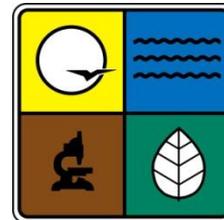


# LTS Mapping: Improving Public Access to Site Information

Hazardous Waste Commission  
February 2012

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Chris Cady, Ph.D.  
Environmental Specialist  
Hazardous Waste Program  
Brownfields/Voluntary Cleanup Section



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

## What Is Long-Term Stewardship?

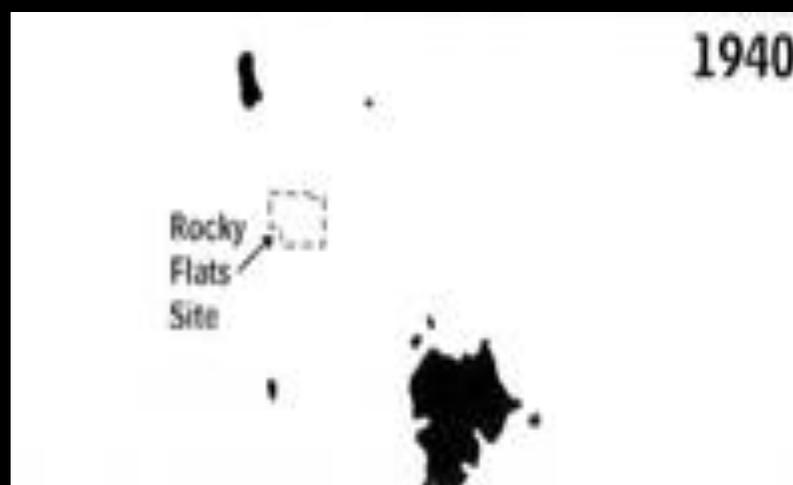
*A system of legal, institutional and physical controls designed to ensure the effectiveness of site remedies (cleanup) for as long as residual contamination remains.*

- *Land Use Limitations*
- *Engineered Controls*
- *Environmental Covenants & Management Plans*
- *Post closure monitoring and inspection*
- *Record-keeping*
- *Information management and access*

*How does this relate to site information in a wider sense?*

1940

Rocky  
Flats  
Site





Rocky  
Flats  
Site

1965





# LTS Failures: Better to Prevent than Respond

© May 4, 2006 10:31 pm US/Pacific

## Bay Area Construction Sites On Toxic Wa

Anna Werner  
Reporting

Published - April 9, 2006

### Day care stands in the shadow of a Superfund site

Lesley Conn  
@PensacolaNewsJournal.com

Kerry Kust got every application and inspection she could to open her day-care center.

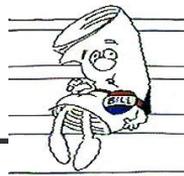
After Mercury Pollutes a Day Care Center, Everyone Points Elsewhere

August 19, 2006, Saturday  
By TINA KELLEY (NYT); Metropolitan Desk  
Late Edition - Final, Section B, Page 1, Column 1, 1687 words

\*Please Note: Archive articles do not include photos, charts or graphics. More information.



Sorry, Chief.  
Missed it by  
THAT much!



### ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by and between \_\_\_\_\_ ("Owner(s)"), and \_\_\_\_\_ ("Holder"), pursuant to the Missouri Environmental Covenants Act, Sections 260.1000 through 260.1039, RSMo.



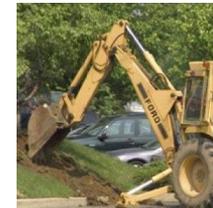
Property Records

(Informs Transactions)



LTS Information Systems

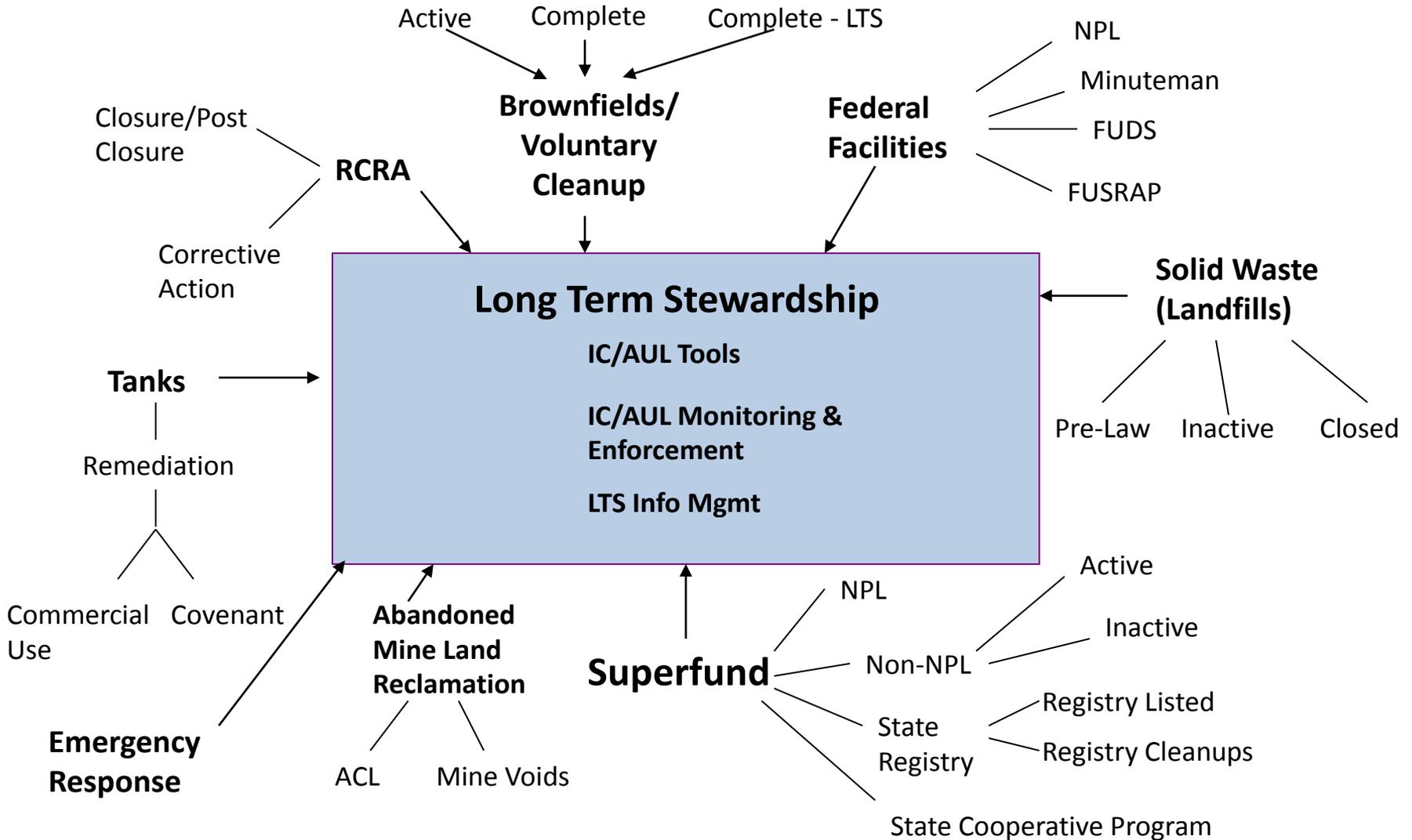
(Informs Everything Else)



Zoning and Land Permitting



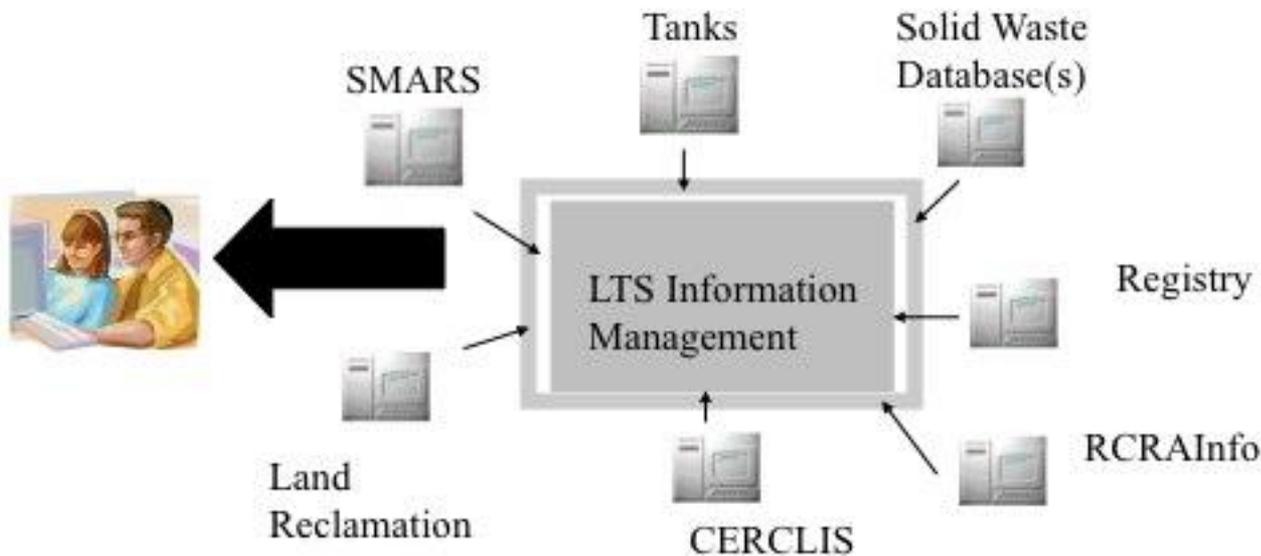
# Missouri's Long Term Stewardship Universe



# DPRA's LTS Evaluation (2006)

## Recommendation 2

Improve LTS Information Management & Related Business Processes



# MoECA (2008)

...shall establish an activity and use limitation information system ... on sites with known contamination, and records the creation, amendment, and termination of covenants

[and] ... shall clearly distinguish between three categories of sites.

Activity and use i  
of amendments o

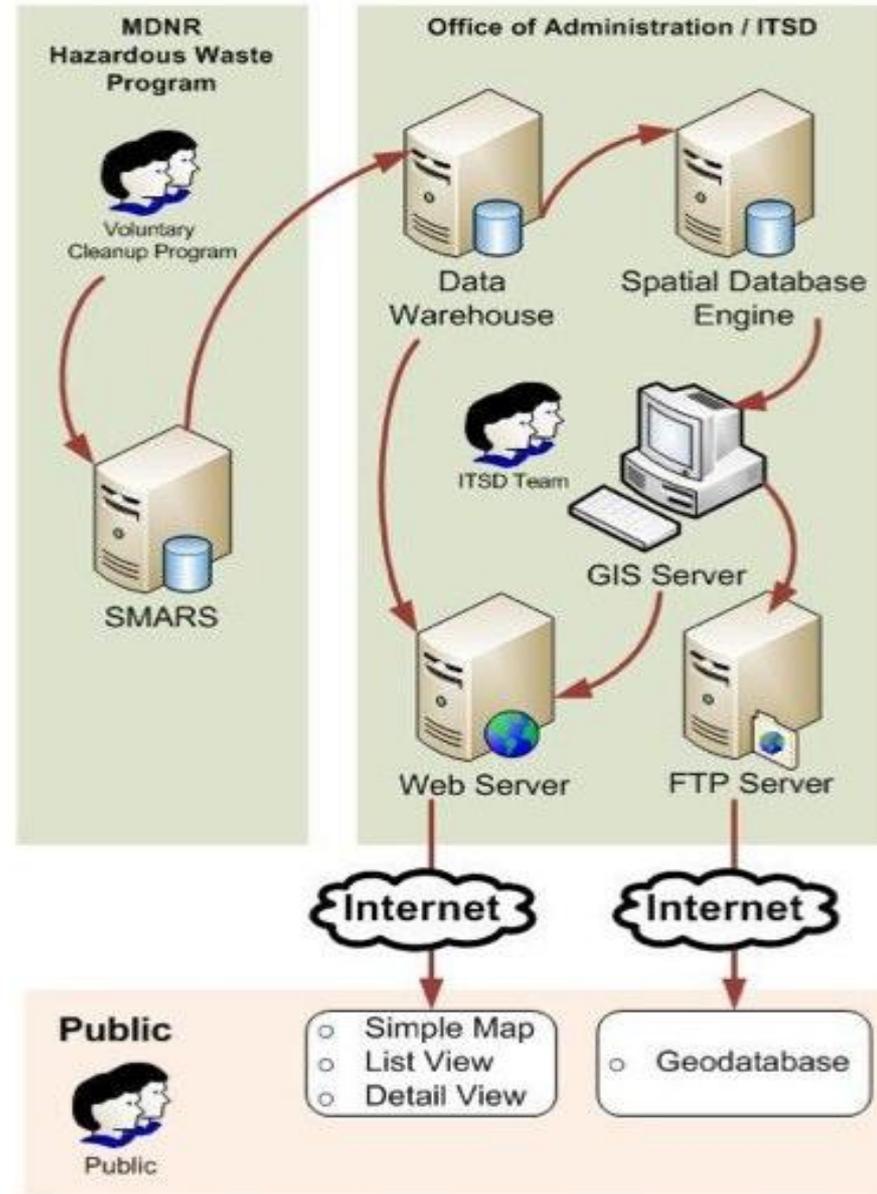
ording

260.1033. 1. The department shall establish an activity and use limitation information system and ensure that it is maintained, that provides readily accessible information on sites with known contamination, and records the creation, amendment, and termination of covenants. The activity and use limitation information system shall distinguish clearly between three categories of sites contaminated with hazardous substance contamination:

- (1) Sites where no investigation or remedial action has been performed, or where remedial actions are in progress but are not complete;
- (2) Sites where remedial action has been taken to address known risks to human health, public welfare, and the environment and the site is suitable for certain land uses and the department has issued a letter indicating that the site is suitable for certain land uses and that further investigation and remedial action is not required;
- (3) Sites where previous concerns about contamination should no longer be an issue because of removal of waste and contamination or investigation results that demonstrate that contamination is now below levels considered suitable for unrestricted use.

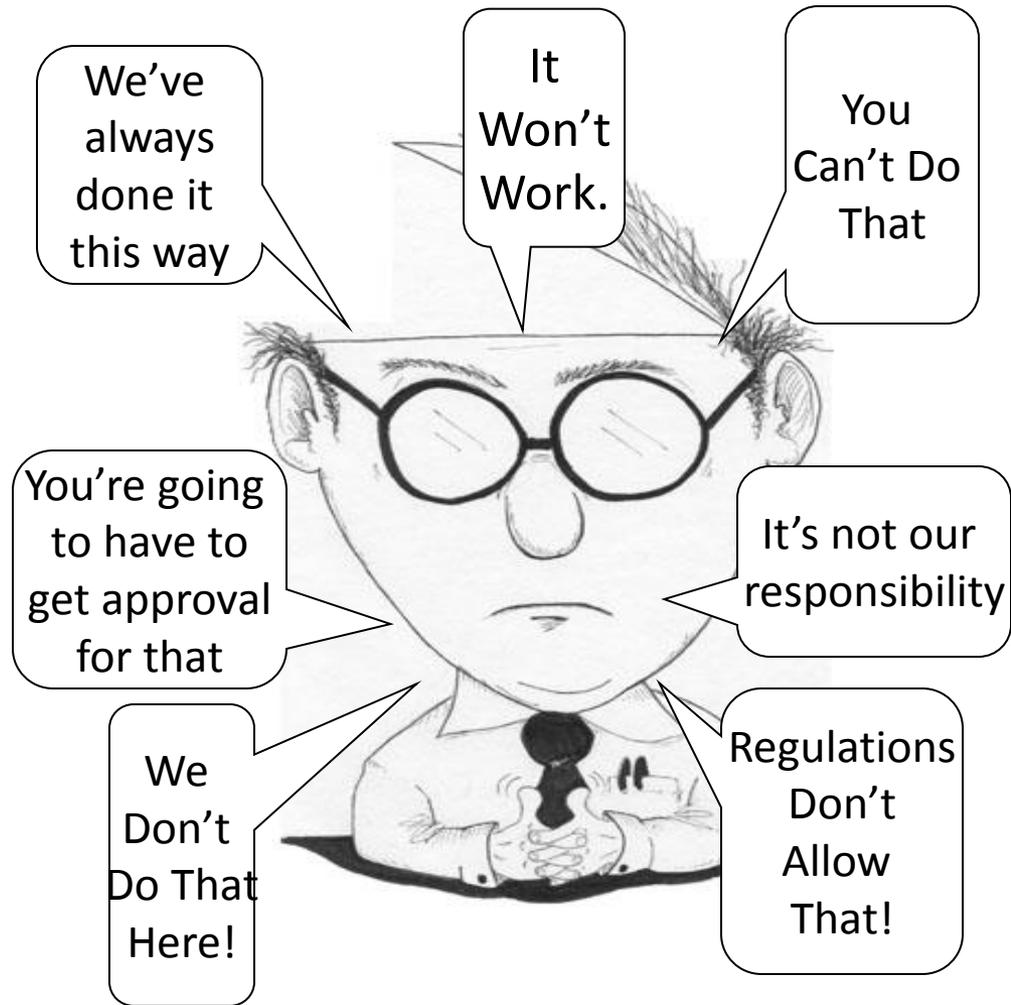
# LTS MAPPING

Connecting the First Site Database Directly to the Public through GIS



# LTS Information Management Pitfalls

- File Folder Flagellations
- Is File Archiving Forever?
- Outdated Mapping Technology
- Convoluted Web Pages
- Imperfect Databases
- Imperfect Data
- Varying Programs





Legend | Table of Contents

- Investig /Cleanup Planning Underway
- Risk Management Plan Approved/Cleanup Underway
- Cleanup Complete, Restricted Use
- Cleanup Complete, Unrestricted Use
- Interstate Highways
- County Boundaries
- Missouri River
- Mississippi River
- Major Rivers
- Major Lakes
- Municipalities (>75,000)

Sunday, August 7, 2011 3:16:20 PM CDT Missouri Department of Natural Resources

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



[Back to Map](#)

## Feature Attributes

Identify Results Page > Site name: 2800 S. Second (Yellow Freight Lots 1

The information listed below was found for this feature.

<b>Layer</b>	Long-term Stewardship sites
<b>Metadata</b>	METADATA
<b>Site ID</b>	93
<b>Parent ID</b>	10634
<b>Site name</b>	2800 S. Second (Yellow Freight Lots 1 & 2A)
<b>Federal identification number</b>	
<b>Site also known as</b>	Yellow Freight Lots 1 and 2A, Anheuser-Busch Automated Bill of Lading (ABOL)
<b>Location description</b>	2800 South 2nd Street
<b>City</b>	St. Louis
<b>Zip code</b>	63118
<b>History of the site</b>	The site is east of Anheuser-Busch breweries and will be developed as a truck staging area. Previously, the entire site was part of the old ACF facility. Contamination from ACF operations caused soil and groundwater to become contaminated with solvents. ACF conducted a cleanup on Lot 1, but the cleanup was insufficient and the site was placed on the Registry. The site was later purchased by Yellow Freight as part of a larger property. Anheuser-Busch now wants to develop both Lots 1 and 2A for their use. The entire approximately 16 acre site is currently undeveloped. Yellow Freight Lots 1 and 2A now know collectively as Anheuser-Busch Automated Bill of Lading (ABOL). Lot 1 is 2.465 acres, Lot 2A is 16.240 acres.
<b>Uniform resource locator</b>	<a href="http://www.dnr.mo.gov/sip/rep/trc/repdetail.asp?uclid=93">http://www.dnr.mo.gov/sip/rep/trc/repdetail.asp?uclid=93</a>
<b>Activity date</b>	Mon, Apr 19, 1999 12:00:00 AM CDT
<b>Site status</b>	Cleanup Complete, Restricted Use
<b>DEQ Program Section status</b>	Cert. of Comp. issued/AULs
<b>Cleanup details</b>	Environmental assessments of the property found petroleum hydrocarbons, semi-volatile organic compounds, volatile organic compounds, and metals contamination in surface and subsurface soils across the site. Volatile organic compound contamination was also detected in groundwater beneath the site. To guard against exposure to and migration of these contaminants, Anheuser-Busch installed a compacted clay and asphalt cap over the site, as shown on Exhibit B of the Restrictive Covenant, in accordance with the department-approved remedial action plan.
<b>The method used to determine the coordinates for a feature</b>	G5
<b>The estimated accuracy of the coordinates in meters</b>	
<b>Estimated position error, zero if unknown</b>	0.0
<b>Position dilution of precision (PDOP), an indicator of the predicted error in a GPS position</b>	2.7

Click the green icon  to see data related to this feature.

Relationships for "Long-term Stewardship sites"

Origin	Destination
NRDSDET4.WASTE.LTSTEWARDSHIP	 NRDSDET4.WASTE.LTSCONTAMINS

Missouri Department of Natural Resources  
Geographic Information Systems

Project Home | Grayscale Map | QuickZoom | Print  
Scale: 1:5,579 - EASTING: 741965 - NORTHING: 4275937 - NAD83 - UTM 15N



 Missouri Department of  
Geographic Information Systems

[Back to Map](#)

The following records were found for: [Site name](#)  
2800 S. Second (Yellow Freight Lots 1 & 2A)

 Missouri  
Department of  
Natural Resources

Monday, August 13, 2010 10:52:10 PM CDT Missouri Department of Natural Resources  
Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy.

Site Name:

Operable Unit Name:

Aliases:

Address:

City:

VCP Status:

General Site Status:

Links:

Acres:

Site Background/History:

Cleanup Summary:

LTS Contaminants:

STATE OF MISSOURI  
 DEPARTMENT OF NATURAL RESOURCES

Bob Holden, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY  
 P.O. Box 176 Jefferson City, MO 65102-0176

February 13, 2001

CERTIFIED MAIL – Z 290 179 030  
 RETURN RECEIPT REQUESTED

Mr. Joseph Hoffmeister  
 Anheuser-Busch Companies  
 3636 South Geyer Road  
 St. Louis, MO 63127

RE: Certification of Completion. Hazardous Substance Environmental Remediation

**This Certificate of Completion is Contingent upon the conditions in the Restrictive Covenant and Grant of Easement (Restrictive Covenant) and the Institutional Control Contract (Contract) being met**

environmental site assessments and for which remedial action has occurred under the oversight of the Voluntary Cleanup Program. **This Certification of Completion is contingent on the conditions in the Restrictive Covenant and Grant of Easement (Restrictive Covenant) and in the Institutional Control Contract (Contract) being met now and in the future.** This letter, the Restrictive Covenant, and the Contract have been recorded with the St. Louis City Recorder of Deeds in the site's chain of title. In addition, a copy of the Restrictive Covenant and of the Contract are attached and made a part hereof.

Failure to comply with the conditions of either the Restrictive Covenant or the Contract



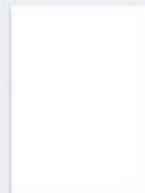
2800South2ndC...



2



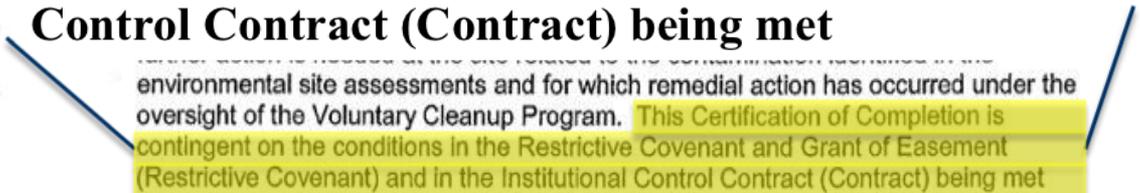
3



4



5



Restrictive Covenant and Grant of Easement  
Yellow Freight Lots 1 and 2A

NOW THEREFORE, Anheuser-Busch, Inc., c/o Ms. Vickie J. Kimbrough, Manager, Industrial Real Estate and Administration, Busch Properties, Inc. Clayton Mercantile Center, 8000 Maryland Avenue, Suite 350, St. Louis, Missouri 63015-3752 (hereinafter "Owner"), hereby imposes restrictions on the Property and covenants and agrees that:

**1. Purpose.**

In accordance with the Agreement, the purpose of this Restrictive Covenant and Grant of Easement is to ensure:

- A. That the Property is not used in a manner such that the definition of Property Use A or Property Use B would apply to the Property.
- B. That humans and ecological receptors are not exposed to contaminated soils or groundwater at the property.

**as long as the Property is not to be used for residential or other purposes constituting unrestricted use (Property Use A) or for commercial purposes (Property Use B) and as long as the surface cap is maintained**

contaminants identified at the Property pose no significant risk to human health or the environment based on restricted industrial use of the Property. The MDNR is not requiring further response actions at the Property **as long as the Property is not to be used for residential or other purposes constituting unrestricted use (Property Use A) or for commercial purposes (Property Use B) and as long as the surface cap is maintained** to prevent exposure in accordance with the Remedial Action Plan. The Property shall not be used for purposes other than industrial uses. If any person desires in the future to use the Property for residential or other purposes constituting unrestricted use or for commercial purposes, the

2800S2ndRCICC...

2

3

4

5

## Brownfields Voluntary Cleanup

### Detailed Information

<b>Site Name:</b>	2800 S. Second (
<b>Operable Unit Name:</b>	2800 S. Second (
<b>Aliases:</b>	Yellow Freight Lot
<b>Address:</b>	2800 South 2nd S
<b>City:</b>	St. Louis
<b>VCP Status:</b>	Cert. of Completio
<b>General Site Status:</b>	Cleanup complete
<b>Links:</b>	<a href="#">Environmental Co</a> <a href="#">Certificate Of Con</a> <a href="#">Activity And Use I</a>
<b>Acreeage:</b>	18.705
<b>Site Background/History:</b>	The site is east of area. Previously, I operations caused conducted a clear the Registry. The Anheuser-Busch I approximately 16 know collectively, acres, Lot 2A is 1
<b>Cleanup Summary:</b>	Environmental as organic compound and subsurface s detected in groun these contaminan the site, as show department-appro
<b>LTS Contaminants:</b>	Tetrachloroethyler Benzo(a)anthrace hydrocarbons (TP

### Welcome!

This is an advisory about activity and use limitations that could affect use of the area shown on the map to the right.

Activity and use limitations were used to ensure safe use of the property after the cleanup of contamination in the soil, groundwater, or buildings.

This advisory shows property use limitations, identifies the governmental agencies that oversaw the site's cleanup, and provides links to more information.

### Where Does The Limitation Apply?



### What Are The Contaminants?

\* Tetrachloroethylene, Benzo(b)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(a)anthracene, Lead, Arsenic, Vinyl chloride, Trichloroethylene, Total petroleum hydrocarbons (TPH)

*This site meets standards for certain uses as outlined in the limitations below. Use limitations are related to the listed contaminants. Refer to site documents for details.*

### What Are The Limitations ?

- \* Construction Worker Advisory
- \* Inspection & Maintenance of Engineered Control
- \* No Disturbance of Soil
- \* No Domestic Use of Groundwater
- \* No Drilling or Use of Groundwater
- \* No Industrial Use of Groundwater
- \* Non-Residential Use With Engineered Controls
- \* Owner Agrees to Abide By AULs

Some restrictions may not apply to entire area shown above. Refer to the site documents for details.

### Links to Site Documents

Certificate Of Completion <http://dnr.mo.gov/env/hwp/bvcp/Sites/2800South2ndCOC.pdf>  
Environmental Covenant <http://dnr.mo.gov/env/hwp/bvcp/Sites/2800S2ndRCICC.pdf>

### Monitoring Activities

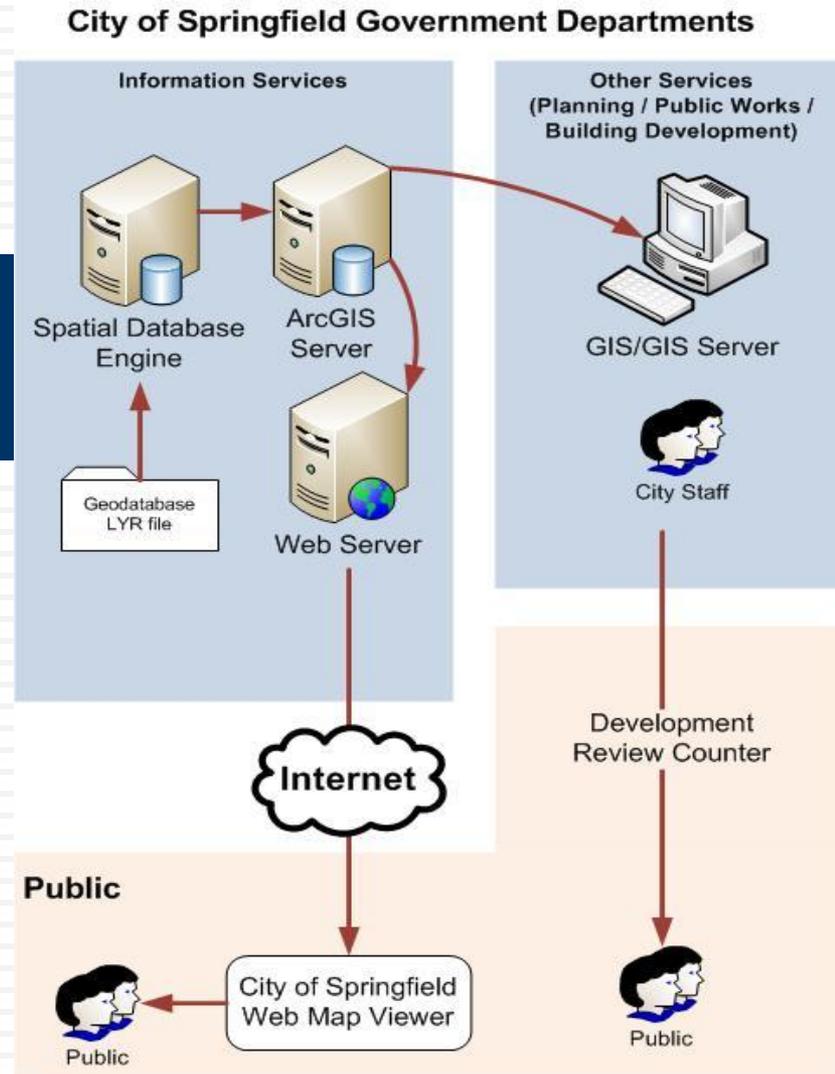
Monitoring Authority: BVCP  
Inspection Frequency: 1 Year(s)  
Last Activity: Site Inspection 5/14/2009

### Who Can I Contact?

Brownfields/Voluntary Cleanup Section  
Missouri Department Of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102  
573-526-8913  
[www.missouribrownfields.com](http://www.missouribrownfields.com)  
[missouribrownfields@dnr.mo.gov](mailto:missouribrownfields@dnr.mo.gov)

# Springfield Pilot

- Local Governments are key data consumers
- Many have their own GIS systems
- They will come only if you build something they want/need/understand



# LTS Mapping System Integrated Into Springfield's GIS Platform

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:2,500

Table of Contents

- Layers
  - F:\data\HC\long\emil\stewardship.gdb
    - Long-term Stewardship
      - Cleanup Complete, Restricted Use
      - Cleanup Complete, Unrestricted Use
      - Investig./Cleanup Planning Underway
      - Risk Management Plan Approved

Bing Maps Hybrid

**LTS Geodatabase with Styling Layer Applied**

Identify

Identify from: <Top-most layer>

- Long-term Stewardship
  - Universal Point
    - To LTS/COM/APP/MS

Location: -93.296721 37.210482 Decimal Degree

Field	Value
ACTYDATE	1/12/2004
CLEANUP	<null>
EPE	0
FEDERATED	<null>
HAZCOORACY	<null>
HCOLLCODE	G3
HISTORY	The site is a vacant multi-story warehouse
OBJECTID	866
PARMNTID	11153
RPOP	S.7
RZPCODE	65808
SECTSTAT	Active/Investigation
SHAPE	Point
SITEALIAS	Universal Polymers, Springfield Seed,
SITEID	866
SITELOC1	319 N. Main
SITELOC2	Springfield
SITENAME	Universal Point
SITESTAT	Investig./Cleanup Planning Underway
SOURCEID	3MMS
SOURCECAL	<null>
URL	<a href="http://www.dr.mo.gov/ep/hcp/bvcp/Detail.asp?OUID=1137">http://www.dr.mo.gov/ep/hcp/bvcp/Detail.asp?OUID=1137</a>
UTMEASTING	47361.942
UTMNORTHING	411824.363

Identified Feature

Missouri Department of Natural Resources

Programs Forms and Permits Publications Laws and Regulations

**Hazardous Waste Program**

**Brownfields Voluntary Cleanup Sites**

Detailed Information

<b>Site Name:</b>	Universal Point
<b>Operable Unit Name:</b>	Universal Point
<b>Aliases:</b>	Universal Polymers, Springfield Seed, Ani-O-MO Fuel
<b>Address:</b>	319 N. Main
<b>City:</b>	Springfield
<b>VCP Status:</b>	Active/Investigation
<b>General Site Status:</b>	Investigation/Cleanup planning underway
<b>Links:</b>	
<b>Acres:</b>	1
<b>Site Background History:</b>	This site is a vacant multi-story warehouse and paint mixing facility. Investigations in 2002 discovered soil and groundwater contamination that may be related to the nearby former manufactured gas plant (Springfield FMGP), part of which lies across Main St. to the east. The new owner of the property has entered the site into the BVCP to investigate and remediate the site so the building can be reused.
<b>Cleanup Summary:</b>	
<b>LTS Contaminants:</b>	

# Pilot Scenarios Found a Collaborative LTS Approach

## PLANNING

1. Pre-subdivision review
2. Preliminary Plat submission
3. Administrative Subdivision
4. Administrative Re-plat
5. Zoning Cases
6. Planned Developments
7. Conditional Use Permits
8. Land Development Inquiries
9. Landmarks Board cases
10. Acquisitions and Disposals

## BUILDING DEVELOPMENT SERVICES

1. Pre-application reviews
2. Residential Construction permits

## PUBLIC WORKS

1. Public Improvement Projects
2. Trenching, sidewalks and driveway permits.

## Scenario 2 – Subdivide and Construct Four Residential Lots in Commercially Zoned Area



# Mapping & Pilot Project A Success

---

- Springfield comments incorporated
- Map is online with daily data refresh
- “Hub” and first “spoke” (BVCP sites) constructed, ready to connect other databases
- Geodatabase files available on ftp server
- Springfield incorporating check into permitting processes: P&Z, Building Permits, Excav. Permits

Direct.....  
Indirect.....  
Indirect.....  
Computer.....

234 253

Direct.....  
Indirect.....  
Indirect.....  
Computer.....

232 699

DOCUMENT	PROJECT	PROPERTY
NUMBER: 08-EUC-0003	NUMBER: C6-033-71937	CATEGORY: 1

## ENVIRONMENTAL USE CONTROL AGREEMENT

**James B. Goeken**, having a mailing address of 425 East Washington Lenora, Kansas 67645, hereinafter referred to as "the Owner", is the owner of real property in the County of Graham, Kansas, as shown on the map attached hereto as Exhibit A, known as the KMI - Pony Express Pipeline Site, hereinafter referred to as "the Property", and more particularly described by the following legal description:

**An easement located in the Southeast Corner of Section 10, Township 6 South, Range 23 West of the 6<sup>th</sup> P.M., Graham County, Kansas, more particularly described as follows:**

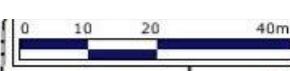
**Commencing at the Southeast Corner of said Section 10; Thence N 01°16'36"E along the East line of said Southeast Quarter a distance of 958.89 feet; Thence N 88°43'24" W a distance of 749.54 feet to the POINT OF BEGINNING; Thence N 76°20'37" W a distance of 150.00 feet; Thence N 13°39'23" E a distance of 150.00 feet; Thence S 76°20'37" E a distance of 150.00 feet; Thence S 13°39'23" W a distance of 150.00 feet to the POINT OF BEGINNING. Said easement is subject to any easements and/or rights-of-way of record. Bearings are based on the East line of the Southeast Quarter of Section 10, T6S-R23W of the 6<sup>th</sup> P.M. being N 01°16'36" E.**

And which shall likewise include any and all parcels contained therein.

WHEREAS the Owner has requested, by application to the Kansas Department of Health and Environment, hereinafter referred to as "KDHE", to restrict, prohibit and/or limit certain uses of the Property in accordance with Kansas Statutes Annotated (K.S.A.) 2006 Supp. 65-1,221 *et seq.*

The KDHE has approved the Owner's application to restrict, prohibit, and/or limit certain uses of the Property since residual contamination, which exceeds department standards for unrestricted residential use, remains on the Property.

The screenshot shows a web application interface. At the top right, there is a search bar with the text "teName=KMI - P..." and a star icon. Below this is a vertical sidebar with a blue header containing the text "ent of", "ent", "ecretary", and "opeka, Kansas". Below the sidebar, there is a vertical list of document thumbnails, each with a number (2, 3, 4, 5) below it. The thumbnails show various pages of text. At the bottom right of the sidebar, there is a "Sites" link. The interface is powered by GeoSmart.net, as indicated by the logo at the bottom right.



# Future LTS Plans

## Short Term

- Adding Data Layers for all remedial programs
- Improving Web Access/Usability
- Market Downloads to Municipalities, Private Sector
- LTS Office: Begin consolidating HWP LTS functions
- Cost Estimating

## Long Term

- Cost Equity
- \$ Lock Box

SHARPNACK

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THE GAZETTE,  
IOWA CITY



NOW SERVING OVER 6,000,000,000  
(While Supplies last)