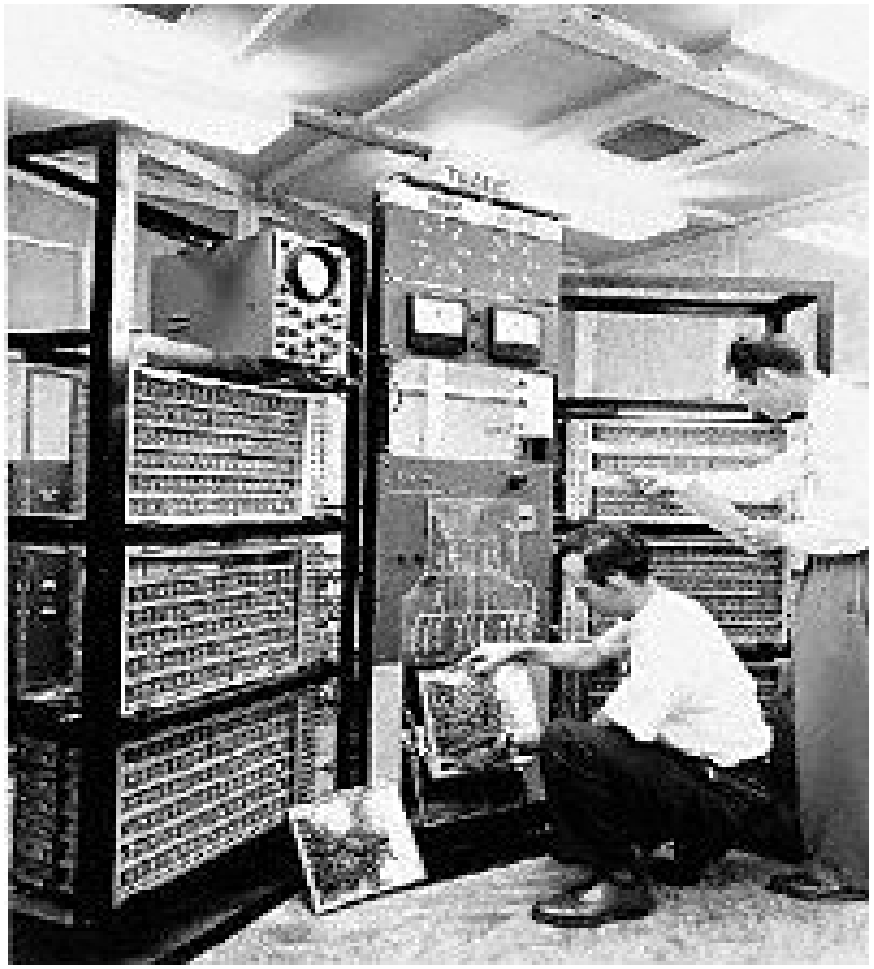
Monitoring

1. 70 % require monitoring
2. Frequency varies (1, 2 or 5 years)
3. Responsibility of monitoring falls equally on States, landowners & RPs
4. 59% require state oversight
5. 70% do not require Financial Assurance

IC's Questionnaire

TRACKING

1. 62% have tracking system that is available to the public.
2. 81% have State database
3. Notifications
   a. 70% Notify Local Officials & State Environmental Officials when IC's are in place
4. One-Call Coordination
   a. 76% do not have one-Call notification.



IC's Questionnaire

ENFORCEMENT & BEYOND

1. 68% have statue requiring use of IC's
2. >50% use Deed notices, property easements, covenants, zoning restrictions and Orders
3. 95 % have process for modifying/terminating IC's.
4. 70% require ICs to be in-place prior to issuance of NFA or equivalent

Institutional Controls

Uniform Environmental Covenants Act (UECA)

1. 30% have adopted UECA

Barriers

1. 81% indicated significant barriers in the implementation of IC's

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title: **RCRA & ICs**
Date and Time: Thursday, April 5, 2007, 3:30 pm., Session C
Speakers: Janet Carlson, EPA Region 5
Gregory Sullivan, EPA OSRE
Mike Hendershot, EPA Region 3

Greg Sullivan Presentation
RCRA and Institutional Controls

Mike Hendershot Presentation
Developing Effective and Reliable Institutional Controls During the Remedy Selection

- Resource Conservation and Recovery Act corrective actions are applied to a different set of sites from CERCLA (Superfund).

- Key differences for ICs (RCRA):
  - Corrective action sites generally have viable operators and ongoing operations.
  - There is no express authority for EPA to acquire interest in land for cleanup.
  - Cleanup and responsibility are established through permits or orders.
  - RCRA post closure regulations apply.
  - RCRA is primarily state implemented (delegated program).

- Key steps:
  - Early evaluation by owners and operators working with regulatory authority.
  - Define roles and responsibilities of the parties.
  - Outline expectations.
  - Plan accordingly.

Questions and comments related to the presentation were as follows:

- Where does the permit fit in?
- Corrective action does not include permitting.

- How was soil vapor invested and shallow ground water protected?
  - With the vapor intrusion placed, the corrective action was sufficient for protecting nothing more than office exposure, not sensitive populations (i.e., schools).

- What differences are there in the IC process between corrective action and Superfund?
  - Not much. Basic guiding principles are the same in both processes.

- Is a ground water ordinance sufficiently enforceable for protection from contamination?

- If the only problem is ground water, a municipal ordinance is sufficient. For layered of protections, easements or restrictive covenants could also be put into place.
- One drawback is that a city may not have enforcement. A groundwater ordinance will not prevent the digging of basements, only water sources like wells.

Janet Carlson Presentation

RCRA Corrective Action 3008(h) Consent Orders: Region 5 – Use of Proprietary Controls

- Ms. Carlson provided two handouts for this session:
    1. Copy of Covenant Deed
    2. Region 5 Draft Consent Order Language
- Example of entities that may be included in restrictive covenants:
    - Respondent as owner (enforcement authority).
    - State as grantee.
    - EPA as third party beneficiary.
    - Three entities that have ability to enforce.
    - Utilities may have easements that will need to be subordinated.
- Transferee has agreed to comply with the restrictions and any subsequent owner will be forced to agree to comply with restrictive covenants. One way to enforce this is to require the owner or transferee to prepare annual reports ensuring that ICs are in place and continue to be effective.
- Under UECA the state is allowed enforcement by ensuring that real property-based land use controls remain intact and enforceable as long as necessary to protect human health and the environment.Documentation (i.e., paper trail) is essential to the process. Things to be documented include the health risks associated with the site, work plans created, etc. It is also recommended to use surveys, as diagrams are too vague. Surveys should include containment systems and final areas of enforcement.

Questions and comments related to the presentation are as follows:

- Why use a second real estate document?
    - Enforcement parties are bound in perpetuity. One thing to evaluate is the enforceability of the restrictive covenant. Under common law, in many states horizontal privity is necessary. This not necessarily a fatal flaw, if you do not rely on it.

- What if there are conflicting interests in the notification recognized under title work. What should be the form of the notice?
    - The notice should be tailored to site-specific requirements that are informational rather than just notificational. A detailed work plan with recommended procedures should be included. This informs the subsequent site owner of what was done. The most typical existing encumbrances are utility easements.
    - Audience comment on question: One of the tools that is working with the Department of Public Health is that all wells are required to be permitted. A special well construction area could be defined to address ground water plumes.

- What if 95 percent of wells drilled are unpermitted? How can you deal with this issue? What do you do if the water is not regulated? For example, in western states regulations are

more for water quantity rather than water quality. What if the state permitting agency will not regulate base on water quality? For example, in Colorado if you have a water right you can get a permit to drill and use a well.

- Is implementation of Region 5 voluntary agreements mirroring a national trend?
  - Comment on the use of voluntary agreements and putting Institutional Controls in place in that context.

- Penalties should be stipulated for all the work requirements and IC requirements. If a facility is not implementing the final decision, invoke state and IC work requirements.

- Speak to the following hypothetical river site addressed under CERCLA, using different authorities to require the ICs and separate the authorities: EPA stipulates an alternate water supply; there are municipal water regulations; refer the source area to RCRA permit; under the Five-Year Review, use RCRA as the decision document for compliance; a letter is sent to the state stipulating the use of restrictive covenant for enforcement; a second letter is sent to the owner requiring the restrictive covenant.
  - Ownership is the key component of the ability for a restrictive covenant to be put in place. The ease of implementation of the restrictive covenants is also important.
  - For a state approved covenant under UECA, EPA would be lead on RCRA; there would be a covenant with the facility; facility would be the owner of the property interest. It is important to define who would have to sign the agreement with the facility, the state or EPA.

- Define enforcement of covenant. My expectation of this discussion was to cover the RCRA and CERCLA differences and integration related to ICs and RCs.
  - Evaluation of risk is the same regardless of being based on authority using CERCLA or RCRA.

Summary of the Session: One of the lessons from the conference is to consult with all the offices early and often so that at the end of the process there are no surprises.

COVENANT DEED

THIS INDENTURE, made this ___ day of _____, 200__, between **_____,** a _____ corporation, with its principal place of business at _____ (hereinafter referred to as "Grantor"), and _____ a _____ _____, with its principal place of business at _____ (hereinafter referred to as "Grantee").

W I T N E S S E T H:

The Grantor for and in consideration of the sum of _____ Dollars ($_____), in hand paid by Grantee, the receipt of which is hereby acknowledged, has granted, bargained, sold, remised, released, aliened and confirmed, and by these presents does grant, bargain, sell, remise, alien and confirm unto Grantee and Grantee's successors and assigns, forever, all of that certain parcel of land, situate, lying and being in the City of _____, County of _____, State of _____, described on Exhibit A hereto (hereinafter referred to as the "Real Property"); TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging or in anywise appertaining, and the reversion or reversions, remainder or remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim or demand whatsoever, of Grantor, either in law or equity, of, in and to the above bargained Real Property, with the said hereditaments and appurtenances; TO HAVE AND TO HOLD the Real Property as before described, with the appurtenances, unto Grantee, its successors and assigns, FOREVER, subject to the exceptions set forth on Exhibit "B" hereto and subject to the reservation of the right to enforce the restrictions and covenants set forth in the Environmental Easement and Declaration of Restrictive Covenant, recorded at Liber ___, Page ___, _____ County Records, a copy of which is attached hereto as Exhibit "C" (hereinafter referred to as the "Restrictive Covenant"). And Grantor, for itself, its successors and assigns, does covenant, grant, bargain, and agree to and with Grantee, its successors and assigns, that Grantor has not heretofore done, committed or wittingly or unwittingly suffered to be done or committed any act, matter or thing whatsoever, whereby the Real Property hereby granted, or any part thereof, is, or shall or may be charged or encumbered in title, estate or otherwise howsoever, except as may be hereinabove stated.

Grantor reserves a right of access for itself over, on and under the Real Property in order to exercise the right, but not the obligation, to perform any actions necessary to implement or maintain compliance with the restrictions, covenants, obligations and all terms contained in the Restrictive Covenant.

Grantor reserves for itself the right to enforce the restrictions and covenants of the Restrictive Covenant.

Grantor and Grantee hereby acknowledge and agree that all restrictions, covenants, obligations and terms of the Restrictive Covenant are incorporated herein as if set forth in full herein and shall be binding upon Grantee, its successors and assigns, and shall run with the Real

Property. Grantor and Grantee also acknowledge and agree that the restrictions and covenants of the Restrictive Covenant may be enforced in perpetuity against Grantee and Grantee's successors in title by the following entities: (a) Grantor; (b) the STATE AGENCY and its successor agencies or departments; and (c) the United States Environmental Protection Agency ("U.S. EPA") and its successor agencies or departments, as a third party beneficiary.

Grantee hereby agrees that (a) agreement to comply with the terms and obligations of the Restrictive Covenant shall be expressly included by Grantee, its successors and assigns in any instrument transferring complete or partial possession or ownership of the Real Property; (b) U.S. EPA (as a third party beneficiary) and STATE AGENCY shall be expressly named in any such instrument as having the right to enforce the restrictions and covenants in the Restrictive Covenant and such instrument shall provide that U.S. EPA and/or STATE AGENCY may directly enforce the restrictions and covenants in the Restrictive Covenant as against the transferee under such instrument and any successor to any such transferee; (c) any such instrument, or memorandum thereof, effecting such transfer shall be recorded with the _____ County Register of Deeds; and (d) the requirements of this paragraph shall run with the Real Property.

IN WITNESS WHEREOF, Grantor has hereunto set its hand and seal on the day and year first above written.

Signed, sealed and delivered in the Presence of:

_____,
a _____ corporation

_____ By: _____

_____ Its: Director, _____

STATE OF _____)
) ss:
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 200__, by _____ of _____, a _____ corporation, on behalf of said corporation.

(SEAL)

_____
Notary Public
_____ County, ___
My Commission expires:

Prepared by:

When recorded return to:

EXHIBIT A

LEGAL DESCRIPTION OF REAL PROPERTY

EXHIBIT B

EXCEPTIONS - (AS NEEDED)

EXHIBIT C
ENVIRONMENTAL EASEMENT
DECLARATION OF RESTRICTIVE COVENANT
(RECORDED)

RCRA Corrective Action 3008(h)Consent Orders

Region 5 - Use of Proprietary Controls

Region 5 Section 3008(h) Consent Order: Components

1. Record environmental covenant (MUST BE enforceable under state law)
2. Title work
3. If sale of property - Facility Owner “reserves” environmental covenant in deed
4. Monitoring and Reporting – ICs in place and effective
5. Operation and Maintenance

Components of Environmental Covenant

1. Enforceable under state law by right parties
2. Property Owner
3. Legal Description of Restricted Area
4. Describe Contaminants left in place
5. Prohibited Uses

Environmental Covenant: Enforceable by Right Parties:

1. RCRA Owner/Operator
   a. reduce risk that a future owner might revive first owner's liability
   b. No other "grantees" to "hold" the covenant
   c. Conduct O & M responsibilities under Order
2. Enforcement Agencies: State and/or EPA
3. Others?

RCRA Owner/Operator – ability to enforce

1. Record Environmental Covenant that states Owner is “holder” and can enforce it
2. Deed – attach covenant to deed at sale and state that owner is “reserving” the ability to enforce the restrictions

Environmental Covenant - Enforcement Agency

1. State (Grantee or Enforcement Agency)
2. EPA (Enforcement Agency or third party beneficiary)
3. Other Reliable Entity (Grantee or Holder)

Environmental Covenant: Ownership Issues

1. Title Commitment or Current Encumbrance Report
2. Current Ownership of Property
3. Demonstrate proper recordation
4. Identify incompatible property interests
   a. notify entities – release or subrogate interests

Incompatible Interests

1. Notice to owners of recorded encumbrances
2. Work plans to owners of recorded encumbrances based on site specific issues
3. Examples: utility easements, sewer lines

Physical Area

1. Survey of Cap as constructed
2. Survey of final area treated to standards that do not allow UU/UE

Long Term Stewardship

1. O & M Plan
2. Annual Report
3. Notice to EPA if changes in operation of facility that would affect remedy or compliance with land and groundwater use restrictions

Questions:

Jan Carlson, Office of Regional Counsel

Region 5

312-886-6059

DEVELOPING EFFECTIVE AND RELIABLE INSTITUTIONAL CONTROLS DURING THE REMEDY SELECTION PROCESS

Michael A. Hendershot
Senior Assistant Regional Counsel
United States Environmental Protection Agency
Region III

BASIC PRINCIPLES

1. Evaluate ICs **EARLY**--during the Corrective Measures Study (CMS).

2. Determine facility use restrictions given the nature and extent of waste left in place.

3. Identify and evaluate for implementability and reliability a range of IC mechanisms.

BASIC PRINCIPLES (CON'T)

4. Conduct a wide search for stakeholders who might become responsible for implementing ICs.

5. Identify sufficient backup IC mechanisms so that the remedy remains protective.

6. Evaluate in the context of redevelopment and future use.

THE FACILITY

1. EXELON Energy RCRA Corrective Action Facility, City of Chester, Pennsylvania.

2. Facility was a former industrial facility contaminated with waste resin and organic chemicals such as benzene, toluene, ethyl benzene, xylene and polycyclic aromatic hydrocarbons.

3. Hazardous wastes are floating on the surface of the groundwater beneath the facility. Groundwater depth is between 2 and 12 feet.

INTEREST IN THE FACILITY

1. Redevelopment of the facility was an important consideration during remedy development.

2. Economically depressed area—Redevelopment could create jobs.

3. Facility was located on the Delaware River—Prime Location for recreational, commercial activities.

4. Rivertown, a developer, wanted to purchase most of the site from EXELON, which had ongoing environmental responsibilities.

5. EPA Headquarters national pilot project to explore new ways to conduct RCRA cleanups in order to encourage and expedite redevelopment.

GROUNDWATER CONSIDERATIONS

1. EPA concluded that Alternate Concentration Limits could be invoked so that groundwater remediation would not be necessary.

2. Restrictions on groundwater and residential use would still be necessary to protect human health. No UU/UE.

EARLY PLANNING

1. During the CMS, EPA explored (in consultation with the Pennsylvania DEP, Exelon and Rivertown, and the City) how to restrict groundwater and residential use.

2. What mechanisms could be employed to restrict those uses?

3. Who would be responsible for implementing those ICs?

GOVERNMENTAL CONTROLS — ZONING

1. Heavy Industrial—

   Industrial and commercial uses that are more intensive in nature than those uses permitted in commercial and residential zones and which therefore require physical separation from those uses." Permitted uses include manufacturing, processing, cleaning, servicing, testing, or repairs of materials, goods, or products.

2. Waterfront Overlay Zone—

   Intended to be responsive to changing development patterns that may affect land use. Includes commercial, office, recreational, amusement, cultural, and residential options as alternatives to the heavy industrial uses permitted in the underlying Industrial District.

ZONING (CON'T)

EPA Concerns and Questions

3. Overlay District uses could present the possibility that use of the facility could create unacceptable exposure to occur.

4. Were there any non-conforming uses or had any variances been granted within the Heavy Industrial Use zone?

ZONING (CON'T)

Proposed Zoning Change —Waterfront Development District

5. Permitted uses included "[r]esidential multi-family dwellings, . . . including single family detached or attached dwellings. . . ."

6. EPA rejected zoning as an IC for this remedy since this rezoning would allow residential use of the facility.

GOVERNMENTAL CONTROLS—MUNICIPAL ORDINANCE

City Groundwater Use Ordinance—

1. "The water distribution and drainage system of any structure in which plumbing fixtures are installed shall be connected to a public water main and sewer, respectively, where available."

2. Public water is available at the facility.

3. The city code provides substantial monetary and incarceration penalties for violating this provision.

4. EPA Concerns and Questions—Does the city have the resources and willingness to enforce this ordinance?

REAL ESTATE CONTROLS—EASEMENT

1. Exelon sells the Facility to Rivertown.

2. Rivertown conveys an easement back to Exelon.

EASEMENT (CON'T)

The easement from Rivertown to EXELON provides for the following:

1. Access to Exelon and its contractors to perform environmental work.

2. Access to EPA and PADEP to monitor Exelon's compliance with state and federal orders and laws.

3. Use Restrictions—Rivertown won't use the property for residential use, unless PADEP approves and Rivertown undertakes clean up of the property to residential standards. Also, Rivertown won't build any basements on the property.

5. Binds both Exelon and Rivertown and their successors and assigns; runs with the land.

ENFORCEMENT TOOL WITH IC COMPONENTS

1. Buyer-Seller Order and Agreement Among PADEP, EXELON and Rivertown.

2. Agreement addressed site cleanup and ICs in the context of property conveyance from Exelon to Rivertown.

BUYER-SELLER AGREEMENT—EXELON AGREED TO:

1. Include covenants in its deed to Rivertown limiting the use of the property to commercial or industrial activity, excluding schools, nursing homes and other residential facilities and recreational areas, unless residential cleanup standards are met. Covenants would run with the land.

2. Record the Agreement along with the deed.

BUYER-SELLER AGREEMENT—RIVERTOWN AGREED TO:

1. Limit use of the property to commercial or industrial activity, excluding schools, nursing homes and other residential facilities and recreational areas, unless residential cleanup standards are met.

2. Include those limitations, as covenants running with the land, in all deeds, leases and other instruments of conveyance of the property.

BUYER-SELLER AGREEMENT—RIVERTOWN ALSO AGREED TO:

1. Grant access to PADEP and to Exelon.

2. Avoid disturbing subsurface soils in a manner which would affect the integrity of the remedy.

3. Notify PADEP when the property is sold and provide copies of the deeds containing the covenants described above.

BUYER-SELLER AGREEMENT—PADEP GRANTED:

1. Rivertown a covenant (promise) not to sue, as long as Rivertown complies with the Agreement and provided that Rivertown did not cause existing contamination.

2. A transferable covenant not to sue to any subsequent owner who agrees to comply with the Agreement and who did not cause existing contamination.

RCRA STATEMENT OF BASIS—EPA

1. EPA incorporated ICs into its SB (RCRA Proposed Plan) based upon its evaluation uses to be restricted and available IC mechanisms.

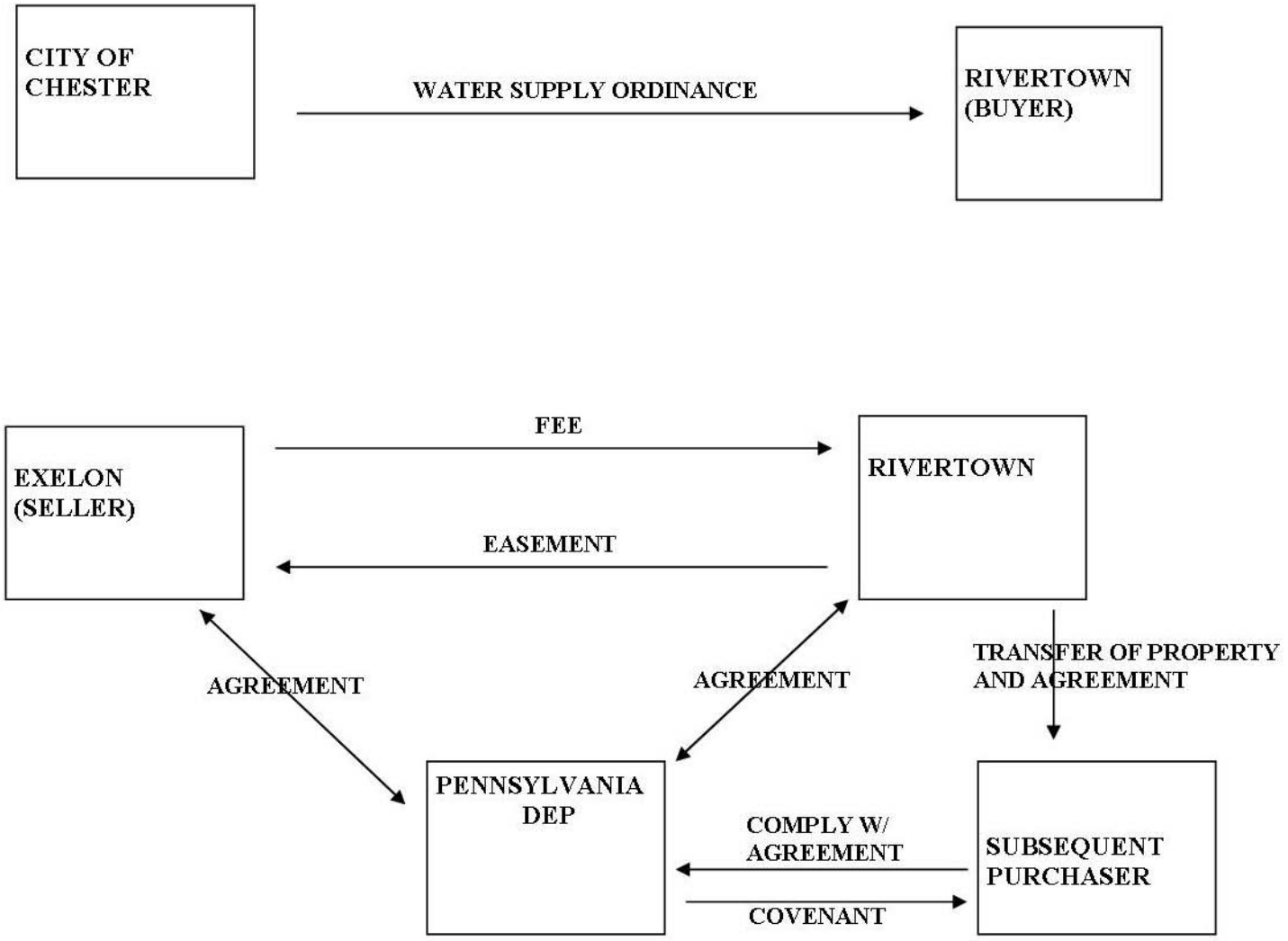
2. The SB defined the term “ICs.”

3. The SB set forth uses to be restricted.

4. The SB incorporated governmental, proprietary and enforcement mechanisms into the proposed remedy.

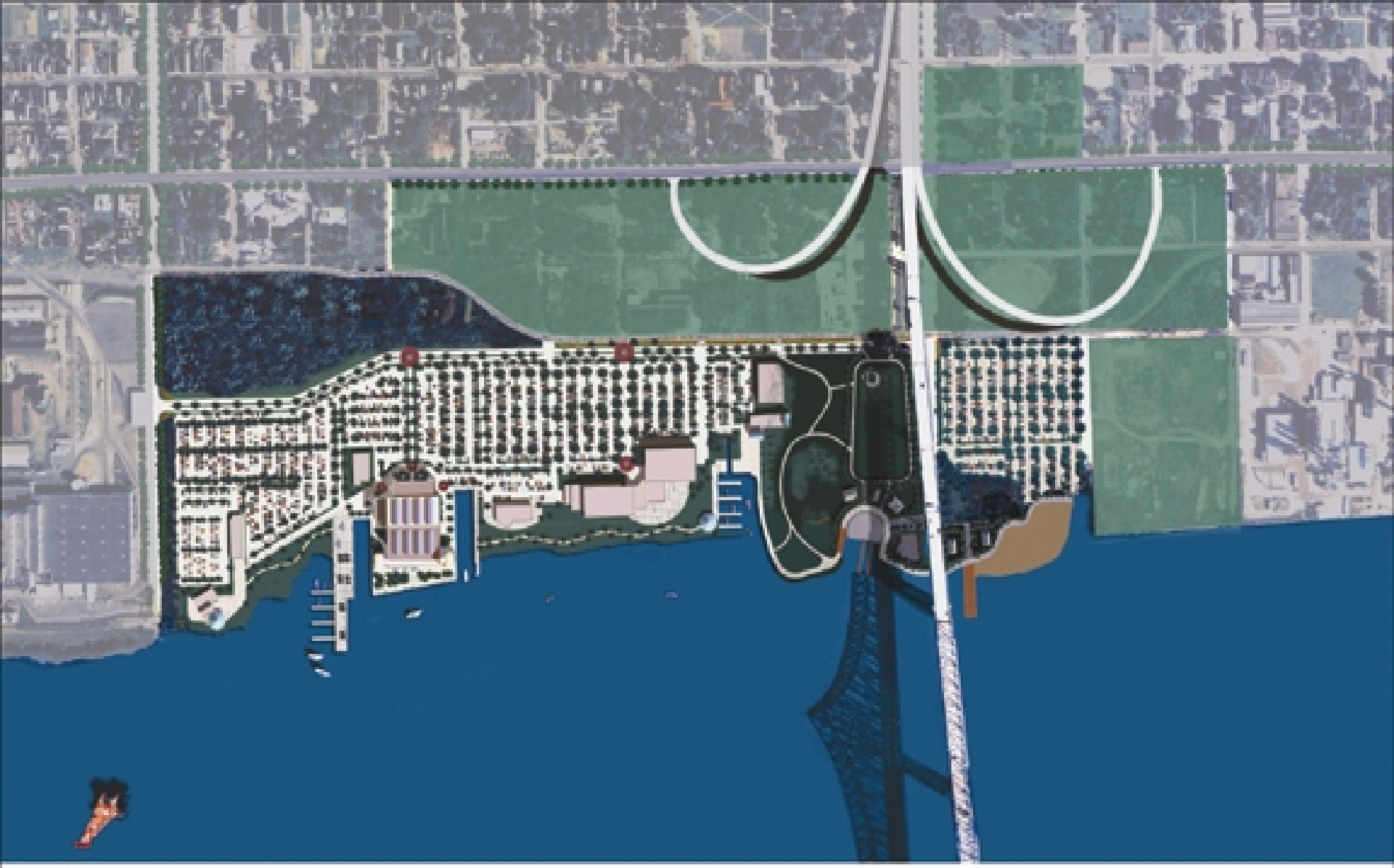
5. ICs provided sufficient redundancy (layering) to be protective.

INSTITUTIONAL CONTROLS — EXELEON ENERGY FACILITY
RCRA STATEMENT OF BASIS




DELAWARE COUNTY ELECTRIC COMPANY


CHESTER STATION



RIVERTOWN

The Wharf at Rivertown - Chester, PA

Preferred Real Estate Investments, Inc.
www.preferredrealestate.com

THE BENEFITS

1. Creates job—2000 permanent.
2. Catalyst for renewal of the waterfront which had been cut off from the rest of Chester when I-95 was built.
3. Reverses urban blight.
4. Leads to revitalization of residential and commercial neighborhood surrounding facility.

LESSONS LEARNED

1. Evaluate ICs **EARLY**--during the Corrective Measures Study (CMS).

2. Determine facility use restrictions given the nature and extent of waste left in place.

3. Identify and evaluate for implementability and reliability a range of IC mechanisms.

LESSONS LEARNED (CON'T)

4. Conduct a wide search for stakeholders who might become responsible for implementing ICs.

5. Identify sufficient backup IC mechanisms so that the remedy remains protective.

6. Evaluate in the context of redevelopment and future use.

REGION 5
RCRA 3008(H)
DRAFT CONSENT ORDER LANGUAGE
RE: RESTRICTIVE COVENANT

13. RESPONDENT has recorded with the ___ County Register of Deeds the Declaration of Restrictive Covenant ("Restrictive Covenant") attached hereto as Attachment __. Attachment __ documents through a current encumbrance report that the property described in the Restrictive Covenant is free and clear of all encumbrances, including easement interests, except those identified therein. RESPONDENT has provided a copy of the recorded Restrictive Covenant to all holders of record of said encumbrances. Documentation of such notice(s) is attached hereto as Attachment __. In the Restrictive Covenant, RESPONDENT, among other things, consents to U.S. EPA having a right of access to the Facility and provides the right to enforce through legal action in a court of competent jurisdiction the restrictions and covenants in the Restrictive Covenant to: (a) RESPONDENT; (b) the STATE and its authorized representatives, under [STATE AUTHORITY]; and (c) the U.S. EPA and its authorized representatives, as a third party beneficiary. The Restrictive Covenant also provides for at least twenty-one (21) days notice to U.S. EPA and STATE prior to the transfer of any interest in the Facility. RESPONDENT must ensure that the Restrictive Covenant remains in place and effective.

RESPONDENT agrees to modify its rights in the Restrictive Covenant to change existing restrictions or to impose additional land and/or resource use restrictions that U.S. EPA determines are necessary to maintain a comparable level of protection against unacceptable risk to human health or the environment as the result of the discovery of facts unknown to U.S. EPA and Respondent on the effective date of this Order.

14. Any instrument transferring complete or partial possession or ownership of the Facility through sale, lease, deed or otherwise by RESPONDENT, or memorandum thereof, shall be recorded with the _____ County Register of Deeds and shall provide that:

a. RESPONDENT reserves a right of access for the purpose of conducting any activity related to this Order; and reserves the right to enforce the restrictions and covenants in the Restrictive Covenant for (i) RESPONDENT; (ii) U.S. EPA and its authorized representatives, as third party beneficiary, and (iii) STATE and its authorized representatives;

b. the transferee expressly agrees to comply with the Restrictive Covenant;

c. agreement to comply with the Restrictive Covenant shall be expressly included by any subsequent transferor in any instrument transferring complete or partial possession or ownership of the Facility;

d. U.S. EPA shall be expressly named in any instrument effecting such transfer of complete or partial possession or ownership of the Facility as a third party beneficiary of the right to enforce the restrictions and covenants in the Restrictive Covenant and such

instrument shall provide that U.S. EPA may directly enforce such obligations and rights as against the transferee under such instrument and any successor to any such transferee; and

e. any subsequent instrument, or memorandum thereof in the case of a lease, effecting such transfer of complete or partial possession or ownership of the Facility shall be recorded with the _____ County Register of Deeds.

15. RESPONDENT shall provide at least twenty-one (21) days prior written notice to U.S. EPA and STATE of any proposed conveyance of all or part of the Facility.

a. For any conveyance utilizing the form Covenant Deed attached hereto as Attachment __, such notice shall include submittal to U.S. EPA of the draft conveyance document utilizing the form Covenant Deed attached hereto as Attachment __ and a current title search, commitment for title insurance or other evidence of title which documents that the recorded Restrictive Covenant remains in place and effective, as provided in Paragraph 13.

b. For any conveyance not utilizing the form Covenant Deed in Attachment __, RESPONDENT shall submit to U.S. EPA for review and concurrence that the instrument of conveyance complies with the requirements of Paragraph 14:

i. the proposed draft deed, in recordable form, or other instrument of conveyance, including a lease, that is enforceable under the laws of the State of _____;

ii. with respect to any lease, a memorandum of lease in recordable form setting forth the requirements of Paragraph 14 contained in such lease; and

iii. a current title search, commitment for title insurance or other evidence of title which documents that the recorded Restrictive Covenant remains in place and effective, as provided in Paragraph 13.

c. RESPONDENT shall record such instrument of conveyance, or memorandum thereof in the case of a lease, with the _____County Register of Deeds.

d. RESPONDENT shall provide a true copy of the recorded instrument of conveyance, or memorandum thereof in the case of a lease, showing the liber and page of recordation to U.S. EPA within thirty (30) days after RESPONDENT's receipt of a copy thereof from the _____ County Register of Deeds.

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**Tying Up the Loose Ends for ICs**
Date and Time:	Thursday, April 5, 2007, 3:30 p.m., Session D
Speakers:	David Borak, ICMA
	Aaron Swank, SES, Inc.
	Lenny Siegel, Center for Public Environmental Oversight

David Borak Presentation
Creating an IC Tracking Community

- Goals of the WebRing
- Temporary solution: We need an IC tracking network for all contaminated sites using the Environmental Data Standard Council's IC Data Standard.
- Feedback loop: By linking these sites, improvement is encouraged and the importance of LUCs and ICs to a broad community is highlighted.

Questions and comments related to the presentation were as follows:

- Are you tracking the system to see how many people go to LUCS.org?
  - Yes, they have a hit count for individual sites.

- This is a temporary measure – for how many years will it be necessary?
  - A model was done and it determined that it would be about 25 or 50 years until we really organized all of the data out there. It is difficult to get all states to do the data uniformly.

- Is Brownfields providing the LTS for this site?
  - The private sector may have to pay in the future and if there is more feedback that it is valuable, it increases likelihood of continued support.
  - WebRing is funded by EPA's Brownfields office.

- WebRing is free to join.

Aaron Swank and Kirt Connelly Presentation
Development and Implementation of Web-Based Tools for LUC-Monitoring and Enforcement at Hill Air Force Base, Utah

- LUC Web interface is a central location for LUC information where current and past LUC assessment details, LUC reports (individual OU reports and recommendations reports), and historic photos for each LUC can be viewed.
- Advantages of Hill Air Force Base LUC Management System:

- Cost effective management tool.
- Paperless benefits: saves time and money and reduces errors.
- Centralizes LUC management. There is a LUC Web interface that integrates lease, ERPIMS and IRP databases and a GeoBase Viewer (which increases the visibility of LUCs basewide).
- LUC database is compatible with Air Force Systems. LUCs are tied to IRP site identification.
- Scalable management system. The Web interface and tablet application could be applied to installations without GeoBase.

Questions and comments related to the presentation are as follows:

- Is any segment of this system accessible to the public?
  - No. Some maps are shown at public meetings, but the site is on the Intranet. There is an Air Force Web portal that is being developed and a group is working on deciding what documents can be available to public. Localities are interested in plume information

- Are you coordinating with local governments? Do they have access?
  - We are working with them to a certain extent, because homeowners sometimes do not know that their property is on a plume.

- Everything at Hill Air Force Base is ESRI based. The vendors are common and the programs need little customization.

Lenny Siegel Presentation

Institutional Controls at Vapor Intrusion Sites

- There is an over reliance on ECs. It is easy for an EC to break down when dealing with a membrane and gases, such as TCE, TCA, and PCE. The gases pool and find their way into residences. Simply monitoring once does not protect the inhabitants because conditions change and new pathways are easily made. You cannot be sure you have caught the risk unless every room is being measured.
- Relying on ECs is a poor substitute for eliminating the source.
- There have been attempts to model exposures, but the models significantly underestimate exposure.
- Variations in soil composition also have a huge impact on exposure. Proper characterization of the plume and good site planning will help reduce exposure. The plume should guide the placement of structures, such as placing a park or asphalt over a high concentration area.

Questions and comments related to the presentation were as follows:

- Where are you seeing requirements fall for implementation of ICs?
  - We are having difficulty putting deed restrictions on personal property. We are trying to get responsible parties to have a consent decree. Most people have not

thought about ICs, most think ECs have solved the problem. It is difficult to impose something on people who are the victims, so it is best to get the responsible party to fix the problem.

- Sometimes there are grants to let towns take care of contamination, but towns may not want to take the responsibility. Ideally cleanup is paid for by the polluter under the direction of the regulatory agency.

- Sometimes it is up to the developer to determine whether he or she is passing the responsibility on to the buyer when selling.

- Communities do not often understand the issues. Terms like "micrograms per cubic meter" confuses people. It takes time to get people to understand TCE contamination. It is easier to drink alternate water than breathe alternate air.

Leaders at the Core of Better Communities

Creating an IC Tracking Community

David Borak, ICMA

April 2007

EPA LTS Roundtable, San Diego, CA

About the International City/County Management Association

1. Founded in 1914, ICMA is an association of more than 8,000 city and county managers and their staff
2. Mission: To enhance the profession of local government management
3. Recent LUC/IC Work : Publications, Research Forums, IC Peer Exchanges, LUCIP (Denver-Colorado), IC Tracking Network, IC Tracking grants,
4. www.LUCs.org & the Environmental Land Use Controls Web Ring

How do you find info on ICs?

1. Land records? – time consuming, costly
2. Local economic development/brownfields Web sites?
3. State tracking systems? – Desktop tracking systems vs. Web accessible state IC tracking systems
4. Private sector environmental information management company?
5. EPA's IC Tracking System

Finding IC Tracking Systems

An example: Need info on a site in California:

1. EnviroStor Database (formerly CalSites) - Find California Cleanup sites involving DTSC
2. Water Resources Control Board – Sites with Deed Restrictions
3. California EPA – List of Deed Restriction orders
4. US EPA – NPL sites
5. Some cities have their own databases (Emeryville, CA)

What info do locals need?

1. Access to current and simple information on whether it is safe to dig
2. Where to get more info
3. Whether it is safe to change land use
4. State “Google Map” of a site with a few data requirements
    a. (i.e., GIS coordinates, extent of ICs, all known sites aliases, address, APN, lat/long, regulatory agency contacts info and links to add'l info, dig or no dig allowed under local building permit regs, local land use allowed).

State Databases for IC Tracking

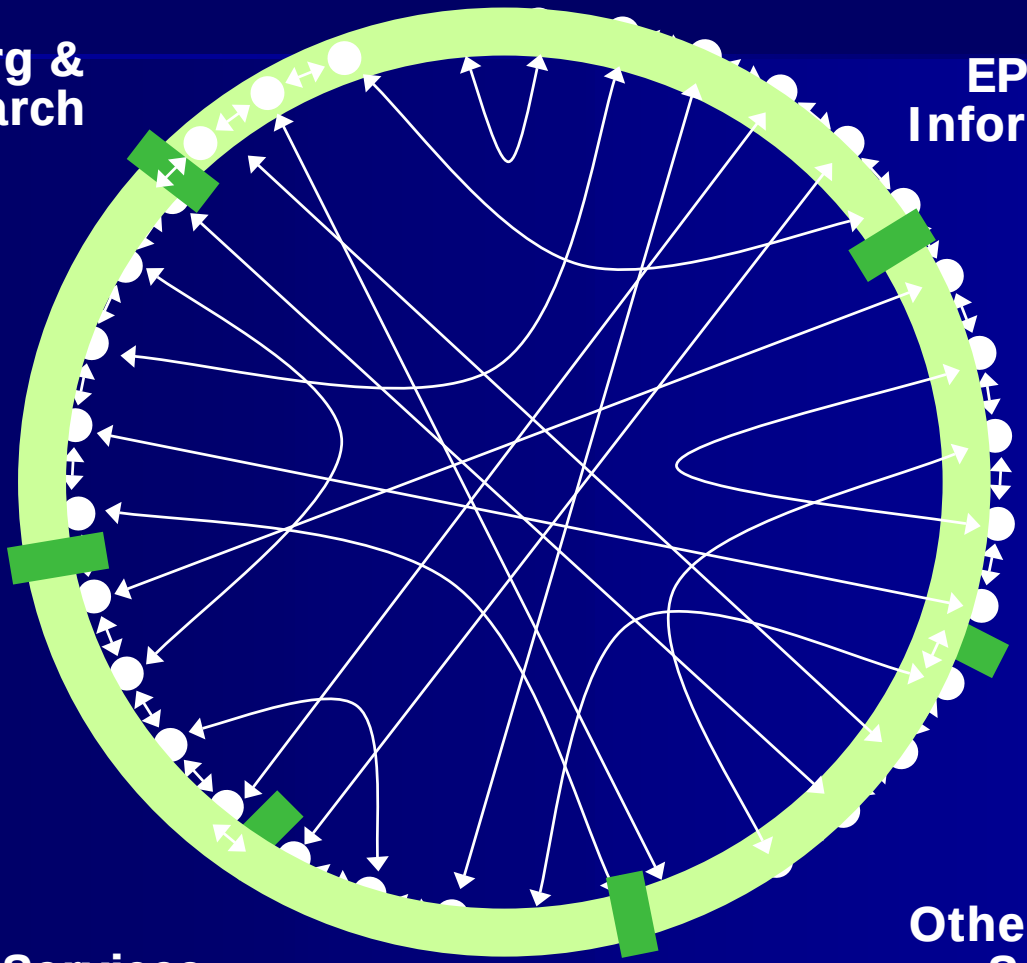
1. Vary widely in terms of content, structure, system, and abilities
2. Best systems include:
   a. Arizona Unified Repository for Informational Tracking of the Environment (AZURITE)
   b. California EnviroStor database
   c. Connecticut Contaminated or Potentially Contaminated Sites List
   d. Florida "Institutional Controls Registry" (ICR)
   e. Idaho Site Remediation Finder

Best tracking systems – con't

3. Maryland Internet Mapping Tool
4. Missouri Hazardous Waste Map Gallery
5. New York Environmental Remediation Database
6. Oregon Environmental Cleanup Site Information Database (ECSI)
7. Wisconsin Bureau for Remediation and Redevelopment Tracking System (BRRTS) and GIS Registry of Closed Remediation Sites

How can we bring this information together?

The Web Ring as a Virtual Community



LUCs.org & Help/Search

EPA IC Information

Academic/ Labs

EPA IC Tracking Systems

Real Estate/ Lending

Research NGOs

Site Assessment Firms

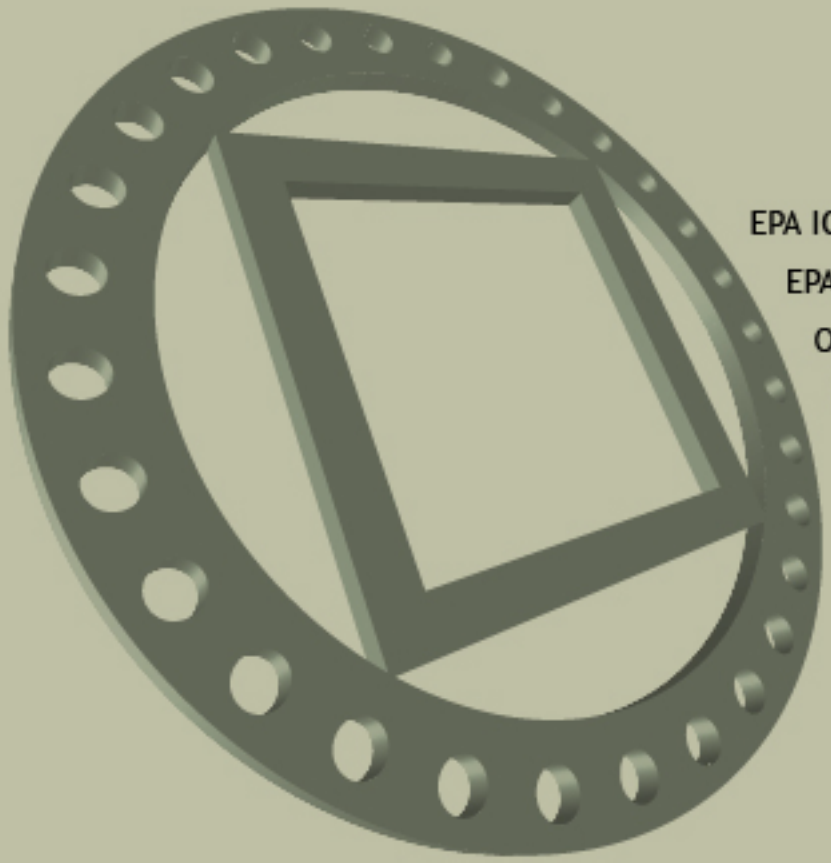
Other Tracking Systems (Federal/State/Local)

Commercial Services

How the Web Ring works

LUCWebRing

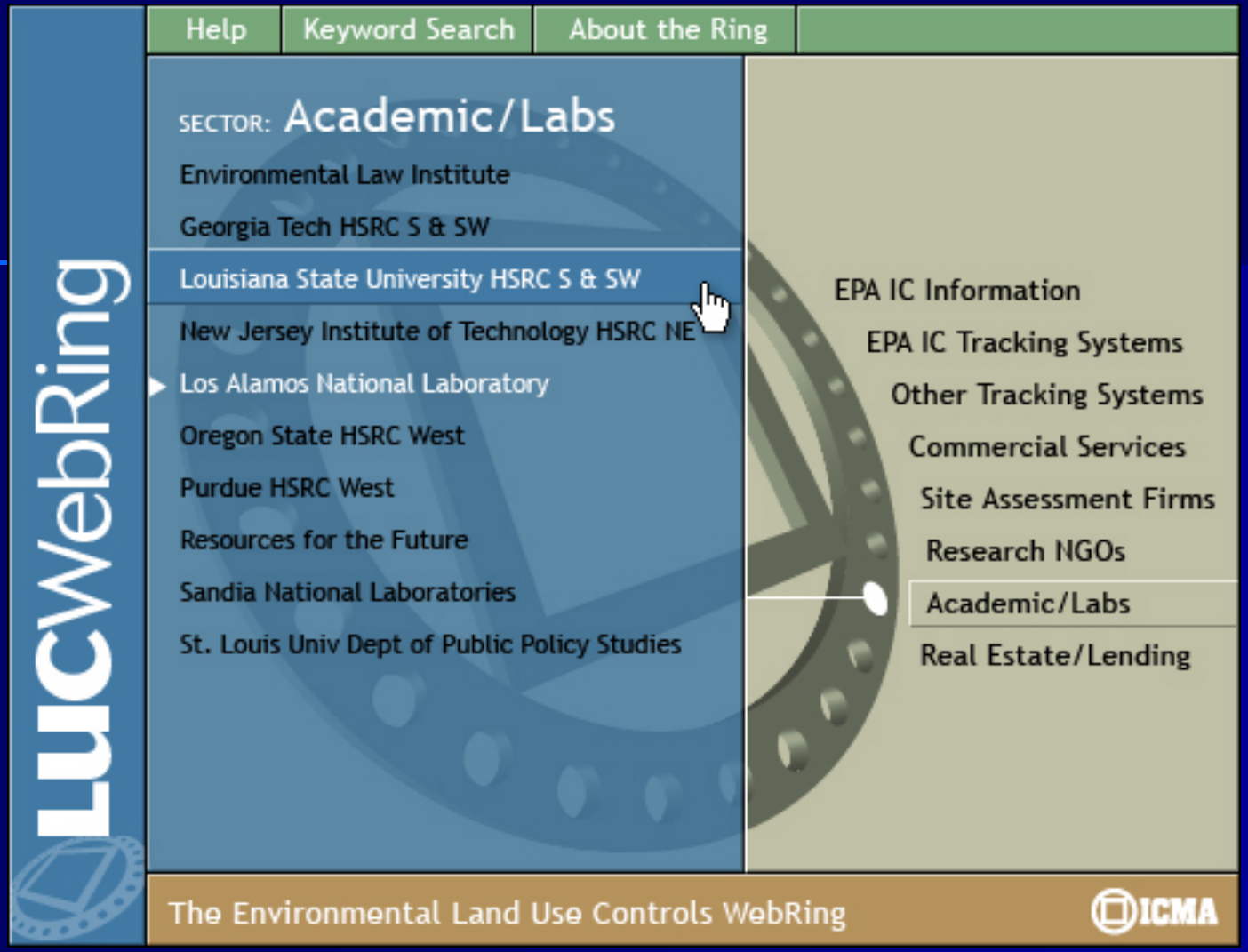
Help | Keyword Search | About the Ring

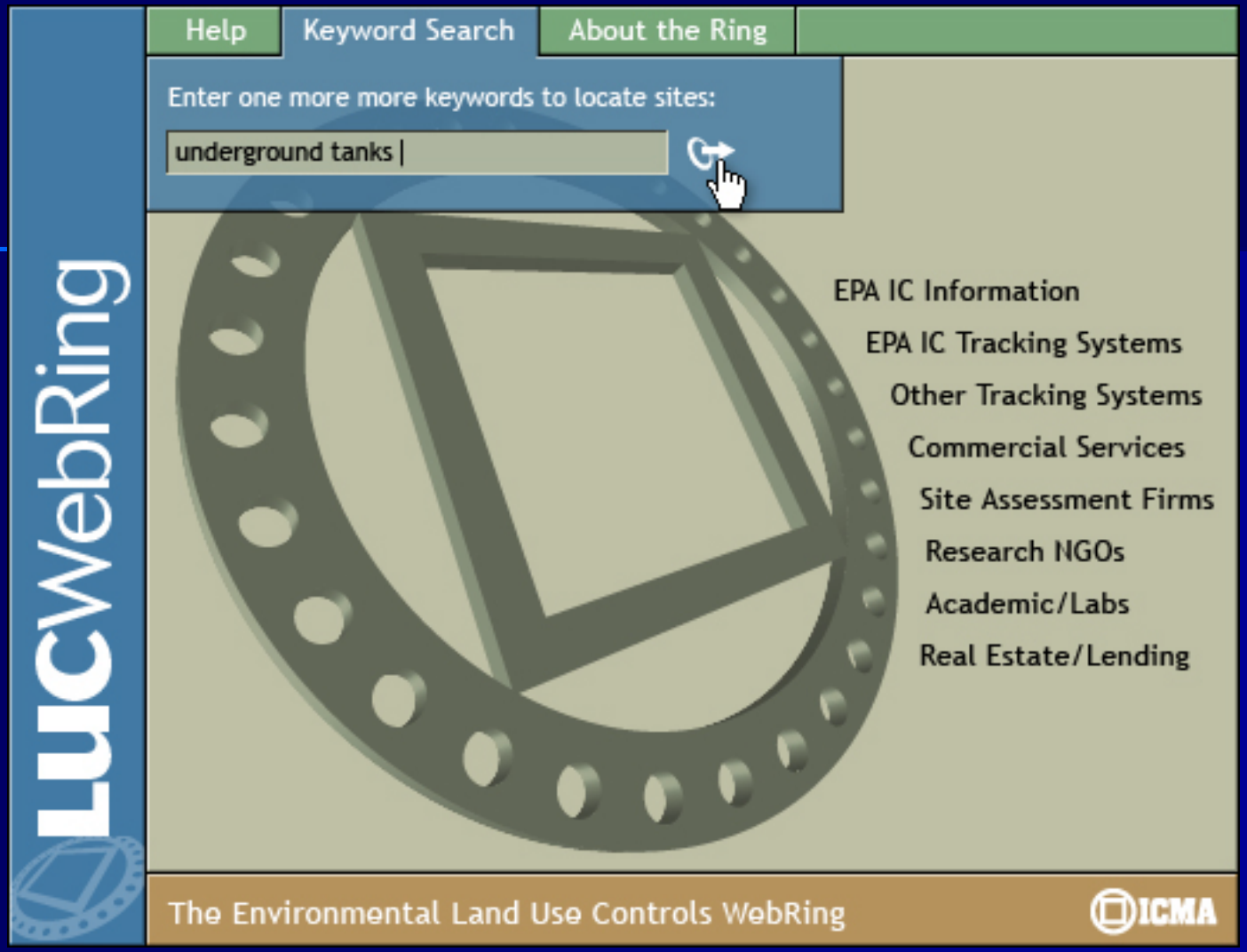


- EPA IC Information
- EPA IC Tracking Systems
- Other Tracking Systems
- Commercial Services
- Site Assessment Firms
- Research NGOs
- Academic/Labs
- Real Estate/Lending

The Environmental Land Use Controls WebRing

ICMA


LUCWebRing
Help
Keyword Search
About the Ring
SECTOR: Academic/Labs
Environmental Law Institute
Georgia Tech HSRC S & SW
Louisiana State University HSRC S & SW
New Jersey Institute of Technology HSRC NE
Los Alamos National Laboratory
Oregon State HSRC West
Purdue HSRC West
Resources for the Future
Sandia National Laboratories
St. Louis Univ Dept of Public Policy Studies
EPA IC Information
EPA IC Tracking Systems
Other Tracking Systems
Commercial Services
Site Assessment Firms
Research NGOs
Academic/Labs
Real Estate/Lending
The Environmental Land Use Controls WebRing
ICMA


LUCWebRing
Help
Keyword Search
About the Ring
Enter one more more keywords to locate sites:
underground tanks
EPA IC Information
EPA IC Tracking Systems
Other Tracking Systems
Commercial Services
Site Assessment Firms
Research NGOs
Academic/Labs
Real Estate/Lending
The Environmental Land Use Controls WebRing
ICMA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More About the Ring
Advisory Board
Feedback Loop
Join the Ring
List Serve
LUC/Data Lexicon
News Advisories
EPA IC Information
EPA IC Tracking Systems
Other Tracking Systems
Commercial Services
Site Assessment Firms
Research NGOs
Academic/Labs
Real Estate/Lending
The Environmental Land Use Controls WebRing
ICMA

Goals of the Web Ring

1. Temporary solution – We need a IC Tracking network for all contaminated sites using the Environmental Data Standard Council's IC Data Standard
2. Feedback loop – By linking these sites, encourage improvement
3. Highlight the importance of LUCs/ICs to a broad community

For More Information and to Join

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202/962-3506

Stephen Merrill Smith
ssmith218@csc.com
703/461-2377

www.LUCs.org

Development and Implementation of Web-Based Tools for LUC Monitoring and Enforcement at Hill AFB, UT

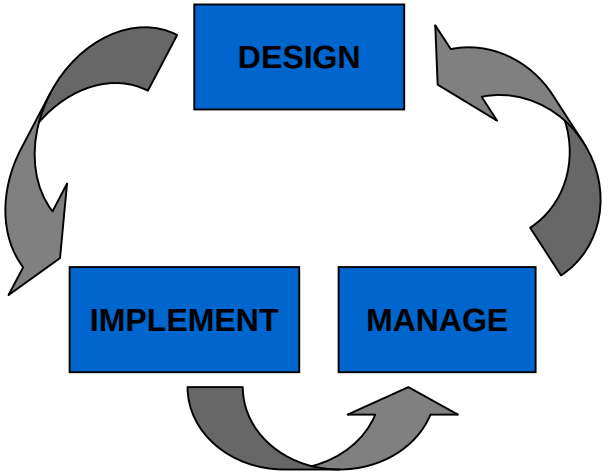
Kirt Connelly
Aaron Swank
Select Engineering Services

Presentation Overview

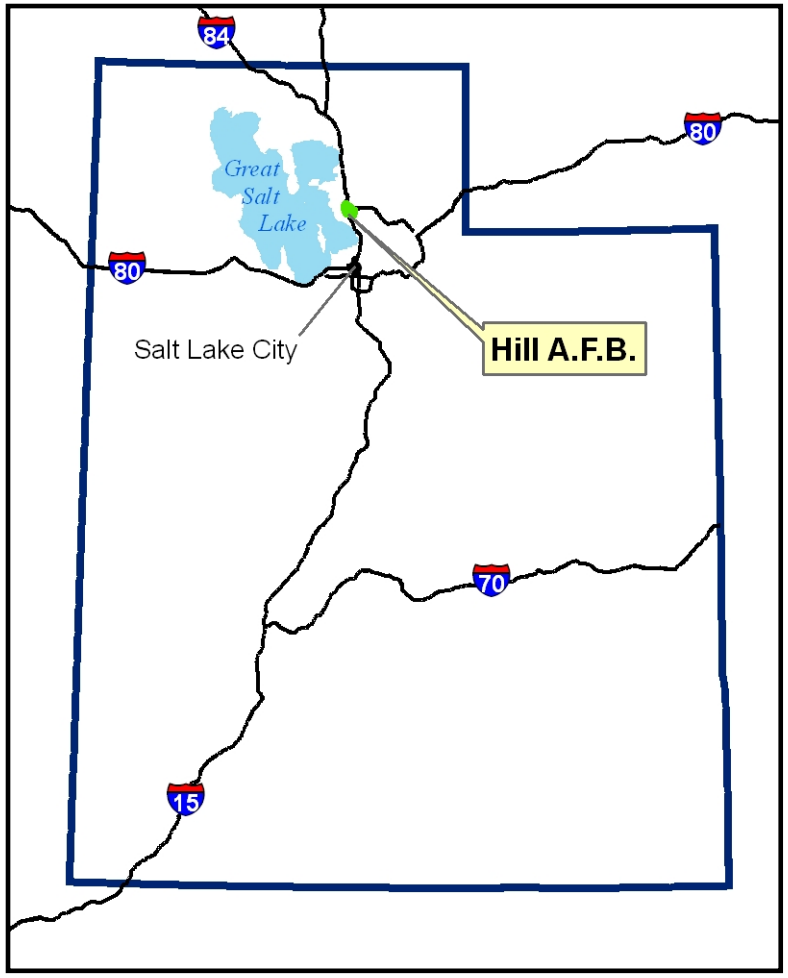
1. LUC **design** at Hill AFB

2. LUC **implementation** at Hill AFB

3. LUC **management** at Hill AFB
   a. Annual LUC assessment and report (Dynamic Document)
   b. GIS layers in GeoBase
   c. LUC Intranet web interface



Hill AFB, UT



Contamination Summary Map Hill Air Force Base, Utah

Air Force Instruction AFI 32-7020 18 February 2004

Operable Unit Area:
No construction or other activity that will disturb the soil or groundwater within these Operable Units or that will interfere with remedial action equipment or facilities, shall occur without the concurrence of 75 CEG/CEV and OO-ALC/JA.
For authority, see AFI 32-7020/OO-ALC HAFBS 1.

Explanation

- Restricted Area: Area of significant soil contamination. Construction activities may be prohibited in this area. Please contact 75 CEG/CEVR at 777-6916.
- Potential to Encounter Contamination: If construction activities are planned in this area please contact 75 CEG/CEVR at 777-6916 for further information during excavation activities.
- Hill Air Force Base Property Boundary
- Low-Permeability Cap
- Area of Restricted Water Well Drilling and Use of Shallow Groundwater by the Utah Division of Water Rights
- Treatment System

Note: Data contained on this map are based on existing investigations performed at Hill Air Force Base. Other areas of contamination may exist at Hill Air Force Base that are not shown on this map. Due to the nature of past activities, contaminated soils may be found throughout the base and may be encountered in any investigation. Proper precautions should be taken for all excavation work.

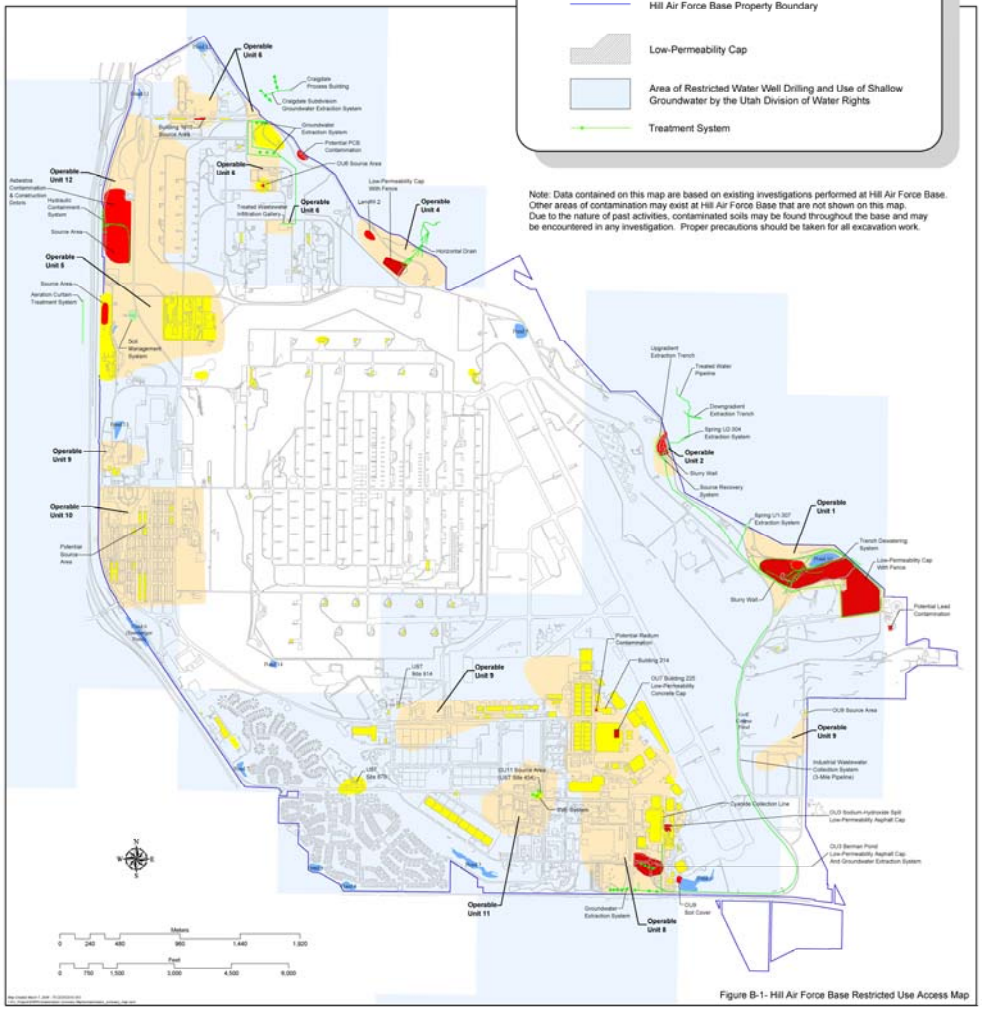
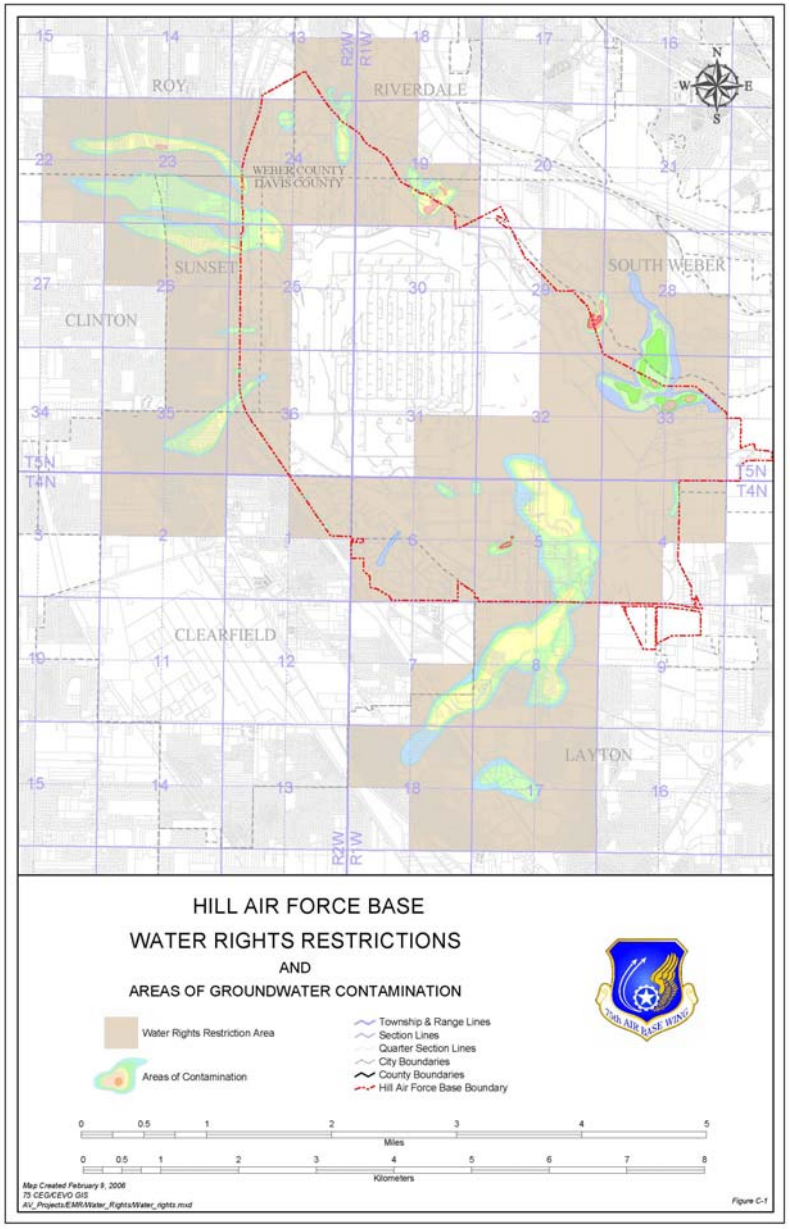


Figure B-1- Hill Air Force Base Restricted Use Access Map

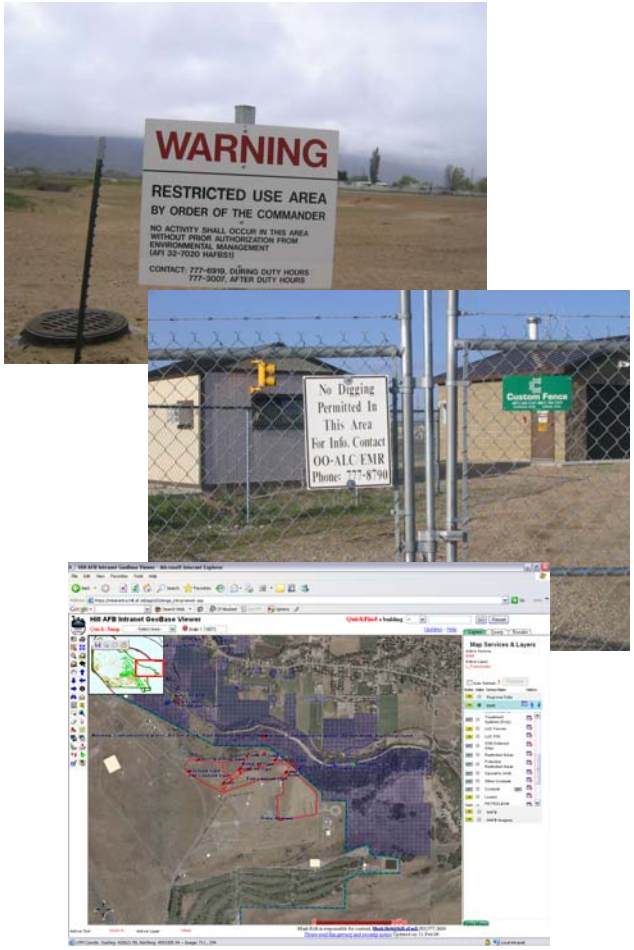


LUC Design

1. Meet **mission requirements AND protect human health** and the **environment**

2. LUCs routinely considered as part of a remediation alternative during the **feasibility study** (FS)

3. Cost effective alternative



LUCs at Hill AFB

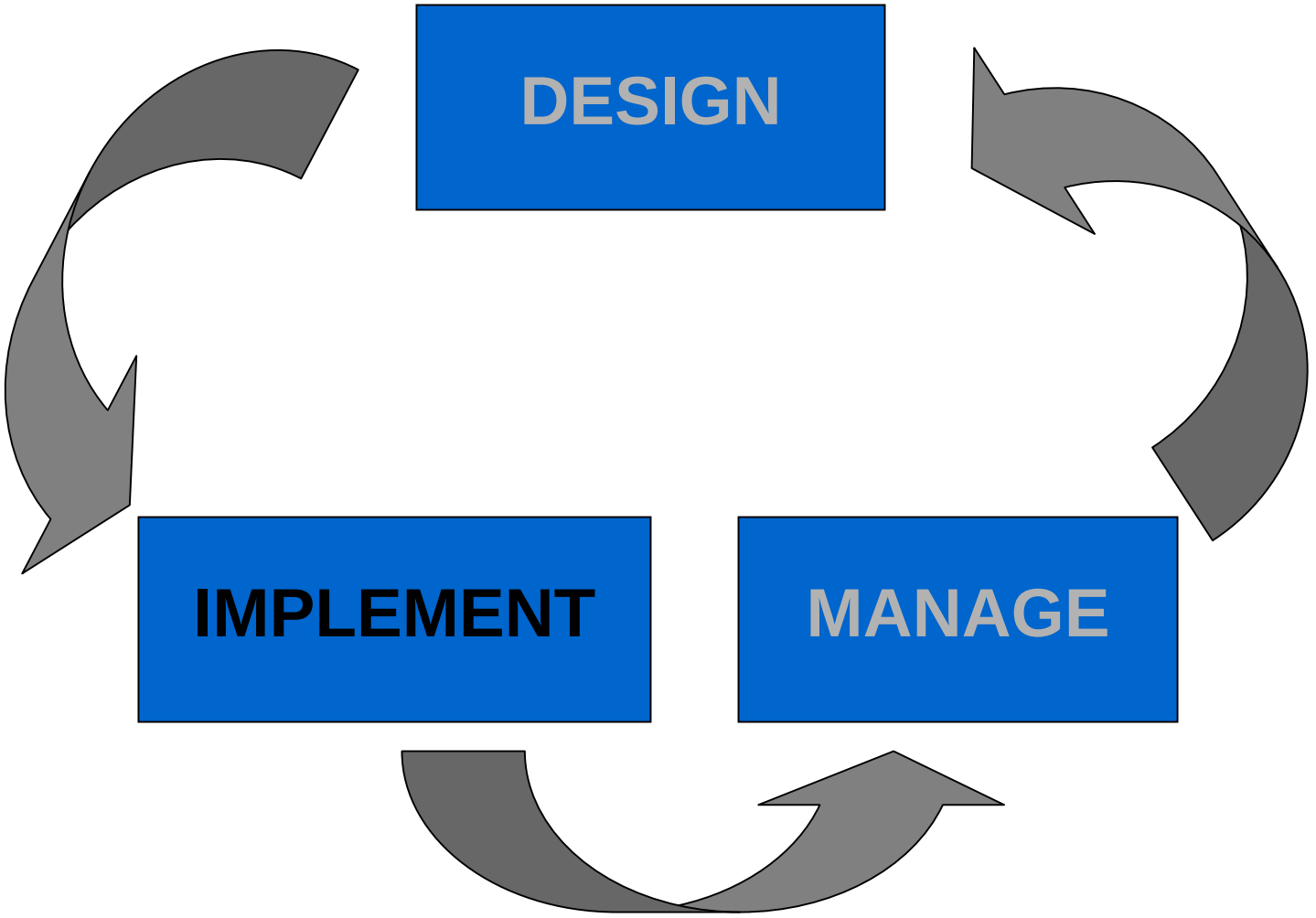
1. Continuing Order
   a. Restriction of construction activities according to **AFI 32-7020 HAFBS1** and the **Work Order Request Process** (eg. AF Form 332)
   b. "*No construction or other activity that will disturb the soil or groundwater...within an Operable Unit shall occur without the written approval of 75th CEG/CEV...*"
   c. Distribution of the **Restricted Areas Use Map**

2. Installation of **fencing** and/or **warning signs**

3. Use of **leases** or **easements**

4. Utah Department of Water Rights (UDWR) **groundwater restrictions**

LUC Implementation



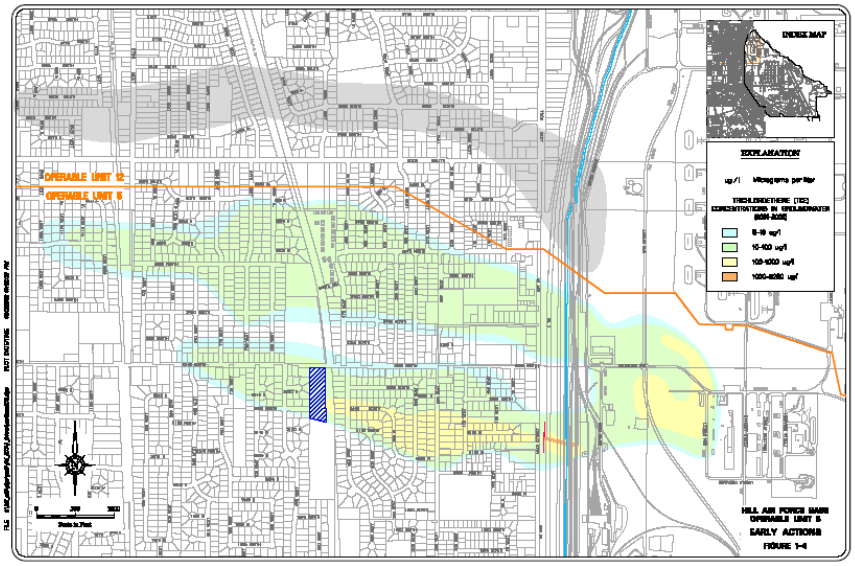
LUC Implementation

Example: OU5 LUCs

Potential exposure to contaminated soil, surface water, and shallow groundwater

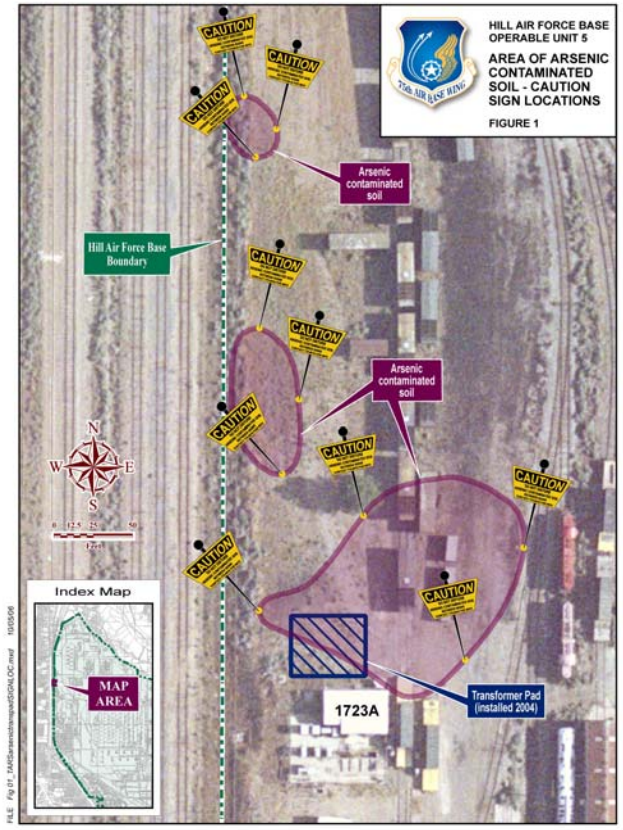
1. **On-Base** restrictions
   a. UDWR water rights restrictions
   b. AFI 32-7020 HAFBS1
   c. Restricted Areas Use Map
   d. Work Order Request Process (AF Form 332)
   e. Warning Signs

2. **Off-Base** restrictions
   a. UDWR water rights restrictions
   b. Leases and easements
   c. Fencing
   d. Warning Signs

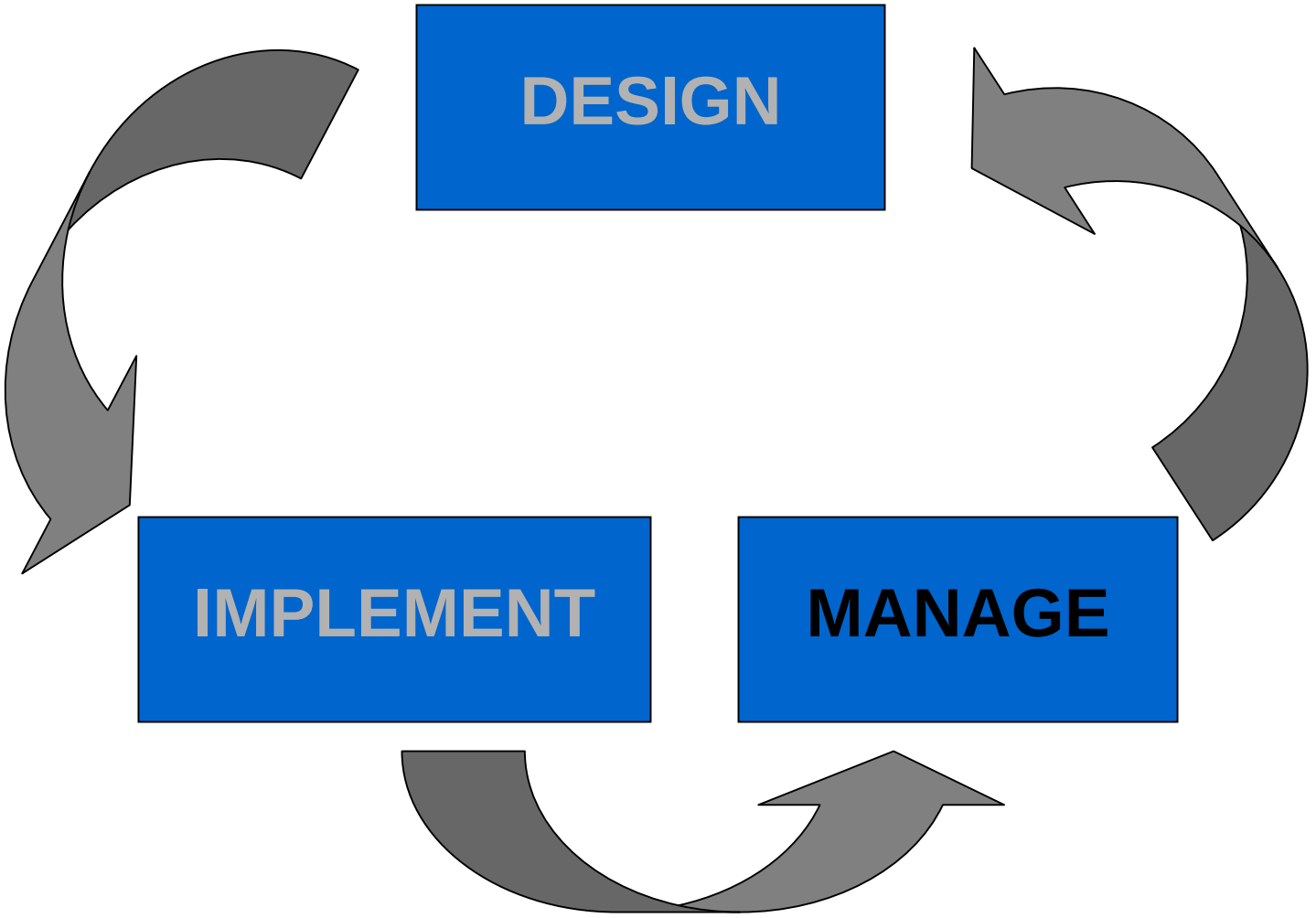


OU5 Soil LUC

"Restricted areas (areas in the TARS containing arsenic-contaminated soil) will be posted with warning signs to identify area covered by ICs and to provide contact information." (OU5 ROD, July 2006)



LUC Management



LUC Assessment Example

FIVE YEAR REVIEW COMMENTS (2003)

1. OU1 Waste Oil Phenol Pit – WP080

2. **Q:** "Is the remedy functioning as intended by the decision documents?"

3. **A:** "Institutional controls at OU1 have been effective in preventing trespassing and unauthorized construction."

4. **Recommendations:** "Ensure that all gates and fences are locked in accordance with the ROD-specified institutional controls"

2004 - OU1 WP080

2004 - OU1 WP080

2004 - OU1 WP080

Annual LUC Assessment and Report

1. **Annual LUC Assessment consists of:**
   a. Update of the LUC database
   b. Site visit to each LUC to evaluate condition
   c. Update of Groundwater Restrictions and Restricted Areas Use maps as necessary
   d. Distribution of maps to appropriate State agencies and Base personnel

2. **Annual LUC Assessment utilizes:**
   a. Tablet PC-based forms
   b. Collection of GIS data related to LUCs for integration with the LUC layer in GeoBase

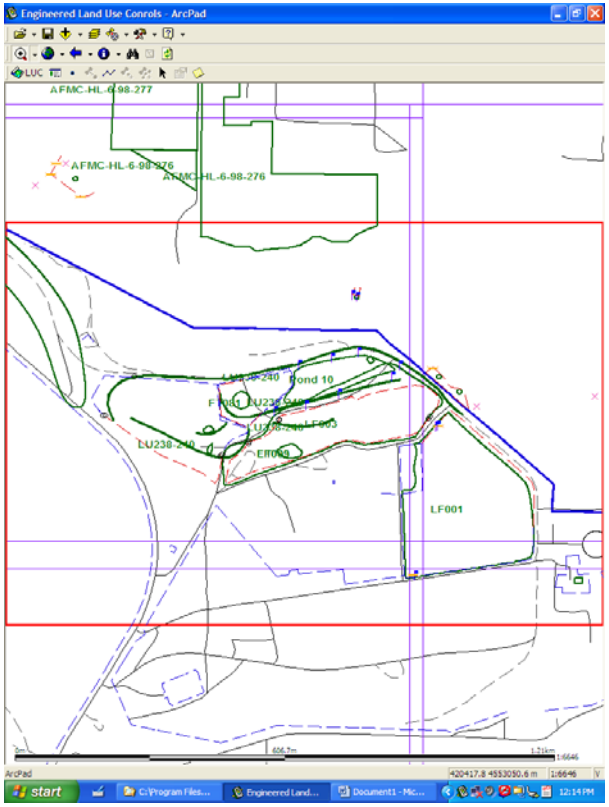
LUC Management Tools

1. **Annual LUC Assessment and Report**
   a. **Tablet PC**-based forms
   b. Collection of **GIS data** during assessment
   c. **Paperless** benefits: saves time and money, reduces errors

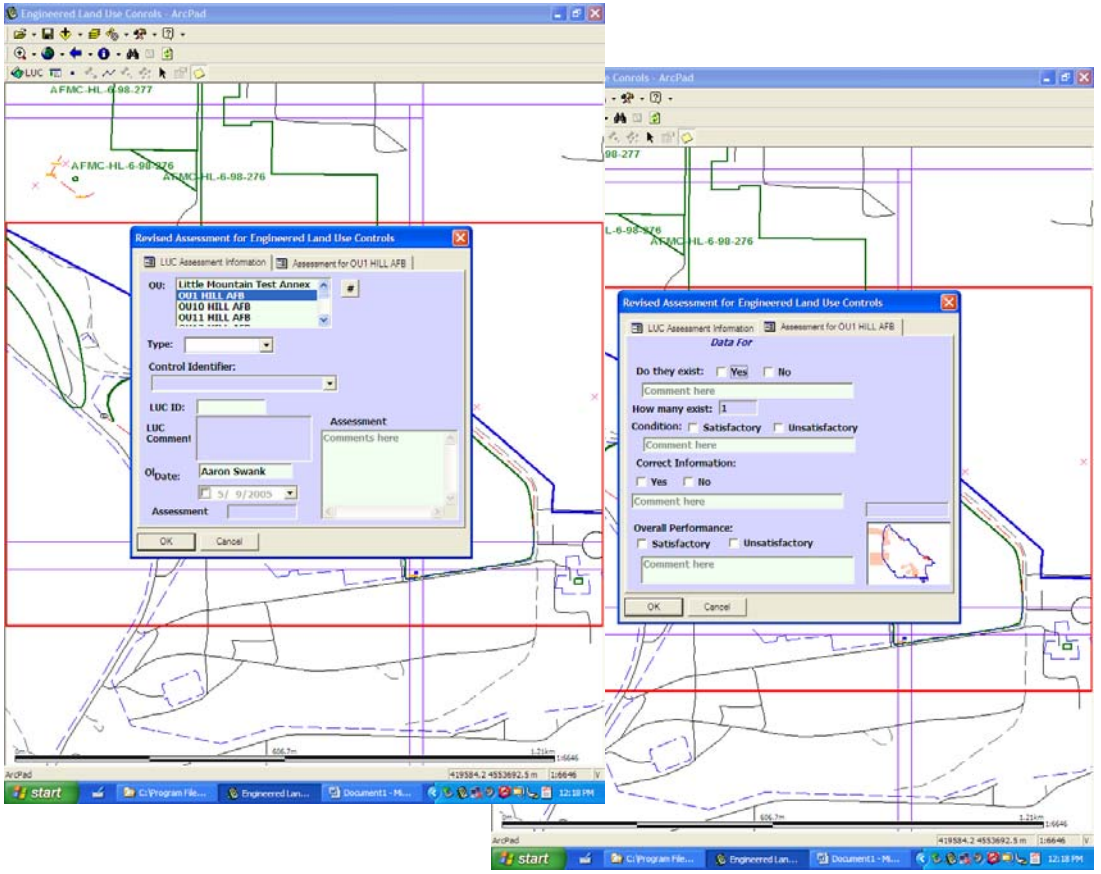
2. **GIS layers in GeoBase**
   a. **Separate layers** for leases, fences, signs, and water restrictions

3. **LUC Intranet web interface**
   a. Integrated with **GeoBase**
   b. **Central location** for LUC information
   c. **Integrates individual databases** related to LUCs (e.g. leases, ERPIMS, IRP Sites)

Tablet PC Application



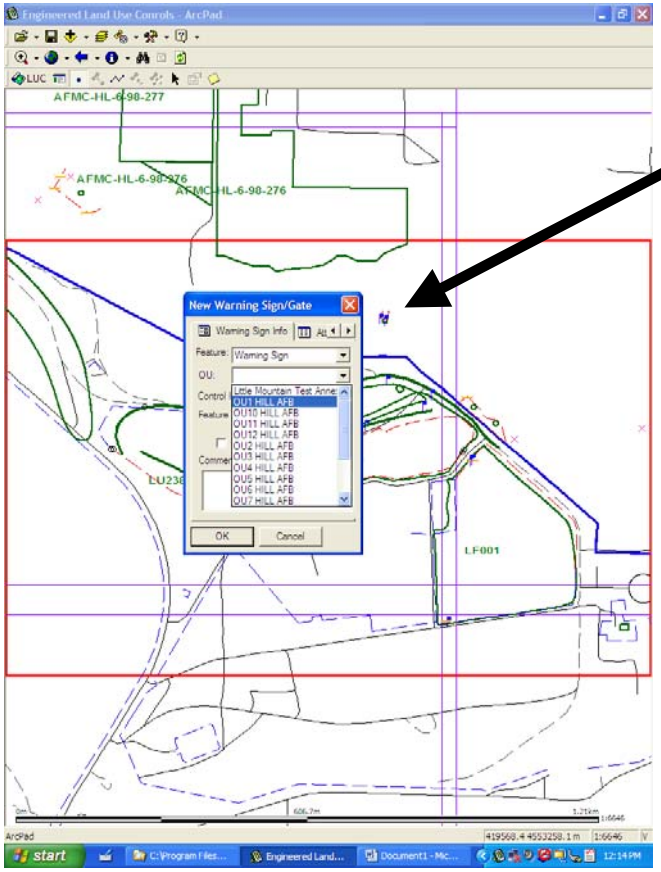
Locate LUC



Complete e-forms

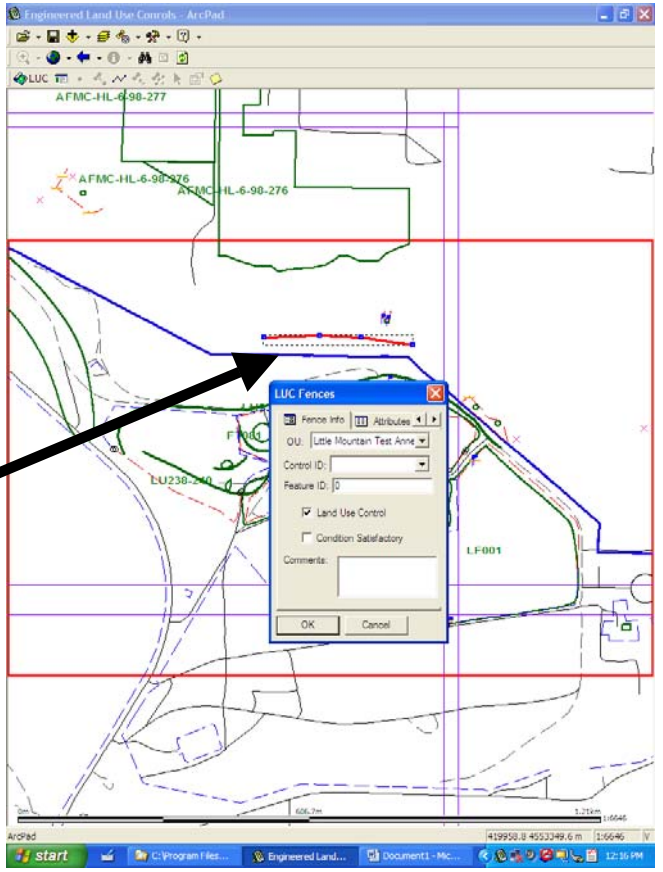
Tablet PC Application

Gather GIS data



Add new sign

Add new fence



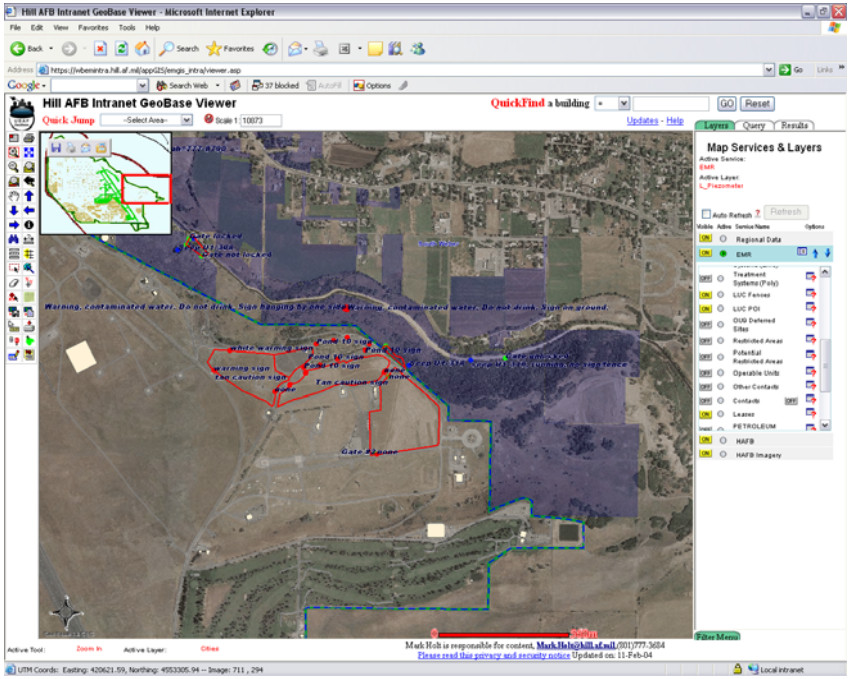
LUC Layers in GeoBase

1. **Data for LUC layer collected using GPS during Annual LUC Assessment**
   a. Tablet PC database easily synchronizes with master database

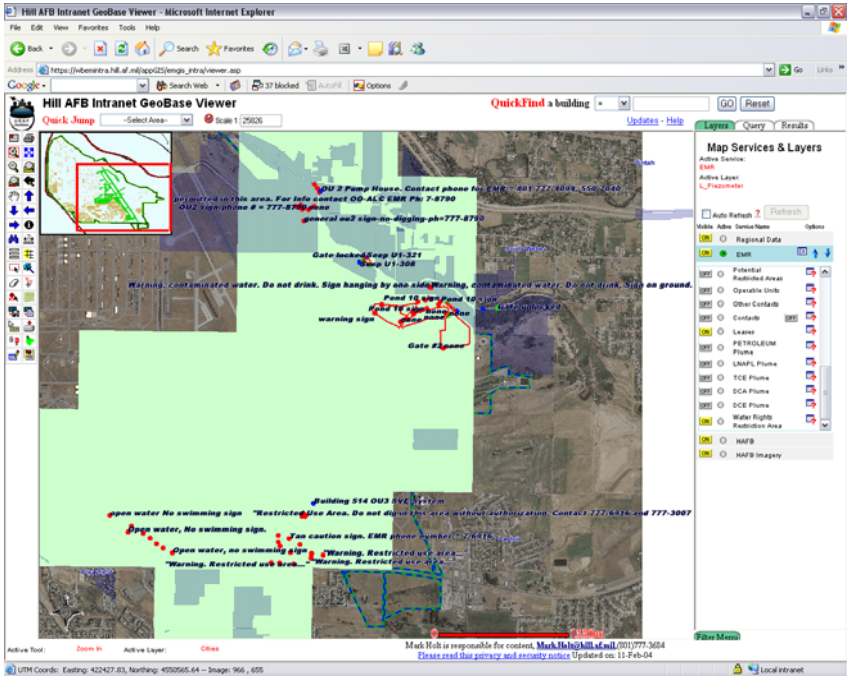
2. **GeoBase Viewer provides ability to view all LUCs at Hill AFB**
   a. Provides Basewide visibility of all LUCs
   b. Includes ability to query individual LUCs for more detailed information
   c. LUC layer available for viewing by other AF organizations
   d. Visibility during Work Order Request Process (AF Form 332)

LUC Layers in GeoBase

GIS Layers

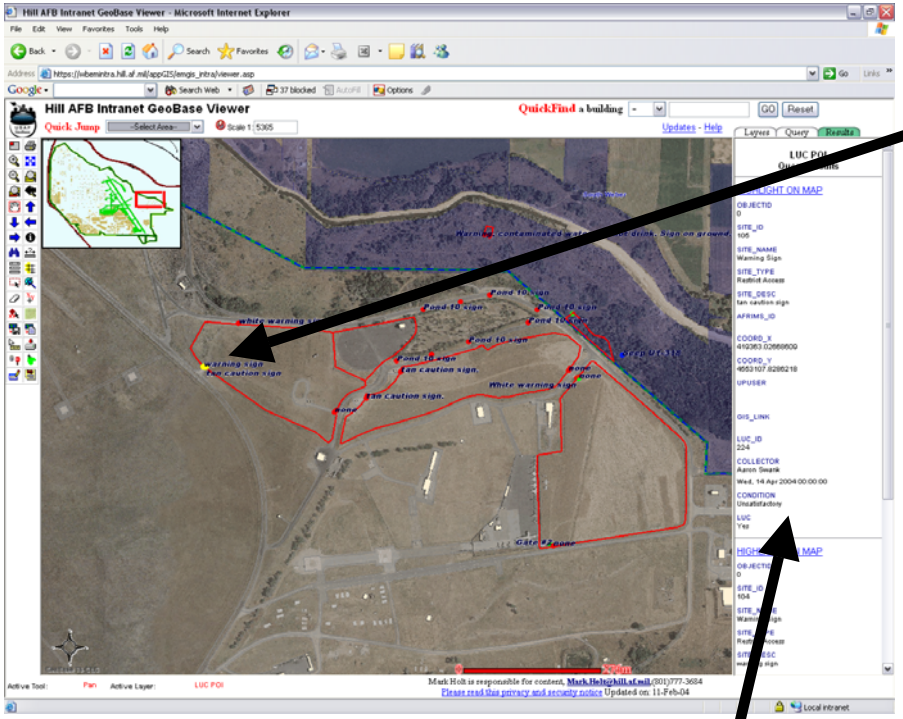


Fence, sign, and lease layers



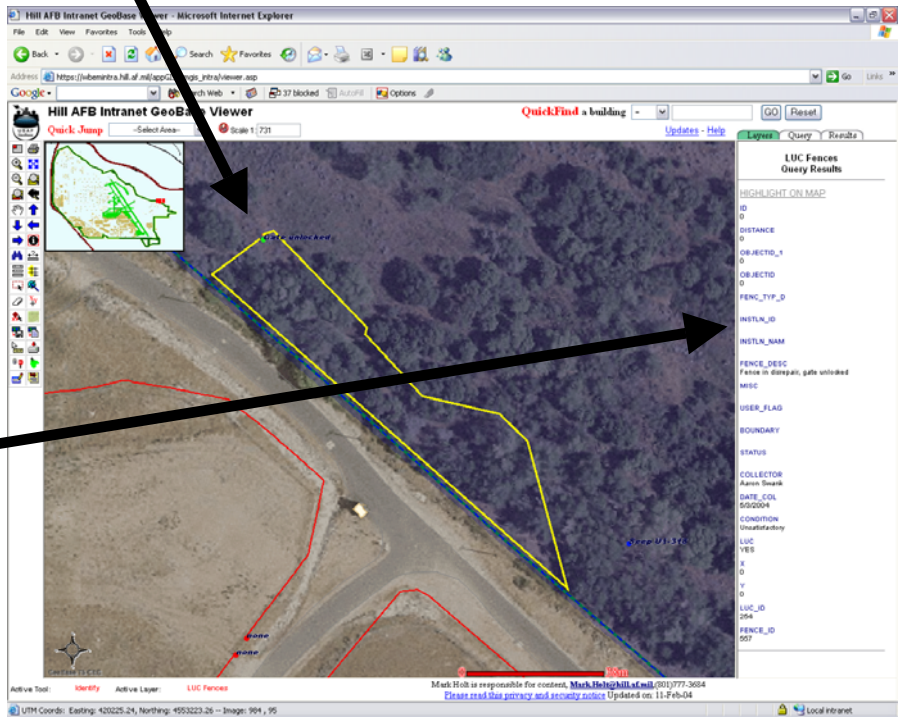
Groundwater restrictions layer

LUC Layers in GeoBase



Highlight LUC on map

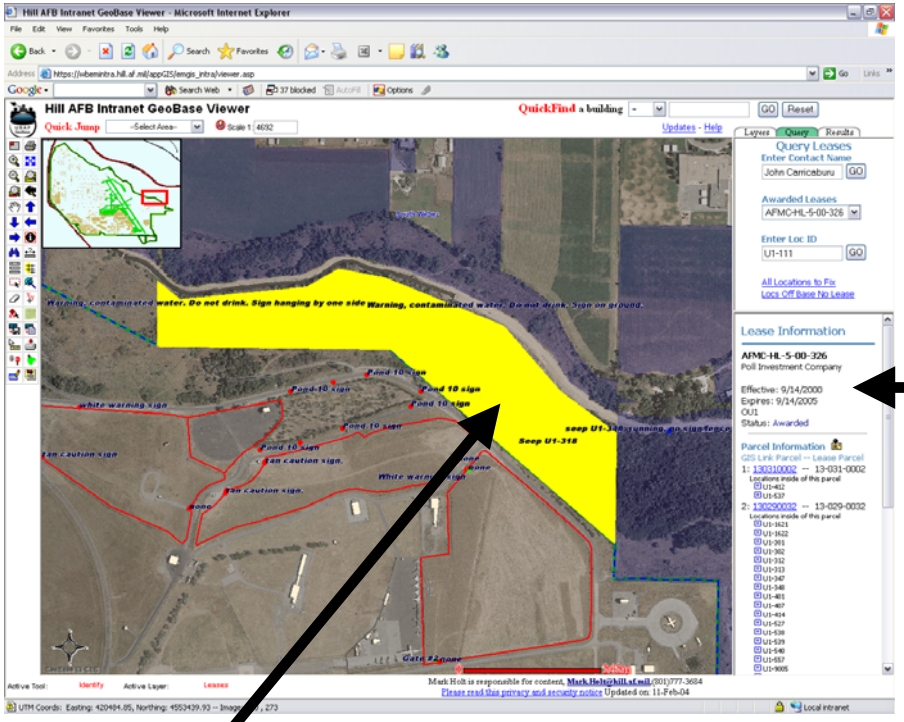
Fence query within GeoBase



Sign query within GeoBase

LUC details

LUC Layers in GeoBase



Lease query within GeoBase

Lease details from lease database

Highlight lease on map

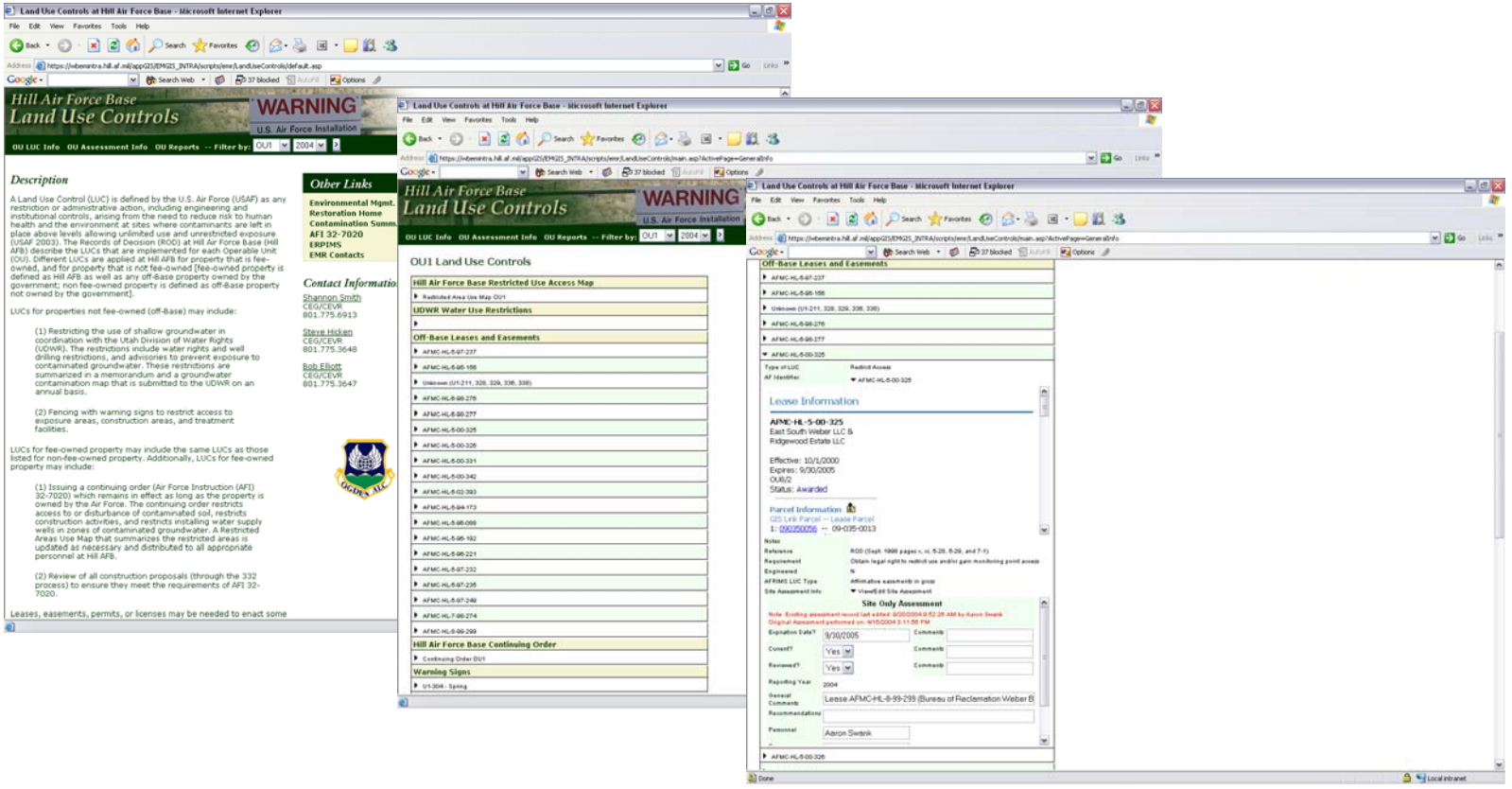
LUC Web Interface

1. **Central location for LUC information**
   a. View current and past LUC assessment details
   b. View current and past LUC reports (individual OU reports and recommendations reports)
   c. View current and historic photos for each LUC

2. **Integrates individual databases related to LUCs**
   a. Leases
   b. ERPIMS
   c. IRP Sites

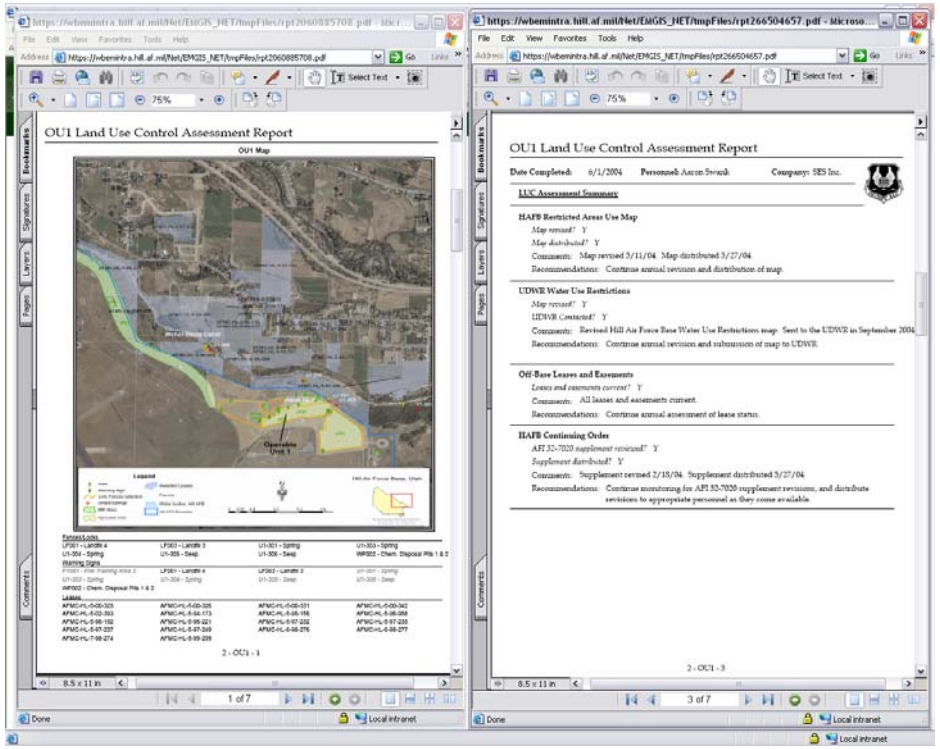
LUC Web Interface

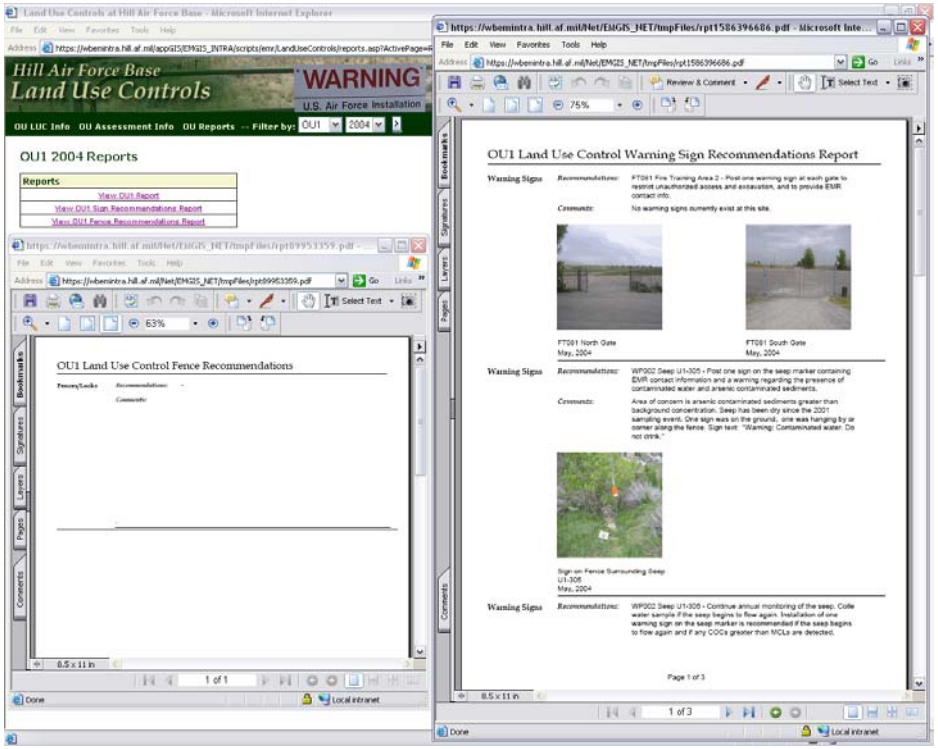
1. LUC Assessment details
2. Integration of individual databases



LUC Web Interface

1. Current and historical LUC Assessment Reports
2. LUC recommendations reports



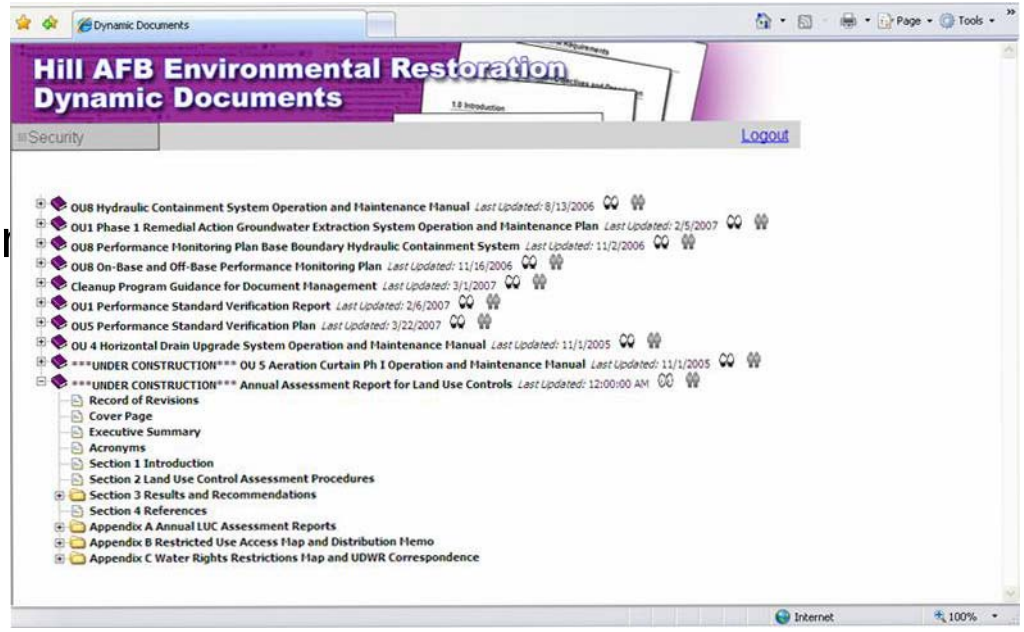


Dynamic Documents

Annual LUC Assessment Report as

Dynamic Document

1. BENEFITS INCLUDE:
2. Ease of access
3. Reduction in cost of production and distributio



Advantages of Hill AFB LUC Management System

1. **Cost effective management tool**

2. **Paperless benefits – saves time, $, and reduces errors**

3. **Centralizes LUC management**
   a. LUC web interface (integrates lease, ERPIMS, and IRP databases)
   b. GeoBase Viewer (increase visibility of LUCs Basewide)

4. **LUC database compatible with Air Force Systems**
   a. LUCs tied to IRP site ID

5. **Scalable management system**
   a. Web interface and tablet application could be applied to installations without GeoBase

2005 - OU1 WP080

2005 - OU1 WP080

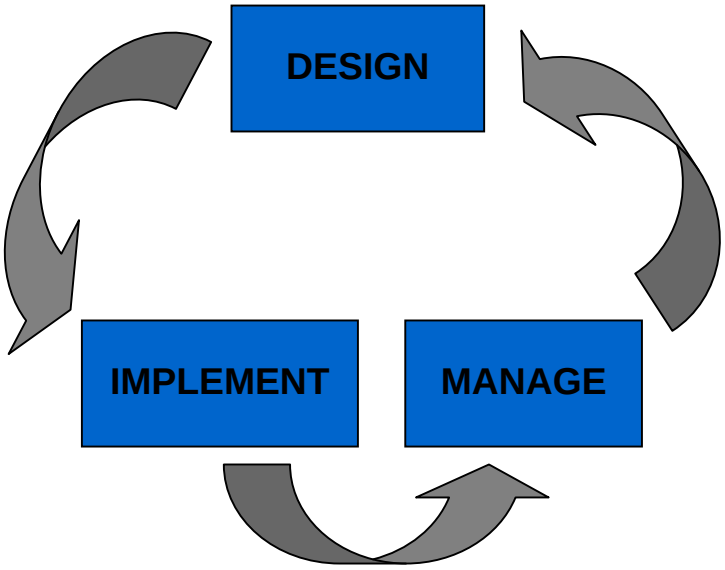
2005 - OU1 WP080

Closing the Loop

1. Implement recommendations from the annual LUC Assessment

2. Tool to evaluate protectiveness in the 5-Year Review

3. Continue to meet mission requirements and protect human health and the environment



Questions?

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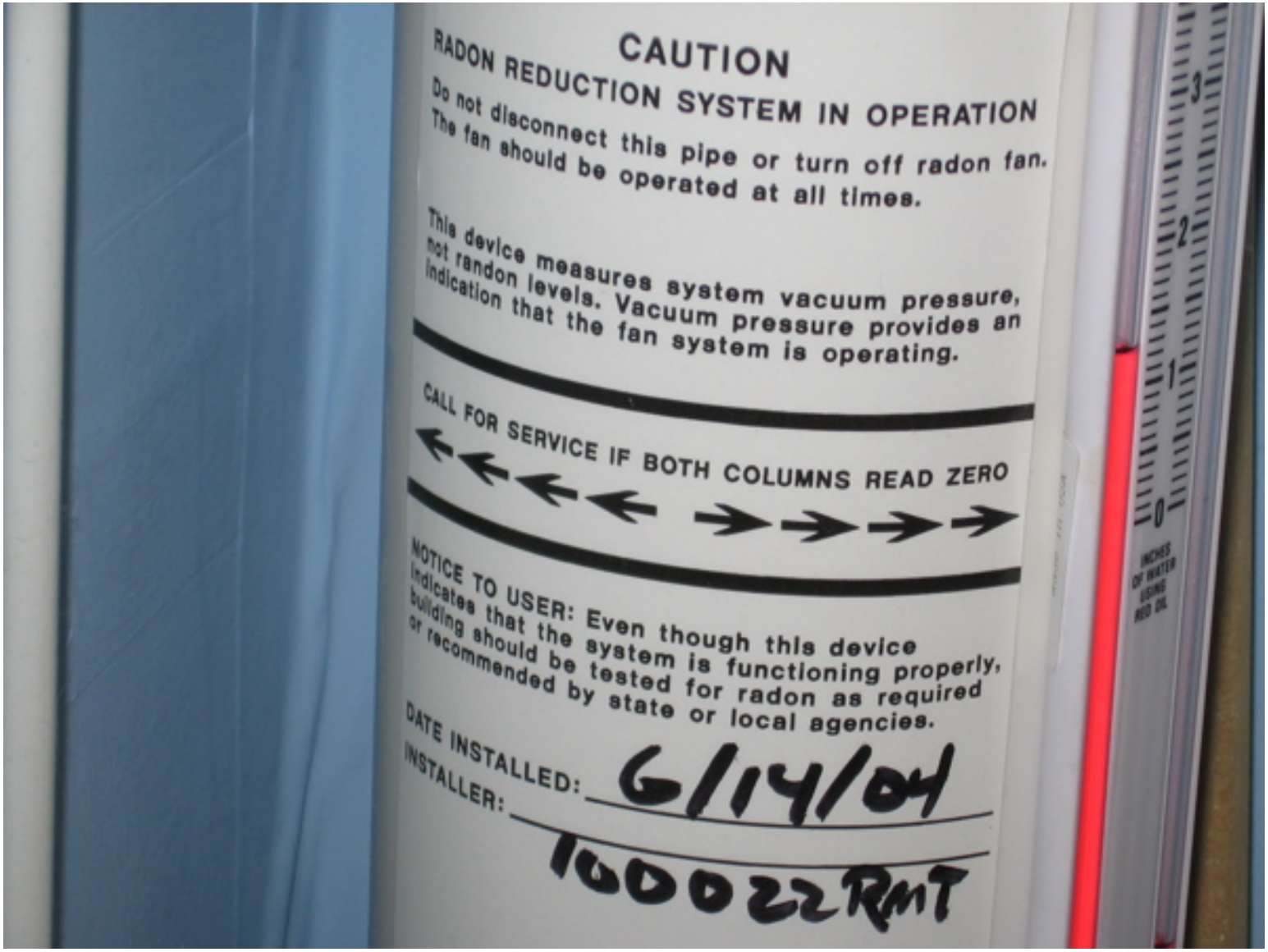
Institutional Controls at Vapor Intrusion Sites

Lenny Siegel
Center for Public Environmental Oversight
April, 2007

Responses to Potential Vapor Intrusion

1. Investigation
2. Remediation
3. Engineering Controls
4. Operation, Maintenance, and Monitoring


CAUTION
RADON REDUCTION SYSTEM IN OPERATION
Do not disconnect this pipe or turn off radon fan.
The fan should be operated at all times.
This device measures system vacuum pressure, not randon levels. Vacuum pressure provides an indication that the fan system is operating.
CALL FOR SERVICE IF BOTH COLUMNS READ ZERO
NOTICE TO USER: Even though this device indicates that the system is functioning properly, building should be tested for radon as required or recommended by state or local agencies.
DATE INSTALLED: 6/14/04
INSTALLER: 100022 RMT
INCHES OF WATER USING RED OIL

Purposes of Institutional Controls at Vapor Intrusion Sites

1. Operation & Maintenance
2. Restrictions on Perforation
3. Restrictions on Use
4. Design Requirements
5. Monitoring
6. Notice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Lenny Siegel

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2007 Long-Term Stewardship Roundtable and Training
San Diego, California
April 4 – 5, 2007
Presenter Biographies

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Scott Alfonse is currently the Director of Environmental Stewardship Department for the City of New Bedford, a position he has held since the department was created in July 2003. He directs the assessment and cleanup of City-owned Brownfield sites, review of projects in and near coastal and inland wetland resources, and coordinates city efforts relative to remediation of the New Bedford Harbor Superfund site. Mr. Alfonse began his career with the City of New Bedford in 1989 as Park Planner and served as Environmental Planner and Senior Environmental Planner prior to becoming Director. Prior to working in New Bedford, he worked as an environmental consultant conducting environmental and wetland assessments. He holds of Bachelor of Science in Urban and Environmental Planning from Westfield State College, Westfield, Massachusetts.
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Sara Amir is the Chief of the Southern California Cleanup Operations Branch at the Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (Cal/EPA). Under her leadership, DTSC has been involved in successful cleanup of numerous state superfund sites and brownfield properties, and has entered into enforceable agreements with a number of redevelopment agencies, local government entities, private companies/individuals, for environmental characterization and/or remediation. Ms. Amir has a Bachelor's degree in Biology and a Master's degree in Environmental Engineering from the University of Southern California. She has been with Cal/EPA for over 22 years and has been in her current position for seven years.
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Patricia Beard, is the Redevelopment Manager for National City, California. A graduate of Michigan State University, Ms. Beard has been active in brownfield redevelopment for seven years. Her community development career began 17 years ago in rural Portage County, Ohio. In 1998 she was appointed as Executive Director of the Historic Warehouse District Development Corporation of Cleveland, Ohio, focusing on historic preservation and adaptive reuse projects in a urban setting. In 2000, Ms. Beard relocated to the west coast and was given an opportunity to focus on brownfield projects in Chula Vista, California. Since 2004, she has served in National City as brownfield coordinator and redevelopment manager. Prior to her community development career, Ms. Beard was a journalist working at suburban newspapers in greater Detroit, Michigan and Cleveland, Ohio.
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Rick Bergquist is Senior Software Adviser/Chief Evangelist for Locus Technologies headquartered in Silicon Valley. Locus provides on-demand environmental information management applications designed to reduce operational costs, enable long-term monitoring, and allow for cross-site analysis of environmental risk. Prior to Locus, Rick was Chief Technology Officer of PeopleSoft where he was responsible for product vision and direction of PeopleSoft's ERP applications. As a founding father of one of the most successful software companies in the world, Mr. Bergquist

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Joseph Biondolillo has a Bachelor of Arts degree in Geological Sciences (1985) from the State University of Geneseo, and a Master of Science degree in Environmental Science (1988) from the University of Charleston, West Virginia. Since 1996, Mr. Biondolillo has been employed as an Environmental Specialist with the City of Rochester's Division of Environmental Quality. Some of Joe's responsibilities at the City include managing the City's tax delinquent property environmental review process, performing environmental due diligence for property acquisitions, completing environmental and geothermal investigations, and completing environmental cleanup projects. Mr. Biondolillo is the project manager for NYSDEC and USEPA grants-funded cleanup projects, and was project manager for a large brownfield cleanup project which was awarded 2006 Project of the Year by the local branch of the American Public Works Association. He has coauthored a paper presented at the USEPA Brownfield 2001 Conference highlighting the environmental institutional control process developed and utilized by the City of Rochester. Prior to joining the City of Rochester, Mr. Biondolillo worked for more than eight years as an environmental geologist with a Rochester-based environmental consulting firm. Joe is a member of the New York State Council of Professional Geologists.
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Brian Boerner has been employed by the City of Fort Worth for 17 years, most recently as the Director of Environmental Management. Mr. Boerner has oversight responsibility for Air Quality, Storm Water Quality, Hazardous Waste, Compliance Issue, Public Education, Brownfields Redevelopment, Solid Waste Services, Recycling, and the Household Hazardous Waste Collection programs within the City of Fort Worth. In his past 20 years in the environmental field, Brian has worked focusing his efforts on regional air quality attainment, local and statewide storm water management, underground storage tank and asbestos compliance, emergency response support, environmental policy development, economic development, solid waste collection, management and disposal, and recycling. Prior to his work with the City, Brian worked for a Contractor to the EPA identifying Superfund sites for the National Priorities List. Brain holds a Master of Science in Environmental Science from the University of North Texas as well as two degrees in chemistry and numerous environmental certifications including the Certified Hazardous Materials Manager designation (CHMM).
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David Borak: As a Project Manager at ICMA, David Borak has over ten years of experience conducting technical research on the use of environmental land use restrictions to cleanup and reuse of contaminated properties. Mr. Borak's support on land use controls projects have included conferences, meetings, workshops, publications, Web sites, surveys, data analysis, presentations, and outreach. In addition, Mr. Borak is a session and track manager for both the national brownfields conference and the ICMA annual conference. Mr. Borak has numerous publications on a variety of topics, and has spoken at multiple conferences on environmental land use controls and other issues. Prior to joining ICMA, Mr. Borak conducted research on the US EPA Superfund program as a environmental consultant. He has a Master of Public Affairs degree with a concentration in Environmental Policy & Natural Resource Management from Indiana University and Bachelors degrees in Political Science and Economics from Binghamton University.
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Susan Bromm has been employed by the U.S. EPA since 1980 in various positions involving every aspect of waste management and remediation. She is currently the Director of the waste remediation enforcement office at EPA headquarters in Washington, DC, establishing policy for compelling private parties to clean up old and abandoned toxic waste sites under the billion dollar Superfund program, the RCRA corrective action program and the UST and OPA remediation programs. She has also lead efforts to implement the liability reforms contained in the new Small Business Liability Relief and Brownfields law. Previous to working in the Office of Site Remediation Enforcement, Susan directed the RCRA enforcement program, establishing national policy on waste enforcement, penalties and site clean-up. From 1980 to 1988, Susan held a variety of positions with responsibility for developing hazardous waste regulations and setting hazardous waste facility permitting policies. Susan is an attorney and a graduate of Georgetown University Law Center. She is a member of the District of Columbia bar and the American Law Institute.
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Virginia Capon has been practicing environmental law in EPA Region 2's Office of Regional Counsel for nearly 18 years. Since 1998, Virginia has been serving as chief of the New York/Caribbean Superfund Section of the Office of Regional Counsel, managing a team of lawyers handling complex Superfund cases. Prior to 1998, Virginia handled many Superfund cases. She received her law degree from St. John's University in Queens, NY in 1988. Virginia was a founding member of the first EPA workgroup that was established in 1994 to increase understanding of role of institutional controls in Superfund remedy selection, and she has been an active participant in the various EPA ICs workgroups since then. She currently serves as the Region 2 ICs Legal Coordinator.
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Jan Carlson has been practicing law for 20 years. Jan earned an undergraduate degree in chemistry at Drake University, a masters degree in chemistry at the University of Colorado and a law degree from the University of Denver. Most of Jan's legal career has been as an attorney working on complex Superfund, RCRA and Air cases in either the Office of Regional Counsel in Region 5 (Chicago) or in Region 9 (San Francisco). For the last several years Jan has also been the legal institutional control coordinator for the Region 5 Office of Regional Counsel. Prior to joining U.S. EPA, Ms. Carlson worked for a city government in Colorado.
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Ann Carroll has BS in biology and microbiology and an MPH in environmental health and epidemiology and over 25 years experience working on environmental health issues; including close to 15 years with the US Environmental Protection Agency and former Office of Technology Assessment with the US Congress. Ann's efforts have focused on risk assessment, risk communication and the management of environmental health hazards such as leaking underground storage tanks, transportation emergencies, urban environmental health hazards such as lead and other heavy metals, pesticides and air pollution. Ann has worked in private consulting as well as the National Governor's Association, and the US EPA Offices in Washington, D.C. and Boston, Massachusetts. For four years, Ann managed the Lead Reference Center of the NSW Environmental Protection Authority based in Sydney, New South Wales, Australia and has consulted with the Pan American Health Organization as well as India and Indonesia in their leaded gasoline phaseout efforts. Ann returned to the US EPA in February 2002 to work in the Office of Brownfields Cleanup and Redevelopment.
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Jim Carroll is currently serving as the Program Administrator the Maryland Department of the Environment's Environmental Restoration and Redevelopment Program (ERRP). ERRP consists of the Voluntary Cleanup Program, the Controlled Hazardous Substances Enforcement Program, and the National Priority List Division. Each division is responsible for overseeing assessment and cleanup of hazardous substance sites in Maryland. Mr. Carroll previously served as the Community Redevelopment Coordinator. In that role, he worked with representatives from State and local governments, the private sector and the public to help facilitate the redevelopment of sites believed to be contaminated or are contaminated with hazardous substances. Before joining MDE, Mr. Carroll worked with several environmental consulting firms as a regulatory analyst. In this role, he supported both government and private sector clients in evaluating the clients' compliance with major federal, state and local environmental laws and regulations. He also worked for a Fortune 500 company and managed numerous environmental projects that involving legal and technical issues.
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Marshall Cedilote earned a Bachelor of Science degree in Marine Biology at Texas A&M University and a Master of Science degree in Environmental Management at the University of Houston. He has worked for the Texas Commission on Environmental Quality (TCEQ) and predecessor agencies since 1992. He currently manages the TCEQ's Preliminary Assessment and Site Inspection program as well as hazardous waste removal actions and other state funded remediation sites.
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Paul Connor is an attorney with the Law Firm of Spiegel and McDiarmid and the Executive Director of NALGEP – the National Association of Local Government Environmental Professionals. Paul specializes in environmental law and provides the day-to-day management services for NALGEP – a national non-profit organization that serves local government environmental professionals. Before joining NALGEP, Paul worked for nearly 20 years at the U.S. EPA, where he led a division of 35 professional staff in all aspects of EPA's five site remediation enforcement programs: Superfund, Brownfields, RCRA corrective action, Underground Storage Tanks, and the Oil Pollution Act. He holds a law degree from the Northwestern School of Law at Lewis and Clark College (1984) and a B.Sc. from Western Washington University (1979).
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Erica S. Dameron currently acts as the Applicable, Relevant and Appropriate Requirements (ARARs) Coordinator for the Superfund, Federal Facilities, Brownfields and Voluntary Remediation Programs in the Office of Remediation Programs, Division of Waste in the Virginia Department of Environmental Quality. In this position Ms. Dameron is responsible for ensuring that EPA, federal facilities, and potentially responsible parties (PRPs) comply with statutory and regulatory requirements in the cleanup of the Commonwealth's hazardous waste sites by researching and interpreting State and Federal environmental statutes, regulations and policy statements. She actively participates in an ASTSWMO focus group for Removal Actions. Ms. Dameron has over twenty years in Virginia State government. She also has seven plus years experience in the chemical industry working in both research and development and process engineering. Ms. Dameron has a Bachelor of Arts degree in Biophysics and Biology from State University

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Carlos Evans is an attorney-advisor working for the U.S. EPA's Office of Site Remediation Enforcement. For approximately two years, Mr. Evans practiced as a multi-media assistant regional counsel in Region 5. His work included both remedial and removal actions. He is currently a member of the IC Headquarters Workgroup, IC Regional Coordinators Workgroup and IC Effectiveness Subgroup. His work includes drafting policy and guidance on institutional controls.
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Darsi Foss is the Chief of the Wisconsin Department of Natural Resources' (WDNR) Brownfields and Outreach Section. Ms. Foss has 21 years of policy and program experience associated with cleaning up and reusing contaminated properties, both at the federal and state levels. While at the U.S. Environmental Protection Agency (EPA) in Washington, D.C., she worked on policy issues pertaining to RCRA corrective action and Superfund, including the National Contingency Plan. Ms. Foss has been with the DNR for the past 17 years, working on brownfields the last 12 years. While at the Wisconsin DNR she has played a significant role in the development of the state's comprehensive clean up rules, the One Clean up Program MOA, Wisconsin's innovative environmental insurance programs, and the development of state legislation on brownfields tax incentives, grant programs, liability exemptions and land use controls.
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Kevin Greene has been involved with all aspects of the Virginia Voluntary Remediation Program (VRP) since its inception 13 years ago. Mr. Greene has been the Program Manager for Virginia's Voluntary Remediation and Superfund Programs since 2000. He has been with the Virginia Department of Environmental Quality for 23 years where he worked in the Solid Waste and Hazardous Waste Management programs. He is a graduate of East Carolina University and is a Virginia Certified Professional Geologist.
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Helena Healy is a 1989 graduate of Miami University (Ohio) with a major in Diplomacy and Foreign Affairs. In 1992, Ms. Healy received her J.D. from the Washington College of Law, American University. Ms. Healy joined the U.S. Environmental Protection Agency in 1995 and has been with the Agency's Office of Enforcement and Compliance Assurance since 1998. Since 2005, Ms. Healy has been co-chairing the Agency's Management Advisory Group on Institutional Controls.
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Michael A. Hendershot, Esquire, graduated from Muhlenberg College in 1979 with a B.A. degree in English. In 1988 he received his J.D. degree and certificate in environmental law from the Pace University School of Law. He is a member of the Pennsylvania bar. Mr. Hendershot has served as Assistant Regional Counsel with EPA Region 3 since August 1988. Since 1994 he has worked extensively to develop and implement institutional controls at Region 3's Superfund and RCRA corrective action sites. Mr. Hendershot has spoken extensively on this topic at conferences and continuing legal education courses.
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Trey Hess is the Brownfields Program Coordinator for the Mississippi Department of Environmental Quality (MDEQ) and has been with MDEQ for over 13 years. He was instrumental in the development of the Program's tiered approach to determining realistic, site-specific cleanup options. While working in the Uncontrolled Sites Section, he managed soil and groundwater cleanups at industrial and commercial facilities. His career started in the Groundwater Division where he provided oversight of the design and operation of solid waste management operations at industrial and commercial facilities. He is a registered Professional Engineer and a Board Certified Environmental Engineer (BCEE). He has also received a Bachelor's degree and an MBA from Mississippi State University and has a Master's degree from Ole Miss.
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Gary King is Manager for the Illinois Environmental Protection Agency in its Bureau of Land. He is the senior manager for the Illinois EPA site cleanup programs: voluntary cleanup program, federal and state Superfund cleanup programs, Department of Defense cleanup program, Brownfields assistance program and the Leaking Underground Storage Tank (LUST) program. He has held this position since 1990. Following is a summary of some of his accomplishments: 1) established and manages implementation of the Illinois EPA Brownfield assistance program - a program that is an excellent model for the cleanup and reuse of contaminated land, 2) Illinois EPA team leader for numerous legislative and regulatory initiatives, including the IEPA risk based cleanup objectives program -- TACO, or Tiered Approach to Corrective Action Objectives, 3) established and manages implementation of the Illinois EPA voluntary cleanup program. This program is regarded as one of the most effective one of its kind in the Nation. Mr. King is the chair of the ASTSWMO CERCLA Research Center. In that role he has frequent contact with other States and EPA concerning important issues to State and federal Superfund programs. Finally, Mr. King is a frequent speaker on topics related to the Illinois EPA cleanup programs within Illinois and across the United States. Prior to 1990 Mr. King managed Illinois EPA land enforcement programs. He is an attorney and holds a B.S degree in civil engineering.
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John Ward was first trained as a chemist, and received his honours undergraduate degree at the University of Alberta, in Edmonton, his PhD at the University of British Columbia in Vancouver, and completed several years of postdoctoral training at the University of Western Ontario, in London, Ontario. He also studied graduate level environmental and occupational health and toxicology at the UBC Faculty of Medicine. Dr. Ward has over 20 years experience with the BC Ministry of Environment working on contaminated sites issues. He has been closely involved with the development of contaminated sites legislation, regulations, policies and procedures and is currently Manager, Operations Management, in the Ministry's Land Remediation Section.
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Bob Wenzlau is the Chief Executive Officer and founder of Terradex, Inc. Terradex (www.terradex.com) monitors land use around contaminated properties, and then alerts before unsafe land uses occur. Mr. Wenzlau founded Terradex after 25 year environmental practice within government, industry and consulting. Mr. Wenzlau serves as chair of ASTM's Task Group for Continuing Obligations, a standard for landowner obligations after the purchase of a contaminated property. He is a Registered Civil Engineer holding a Master and Bachelors in Civil Engineering from Stanford University.
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Jim Woolford began serving as the Office Director for Office Superfund Remediation and Technology Innovation on December 11, 2006. As Director of the Office of Superfund Remediation and Technology Innovation (OSRTI), Mr. Woolford is responsible for long term cleanup of sites under the Superfund program and also promotes new technology and approaches to managing sites. The Office includes EPA's Environmental Response Teams, which provide technical assistance in responding to environmental emergencies (such as chemical or oil spills) and expertise and support for response to terrorist events (including threat assessment, site evaluation, removal action, environmental monitoring, decontamination and long term restoration). Prior to this appointment, Mr. Woolford had been serving as Director of the Federal Facilities Restoration and Reuse Office (FFRRO). In this position he served as the national program manager for EPA policy and guidance related to Superfund cleanup and property transfer at federal facilities, DOD installations subject to Base Realignment and Closure (BRAC). Jim Woolford has been at EPA for over 20 years. Prior to his service as FFRRO Director, he was Director or the Program Operations Division in the Office of Federal Facilities Enforcement and a branch chief and section chief in the Superfund Enforcement Division of the old Office of Waste Programs Enforcement, now OSRE. Mr. Woolford began his career at EPA in 1986 as a budget and information management analyst in the Superfund response program. His non-EPA work includes three years as a management consultant with Booz Allen & Hamilton. Mr. Woolford received a M.A. in Political Science from the University of North Carolina at Chapel Hill in 1980 and he conducted PH.D work at Rutgers University in New Jersey. His undergraduate degree is in Political Science from Virginia Tech.
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Peter C. Wright provides legal counsel to senior company management of The Dow Chemical Company and coordination of outside counsel with respect to the range of issues faced by the Dow on a global basis related to dioxin. He coordinates with public and governmental affairs regarding communications with media and advocacy efforts with federal, state and local governmental officials regarding dioxin matters. He also provides counseling on sustainability, environmental disclosures, shareholder resolutions, corporate policies and goals, public reporting obligations and product stewardship matters. Prior to returning to the environmental practice, Mr. Wright provided business law counseling to Dow Automotive, Dow's biotechnology business, electronics business, specialty fibers business and other businesses associated with Dow's Growth Center. Prior to joining Dow, he was Counsel with Bryan Cave LLP's environmental law group. Before joining Bryan Cave, Mr. Wright worked for a number of years with the Monsanto Company and provided legal counsel in the areas of hazardous waste regulation, Superfund cleanups and chemical regulation as well as environmental counsel with respect to mergers and acquisitions. Mr. Wright began his legal career with the environmental practice group of Baker & Daniels in Indianapolis, Indiana. Mr. Wright has written and spoken on a wide range of environmental law topics. He is currently the Planning Committee Chair for the Fall Meeting to be held in Pittsburgh at the end of September 2007 for the American Bar Association's Section of Environment, Energy and Resources Section and is a member of the Section's Council. He co-authored an article *Twenty-five Years of Dioxin Cancer Risk Assessment* published in Spring 2005 Volume of the ABA's *Natural*

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Larry Zaragoza has been with the Environmental Protection Agency since 1979. He works within the Office of Superfund Remediation and Technology Innovation. In addition to his responsibilities as Associate Branch Chief supporting the activities of the Branch, Larry is the primary point of contact for financial assurance and Natural Resource Trustee coordination. Given the significance of the work with Institutional Controls, Larry also works closely with Michael Bellot on issues related to Institutional Controls. He received his Doctorate in Environmental Science and Engineering from the University of California at Los Angeles in 1982. Larry has contributed to the development of many EPA guidance documents, the development of EPA regulations and the resolution of a variety of site-specific issues. Larry lives in Alexandria, Virginia with his wife, Karen, and son, Matthew.
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