



LandTrek: Sharing Institutional Controls and Monitoring Information Between EPA and DOE

What is LandTrek?

LandTrek is a web-based system that facilitates federal facility site cleanup, closure and transfer or reuse. The LandTrek system is designed to encourage communication and collaboration among federal facility project managers, federal and state regulators, and other stakeholders associated with federal facility restoration projects and activities, from site identification through closure, reuse or land transfer.

Data Sharing Pilot between EPA and DOE

In Spring 2004, LandTrek will partner with EPA to share monitoring and land use/institutional controls data through the new CDX (Central Data Exchange). As part of EPA's e-government initiative, CDX will help ensure that both the public and regulators can access the information needed to document environmental performance, understand environmental conditions, and make sound decisions to protect the environment. This partnership will help facilitate legacy management for DOE sites through sharing of site conditions and closure information. It will also benefit EPA by providing access to data for site conditions that can be combined with a host of information sources.

One of the goals of this collaboration between EPA and DOE is to ensure that future development and land use planning will incorporate all pertinent information about restrictions from legacy operations. Without access to all data detailing restrictions for a particular location, inappropriate development which is not protective of human health and the environment may result. As DOE sites move through the closure process, it is becoming clear that it is important to maintain this information in a GIS system to allow analysis from disparate sources. As the staff and individuals familiar with site conditions transition out of the DOE workforce, this institutional knowledge will be rapidly lost in the coming years. It is imperative to document and provide access to this information now before costs will increase dramatically to reproduce site condition data that is lost.

The partnership between DOE and EPA will initially focus on a common data dictionary (Institutional Controls Data Element Registry) to explore the ability to permit accurate and efficient data sharing. Once the information to be shared has been identified, a pilot project will be developed including environmental and land use controls data from several DOE locations. Candidate sites include:

- Brookhaven National Laboratory, Upton, NY
- Sandia National Laboratory/Bernalillo County, New Mexico
- DOE Oakland sites including Laboratory for Energy-Related Health Research, Davis, CA

This data sharing will include using ArcIMS, Oracle, SQL Server and XML data streams to populate databases in various locations in an automated process. Initially, it is likely this data sharing will require file sharing with a goal of setting up data streams if feasible. If successful, both EPA and DOE will gain access to a more accurate collection of data for environmental conditions and land use restrictions for a given geographic area around the DOE sites. Data will also be stored within the EPA IC system for analysis across all federal environmental IC sites.

Brookhaven National Laboratory

Brookhaven National Laboratory currently has the most robust dataset for this partnership within the LandTrek suite of projects. ICs data is currently maintained at Brookhaven National Laboratory in an ArcIMS and SQL Server application. The location and geographic extent of the controls are maintained in

shapefile and ArcSDE format. The purpose of this website is to provide centralized, integrated access to information pertaining to BNL remediation areas that are subject to land use and ICs. It includes brief information on each of the BNL contaminated sites and facilities, their cleanup status, contaminants or concern, and maps depicting land use and land use restrictions. It defines the scope of activities intended within each contaminated area, so that stewards and stakeholders have a clear understanding of restrictions and stewardship responsibilities.

The BNL Land Use Controls SQL Server database contains updated information on each contaminated area within the site as well as ICs that are in place. Additionally, BNL maintains an Oracle/SQL Server Environmental Information Management System (EIMS) which houses groundwater and additional monitoring information for the laboratory. Using XML, this data can be shared by mapping the current schema to the EPA Institutional Controls Data Element Registry (IC DER). After a brief analysis of the current data available, many of the IC DER fields can be populated with existing data from the ICs, EIMS and spatial datasets. Additional institutional controls fields may also be added to the BNL database to track critical information for EPA. After the data is mapped to the XML schema a plan for data transfer and updates will need to be scheduled and tested through the EPA CDX. Spatial data including shapefiles may also be shared through a file upload process. It is not clear if the CDX is capable of handling the exchange of spatial data in shapefile format at this time.

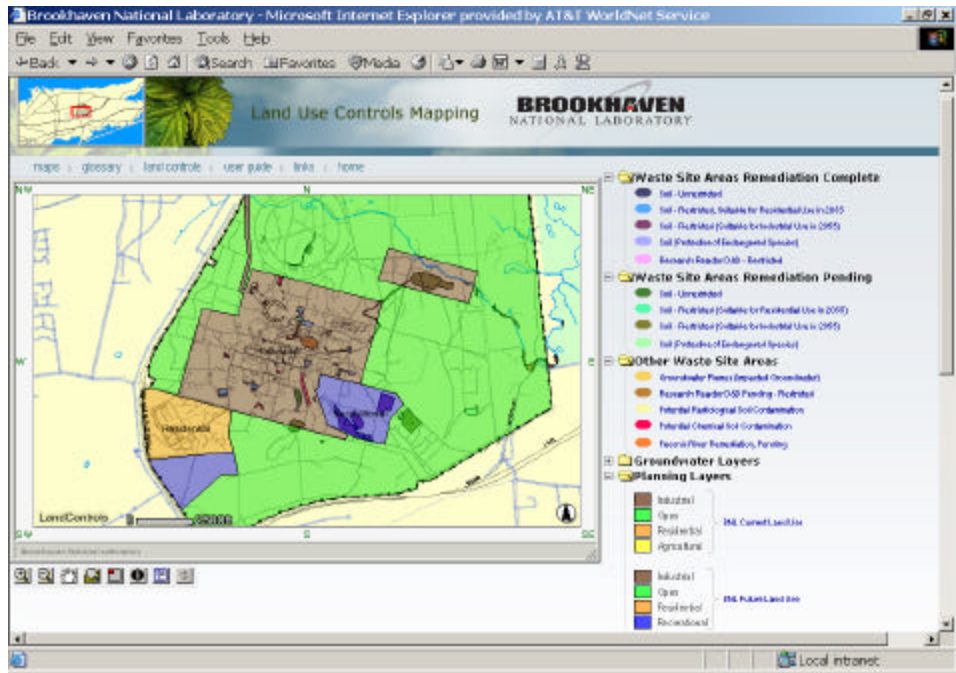
Bernalillo County, New Mexico and Sandia National Laboratory

The Bernalillo County Environmental Health Department's LandTrek project for displaying environmental monitoring data currently contains data collected for the Isleta Leaking Underground Storage Tank (LUST) Project. Future plans include the display of regional groundwater monitoring data, data from the agricultural impact study and expanded data in cooperation with Sandia National Laboratory. This ArcIMS and Oracle application is built with a similar data structure to BNL and can also be mapped to the EPA CDX schema for data sharing. Bernalillo County maintains parcels and permits in an Oracle database as well as shapefile format. These layers are of particular interest because they can be overlaid with data from EPA including remedy area of restrictions to ensure that permit and future development projects consider all known site conditions. Sandia National Laboratory also maintains an Oracle database with groundwater monitoring information that can be shared through this process.

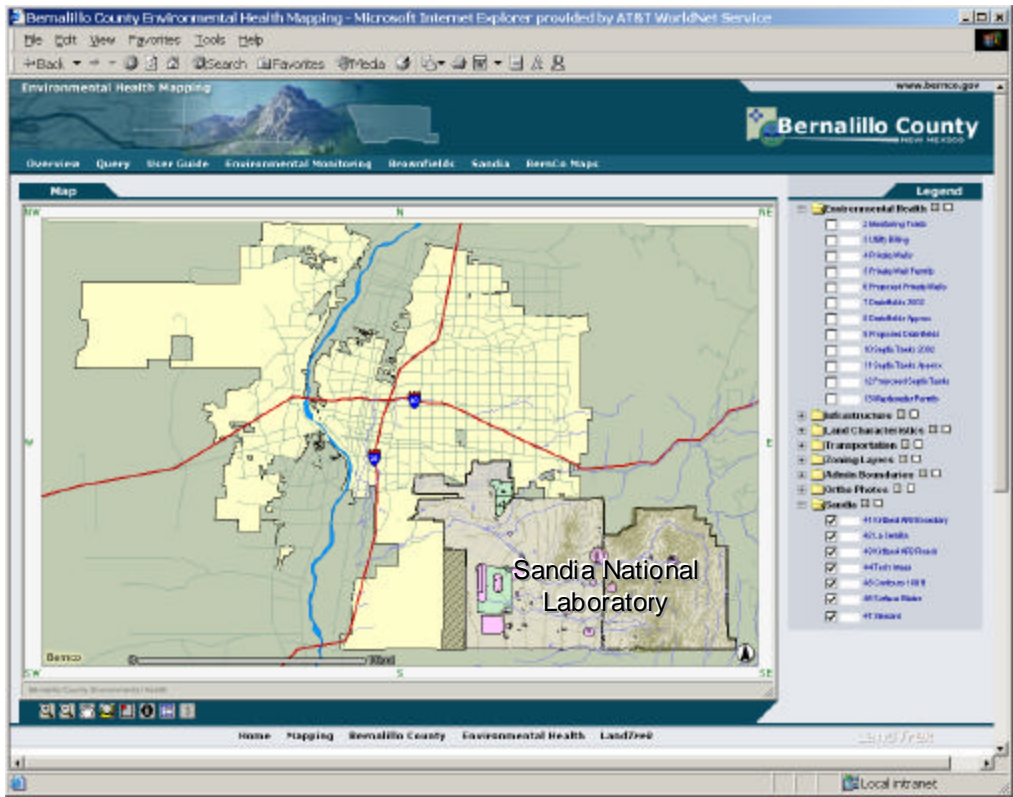
Potential Tasks

- Review site data and compare schema with Institutional Controls Data Element Registry
- Develop list of critical fields for population of IC DER for sites
- Identify data sharing goals and review issues associated with publishing data
- Perform a data crosswalk and map data from multiple sources to IC DER
- Establish node for data transfer through EPA CDX and to sites
- Develop application capability to share and display data from multiple sources (EPA IC, BNL IC, BernCo/Sandia)

Brookhaven National Laboratory (BNL) has developed two pilots – one provides updated environmental monitoring data (currently groundwater only), at <http://webeims.b459.bnl.gov/website/BNL>, and the other focuses on land use, institutional controls and long-term stewardship (LTS) data (DOE and EPA internal use only).



Bernalillo County/Sandia National Laboratory – Using a current web GIS application that displays environmental data from leaking underground storage tanks as a springboard, Bernalillo County and Sandia are collaborating to develop joint web GIS applications to display environmental monitoring data and site closure information.



Laboratory for Energy-Related Health Research - LEHR has developed a web GIS application to facilitate closure at its University of California-Davis site. The application, which highlights DOE cleanup and closure progress is available at <http://www.landtrek.org/projects/LEHR/splash.cfm> (password required).

DOE	Chem	Unit	Value	Background	DOE	Std. EPA Reg. 6
1,2-Dichloroethane	mg/g	0.015	---	N/A	0.5	
Methylnonane	mg/g	0.5	---	1.5	0.5	
Methylnonane	mg/g	7.0	5.4	N/A	1.5	
Methyldecane	mg/g	7.0	5.4	N/A	2.0	
Carbon-14	ppb/g	0.123	ND ± 0.10	4200	1200	
Chloro-137	ppb/g	0.004	0.032	0.1	0.12	
Chloro-135	ppb/g	4.9	---	1.5	4.0	
Co	mg/g	39609	44900	N/A	100000	
Lead-210	ppb/g	1.1	1.5	5.6	1.25	
Polonium-210	ppb/g	12	14	N/A	N/A	
Polonium-210	ppb/g	0.36	0.70	0.0042	0.004	
Radon-222	ppb/g	0.50	0.62	N/A	N/A	
Radon-226	ppb/g	0.37	0.88	0.5	0.4	
Radon-222	ppb/g	0.08	0.74	0.004	0.004	
Thorium-232	ppb/g	7.13	ND ± 1.2	10000	4.00	
Thorium-232	ppb/g	0.13	0.020	0.70	0.30	
Thorium-232	ppb/g	0.74	0.45	N/A	N/A	

ND = Not detectable
 Ref = various background, EPA, and DOE values
 C = Concentration of Chemical
 D = Data from Western Dog Pens
 B = Background from various sources for the entire region (1994-2000)
 S = Superfund Site (SDS) (Industrial Remediation Site) (DOE values used for risk assessment)

The Exposure Point Concentration Summary Table provides Remediable Maximum Exposure (RME) concentrations for each DOE area and Concentration of Industrial Species (COIS) identified in this table. The table provides background values for comparison and cleanup goals for site background. Lower risk areas are indicated by the color red. The table also provides the Remediable Maximum Exposure (RME) values for each DOE area. The RME is a risk-based standard developed to protect the effectiveness of the national action standard and the subject to determine if the national action standard goals to reduce risk to acceptable levels have been achieved. The RME values are risk-based concentrations derived from site specific remediation exposure information assumptions with EPA toxicity data. RME values are not site specific but are considered by EPA to be protective of human health.

The use of RME concentration is consistent with DOE guidance for Superfund risk assessment at 40 CFR 192. The use of RME concentration will not be considered. Comparing the RME values for each of the DOE areas' COIS to the three background values indicates that the remediation concentrations of each COIS at DOE sites are for the most part comparable to background or below the RME or Industrial PMS values.

Benefits of LandTrek

- Expedites and enhances efficiency of regulatory processes related to site cleanup, closure, land transfer, and reuse activities.
- Provides information, resources and tools to facilitate the management or mitigation of project risks (regulatory, community, technical, land use planning, land transfer, etc.) and avoid potential liabilities by supporting “best practices.”
- Emphasizes innovative site cleanup, closure, land transfer and reuse technologies and activities (e.g., web-based geographical information system (GIS) applications).
- Consists of hub and spoke design allowing individual sites to manage and host their own websites focusing on unique site -specific cleanup, closure, land transfer and/or reuse issues.

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*Due to security concerns, parts of the LandTrek system are password-protected. The website (<http://www.landtrek.org>) prompts users requesting access to these sections to provide information that is reviewed before access is granted (usually 24 hours).