

Missouri Long Term Stewardship: Current Practices & Future Recommendations



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TABLE OF CONTENTS

Executive Summary.....	E-i
Introduction	1
1. Research Methodology	2
2. What is Long Term Stewardship?	4
3. Which Cleanup Programs Exist in Missouri?	7
4. How Many Cleanup Sites Exist in Missouri, and How Many Qualify As LTS Sites?	13
5. Do Missouri Cleanup Sites Exist Which Should Be in LTS But Are Not?	19
6. Who Is Legally Responsible for Implementing and Overseeing LTS Activities?	21
6.1 Which LTS Activities Exist?	22
6.2 MRBCA Guidance, to Some Extent, Addresses LTS Roles & Responsibilities.	23
6.3 MRBCA Does not Contemplate LTS Roles and Responsibilities for Certain Types of Sites Administered by the Permits Section, and the Solid Waste Program.	25
6.4 No Single Law Address LTS Obligations, But Individual Cleanup Laws and Property Laws Address Some Aspects of LTS.	27
7. Who Should be Legally Responsible for Implementing and Overseeing LTS Activities?	31
7.1 DNR’s LTS Role.....	31
7.2 LTS Auditing and Certifications.....	31
7.3 The Transaction Related LTS Monitoring.....	32
7.4 Non Transaction LTs Monitoring – The Local Government Role	32
7.4.1 Counties and Townships	34
7.4.2 Land Use Planning and Zoning.....	35
7.4.3 Flood Protection Involves Local, State, and Federal Coordination.....	36

7.4.4	Septic Systems and On-Site Sewage Regulation Involve Both Local Governments and the State of Health & Human Services	36
7.4.5	Many Local Governments in Missouri Have Enacted Building Codes Requiring Permits Prior to a Variety of Building Construction And Related Efforts	38
7.4.6	Local Ordinances	38
7.5	Non Transaction LTS Monitoring – the Role of One Call	39
8.	The Uniform Environmental Covenant Act, Similar State Laws, and MRBCA	42
8.1	Primary Features of UECA.....	43
8.2	State Modification to UECA and Other Non-UECA State Models.....	45
8.3	UECA Compared to MRBCA	47
9.	LTS Information Management	49
9.1	EPA IC Data Standards.....	49
9.2	Non-GIS IC Tracking System.....	50
9.3	GIS IC Tracking Systems	52
9.4	State Legislation Requiring IC Tracking	53
9.5	Key Features of LTS Information Management Systems.....	55
9.6	Review and Evaluation of LTS Information Management at Missouri DNR	56
9.7	GIS Prototype of Missouri DNR Cleanup Sites and LTS Sites.....	61
10.	LTS Costs and Funding	67
10.1	How Much Does LTS Cost Per-Site?	67
10.2	How Much Does it Cost to Run a State LTS Program?	67
10.3	Which Funding Mechanisms Exist to Support LTS?	68
11.	Conclusions and LTS Recommendations	69
11.1	Should the DNR Seek to Improve LTS Management	69
11.2	LTS Program Recommendations.....	70

TABLES

Table 1	LTS Study Questions	2
Table 2	Mo DNR Environmental Cleanup Programs and Sections	7
Table 3	Estimated Number of Environmental Cleanup and LTS Sites in Missouri.....	18
Table 4	Comparison of UECA to MRBCA § 11	47
Table 5	Summary of LTS Tracking Within DNR Systems	57

FIGURES

Figure 1	Cleanup Programs Which May Generate LTS Sites.....	14
Figure 2	County Regulation of On-Site Wastewater Treatment Systems.....	37
Figure 3	One Call Process Overview	40
Figure 4	Summary Schematic of the IC Data Standard's Data Categories.....	50
Figure 5	California Land Use Restriction Web Site.....	50
Figure 6	Colorado Environmental Covenant Web Listing.....	51
Figure 7	Wisconsin GIS Registry of Closed Remediation Sites	52
Figure 8	Kansas Environmental Cleanup Site Map	54
Figure 9	LTS Information Management Schematic.....	57
Figure 10	Missouri Environmental Emergency Response Tracking System...	60
Figure 11	Prototype GIS Map of LTS Sites	61
Figure 12	Prototype GIS Map of Single LTS Site	62
Figure 13	Protoype LTS Public Information.....	64

EXECUTIVE SUMMARY

Over ten thousand cleanup sites exist in Missouri, not including a potentially enormous number of emergency response spill sites. Missouri Department of Natural Resources (DNR) oversees these cleanups under a variety of separate and distinct cleanup programs. Approximately five hundred and fifty sites squarely qualify as long term stewardship sites.

Long term stewardship (LTS) refers to a system of tools and processes which reliably prevent residual contamination at cleanup sites from posing a risk to people or the environment. The Department does not set forth rules or guidance which clearly define when a cleanup site qualifies as an LTS site. A good number of sites should, perhaps, qualify as LTS sites, even though the Department does not identify them as such.

LTS activities include the implementation of LTS tools and, in turn, subsequent monitoring, auditing, information management, enforcement, and LTS termination. No over-arching law or regulation addresses LTS management across the Department's cleanup programs. The laws and regulations for individual cleanup programs provide disparate rules which sometimes directly and sometimes indirectly address legal responsibilities for LTS activities. The Missouri Risk Based Corrective Action Technical Guidance tacitly addresses LTS roles and obligations.

The Department, like all state agencies, possesses finite resources under which it operates. Increasing LTS efforts within DNR would require the diversion of existing resources unless new resources were made available. Whether to increase LTS efforts, therefore, requires a weighing of the health and environmental protection benefits that would result from increased LTS efforts, versus the benefits of commensurate efforts directed towards a different goal. Based on the apparently increasing number of residually contaminated sites, and the likelihood that without LTS, eventually, human or environmental exposure seems likely to occur, LTS improvements seem necessary.

Missouri's brownfield regulations estimate a minimum cost of \$5,000 dollars and a maximum cost of \$15,000 dollars of total costs for long term monitoring of ICs. US EPA remains in the process of developing guidance to estimate IC life cycle costs. Based on the representative costs that EPA has identified to date,¹ we developed a prototype IC cost model. The IC cost model estimates costs significantly higher than \$15,000, more in the range of \$20,000 to \$80,000 dollars per site.

Depending on the policy choices it makes, the LTS role of the Department could vary from one where it performs nearly all LTS activities, to a much less burdensome one where it simply oversees LTS activities performed by responsible parties,

¹ See Michael Bellot, Costing ICs, Presented at the US EPA Institutional Control Workshop, Tucson Arizona (Apr. 2006) (avail. at <http://www.epa.gov/superfund/action/ic/roundtable.htm#cost>).

landowners, and other LTS stakeholder. Currently, the Department does not meaningfully rely on responsible parties, landowners, or local governments to help or to otherwise share the costs and responsibility for LTS activities.

A Uniform Environmental Covenant Act (UECA) statute in Missouri would, among other things, provide for environmental covenants which the Department could directly enforce, and which run with the land to subsequent owners (without the need for institutional control contracts).

The Site Management and Reporting System (SMARS) database contains an LTS module, which impressively tracks a wide set of LTS information for some cleanup programs, but not all. SMARS is not publicly accessible through the Department's web page. In addition to SMARS, varied database systems cover cleanup sites and, in turn, include some LTS information - some of which is available through the Department's web page. With the exception of the Registry of Confirmed Abandoned and Uncontrolled Hazardous Waste Disposal Sites, no person seems in charge and no business process seems to exist to ensure that LTS information remains up-to-date, comprehensive, accurate and available to the public.

To implement the recommendations listed below, over a three year planning horizon, we estimate that approximately six (6) to ten (10) full time staff would be required, as well as approximately \$500,000 to \$900,000 dollars, per year, in external costs.

Recommendation 1: Establish Centralized Long Term Stewardship Management.

DNR should employ a centralized management process to govern LTS throughout DNR. This may take the form of a work group or task force of representatives from various DNR Programs and Sections. Or it may (perhaps eventually) take the form of a separate and distinct LTS Program or Section within DNR.

Recommendation 2: Improve LTS Information Management & Related Business Processes.

DNR should improve public access to SMARS Information. DNR should perform SMARS-like LTS tracking for the Department Sections which SMARS does not cover. In order to improve public access to SMARS, DNR should employ Geographical Information System (GIS) technologies which display the location of LTS sites and, in turn, allow users to view details about residual contamination, LTS requirements, and LTS monitoring. SMARS-like tracking may occur in a single data system, or it may occur in the existing separate systems. Each separate database system should, however, employ uniform means to identify sites as LTS sites (or not). This will allow a clear display, to the public, of LTS sites. DNR should assign a manager or manager(s) to LTS information management, and such manager(s) should be accountable for the accuracy and completeness of LTS information.

Recommendation 3: Enact UECA or Similar Legislation.

DNR should prepare a white paper which sets forth its policy recommendations in support of a UECA or UECA-modified statute. A UECA statute in Missouri would provide for environmental covenants which DNR could directly enforce, and which run with the land to subsequent owners (without the need for DNR entering into institutional control contracts). UECA's provisions, or any modifications to UECA that Missouri might feel necessary, provide opportunities for Missouri to require LTS tracking, responsible party/current owner LTS auditing, local government involvement or similar policy choices into the law.

Recommendation 4: Define a Common Threshold for LTS And Characterize All Cleanup Sites as Either LTS or Not.

A clear line should distinguish LTS sites from cleanup sites. This defining point should clearly exist for every cleanup in every program. The triggering point for LTS might begin as soon as contamination discovery or much later, for example, at the point where final cleanup allows residual contamination above unrestricted use and unrestricted exposure levels. Nevertheless, DNR should characterize every cleanup as LTS, or not. A clearly and reliably defined universe of LTS sites could be readily captured within DNR information management systems and, in turn, made transparent to the public (see recommendation 2). This would provide clarity to the LTS-affected regulated community and other stakeholders, and it would allow DNR to squarely manage a well defined universe of LTS sites.

Recommendation 5: Develop an LTS Monitoring and Auditing Program That Involves Responsible Parties and Property Owners.

DNR should develop a program, by regulation or as mentioned above, through legislation, which requires responsible persons and/or current site owners to inspect and certify IC compliance. In addition to this self-certification program, DNR should conduct random audits, to ensure that persons truthfully self-certify. DNR should post the result of their random LTS audits conspicuously on their web page.

Recommendation 6: Improve Environmental Covenant Implementation.

DNR should employ a process to review title ownership and title encumbrances prior to recording environmental covenants. This will help ensure the long-term reliability of the covenant. This process may be especially important if, as discussed above, Missouri enacts a UECA or UECA-like statute.

Recommendation 7: Pursue Opportunities to Expand Missouri One Call to Include Residual Contamination or IC Information.

DNR should support Madison County's current efforts to enter areas of contaminated soil into Missouri One Call. DNR should otherwise invest time to study the

feasibility of a One Call process for environmental contamination in Missouri. DNR should evaluate whether DNR would join as a member and, in turn, bear the burden of responding to excavation requests. Or alternatively, whether DNR (through regulation or perhaps legislation) should require responsible parties or site owners to join Missouri One Call.

Recommendation 8: Outreach to and Secure LTS Involvement from Local Government.

DNR should develop a local government campaign. The campaign should seek to keenly understand local government authorities, abilities, and practical resolve. The campaign should look to other state-local cooperative models, including septic tank regulation, for guidance and leverage. The campaign should understand how DNR LTS sites distribute across various local governments, in order to help prioritize the campaign's activities. DNR should seek to involve local governments in every cleanup decision, especially ones that will involve LTS. Through a combination of outreach, education, relationship-building, agreement and, perhaps, legislation, DNR should seek to forge a collaborative LTS relationship with local governments. This will be a significant effort.

Recommendation 9: Reconsider LTS Fee Estimates, Apply Such Fees Beyond the Brownfields Program, and Establish a Fund or Other Mechanism Which Preserves LTS Funds Directly for LTS Purposes.

DNR should re-estimate LTS life cycle costs, in light of forthcoming EPA guidance, an evolving understanding of LTS obligations, and based on the estimated costs of an expanded LTS management program (as outlined in this report). DNR should charge LTS fees at all LTS sites, not only brownfield sites. DNR should evaluate the feasibility of charging LTS fees on an annual basis, similar to a discharge permit, at sites which continue to require LTS. DNR should establish a trust fund or similar mechanism which preserves LTS fees for LTS purposes.

INTRODUCTION

Within Request for Proposal number B3Z06073 and the subsequently awarded contract for long term stewardship consultant services, number C306073001, the Missouri Department of Natural Resources asked DPRA, Inc. to review, evaluate and provide recommendations pertaining to long term stewardship activities within the Department. The enclosed report responds to this request. We appreciate the opportunity to support the Missouri Department of Natural Resources.

As described more within this report, long term stewardship (LTS) refers to a system of tools and processes which reliably prevent residual contamination at cleanup sites from posing a risk to people or the environment. In response to a growing recognition that the protection of human health as well as the success of environmental cleanup and brownfield programs hinges on successful LTS, across the country many states remain in the process of improving LTS. LTS requires, to a large extent, property management processes. Because state environmental agencies focus on environmental cleanup, rather than property management, building LTS processes has proven challenging. Within this report, we seek to identify Missouri's current LTS processes, define the challenges it faces, and offer future recommendations.

Section 1 summarizes our research methodology. And as a threshold matter, Section 2 defines "long term stewardship." Sections 3 and 4 review Missouri's various cleanup programs, and attempt to count the total number of cleanup and LTS sites in the state. Section 5 then identifies sites which are not currently involved in LTS but, perhaps, should be. Sections 6 and 7, respectively, discuss who is and, in turn, who should be legally responsible for LTS activities. Section 8 overviews the Uniform Environmental Covenant Act (UECA), similar non-UECA state laws, and compares it the Missouri Risk Based Corrective Action's (MRBCA) covenant-related guidance provisions. Section 9 takes a detailed look at LTS information management within Missouri, and across other states. Section 10 reviews LTS costs, and funding sources. Finally, Section 11 provides conclusions and future recommendations.

1. RESEARCH METHODOLOGY

Based on the requests stated in Missouri's RFP and based on our initial discussions with DNR staff, we identified a series of study questions to address (see Table 1).

Table 1 LTS Study Questions

1. What is Long Term Stewardship?	6. To what extent do other government agencies or private parties perform such LTS monitoring.
2. How many and which DNR programs and sections administer cleanup programs or oversee cleanups which employ LTS.	7. How do the DNR cleanup programs and sections manage LTS information, and does public access to LTS information exist.
3. How many cleanup sites exist in Missouri, and how many has DNR identified as sites involved in LTS.	8. Which existing land use regulations and programs, such as building code enforcement, zoning, flood protection, groundwater protection, and other programs exist in Missouri which currently play a role in LTS or which may be leveraged in the future to improve LTS
4. How do the varied DNR cleanup programs and sections decide whether and when to place a site into LTS, and do some sites go unaddressed.	9. How might the Uniform Environmental Covenants Act, if enacted in Missouri, affect the Missouri LTS program.
5. Once sites have been placed into LTS, how does LTS monitoring and enforcement occur. To what extent do DNR programs and sections directly monitor sites in LTS.	10. How Much Does LTS Cost?
	11. How might LTS management be improved in Missouri? What specific recommendations and plan of action should DNR follow

The remaining sections of this report seek to address these questions.

Our methodology consisted of the following general steps.

- We conducted a series of telephone interviews with DNR staff and non-DNR stakeholders.
- We reviewed the law, regulation, and guidance governing cleanup in Missouri and pertaining to LTS.

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

- We reviewed the contents of the Missouri SMARS database; the Missouri Petroleum Storage Tanks database; the Missouri Environmental Emergency Response Tracking System; US EPA's RCRAInfo database; US EPA's CERCLIS Database; and the Data Standard Council's Institutional Control Data Standards. We generally reviewed Missouri's solid waste management databases; Missouri's Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites; and the listing of Missouri reclaimed abandoned mine lands.
- We reviewed state LTS programs and LTS best practices, including LTS tracking systems, in many states.
- We developed a prototype GIS public site which shows the location of each cleanup site, and then displays information from SMARS, tanks database, and web-available sources.
- We developed a prototype cost model to allow the calculation of site specific LTS costs, and to help estimate LTS program costs
- We evaluated the Uniform Environmental Covenant Act, summarized its features, and compared to Missouri's current practices.
- We studied the local government structure in Missouri, and various land use management schemes which local governments participate, such as zoning and planning, flood protection, septic system regulation, and building code administration.
- We delivered an oral slideshow presentation to Missouri DNR, summarizing our study and verbally providing our recommendations.
- Finally, we prepared this report which provides the findings of our study, and future recommendations.

2. WHAT IS LTS?

Based on our review of on-line legal databases, the phrase “long term stewardship” does not appear anywhere in Missouri’s statutes or in Missouri’s administrative regulations. In the definition section of the Missouri Risk Based Corrective Action guidance, DNR defined LTS to mean:

An appropriate system of controls, institutions and information necessary to fully protect human health, public welfare and the environment.²

In the body of the guidance, DNR further explained that “[t]he purpose of Long-Term Stewardship (LTS) is to insure the productive and safe reuse of properties where residual contamination will remain in place.”³ In a recent report by the US EPA Long Term Stewardship Task Force, US EPA also defined LTS.

Long-term stewardship applies to sites where long-term management of contaminated environmental media is necessary to protect human health and the environment. Long-term stewardship generally includes the establishment and maintenance of physical and legal controls, implementation entities, authorities, accountability mechanisms, information and data management systems, and resources that are necessary to ensure that these sites remain protective of human health and the environment.⁴

Both the US EPA and the Missouri definition contemplate a system of tools and processes which reliably prevent residual contamination from posing a risk to people or the environment.

The term LTS evolved from the phrase “institution controls.” The phrase institutional controls (ICs), which seemed to be first introduced in the National Contingency Plan,⁵ apparently referred to existing legal and administrative land use controls, such as deed restrictions, water use and well installation laws, and local land use ordinances, which could be leveraged in a way that would protect people and the environment from residual contamination. The phrase “institutional controls” pre-supposed that a reliable institution existed which could ensure that people and the environment remained safe. While land use-related “institutions” may have existed, as many

² MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION (MRBCA) TECHNICAL GUIDANCE L-2 (Apr. 2006).

³ *Id.* at 11-1.

⁴ US EPA, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, EPA 500-R-05-001, LONG-TERM STEWARDSHIP: ENSURING ENVIRONMENTAL SITE CLEANUPS REMAIN PROTECTIVE OVER TIME, CHALLENGES AND OPPORTUNITIES FACING EPA’S CLEANUP PROGRAMS 6 (Sept. 2005) (hereafter LTS REPORT).

⁵ See National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. 340.430(a)(1)(f) (describing expectation for institutional control use).

environmental practitioners came to realize, for environmental contamination, no enforceable controls existed and even if they did no institution existed to enforce them.

In 2000, ASTM guidance introduced the term Activity and Use Limitations (AUL).⁶ AULs broadly referred to any type of legal or administrative land use control, or any type of physical “engineering control,” such as fences, caps, barriers, and others, which limited future land uses or the type of future land activities that might occur. To add to the confusion, the DoD primarily refers to either or both of ICs and AULs as Land Use Controls (LUCs) (though others also utilize the LUCs terminology).

Rather than AULs or LUCs, the US EPA uses the phrase ICs.

Institutional Controls are non-engineered instruments, such as administrative and/or legal controls intended to minimize the potential for human exposure to contamination by limiting land or resource use.⁷

EPA separately defines engineering controls (ECs).

Physical or “engineered” controls are the engineered physical barriers or structures designed to monitor and prevent or limit exposure to the contamination.⁸

The terms AUL and LUC remain in use by environmental practitioners, but it seems that ICs and ECs are becoming the standard terminology. Missouri uses both the AUL and IC terminology. For example, MRBCA uses the AUL terminology. However, Missouri’s brownfield regulations address “institutional control” monitoring fees.

For the purpose of this study, “IC” means the same as it does under EPA’s definition. AUL means either (or both) of ICs and ECs. We use IC and AUL, therefore, interchangeably throughout this report.

In light of this, and for the purpose of articulating an LTS definition around which we could perform a review and evaluation, we defined LTS to include the following components.

- ICs/ECs Constructed or Crafted to Protect People and the Environment from the Risk of Post-Cleanup Environmental Contamination.

⁶ ASTM International, E 2091-00, Standard Guide for Use of Activity and Use Limitations, Including Institutional Controls and Engineering Controls (2000).

⁷ LTS REPORT at 6.

⁸ Id.

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

- IC/EC Compliance Assurance Processes, Including Monitoring and Enforcement, of ICs/ECs.
- Information Management of ICs/ECs and IC/EC Compliance Assurance Information.
- Funding Which Supports IC/EC Development, Compliance Assurance, and Information Management.

At some point during every cleanup, at least in theory, a cleanup proceeds towards one of two end points. Cleanup proceeds towards a full cleanup which allows for unrestricted use and unrestricted exposure (UU/UE). Or, the site cleanup meets less stringent risk based standards and, in turn, moves into LTS. To better understand the potential magnitude of LTS in Missouri, the following two sections, Sections 3 & 4, begin our study by reviewing the cleanup programs and the number of cleanup sites in Missouri.

3. Which Cleanup Programs Exist in Missouri?

A variety of laws and, in turn, administrative cleanup programs govern site cleanup in Missouri. This, in turn, affects the type of LTS which occurs. The Department of Natural Resources organizes into four hierarchal levels:

- 1) Director Level
- 2) Division Level
- 3) Program Level
- 4) Section Level

Primarily two divisions, the Division of Environmental Quality (DEQ) and, to a lesser extent, the Field Services Division (FSD) perform, oversee, or otherwise participate in cleanup. Within DEQ, primarily three programs deal with cleanup – the hazardous waste program, the solid waste management program, and the land reclamation program. Within FSD, the Environmental Service Program, among other things, administers an environmental emergency response section which oversees numerous spill cleanups.

Within these DNR Divisions and Programs, various Sections administer cleanups. Table 2 lists each environmental cleanup Section, and the following paragraphs provide a brief overview of each Section.

Table 2 Mo DNR Environmental Cleanup Programs and Sections

Program	Section	Relevant Law, Regulation, & Guidance
Hazardous Waste Program	Brownfields/Voluntary Cleanup	Law: RSMo 260.565 through 260.575 Regulation: 10 CSR 25-15.010 Guidance: Cleanup Levels for Missouri; MRBCA Technical Guidance. ⁹
	Superfund Section	Law: Federal CERCLA; Missouri “Spill Bill” codified at RSMo 260.500 through 260.545; Abandoned or Uncontrolled Sites, codified at RSMo 260.435 through 260.480. Regulations: Federal NCP ¹⁰ ; 10 CSR 25-10.010 Guidance: Numerous Federal Guidances ¹¹ ; MRBCA Technical Guidance.
	Permits	Law: Federal RCRA Regulation: RCRA regs; 10 CSR 15-1 though 14.

⁹ Available at <http://www.dnr.mo.gov/env/hwp/mrbca/mrbca.htm>

¹⁰ 55 Fed. Reg. 8666, National Oil and Hazardous Substances Pollution Contingency Plan (Mar. 8, 1990)

¹¹ Many federal guidance documents pertain to CERCLA cleanups. For a list of all CERCLA guidances which address or mention institutional controls (over 40 guidances), see U.S. EPA, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, INSTITUTIONAL CONTROLS BIBLIOGRAPHY: INSTITUTIONAL CONTROL, REMEDY SELECTION, AND POST-CONSTRUCTION COMPLETION GUIDANCE AND POLICY (Dec. 2005) (avail. at <http://www.epa.gov/superfund/action/ic/guide/index.htm>).

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

Program	Section	Relevant Law, Regulation, & Guidance
		Guidance: MRBCA (for some sites).
	Petroleum Storage Tanks	Law: RSMo 319.100 through 319.139; Regulation: Underground Storage Tanks - Technical Regulations, codified at 10 CSR 20-10; Above Ground Storage Tanks –Release Response, codified at 10 CSR 20-15. Guidance: MRBCA Guidance for Petroleum Storage Tanks. ¹²
	Federal Facilities	Law: CERCLA; Federal Facilities Compliance Act Regulation: NCP Guidance: Numerous DoD, DoE, and other federal cleanup guidance ¹³ ; Various DoD and DOE IC guidance and policy. ¹⁴
Solid Waste Program	Resource Planning	Law: RSMo 260.200 through 260.345 Regulation: Solid Waste Management, 10 CSR 80 Guidance ¹⁵ : Landfill Closure Guidance (Jul. 2003); Preparing Solid Waste Disposal Area Closure and Post-Closure Plans (Apr. 2004); Closure and Post Closure Cost Worksheet.
	Engineering	
	Compliance & Enforcement	
Land Reclamation Program	Metallic Mining Regulation & Reclamation	Law: Metallic Minerals Waste Management Act, RSMo 444.350 through 444.380.
	Industrial Mineral Mining Regulation & Reclamation	Law: Industrial mineral mining (limestone, clay, sand, and gravel, barite, etc.). Land Reclamation Act, RSMo 444.760 through 444.790.
	Coal Mining Regulation and Reclamation	Law: RSMo 444.500 through 444.755 (Strip Mining Law, “Old Coal Law”); RSMo 444.800 through 444.970 (Surface Coal Mining Law, “New Coal Law”)
	Abandoned Mine Land Reclamation	Law: Federal Surface Mining Control and Reclamation Act of 1977 (SMCRA)
Field Services Division, Environmental Services Program	Environmental Emergency Response/Field Services Section	Law: Spill Bill, codified at RSMo § 260.500 through 260.550. Guidance: Various publications. ¹⁶

¹² Available at <http://www.dnr.mo.gov/env/hwp/tanks/mrbca-pet-tanks.htm>.

¹³ For DoD site cleanup-related guidance and policy, see https://www.denix.osd.mil/denix/Public/Library/Cleanup/CleanupOfc/subject_arch/cleanup.html; For DOE site cleanup-related guidance and policy, see <http://www.eh.doe.gov/oeqa>.

¹⁴ For DoD IC-related guidance and policy, see https://www.denix.osd.mil/denix/Public/Library/Cleanup/CleanupOfc/subject_arch/lucs.org; for DoE IC-related guidance and policy, see <http://www.eh.doe.gov/oeqa/controls.html>.

¹⁵ Solid Waste Section guidance documents exist at <http://www.dnr.mo.gov/env/swmp/pubs-reports/publist.htm>.

¹⁶ See <http://www.dnr.mo.gov/env/esp/publications.htm>.

The Missouri Risk Based Corrective Action (MRBCA) Technical Guidance, and the Missouri Registry Annual Report provide an overview of the cleanup programs.¹⁷ The following paragraphs briefly summarize each Section.

DEQ, HAZARDOUS WASTE PROGRAM, *Superfund Section.* The federal CERCLA makes responsible parties liable for the costs of cleanup, and it allows the federal EPA as well as private parties to recover cleanup costs from responsible parties. The Missouri DNR's Superfund Section oversees, or participates in the cleanup oversight of various categories of sites which CERCLA affects. In addition, the Superfund Section administers the Missouri Hazardous Waste Management Law which, among other things, requires DNR to develop a Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites.¹⁸ In some cases, the Superfund Section oversees cleanups undertaken pursuant to the Missouri "Spill Bill."¹⁹ The following types of sites fall under the Superfund Section.

NPL Sites. At sites listed on EPA's National Priority List, pursuant to a cooperative agreement with U.S. EPA, DNR either supports EPA's cleanup oversight or DNR operates as the state-lead. At NPL sites where EPA oversees the cleanup under federal funds, the NCP requires DNR to assume responsibility for the remedy's eventual operation and maintenance, including "maintaining institutional controls."²⁰

Non-NPL Sites. According to U.S. EPA, non-NPL sites include both active and archived non-NPL sites. Active sites include a variety of sub-categories of sites, including removal action sites, sites slated for future archiving, and those where assessment remain ongoing. EPA explains that active sites include those where "site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted under the Superfund program."²¹ As listed in the table further below, approximately 481 active non-NPL sites exist according to EPA's CERCLIS database.²² Archived sites include those where EPA formally decided that it would not require additional remedial action pursuant to CERCLA. As EPA explains, "[t]he Archive designation indicates the

¹⁷ See MISSOURI DEPARTMENT OF NATURAL RESOURCES, HAZARDOUS WASTE PROGRAM, MISSOURI REGISTRY ANNUAL REPORT REGISTRY OF CONFIRMED ABANDONED OR UNCONTROLLED HAZARDOUS WASTE DISPOSAL SITES IN MISSOURI, 2 (2005) (avail. at <http://www.dnr.mo.gov/env/hwp/ar-current.pdf>) (hereafter 2005 REGISTRY REPORT); also see MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION (MRBCA) TECHNICAL GUIDANCE (MRBCA) (Apr. 2006) (avail. at <http://www.dnr.mo.gov/env/hwp/mrbca.htm>).

¹⁸ See RSMo §§ 260.350 – 260.430.

¹⁹ RSMo §§ 260.500 through 260.545, commonly known as the Spill Bill, authorizes DNR to require persons "having control over a hazardous substances involved in a hazardous substance emergency" to cleanup the hazardous substance.

²⁰ National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. § 300.435(f).

²¹ See EPA's CERCLIS Database, available at <http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>.

²² See EPA's CERCLIS Database, available at <http://cfpub.epa.gov/supercpad/cursites/srchrslt.cfm?start=1&CFID=1541786&CFTOKEN=21368134>.

site has no further interest under the Federal Superfund Program based on available information.” As listed in the table further below, approximately 1081 archives sites exist in Missouri.²³

Registry Sites. Under the Missouri Hazardous Waste Management Law, the Superfund Section investigates suspected sites, and maintains a registry of confirmed abandoned or uncontrolled hazardous waste sites.²⁴ The Registry provides a list of sites that contain “hazardous waste” and also meet other threshold criteria. The Registry does not cover many other types of contaminated sites. “Thousands of hazardous substances do not meet the [Registry’s] stringent criteria or are exempted.”²⁵ As described more below, listing on the registry triggers LTS activities.

Registry Cleanups. The Registry law does not actually require cleanup. However, “some owners whose property is proposed for the Registry would prefer to remediate a site to Class 5 rather than allow it to be placed on the Registry.”²⁶ Regulations promulgated under the Hazardous Waste Management Law set forth requirements for such cleanups to occur under consent agreement with DNR.²⁷ Approximately thirteen (13) of such “Consent Agreement Sites” exist.²⁸ Pursuant to the Hazardous Waste Management Law, DNR may remove sites from the registry when sites become clean. The cleanup of such sites also occurs under consent agreement. Approximately eighty-four (84) of such “registry cleanups” exist.²⁹

Cooperative Program and Consent Decree Sites. In some cases, parties agree to cooperatively clean a contaminated site in order to avoid the US EPA from exercising its CERCLA authority, or in order to avoid Missouri’s Superfund Section from exercising their authorities under the “Spill Bill.” The Superfund Section characterizes these cleanup sites as Cooperative Program Sites.

Site Assessment Inventory Sites. The Superfund Section maintains inventories of eighty seven (87) known and suspected former manufactured gas plants, sixty nine (69) former U.S. Department of Agriculture grain bins, sixty four (64) wood treaters, and one hundred and fifty (150) lead and zinc smelters. The overwhelming majority of FMGP and wood treater sites have been or are being handled by other cleanup

²³ See EPA’s CERCLIS Database, available at

<http://cfpub.epa.gov/supercpad/cursites/srchrslt.cfm?start=1&CFID=1541786&CFTOKEN=21368134>.

²⁴ See RSMo § 260.350 through 260.480 (codifying the Hazardous Waste Management Law); see also MISSOURI DEPARTMENT OF NATURAL RESOURCES, HAZARDOUS WASTE PROGRAM, MISSOURI REGISTRY ANNUAL REPORT REGISTRY OF CONFIRMED ABANDONED OR UNCONTROLLED HAZARDOUS WASTE DISPOSAL SITES IN MISSOURI, 2 (2005) (hereafter 2005 REGISTRY REPORT).

²⁵ 2005 REGISTRY REPORT at 2.

²⁶ 2005 REGISTRY REPORT at 40.

²⁷ Abandoned or Uncontrolled Hazardous Waste Disposal Sites, 10 CSR 25-10.010.

²⁸ 2005 REGISTRY REPORT at 40.

²⁹ 2005 REGISTRY REPORT at 41.

programs, including Missouri's BVCP program.³⁰ The overwhelming majority of grain bin sites fall on EPA's no further action planned list and, thus, qualify as archived non-NPL sites.³¹ As mentioned above, such archived sites are not necessarily suitable for unrestricted use. The majority of lead and zinc smelter sites remain as sites where investigation is underway or ongoing and, thus, the sites have not been deferred or otherwise assigned to a DNR cleanup program.³²

DEQ, HAZARDOUS WASTE PROGRAM, *Brownfields/Voluntary Cleanup Section.*

The BVCP administers the Missouri voluntary cleanup law and its implementing regulations. The BVCP covers cleanup of all hazardous substances and many petroleum releases (with the exception of petroleum releases from tanks) when persons voluntarily seek oversight from the BVCP Section. Under the BVCP, the BVCP Section oversees and approves cleanups. This program's cleanup approval, the "letter of completion," proves valuable to land owners, property purchasers, and lenders. The BVCP program allows the use of environmental covenants and other ICs. Pursuant to the program's regulation, it charges a fee for IC monitoring. The BVCP section will not issue a letter of completion until any required environmental covenants have been properly recorded.

DEQ, HAZARDOUS WASTE PROGRAM, *Permits Section.* The permits section administers the federal RCRA. Missouri has adopted by reference, with slight modification, the federal provisions governing closure and post-closure of hazardous waste management facilities, and corrective action of and hazardous waste management units. Accordingly, it administers the program for closure and post closure of hazardous waste management units (i.e., landfills, land treatment units, surface impoundments), as well as the program for corrective action at certain regulated units. The Permits Section also administers RCRA's requirements for financial assurance, which many sites require to assure proper site closure or corrective action. Finally, the Permits Section may issue cleanup orders.

DEQ, HAZARDOUS WASTE PROGRAM, *Federal Facilities.* The Federal Facility Section does not oversee any particular cleanup law. Rather, it participates in the oversight of environmental cleanups at federally owned properties regardless of which cleanup authority the site may fall under. The Federal Facility Section and the Department of Defense have entered into a Defense and States Memorandum of Agreement, under which Missouri and the Department of Defense agreed that the DNR will oversee certain federal facility cleanups. Primarily, federal facility cleanup sites are governed by CERCLA. Federally owned cleanup properties include property owned by the United States Department of Defense (Army, Navy, Air Force); the United States Department of Energy; and properties formerly owned by the DoD or formerly owned by the DOE.

³⁰ 2005 REGISTRY REPORT at 28-39 (providing site status in summary tables).

³¹ Id.

³² Id.

DEQ, SOLID WASTE PROGRAM. The solid waste program administers the Missouri Solid waste Management law, and its implementing regulations. The program governs the operation, closure and post-closure of sanitary landfills, demolition landfills, utility waste landfills, and special waste landfills.³³ The program also regulates a variety of transfer, treatment, and recycling facilities for solid waste.

FSD, ENVIRONMENTAL SERVICES PROGRAM, *Environmental Emergency Response Section.* The Field Services Division’s Environmental Emergency Response Section, pursuant to the “Spill Bill” codified at RSMo 260.500 through 260.550, responds to environmental emergencies caused by chemical spills to the land, water, or emitted into the air. On average, the EER Section receives over 1,500 incident calls and responds to nearly 450 hazardous substance emergencies each year. The section performs emergency response and oversees environmental cleanup of spilled materials. As discussed more below, this section maintains Missouri Environmental Emergency Response Tracking System (MEETS) which tracks environmental emergency notification and response information. See <http://www.dnr.mo.gov/env/esp/meerts.htm>.

DEQ, LAND RECLAMATION PROGRAM, *Abandoned Mine Lands and Bond Forfeiture Section.* The Land Reclamation Program administers laws covering mining operations and reclamation of metallic, industrial, and coal mining lands. It also administers laws covering the reclamation of abandoned mine lands – including “pre-law” coal mines, and bond forfeiture coal mines.³⁴

³³ See <http://www.dnr.mo.gov/env/swmp/facilities/permittedfacilities/htm> (providing information on each landfill type).

³⁴ See <http://www.dnr.mo.gov/env/lrp/Reclamation/reclamation> (providing overview of mine reclamation).

4. HOW MANY CLEANUP SITES EXIST IN MISSOURI, AND HOW MANY QUALIFY AS LTS SITES?

The DNR Sections listed above oversee various types of cleanups, and many sections oversee more than one type of cleanup site. As Table 3 summarizes further below, in total over 10,000 cleanup sites exist. And, of these, approximately 550 seem to qualify as LTS sites. In many cases, characterizing a cleanup site as an LTS site is not a straightforward process. DNR does not employ a systematic process to characterize or identify sites as LTS sites.

The approximate tally of total cleanup sites relied on the following information sources (see Section 9, below, for more detail on cleanup and LTS information management in Missouri).

US EPA CERCLIS Database.³⁵ Providing milestone tracking information concerning NPL and Non-NPL CERCLA sites.

US EPA RCRAInfo.³⁶ Providing information concerning hazardous waste site corrective action, and allowing queries on closure workload universe, post-closure workload universe, subject to corrective action, and corrective action workload.

Superfund Section's SMARS. Providing details concerning cleanups administered by the Superfund Section, the Brownfields/Voluntary Cleanup Section, the Federal Facilities Section, and about certain tank sites.

Tank Section's Tank Database. Providing details about all regulated underground storage tanks, including underground storage tank release sites.

Solid Waste Management Program Web Site.³⁷ Listing the name and summary information about sanitary and other types of active facilities, and also listing closed and inactive facilities.

Brownfields/Voluntary Cleanup Program Site Status List.³⁸ Providing cleanup summary information for BVCP sites.

Federal Facility Section Web Site.³⁹ Providing site summaries of various federal facility cleanup sites in Missouri.

³⁵ Available at <http://www.cfpub.epa.gov/supercpad/cursites/srcsites.cfm>.

³⁶ Available at http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

³⁷ Available at <http://www.dnr.gov/env/swmp/facilities/sanlist.htm>.

³⁸ Available at <http://www.dnr.mo.gov/env/hwp/bvcp/hwpvcp.htm>.

³⁹ Available at <http://www.dnr.mo.gov/env/hwp/fedfac/ffs.htm>.

Missouri Registry Annual Report. Listing sites on the registry, sites removed from the registry and other consent agreement sites, NPL sites, and an inventory of site assessments for certain categories of sites.

Missouri Environmental Emergency Response Tracking Systems (MEERTs).⁴⁰ Providing details concerning spills and emergency spill response.

Land Reclamation Program, Abandoned Mine Lands.⁴¹ Providing a list of Abandoned Mining Land completed projects.

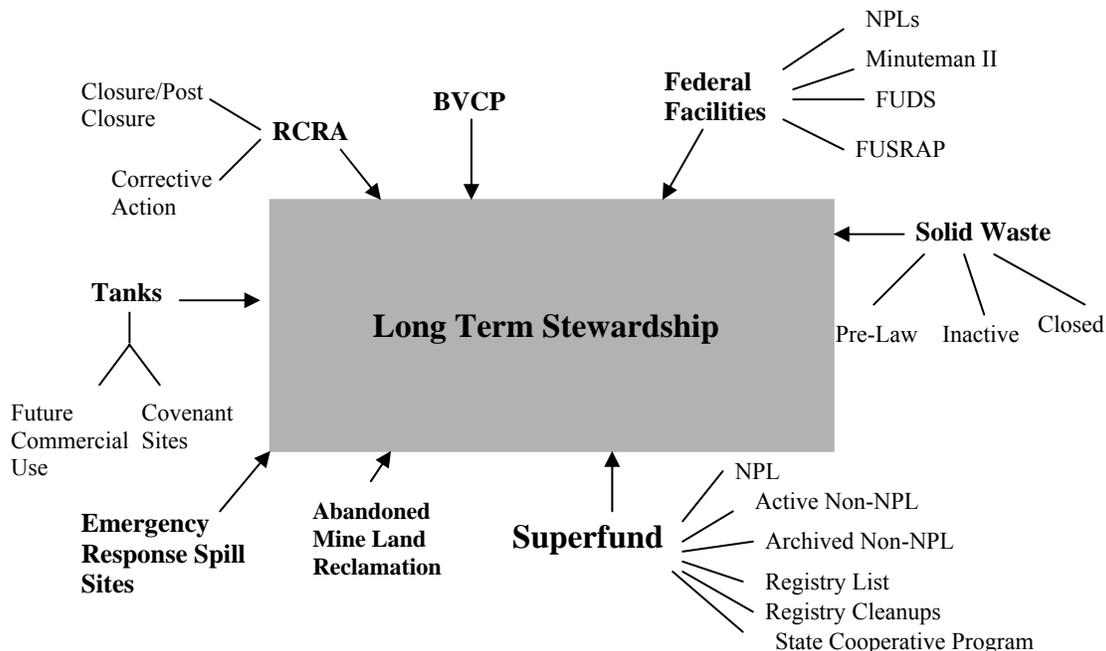
In addition to these sources, our tally relied on personal communication with many DNR staff representatives within various Sections.

With an eye towards LTS, this universe of cleanup sites can be categorized as follows:

- 1) Sites already undergoing or involved in LTS.
- 2) Sites moving towards LTS eventually.
- 3) Sites which will not enter LTS – sites which have or will be cleaned to levels safe enough for unrestricted future use and unrestricted future exposure.

As Figure 1 suggests, a variety of cleanup sites hold the potential to enter LTS.

Figure 1 Cleanup Programs Which May Generate LTS Sites.



⁴⁰ Available at <http://www.dnr.mo.gov/env/esp/meerts.htm>.

⁴¹ Available at <http://www.dnr.mo.gov/env/lrp/reclamation/aml/amlcompproj.htm>.

Among this universe of cleanup sites, as Section 4 summarizes, we tallied the number of sites currently in LTS at approximately 550 sites.

Estimating the number of LTS sites was not a totally straightforward process. We were not able to identify LTS sites by reviewing a single data source, consulting a single report, or interviewing a single DNR staff person. Rather, we consulted each of DNR's data sources and interviewed many DNR staff. In some cases, DNR Sections maintained a clear count of LTS sites. In other cases, such as the case for landfill closure, DNR did not seem to expressly identify sites as LTS sites but because these sites seemed involved in stewardship activities, we chose to characterize some of these sites as LTS sites.

The following paragraphs more fully describe our LTS counting process, as well as our related observations.

The **SMARS database's** LTS Module clearly identifies LTS sites for cleanups administered by certain Sections. It counts approximately seventy-five (75) LTS sites within the Superfund Section, ninety-four (94) LTS sites within the Brownfields and Voluntary Cleanup Section, one-hundred and seventy three (173) sites within the Federal Facility Section (all but six(6) of which were Minutemen II sites), and six (6) LTS sites within the Tank Section. The Superfund Section sites required further analysis, in order to link them to the various categories of sites that the Superfund Section manages. Based on our review of SMARS, the majority of the Superfund Section's seventy five (75) LTS sites include sites listed on the 2005 registry of confirmed abandoned or uncontrolled hazardous waste sites. A much smaller sub-set of the Superfund Section's LTS sites include sites listed on EPA's CERCLA archived non-NPL list (NFRAP Sites), Registry Cleanup sites, sites which were oversaw by the BVCP (even though the LTS module marks them as Superfund Section sites).

No guidance, internal policy, or other written process exists describing whether and when a site qualifies as an LTS site and, in turn, should be identified as such in the SMARS LTS module. No person or group of persons seem to be in charge of monitoring or assuring that sites become identified as LTS sites within the SMARS module or, otherwise, that the SMARS module remains up-to-date. Rather, individual project managers seem to hold this duty. The LTS module does not contain LTS information for the Permits Section sites (RCRA sites), the Solid Waste Section's sites, the Emergency Response Section sites, or Abandoned Mine Reclamation sites.

The **Registry** lists eighty nine (89) confirmed abandoned or uncontrolled hazardous waste sites.⁴² As discussed more below, in Section 9, listing on the Registry triggers a variety of LTS processes, including the listing itself, the filing of a deed notice, and related stewardship processes. For this reason, we counted each of the eighty nine sites as LTS sites. The Registry also lists eighty four (84) "Registry Cleanups" and

⁴² 2005 REGISTRY REPORT, at 49.

thirteen (13) consent agreement sites.⁴³ The Registry does not provide any LTS information about these ninety seven (97) sites. However, SMARS identified five (5) of these sites as LTS sites in the LTS module. Finally, the 2005 Registry Report explains that State Cooperative Program sites exist, but it does not list these sites. Superfund Section staff estimated that five (5) cooperative program sites existed.

RCRAInfo identifies closure, post closure, and corrective action sites. As discussed more below, in Section 9, the Permits Section relies solely on EPA’s RCRAInfo database, into which it regularly inputs information. According to RCRAInfo, approximately one hundred (100) cleanup sites exist. RCRAInfo identifies most of these one hundred (100) sites as closure, post-closure, *and* corrective action sites. For example, nearly every closure site is also either (or both) a post-closure or corrective action site, in addition to a closure site. This occurs for various reasons. Often, closure triggers post-closure and/or corrective action – thus RCRAInfo identifies the site as both or all three. And in some cases, a portion of a facility may be involved with closure, while another may be undergoing corrective action. Approximately twenty-five Missouri sites, according to RCRAInfo, are involved in post-closure activities. As discussed more fully below, in Section 6, post-closure requires the filing of a deed notice, survey plat, and the incorporation of post-closure monitoring procedures within post-closure permits. For this reason, we characterized these twenty five (25) sites as LTS sites. Of the approximate 100 sites, RCRAInfo counts eleven (11) as sites which have reached the corrective action cleanup stage of “remedy construction complete.” Of these, RCRAInfo lists all eleven (11) as ones employing engineered controls and, of these eleven, one (1) site as one which employs ICs. For the purpose of tallying LTS sites, we counted all eleven as LTS sites. A possibility exists that additional LTS sites exist which the Permits Section has not yet noted in RCRAInfo.⁴⁴

The **Solid Waste Program** does not maintain an LTS list, nor does it officially designate any sites as LTS. The Section manages active, inactive, and closed landfills and similar, related facilities. As discussed more below in Section 6, the closure process triggers requirements to file a survey plat of the landfill area to perform post-closure monitoring and care, and it also triggers frequent inspection by the Section pursuant to the Section’s Annual Work Plan. Thus, we identified all closed landfills as LTS sites. Inactive landfills have ceased accepting waste, but have not yet completed closure requirements and, in turn, they have not triggered LTS requirements. Although some inactive sites have filed survey plats, and some may be inspected by the Section, we did not identify these as LTS sites. We did not identify any active facilities as LTS sites.

⁴³ 2005 REGISTRY REPORT, at 41-43.

⁴⁴ RCRAInfo was recently updated, in March 2004, to track the use of engineering controls (RCRAInfo event code CA770) and institutional controls (RCRAInfo event code 772). Because of the recent update, MO DNR has not fully populated RCRAInfo with IC information.

The **Tank Section's** Tanks database does not identify any sites as LTS sites. The Tanks database, however, relies on the LTS module of SMARS to hold LTS information for six (6) tank sites. These six (6) sites are ones for which an environmental covenant has been recorded. Many additional tank sites have been cleaned to risk based standards, more lenient than unrestricted use standards. As discussed more below, in Section 5, other than being identified as tank cleanup sites, these sites do not undergo LTS activities. These sites do not employ covenants or otherwise undergo any LTS monitoring. Thus, we did not count these sites as LTS sites.

An enormous number of **Emergency Response Sites** may exist. On average, the Environmental Emergency Response Section receives over 1,500 incident calls and responds to nearly 450 hazardous substance emergencies each year. Since 1980, therefore, over twenty thousand spill incidents may have occurred. And, EER may have responded to over ten thousand incidents. As discussed below in Section 9, EER maintains a tracking system and paper files concerning reported spills and response activities. They do not, however, employ, manage, or otherwise require any type of LTS processes at these sites. Thus, we did not count any emergency response sites as LTS sites.

The **Land Reclamation Program** lists approximately one hundred and fifty (150) completed abandoned mine lands reclamation projects. AML staff explained that, in many cases, treatment systems or residual coal remains in place. But the Land Reclamation Program does not require or perform LTS. AML staff also explained that additional, not-yet-reclaimed, mining sites exist – and they estimated that perhaps four hundred (400) exist. In addition, approximately eleven (11) metallic mineral sites will, when cleanup is eventually completed, require LTS. Thus, we identified approximately five hundred and fifty (550) as sites within the cleanup universe, but not as sites in LTS.

Table 3 Estimated Number of Environmental Cleanup and LTS Sites in Missouri

DNR Section	Category of Cleanup Site	Approximate No. of Total Sites	Approximate No. of Sites in LTS
Superfund	NPL	27	5
	Active Non-NPL	481	0
	Archived Non-NPL	1008	0
	Registry Sites	89	89
	Registry Cleanups	97	5
	Cooperative Program Sites	5	0
RCRA	Closure, Post Closure & Corrective Action	100	36
Tanks	Remediation Sites	6500	6
Brownfield	Voluntary Cleanup Program	595	100
Solid Waste	Pre-Law Landfills	1000 (approx.)	0
	Inactive Landfills	130	0
	Closed Landfills	144	144
Federal Facilities	National Priority List	6	2
	Minuteman II Sites	165	165
	Formerly Used Defense (FUD) sites	90	0
	FUSRAP	100 (including vicinity properties)	0
Environmental Emergency Response Section	Emergency Response Spill Sites.	Over 20,000 (potentially)	0
Abandoned Mine Reclamation		550	0
TOTAL		10,500 (approx.), excluding emergency response sites.	550 (approx.)

5. DO MISSOURI CLEANUP SITES EXIST WHICH SHOULD BE IN LTS BUT ARE NOT?

As described above, approximately 550 sites exist in some type of LTS program. Of the remaining sites which do not exist within any type of LTS, a possibility exists that some of them should. The following categories of sites seem most likely to contain at least some sites which should be in LTS, but are not.

Archived Non-NPL Sites. In Missouri, over 1000 sites exist on EPA's non-NPL archived list, otherwise known as no further remedial action planned (NFRAP) site list.⁴⁵ A site's status as NFRAP does not necessarily mean that the site is free from environmental contamination. It simply means that, in light of other more contaminated sites, the federal Superfund program has decided that it would not address NFRAP sites further. As EPA explains:

A NFRAP recommendation means that further action under the Federal Superfund program is not planned; however, such sites may be reexamined later if warranted. File information for NFRAP sites is provided to the State, or other regulatory authorities, which may also take action on their own.⁴⁶

Such archived sites are not necessarily entirely clean and, in turn, suitable for unrestricted use. Missouri's BVCP program occasionally accepts NFRAP sites into its program, providing evidence that at least some NFRAP sites contain contamination.⁴⁷ Recently, in New Jersey, a similar site posed risks to children where a day care center was constructed over mercury contamination.⁴⁸

Underground Petroleum Storage Tank Sites. According to the tanks database, approximately 4500 sites have been remediated. The tanks database does not provide a ready means to identify which of these sites were cleaned to unrestricted use standards versus risk-based standards. Missouri law has authorized risk-based cleanups at underground petroleum tank since 1995.⁴⁹ Tank Section staff estimate that over one-thousand (1000) UST release sites may be cleaned to standards that do not allow for unrestricted future use but, rather, contemplate future tank-site use or

⁴⁵ See CERCLIS Database (avail. at <http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>).

⁴⁶ US EPA, ALL APPROPRIATE INQUIRIES CRITERIA ANALYSIS/COMPARISON TO STATE, FEDERAL, AND COMMERCIAL ASSESSMENT APPROACHES (avail. at <http://www.epa.gov/brownfields/aai/assessappr.htm>).

⁴⁷ Personal conversation between Michael Sowinski, DPRA Inc. and Chris Cady, Missouri Department of Natural Resources (Jun. 7, 2006).

⁴⁸ A day care center was constructed on a mercury contaminated site at which the EPA had issued a report explaining that the site was not eligible for the CERCLA National Priority List. Nevertheless, dangerous levels of mercury vapors were detected at the operating day care facility. New York Times, *After Mercury Pollutes a Day Care Center, Everyone Points Elsewhere* (Aug. 14, 2006).

⁴⁹ MRBCA at i.

another commercial use.⁵⁰ While the tanks database does not provide cleanup levels, information in the Section's paper files will often indicate the level of cleanup that occurred.⁵¹ Thus, a possibility exists that future purchasers would search DNR files prior to purchasing and, in turn, learn that cleanup levels contemplated restricted future uses. The Tank Section does not employ a system to keep track of sale and leases of sites cleaned to risk-based cleanup standards.

Environmental Emergency Response Sites. On average, the EER Section receives over 1,500 incident calls and responds to nearly 450 hazardous substance emergencies each year. Since 1980, therefore, over twenty thousand spill incidents may have occurred. And, EER may have responded to over ten thousand incidents. In many cases, ERR oversees spill cleanups exclusively, without involvement from DEQ or other agencies. And EERs paper-based spill reports, in very many cases, do not provide details about the level of cleanup attained, or whether unrestricted use levels or "sight and smell" levels were attained. In some cases, after it responds to the emergency contamination, EER defers additional cleanup to other Programs or Sections within DNR. In these cases, LTS and cleanup decisions will occur within the recipient Program or Section.

Pre-law Landfills. Missouri's solid waste management laws were enacted in or around 1973. Prior to that, a variety of landfills and dump sites existed and, thus, predated Missouri's solid waste laws. The Solid Waste Program characterizes such landfills and dump sites as pre-law landfills. Because the Solid Waste program administers the law, pre-law landfills have not received as much attention. Recently, under an EPA-funded study concerning Missouri flooding, the DNR's Division of Geology and Land Survey identified many pre-law landfills by interviewing county departments – primarily in counties where flooding issues exist.⁵² This helped the Solid Waste program to improve its understanding of the scope and magnitude of pre-law landfills. At the time of this report, the Solid Waste Section remained in the process of reviewing this information.⁵³ The Section estimates that over a thousand pre-law landfill may exist.

⁵⁰ Personal conversation between Michael Sowinski, DPRA Inc., and Tim Chibnall, Missouri Department of Natural Resources (June 8, 2006).

⁵¹ Id.

⁵² Personal conversation between Michael Sowinski, DPRA and Cecilia Campbell, Missouri Department of Natural Resources (Jun. 29, 2006)

⁵³ Id.

6. WHO IS LEGALLY RESPONSIBLE FOR IMPLEMENTING AND OVERSEEING LTS ACTIVITIES?

No single law addresses LTS obligations. Individual laws, however, address LTS activities to some degree at a limited number of sites. As described in more detail in Section 6.4 below, the following LTS-related legal obligations exist:

- The Missouri Hazardous Waste Management Law imposes LTS-related legal obligations, upon both the DNR and property owners, for sites listed on the registry of confirmed abandoned or uncontrolled hazardous waste sites. Among other obligations, DNR must record deed notices for these sites and no person may substantially change the use at these sites without DNR approval.
- The Missouri Solid Waste Management Law imposes post-closure monitoring and care obligations upon solid waste landfill operators, and it imposes legal obligations upon DNR to perform periodic inspections. Financial assurance requirements (at least arguably) impose legal obligations upon site owners to cover the cost of LTS at solid waste disposal sites.
- At NPL sites where EPA oversees the cleanup under federal funds, the NCP requires DNR to assume responsibility for the remedy's eventual operation and maintenance, including "maintaining institutional controls."⁵⁴
- The federal RCRA (as administered by DNR) imposes closure and post-closure obligations at hazardous waste facilities. RCRA's corrective action provisions seem to authorize the incorporation of LTS obligations into RCRA permits or orders. RCRA regulations require DNR to maintain a program for periodic inspection of facilities. And RCRA financial assurance requirements (at least arguably) impose legal obligations upon site owners to cover the cost of LTS.
- Seller "duty to disclose" requirements exist in the Missouri Hazardous Waste Management Law (applicable to sites listed on the registry), the Solid Waste Management Law (applicable to solid waste disposal sites), and Missouri real property laws (applicable to real estate agents and brokers who know or should know of adverse conditions).

The question of who is legally responsible for LTS activities, however, deserves additional analysis. Accordingly, the following sections provide additional analyses on the following points:

- As a threshold matter, which "LTS activities" exist (and therefore identify the universe of activities for which legal responsibilities might potentially exist).
- MRBCA guidance, though it does not set forth any legal requirements, it does attempt to address roles & responsibilities for "LTS activities."
- MRBCA does not contemplate LTS roles and responsibilities for certain types of sites administered by the Permits Section and the Solid Waste Section.

⁵⁴ National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. § 300.435(f).

- No single law addresses LTS obligations, but individual cleanup laws and property law address some aspects of LTS.

6.1 Which LTS Activities Exist?

Based on our survey of IC and LTS processes employed across the states, and based on the professional judgment we have gained while involved with several IC policy projects, the following processes summarize the LTS life cycle and, in turn, summarize the universe of potential LTS activities.⁵⁵

LTS Implementation, which includes the process of actually putting ICs or AULs into place (i.e., recording environmental covenants).

Transaction-related AUL monitoring, which includes title searching, Phase I/II due diligence, seller duty to disclose rules, seller notification to agency (DNR) of sale and subsequent agency review.

Non-transaction related monitoring, which may include: 1) local government screening during land use planning, land development permitting, building permitting, septic tank permitting, and similar local government reviews; and 2) one-call before you dig screening for environmental contamination.⁵⁶

Education, which informs the affected public of environmental-related risk in order to build a general awareness within communities that, in turn, will change the behavior of persons, governments, and entities affected by environmental contamination.

Periodic Auditing, which may include agency-performed auditing (perhaps even local government-performed auditing), responsible party performed auditing, or 3rd-party performed periodic auditing of AULs and LTS processes.

Enforcement actions when AUL violations occur, which deter future violations.

Modification & Termination, which includes modification or termination of the terms contained within AULs, or which includes the total termination of AUL instruments.

⁵⁵ For additional information on LTS activities, see Michael Sowinski, Local Government Management of Land Use Controls, Presented at the Environmental Council of States/Department of Defense Land Use Control Workgroup (Feb. 02, 2005) (avail. at www.dpra.com/envsolutions/InstitutionalControls/articles.html)

⁵⁶ While various pilot projects have tested this process, no successful implementation of one-call exists for environmental contamination. The legal structure undermining the one-call regime and the technical processes employed to identify and mark underground hazards pose barriers to one-call's use for environmental sites. Current research is looking at mechanisms to overcome these barriers.

Information Management and public dissemination of all LTS activities ranging from AUL implementation to termination.

6.2 MRBCA Guidance, to Some Extent, Addresses LTS Roles & Responsibilities

As guidance, MRBCA does not operate with the force of law. Nevertheless, the MRBCA guidance addresses, at least to some extent, LTS roles and responsibilities. MRBCA recommends the minimum requirements for LTS. As it explains, “[t]his guidance provides the minimum level of AULs necessary.”⁵⁷ And “[s]pecific authorities (such as RCRA or CERCLA) may provide for controls that exceed these requirements.”⁵⁸ Questions remain concerning whether and to which sites the guidance, and its minimum criteria, applies.⁵⁹ Ongoing negotiations with US EPA and efforts to publish MRBCA regulations (rather than guidance) may, in the near future, more clearly identify the categories of sites which MRBCA’s minimum LTS requirements cover.⁶⁰

MRBCA’s language suggests that LTS should become triggered “for sites with contamination remaining above unrestricted use levels after a Letter of Completion is issued for a site.”⁶¹ The use of the phrase “Letter of Completion” seems more directed towards VCP sites. Nonetheless, MRBCA seems to recommend that LTS processes should be triggered at all sites at which MRBCA applies and where contamination above unrestricted use levels exists.

MRBCA identifies acceptable AULs and, thus, suggests that this lists provides the minimum AUL requirements.

The following instruments may be AULs ...

1. Environmental Covenants,
2. Engineered Controls,
3. Well Location and Construction Restrictions, and
4. Department-accepted ordinance adopted and administered by a unit of local government.
5. Land use and/or institutional control mechanisms for federal facilities or property. Environmental Covenants, Letters of

⁵⁷ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE 11-3 (Apr. 2006).

⁵⁸ Id.

⁵⁹ Personal communication between Michael Sowinski, DPRA and Linda Vogt, Missouri Department of Natural Resources (Jun. 24, 2002).

⁶⁰ Id.

⁶¹ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE 11-2 (Apr. 2006) (setting forth LTS Principles).

Completion, and the recording requirements the authority under which remediation is being performed apply to the property and must be transferred with the property (that is, run with the land).⁶²

In addition to defining the universe of acceptable AULs, MRBCA explains that “an approved environmental covenant must be recorded in the Office of the Recorder for the county in which the property that is the subject of the covenant is located.”⁶³ Though it requires covenants to be recorded, MRBCA does not address the process or requisite preparations, including title search efforts, for proper recording. Existing property encumbrances, such as mortgages, utility easement, liens, or other covenants, may significantly impact the force of a freshly recorded environmental covenant. Prior to environmental covenant approval, the Florida Department of Environmental Quality requires that its office of general counsel receive and review a title ownership and title encumbrance search “which identifies who has title to the property, and ALL others with an interest in the property such a lessees, mortgage holders, liens, and easement.”⁶⁴ Similarly, US EPA may not acquire an environmental covenant interest unless the Department of Justice Land Acquisitions Section first reviews title evidence and determines that the state of the title will allow the covenant to work as EPA intends.⁶⁵

In addition to IC implementation, MRBCA tacitly requires LTS planning and the assignment of LTS roles and obligations. “If needed, AULs must be fully developed and proposed as part of the Risk Management Plan.”⁶⁶ “A Letter of Completion ... attests to the successful completion of the Risk Management Plan and indicates the on-going activities (monitoring, property use restrictions, etc.) that must be maintained.”⁶⁷ Thus, MRBCA recognizes that prior to cleanup approval, AULs must be fully thought through. And it seems to suggest that a plan for “monitoring, property use restrictions, etc.” must be developed prior to cleanup approval.

MRBCA does not set forth explicit directions concerning LTS roles and responsibilities. For example, MRBCA does not explain who must monitor, enforce, or keep track of environmental covenants. Nor does MRBCA address the various LTS activities summarized above, in Section 6.1.

⁶² MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE 11-3 (Apr. 2006).

⁶³ MRBCA Technical Guidance at 11-4.

⁶⁴ FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WASTE MANAGEMENT, INSTITUTIONAL CONTROL PROCEDURES GUIDANCE 7 (Feb. 2004).

⁶⁵ Personal communication between Michael Sowinski, DRPA Inc. and Greg Sullivan, US EPA.

⁶⁶ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE 11-3 (Apr. 2006).

⁶⁷ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE 11-7 (Apr. 2006).

US EPA plans to publish a guidance covering IC implementation and assurance planning (ICIAP).⁶⁸ This forthcoming ICIAP guidance will suggest the format and content for such an IC plan. The guidance will suggest the preparation of IC assurance plans which describe residual contamination, cleanup equipment and engineered controls, AUL objectives, AUL instruments, use restrictions contained within AUL instruments, AUL monitoring requirements and the person/entity responsible for monitoring, enforcement triggers and enforcement consequences.⁶⁹ The information suggested by EPA's forthcoming ICIAP closely matches the type of LTS activities listed above in Section 6.1 and, in turn, the IC information contemplated by the IC Data Standards (see Section 8, below, for discussion of IC Data Standards).

6.3 MRBCA Does not Contemplate LTS Roles and Responsibilities for Certain Types of Sites Administered by the Permits Section, and the Solid Waste Program.

MRBCA's rather minimal discussion on LTS roles and responsibilities may not apply at all to certain cleanups. The distinctions between MRBCA's LTS recommendations and the LTS requirements contemplated by other laws and regulations, may make MRBCA's LTS recommendations (or forthcoming MRBCA regulations) difficult at certain sites. Accordingly, the LTS roles and responsibilities which MRBCA addresses, albeit tacitly, may not be suited or otherwise fit well with the AUL and LTS processes contemplated by other cleanup programs.

Permits Section. RCRA closure, post-closure, and corrective action often involve LTS. Closure requires the submission of a survey plat to the local land use authority, which shows the boundaries of any unit closed with residues left in place.⁷⁰ In addition, closure and post-closure rules require the filing of a deed notice which, in the case of land disposal units, explains, among other things, that pursuant to the hazardous waste regulations the property's future use is restricted.⁷¹ LTS requirements for post-closure care become incorporated into post-closure care permits and, in turn, enforceable by the DNR as permit conditions.⁷² RCRA corrective action utilizes an NCP-like process which involves site assessment, evaluation, and remedy selection.⁷³ EPA guidance recognizes that RCRA corrective action may utilize ICs.⁷⁴

⁶⁸ Personal conversation between Michael Sowinski, DPRA Inc., and Michael Bellot, Institutional Control Program Manager, United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (Jun. 5, 2006).

⁶⁹ Id.

⁷⁰ 40 CFR § 264.116 and 40 CFR § 265.116 as incorporated by reference at 10 CSR § 25-7.264(1) and 10 CSR § 25-7.265(1) and modified at 10 CSR § 25-7.264(2)(G)2. and 10 CSR § 25-7.265(2)(G)2.

⁷¹ 40 CFR § 264.116, 40 CFR 264.119, 40 CFR § 265.116 and 40 CFR § 265.119 as incorporated by reference at 10 CSR § 25-7.264(1) and 10 CSR § 25-7.265(1) and modified at 10 CSR § 25-7.264(2)(G)2 and 10 CSR § 25-7.265(2)(G)2.

⁷² 40 CFR § 264.118(a) as incorporated by reference at 10 CSR § 25-7.264(1).

⁷³ *Corrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule*, 61 Fed. Reg. 19432 (May 1, 1996); Memorandum From

Like closure and post-closure, RCRA corrective action decisions are incorporated into RCRA permits or other enforceable documents.⁷⁵ MRBCA does not list deed notices, survey plats, permits, or orders among its list of acceptable AULs.

Solid Waste Program. Solid waste landfill closure, and especially post-closure, often involve LTS. The “operator of a sanitary landfill shall be responsible for postclosure monitoring and care.”⁷⁶ For other solid waste disposal areas, the DNR may require the operator of “*solid waste disposal areas* to be responsible for postclosure monitoring and care.”⁷⁷ The postclosure period extends for 30 years, but the DNR may extend or shorten this.⁷⁸ Operators who are responsible for postclosure monitoring and care must submit a postclosure plan to be approved by the DNR.⁷⁹ The plan must include: 1) plans for monitoring the area after closure; 2) planned maintenance schedules; and 3) an estimate of the cost of postclosure monitoring and care for the entire post closure period.⁸⁰ Sanitary landfills shall and other solid waste disposal areas may, if required by the Department, provide financial assurance in an amount to ensure implementation of the postclosure plan.⁸¹ DNR must “periodically inspect solid waste disposal areas during postclosure” and “upon the termination of the postclosure period.”⁸²

DNR’s landfill closure guidance requires the use of engineering controls such as properly graded and vegetated landfill covers.⁸³ In addition, the closure guidance requires a survey plat which describes the location of the waste and its depth.⁸⁴ For a two-year window, from 1987 to 1989, the closure guidance explains that a covenant running with the land must be recorded, prohibiting any future use which interferes with the landfill’s closure and post-closure operations.⁸⁵

Elliot P. Laws, Assistant Administrator, Office of Solid Waste and Emergency Response and Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, United States Environmental Protection Agency, *Use of the Corrective Action Advance Notice of Proposed Rulemaking as Guidance* (Jan. 17, 1997).

⁷⁴ UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, SOLID WASTE AND EMERGENCY RESPONSE, OSWER 9355.0-74FS-P, EPA 540-F-00-005, INSTITUTIONAL CONTROLS: A SITE MANAGER’S GUIDE TO IDENTIFYING, EVALUATING AND SELECTING INSTITUTIONAL CONTROLS AT SUPERFUND AND RCRA CORRECTIVE ACTION CLEANUPS (Sept. 2000).

⁷⁵ 40 CFR 264.101 as incorporated by reference at 10 CSR§ 25-7.264(1).

⁷⁶ RSMo § 260.227(1).

⁷⁷ Id.

⁷⁸ Id.

⁷⁹ Id. at § (2).

⁸⁰ Id at § (2).

⁸¹ See id at §§ (5) & (6).

⁸² Id. at § (7).

⁸³ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DEPARTMENT OF ENVIRONMENTAL QUALITY, LANDFILL CLOSURE GUIDANCE (Jul. 2003).

⁸⁴ Id.; also see 10 CSR § 80-2.030(4)(A)(3)(c).

⁸⁵ Id.

MRBCA guidance does not list survey plats among its list of acceptable AULs. MRBCA lists environmental covenants as one of four types of acceptable AULs, but the solid waste closure guidance only suggests such use for landfills closed within a two-year period.

6.4 No Single Law Address LTS Obligations, But Individual Cleanup Laws and Property Law Address Some Aspects of LTS.

No over-arching law or regulation addresses LTS management across DNR's cleanup program. The laws and regulations for individual cleanup programs provide bits and pieces of rules which directly address legal responsibility for LTS. As an indirect means to address LTS obligations, Missouri and federal environmental cleanup laws, in some cases, may hold persons liable for environmental cleanup when they fail to perform LTS – and thus provide incentives for responsible parties to perform LTS. But in general, Missouri law and regulation does not specify which person or entities hold the legal responsibility to implement and oversee LTS activities.

The following paragraphs provide additional details concerning legal responsibilities for LTS activities.

Environmental Covenants. No statutory law in Missouri addresses the use of environmental covenants. Missouri's common law, as discussed more below in Section 8, recognizes certain restrictive covenants. But the law seems to remain unclear on whether the type of Declaration of Restrictive Covenant contemplated in MRBCA may be enforced or, in turn, run with the land. In any event, no statute addresses whether or who must monitor for compliance with such covenants. Under the historical practice and use of covenants, the person or entity benefited by the restrictive covenant would, as a practical matter, monitor and enforce for violations. The institutional control contract, which MRBCA requires, sets contractual obligations upon signatories to comply with the terms of a Declaration of Restrictive Covenant. These contractual obligations impose legal obligations under Missouri contract law. And thus, in theory, they may set forth any number of LTS obligations. Such contracts almost certainly will not run with the land.

Duty to Disclose. For Registry sites, property sellers must disclose to property buyers that the property is on the registry.⁸⁶ In addition, Missouri's solid waste management laws require owners of property that contains "a permitted or unpermitted solid waste disposal site or demolition landfill" to disclose this to buyers.⁸⁷ Because the meaning of "solid waste" may be interpreted broadly, this duty to disclose provision may, perhaps, be applied to other contamination settings. Indeed, Missouri's petroleum MRBCA guidance explains that for USTs closed in place, "it is the property owner's responsibility, under Missouri Solid Waste

⁸⁶ RSMo § 260.465(2).

⁸⁷ RSMo § 260.213.

Management Law (260.213 RSMo), to inform a potential buyer that a solid waste is located on the property.”⁸⁸ Real estate agents and brokers may also possess a duty to disclose environmental issues, when they know of them. Agents and brokers shall disclose “all adverse material facts actually known or that should have been known.”⁸⁹ But an agent “owes no duty to conduct an independent inspection or discover any adverse material facts...and owes no duty to independently verify the accuracy or completeness of any statement made by the client or any independent inspector.”⁹⁰

Missouri One Call. As describe in more detail, below, the Missouri Underground Facility Safety and Damage Prevention Law, under which Missouri One Call operates, requires “owners and operators of underground facilities” shall become members of the one call center.⁹¹ “Underground facility” is limited to physical piping and similar “personal property” used for the conveyance of water, sewage, telecommunications, electricity, oil, gas, hazardous liquids, and other materials.⁹² “Underground facility” does not seem to include underground contamination and, thus, underground contamination does not seem to allow membership into Missouri One Call or otherwise trigger the statute’s requirements. If contaminated sites did qualify, owners/operators of such sites would be required to join one call, to identify no-dig zones, and to respond to excavation requests within two days. If they fail to fulfill this obligation, such owners/operators of contaminated sites might be liable for any damage or injury caused by an excavation and/or for civil penalties.

Superfund Section NPL, Non-NPL, Registry Cleanups, and Cooperative Program Sites. These sites are remediated under the NCP process. The NCP does not establish LTS roles and responsibilities. EPA guidance provides some suggestions and otherwise encourages cooperation and the establishment of LTS roles, but it does not require them. Even so, guidance does not provide the force of law. Pursuant to CERCLA and, perhaps, the Spill Bill (or consent agreements) US EPA or DNR may possess some authority to “re-open” remedies where failure to implement AULs or violations of AULs occurs. For certain NPL sites (i.e., EPA fund-lead sites), CERCLA requires Missouri to provide EPA with assurances that proper operation and maintenance, including the maintenance of institutional controls, will occur.

Registry Site Restrictions. The Registry process imposes legally-required LTS obligations. Listing on the Registry triggers use restrictions and controls which seek to protect persons contacting contamination and which seek to prevent persons from unknowingly buying contaminated property. When a site is placed on the Registry:

⁸⁸ MISSOURI DEPARTMENT OF NATURAL RESOURCES, DEPARTMENT OF ENVIRONMENTAL QUALITY, RISK BASED CORRECTIVE ACTION FOR UNDERGROUND STORAGE TANKS TECHNICAL GUIDANCE 4-15 (Feb. 2004).

⁸⁹ RSMo § 339.730(3).

⁹⁰ Id.

⁹¹ RSMo § 319.022.

⁹² RSMo § 390.015(10).

DNR must file, with the county recorder of deeds, a notice explaining the period during which the site was used as a hazardous waste disposal area.⁹³ Unless DNR provides its approval, no person may “substantially change the manner in which an abandoned or uncontrolled hazardous waste disposal site on the registry” is used.⁹⁴ As discussed above, property sellers must disclose to buyers that a property is listed on the registry, and sellers must notify DNR within 30 days after transfer.⁹⁵ Of course, the DNR must maintain the Registry.⁹⁶

Permits Section (RCRA). As discussed above, pursuant to RCRA, the permits section utilizes permits and orders, in many cases, to help assure proper LTS. As an authorized State program, 40 CFR 271.15(b)(2) requires Missouri to maintain “a program for periodic inspections of the facilities and activities subject to regulation.” The inspections must be designed to “determine compliance or noncompliance with issued permit conditions and other program requirements.” Missouri’s law provides that “[s]ubject to appropriations, the department of natural resources shall conduct inspections of any hazardous waste facility.”⁹⁷ In addition to this, financial assurance rules may require certain regulated parties to provide financial assurance for LTS activities.

BVCP Sites. The BVCP statute, see RSMo §§ 565 through 575, does not expressly address the issue of when, or under which conditions, LTS must occur and, in turn, who must assume with LTS roles and responsibilities. The regulations remain similarly silent concerning LTS activities.⁹⁸ The regulations do contemplate the use of AULs. “[F]or sites which require engineering and/or institutional controls ... the person shall submit a fee to cover the department’s long term monitoring costs...ranging from five thousand to fifteen thousand dollars.”⁹⁹ This provision seems to pre-suppose that DNR holds the responsibility for long term monitoring of AULs. No other regulatory or statutory provision impose this LTS monitoring obligation upon DNR. As discussed more below, some states require property owners to conduct AUL audits and self-certifications.

As discussed above, MRBCA addresses LTS roles to some extent. MRBCA, as guidance, does not hold the force of law.

Underground Storage Tanks. Missouri statutes concerning UST closure and corrective action do not address LTS roles.¹⁰⁰ The Petroleum MRBCA only identifies whether and under what circumstances an AUL is required. It does not address LTS

⁹³ RSMo § 260.470.

⁹⁴ RSMo 260.465(1).

⁹⁵ RSMo 260.465(2).

⁹⁶ RSMo § 260.440.

⁹⁷ RSMo § 260.377.

⁹⁸ See 10 CSR 25-15(5).

⁹⁹ 10 CSR 25-15(8)(A)(3).

¹⁰⁰ See RSMo 319.109 – 319.111.

roles and obligations. Even if it did specify LTS roles, the Petroleum MRBCA, as guidance, does not hold the force of law.

Solid Waste. As discussed above, various LTS activities fall within solid waste closure and post-closure rules. As also discussed above, these rules impose engineering and AUL implementation requirements. Concerning LTS-related monitoring, “[t]he department shall periodically inspect solid waste disposal areas during the postclosure period to ensure that the operator is properly monitoring and caring for the area” RSMo 260.227(7). In addition, financial assurance requirements for closure, post-closure, or corrective may require solid waste facility owners or operators to maintain financial assurance for LTS-related compliance.¹⁰¹

Federal Facilities. No law clearly addresses LTS obligations at federal facility sites. And LTS legal obligations remain the subject of dispute and discussion. Federal facility LTS issues divide among those which exist at active facilities, and those which exist at transferred facilities. At active facilities, the federal General Services Administration (GSA) explains that federal landholding agencies, such as the DoD, may not place restrictive covenants on their property.¹⁰² GSA explains that only GSA may place such restrictions on federal property and, generally, they would only do so when such property will be declared as “excess” – meaning that it will be transferred – property.¹⁰³ In addition, federal agencies take the position that states may not require a federal agency to grant an environmental covenant on federal property.¹⁰⁴ Finally, rather complicated rules exist on whether local or state land use laws, such as zoning, building permitting, septic permitting, may be applied to active federal facilities. If federal property is owned as “exclusive jurisdiction” property,¹⁰⁵ then the general rule is that a state and its subdivisions may not exercise legislative authority over the property.¹⁰⁶ If not, the property may be largely subject to state and local land use laws.¹⁰⁷

At transferred facilities, no law addresses whether and who must monitor compliance with AULs. Where environmental covenants or similar deed restrictions exist at transferred facilities (as in the case for the Missouri’s Minutemen II sites), the General Services Administrations explains “[a]s with most conditions placed in a deed, we rely upon the limitations of title, title insurance and mortgage practices to secure compliance.” Thus, under the federal government’s view, it does not possess any LTS monitoring obligations at such transferred facilities.

¹⁰¹ See 10 CSR 80-2.030(2)(B)-(C).

¹⁰² John Q. Martin, General Services Administration Memorandum for Regional Directors, Restrictive Covenants on Non-excess Property (Oct. 1998).

¹⁰³ *Id.*

¹⁰⁴ Daniel Miller, State of Colorado Department of Law Memorandum, Legal Analysis of the Federal Government’s Obligation to Comply with Colorado’s Environmental Covenant Law (Apr. 2002).

¹⁰⁵ See 40 U.S.C. § 3112 (describing exclusive jurisdiction).

¹⁰⁶ *Fort Leavenworth R. Co. v. Lowe*, 114 U.S. 525 (1986).

¹⁰⁷ *Id.*

7. WHO SHOULD BE LEGALLY RESPONSIBLE FOR IMPLEMENTING AND OVERSEEING LTS ACTIVITIES?

Regardless of what the law expressly requires, the policy question remains concerning who should be responsible for LTS activities. The following sections discuss potential LTS roles for DNR and LTS stakeholders, and provide examples of how other states have sought to divide LTS obligations.

7.1 DNR's LTS Role

The role of the DNR could vary from one where it performs all LTS activities, to a much less burdensome one where it simply oversees LTS activities performed by other “stakeholder” parties. As discussed above, very many cleanup sites exist in Missouri. As these continue to move into LTS, the LTS burden will increase.

The following sections discuss various LTS activities and, in turn, the relative role of DNR versus other LTS stakeholders.

7.2 LTS Auditing and Certifications

Responsible party and/or current site owners may play an important LTS monitoring role. Some state IC programs impose obligations upon landowners to periodically certify the IC. New Jersey requires that persons responsible for the IC complete a bi-annual IC certification.¹⁰⁸ And New Jersey provides an 8-page IC certification form requiring, among other things, the preparer to attest to the effectiveness of the IC. Rather than biennial, Arizona requires annual IC certification. But it only requires the completion of a less burdensome 1-page form, which requires a brief summary of the IC and a certification that it “is being maintained and remains effective.”¹⁰⁹ The New York’s 2004-enacted Brownfield Cleanup Program requires the “owner of a brownfield site” to submit annual IC certifications, prepared by a licensed professional engineer, attesting that “nothing has occurred that would impair the ability of such controls to protect the public health and environment...”¹¹⁰ Regulations to implement this statutory provision remain in draft form.¹¹¹

Missouri’s administration of LTS, based on our review, did not seem to contemplate a meaningful auditing or reporting role for private parties. Rather, each of the DNR Sections seem to contemplate DNR inspection program. Most Sections, however, describe their inspection program as constrained (if not suspended) because of resource and funding limits.

¹⁰⁸ See N.J. Admin. Code tit. 7, § 26E-8.4 to 8.7.

¹⁰⁹ Institutional Control Annual Status Report (on file with author).

¹¹⁰ N.Y. Evtl. Conserv. Law § 27-1415(7)(b).

¹¹¹ See <http://www.dec.state.ny.us/website/der/superfund/375draft.pdf>.

7.3 Transaction Related LTS Monitoring

Existing private-sector processes inspect and otherwise review property prior to its sale. Title insurance, and its related title examinations, search for title encumbrances. For commercial properties, buyers often perform environmental due diligence – including Phase I efforts. And, in some cases, sellers possess a duty to disclose environmental issues to buyers.

In light of these private-sector practices, the question remains of whether DNR should receive notifications and, in turn, monitor land sales. In addition to inspections and audits, should DNR review land sales? Does the public receive valuable protection from this – more so than similar efforts being directed toward other health and safety issues? As LTS sites increase, does DNR really want to become increasingly involved in land sale review?

Most agencies, and understandably so, feel the need to know when residually contaminated lands are sold. Whether this is the right job for an environmental agency, we believe, is a tough call. Accordingly, and unlike the many recommendations we make in the final section of this report, this issue remains one which we do not squarely address.

7.4 Non Transaction LTS Monitoring - The Local Government Role

Local governments may play an important role in LTS activities. This is especially true in the case where persons attempt to build, construct, or otherwise change the use of land where no land sale is involved – and, thus, land transaction related efforts do not become triggered. Indeed, US EPA encourages local government involvement with LTS activities.¹¹²

Many states have increasingly sought to involve local governments in LTS activities. For a limited universe of cleanup sites, California law imposes affirmative obligations on both the state agency and the local government. It provides the following:

- (d) The department shall notify the planning and building department of each city, county, or regional council of governments of any recorded land use restriction imposed pursuant to Section 25202.5, 25222.1, 25229, 25230, 25355.5, or 25398.7 within the jurisdiction of the local agency. Upon

¹¹² See US EPA, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, INSTITUTIONAL CONTROLS: A GUIDE TO IMPLEMENTING, MONITORING, AND ENFORCING INSTITUTIONAL CONTROLS AT SUPERFUND, BROWNFIELD, FEDERAL FACILITY, UST AND RCRA CORRECTIVE ACTION CLEANUPS 6 (Dec. 2002) (Draft/Do Not Cite or Quote).

receiving this notification, the planning and building department shall do both of the following:

- (1) File all recorded land use restrictions in the property files of the city, county, or regional council of government.
 - (2) Require that any person requesting a land use which differs from those filed land use restrictions on the property apply to the department for a variance or a removal of the land use restrictions pursuant to Section 25233 or 25234.
- (e) A planning and building department of a city, county, or regional council of governments may assess a property owner a reasonable fee to cover the costs of taking the actions required by subdivision (d).¹¹³

While this California provision only pertains to a limited universe of sites, the New York 2003 Environmental Easement law imposes similar obligations for a broad universe of sites. In New York, the Department will provide all impacted municipalities with a copy of environmental easements, and any modifications or terminations of environmental easements.¹¹⁴ Municipalities must notify the Department upon receipt of an application for a building permit or any other application that affects land use or development.¹¹⁵ The municipality may not approve the application unless the Department provides approval.¹¹⁶

Rather than imposing obligations on local governments, some state statutes simply require the state environmental agency to notify local governments about ICs. For example, Michigan's underground storage program imposes this obligation upon persons who complete cleanups. It provides that "a person who implements corrective action activities shall provide notice of the land use restrictions that are part of the corrective action plan to the local units of government in which the site is located within 30 days of submittal of corrective action plans." Florida also imposes this obligation upon the persons conducting cleanup. Florida IC guidance provides that "[t]he property owner or their agent should submit a copy of any recorded restrictive covenant ... to the local government with land use authority."¹¹⁷ Other states impose this burden on the state agency. For example, in Georgia, a copy of the restrictive covenant must be provided to any zoning or land use planning authority that has jurisdiction over the property.¹¹⁸ In Arizona, "the department shall provide a copy of the declaration of environmental use restriction to the local jurisdiction with zoning and development plan approval for the property."¹¹⁹

¹¹³ Cal. Health & Safety Code § 25220.

¹¹⁴ N.Y. Env'tl. Conserv Law § 71-3607.

¹¹⁵ Id.

¹¹⁶ Id.

¹¹⁷ Florida Department of Environmental Protection, Division of Waste Management, Institutional Controls Procedures Guidance 8 (Feb. 2004).

¹¹⁸ Ga. Comp. R & Regs § 391-3-19-.08(7).

¹¹⁹ Ariz. Rev. Stat. Ann. § 49-158(I).

Except for a few isolated instances discussed further below, LTS activities in Missouri do not involve local government. Missouri's existing land use laws and regulations set the stage, at least potentially, from which an LTS management program may involve increased coordination between DNR and local government. But the Missouri local government regime is complicated, and it generally seems to disfavor government intervention with land use. During our study, DNR staff generally expressed their view that many local governments may not be able or willing to participate in LTS management.

As we recommend in Section 11, DNR should more comprehensively review the capacity and potential LTS role for Missouri's local governments. The following sections overview some relevant topics related to Missouri local government and LTS.

7.4.1 Counties and Townships

One hundred and fourteen (114) counties, three hundred and twelve (312) townships, and nine hundred and forty six (946) cities and towns exist in Missouri.¹²⁰

Based on the assessed value of property within the county, the Missouri legislature has divided the counties into four classes. Generally, Class 1 counties include those with a total assessed valuation greater than \$600 million dollars. Class 2 counties include those with a total assessed value between \$400 and \$600 million dollars. Class 3 counties includes all those that don't qualify for Class 1 or 2. The powers which the Missouri legislature has granted to counties depends on their classification. The overwhelming majority of Missouri's counties fall into the third classification. Only about 14 counties qualify as either Class 1 or Class 2.¹²¹

Pursuant to Missouri's constitution, counties with a population greater than 85,000 may adopt a charter for their own government and, thus, become charter counties under the constitutional home rule provision. Rather than receiving their authority from state statute, these counties operate under the powers that they grant to themselves in their charter.¹²²

Third class counties may opt for a township organization form of county government by a majority vote of county voters.¹²³ Township counties are not administered as county units, like other counties, but are divided into numerous different townships

¹²⁰ DEPARTMENT OF COMMERCE, U.S. CENSUS BUREAU, 2002 CENSUS OF GOVERNMENTS INDIVIDUAL STATE DESCRIPTIONS: 2002 VOL. 1 NO. 2 164 (Jul. 2005) (avail. at <http://www.census.gov/prod/2005pubs/gc021x2.pdf>) (HEREAFTER 2002 CENSUS OF GOVERNMENTS).

¹²¹ See breakdown by class of county at <http://www.mocounties.com/countyinfo/>.

¹²² Peter W. Salsich, Jr., The Structure of Missouri Local Government – A (Brief) Overview (citing Missouri Constitution Article VI, § 18(a)) (avail at . <http://www.law.missouri.edu/freyermuth/local/structure/htm>) (hereafter Missouri Local Government).

¹²³ Id. (citing RSMo. § 65.020).

(usually around 10 to 20) which administer road construction and maintenance, property assessment and tax collection, and elections.¹²⁴ Most townships have populations of less than 1,000 people.¹²⁵ According to the Missouri Association of Counties, twenty-two (22) township counties exist.¹²⁶ Within these 22 counties, 312 township governments exist.¹²⁷

Nine-hundred and forty six (946) cities, towns, and villages exist in Missouri.¹²⁸ Cities having 10,000 or more inhabitants, as well as cities having legislative charters granted prior to 1875, may adopt charters for their own government and become charter cities.¹²⁹ Forty one (41) charter cities exist, 7 of which operate under pre-1875 legislative charters.¹³⁰

The Missouri constitution recognizes four classes of cities. However, the legislature has repealed all statutes relating to cities of the first and second class, because all cities of that size have either opted for charter status or have chosen to remain third class cities.¹³¹ Third class cities include those with 3,000 or more inhabitants. Fourth class cities include those with more than 500 but less than 3,000 inhabitants.¹³² All unincorporated towns with less than 500 inhabitants qualify as villages.¹³³ The Missouri Municipal League (MML), see <http://www.mocities.com/>, provides additional details about Missouri cities.

7.4.2 Land Use Planning and Zoning

Missouri's law provides separate zoning authorities for each class of county. Only approximately 30 of Missouri's 114 counties have adopted zoning.¹³⁴ Most counties may only adopt zoning if a public vote approves county planning and zoning.¹³⁵

Unlike counties, cities and townships possess an express statutory grant to perform zoning.¹³⁶ Even in counties which do not conduct zoning, cities and townships may.

¹²⁴ Id.

¹²⁵ Id.

¹²⁶ See <http://www.mocounties.com/countyinfo/>; also see 2002 CENSUS OF GOVERNMENTS at 164.

¹²⁷ 2002 CENSUS OF GOVERNMENTS at 164.

¹²⁸ Id.

¹²⁹ Id at 164.

¹³⁰ Id.

¹³¹ Missouri Local Government at 2.

¹³² Id.

¹³³ Id. (citing RSMo. 72.050(1)).

¹³⁴ Michael T. White, Missouri Land Use Law and Practice, 2-143 (providing list of counties which employ zoning).

¹³⁵ See, e.g., R.S. Mo. 64.211 (non-charter first class counties require public vote approving county planning); see also R.S. Mo 64.510 (second or third class counties require election approving county zoning or planning); R.S. Mo Sections 64.800, 64.845 and 64.885 (alternative county planning requires public vote for zoning).

¹³⁶ See RSMo Ch. 89.010 *et. seq.* (providing zoning authorities to cities, towns, and villages); RSMo Ch. 89.010 *et. seq.* (providing zoning authorities to townships).

Zoning divides incompatible land uses by restricting certain land uses, such as industrial uses, to confined areas. If zoning exists, and if zoning restrictions (i.e. industrial-designated areas) match with LTS goals, zoning may serve an important role in LTS.

7.4.3 Flood Protection Involves Local, State, and Federal Coordination

Flood protection may not directly support LTS. But, the flood protection regime, including its shared local, state, and federal roles, may provide somewhat of a model for LTS.

The flood protection program in Missouri, like in many states, involves coordination among local, state, and federal government agencies. The Federal Emergency Management Association provides federal insurance rate maps for each community.¹³⁷ Within the 100 year flood plain, the federal law provides for federally subsidized flood insurance. But federal law only allows for such flood insurance coverage within areas where adequate land use control measures exist. And flood insurance coverage shall be denied for any property which has been declared in violation of state or local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas.

Over one-half of Missouri counties participate in the national Flood Program.¹³⁸

7.4.4 Septic Systems and On-Site Sewage Regulation Involve Both Local Governments and the State Department of Health & Human Services

Septic system regulation meaningfully affects Missouri's lands. The entire state falls subject to septic system rules, and they are enforced by either the local jurisdiction or the state DNR. LTS may, perhaps, leverage the septic system regulatory regime or, if not, future LTS efforts may use septic system regulation as a model.

Approximately one-quarter of Missouri's homes rely on an on-site septic systems or other types of onsite wastewater treatment systems (OWTS).¹³⁹ Missouri law, see RSMo 701.025 – 701.059, and, in turn, MO regulations, see 19 CSR 20-3.060 through 20-3.080, set minimum construction standards and related rules for OWTS. Regardless of the county or city classification, the OWTS law and regulations cover

¹³⁷ See <http://www.fema.gov/business/nfip/mscjumpage.shtm#1> (providing federal insurance rate maps for viewing or buying).

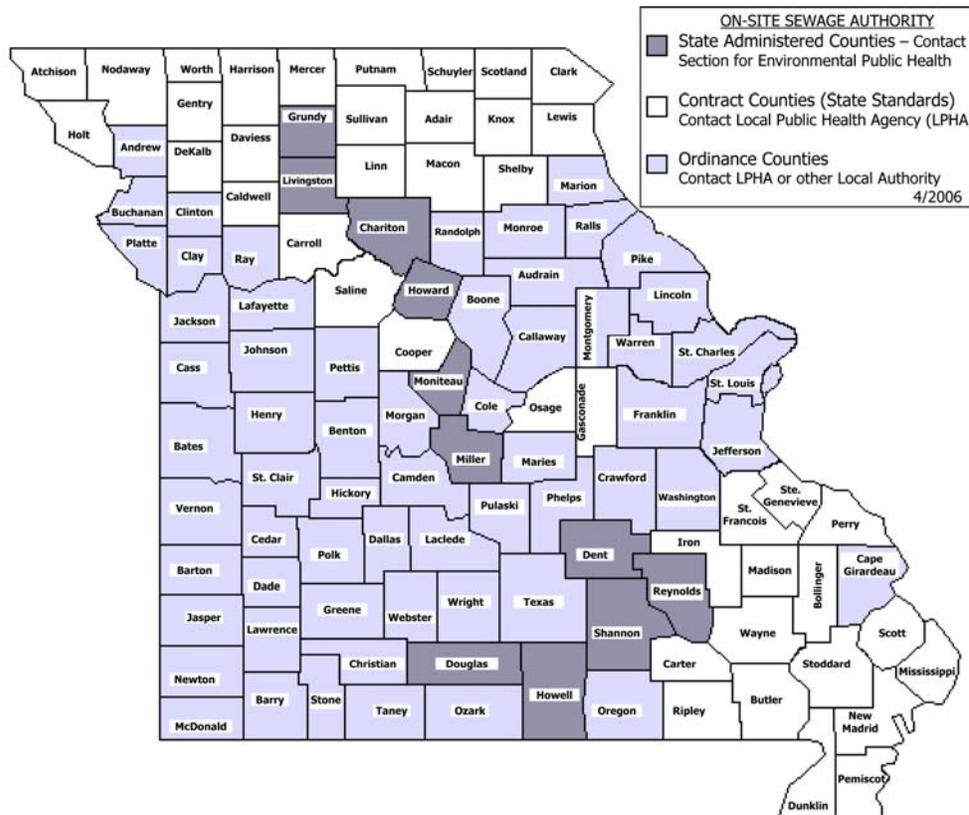
¹³⁸ Michael T. White, Missouri Land Use Law and Practice, 2-145 (providing list of counties which participate in the national flood program).

¹³⁹ See <http://www.dhss.mo.gov/onsite/systems.html> (listing various types of onsite wastewater treatment systems).

nearly OWTS up to ones with design flows under 3,000, and at residential properties under three acres. Generally, prior to any new installation, replacement, or expansion of an OWTS, the state rules require a permit.

Pursuant to the law, the state may directly administer the program or the local agency may. The majority of Missouri's counties administer the OWTS program. However, in approximately eleven of Missouri's one hundred and fourteen counties, the state DHSS directly administers the OWTS program. The county-administered counties divide between those where counties have enacted ordinances to regulate septic systems, and those where counties administer state-enacted standards under contract to the Missouri DHSS. The law authorized DHSS to promulgate OWTS rules, but it also allows local agencies to adopt equivalent or more stringent standards. The following figure shows how each Missouri county regulates OWTS.¹⁴⁰

Figure 2 County Regulation of On-Site Wastewater Treatment Systems



Whether administering the state rules or local ordinances, in most counties the local health department issues onsite sewage permits. In the other counties, the authority is

¹⁴⁰ Also see <http://www.dhss.mo.gov/Onsite/onsiteauthoritymap.pdf> (providing a map of counties which administer the on site sewer program, and those administered by the state).

another agency, such as a sewer district, building department, or planning and zoning department.

7.4.5 Many Local Governments in Missouri Have Enacted Building Codes Requiring Permits Prior to a Variety of Building Construction and Related Efforts

Although only some counties have enacted zoning ordinances, many jurisdictions have enacted building codes modeled after the Uniform Building Code (or similar) which govern building permits throughout MO.¹⁴¹

For the purpose of evaluating the prospect of incorporating energy efficient measures into building codes, the United States Department of Energy studies the building codes of the fifty states.¹⁴² According to the Department of Energy:

Missouri does not have a statewide building or energy code. Each local jurisdiction has the authority to adopt its own code. In most cases, local jurisdictions have adopted the Building Officials and Code Administrators (BOCA) International, National Building Code (NBC), although the western part of the state has adopted the International Conference Building Officials (ICBO), Uniform Building Code (UBC) and a few localities in the southeast use the Southern Building Code Congress, International (SBCCI) Standard Building Code (SBC).

The building code, itself, does not prohibit the interference with ICs. The building code-related permitting process, though, provides local infrastructure which LTS activities might leverage.

7.4.6 Local Ordinances

Of course, local governments may also pass ordinances which, in turn, may operate as AULs or, instead, may support LTS activities. The Jasper County Health Department recently passed an ordinance which requires any residential dwelling or child occupied facilities within a prescribed lead and cadmium area of concerns within the county, to perform soil testing prior to any land sale. Under the ordinance, the county performs and pays for the testing. If tests show contamination, the county can require cleanup. As part of the ordinance implementation, Jasper county intends to inter into agreements with its cities, whereby cities agree not to issue permits at sites which test dirty – until remediation occurs. Also, as part of implementation, Jasper County

¹⁴¹ Michael T. White, Missouri Land Use Law and Practice, 11-93.

¹⁴² See http://www.energycodes.gov/implement/state_codes/state_status.php?state_AB=MO (providing an overview of MO Building codes).

intends to build a GIS and database system to mark the areas of concern and to keep track of testing results.¹⁴³

7.5 Non Transaction LTS Monitoring - the Role of One Call

As Common Ground Alliance¹⁴⁴ has explained, one-call centers “receive notification of proposed excavations, identify possible conflicts with nearby facilities, process the information, and notify affected facility owners/operators.”¹⁴⁵ One-call systems do not house any information concerning the details of specific underground facility location. Rather, one-call systems possess a list of relevant addresses or property boundaries that their members have identified as locations in which underground facilities exist – otherwise known as “no dig” zones. When one-call systems receive excavation notices that match these no dig areas, one-call systems contact their members who then identify the actual location of any underground facilities and, in turn, mark the area on-site where excavation may not occur. The following figure depicts the typical one-call process.

In general, Missouri One Call provides a potentially strong mechanism for LTS. Like it does for underground utility lines, Missouri One Call could help to prevent excavations into contaminated soil or drilling into contaminated groundwater.

The Missouri Underground Facility Safety and Damage Prevention Law, under which Missouri One Call¹⁴⁶ operates, requires “owners and operators of underground facilities” shall become members of the one call center.¹⁴⁷ “Underground facility” is limited to physical piping and similar “personal property” used for the conveyance of water, sewage, telecommunications, electricity, oil, gas, hazardous liquids, and other materials.¹⁴⁸ “Underground facility” does not seem to include underground

¹⁴³ Personal communication between Michael Sowinski, DPRA and Tony Moehr, Jasper County Department of Health (Jun. 28, 2006).

¹⁴⁴ The Common Ground Alliance is a recently established non-profit organization whose establishment was prompted by the multi-stakeholder effort to draft the Common Ground Best Practices Study, completed in July, 1999. The mission of the Common Ground Alliance is to ensure public safety, environmental protection, and the integrity of the vital underground services by promoting effective damage prevention practices. See <http://www.commongroundalliance.com>.

¹⁴⁵ UNITED STATES DEPARTMENT OF TRANSPORTATION, OFFICE OF PIPELINE SAFETY, COMMON GROUND STUDY OF ONE-CALL SYSTEMS AND DAMAGE PREVENTION BEST PRACTICES 36 (Aug. 1999) (available at <http://www.commongroundalliance.com>) (hereinafter COMMON GROUND STUDY).

¹⁴⁶ For more information on Missouri One Call, see www.molcall.com.

¹⁴⁷ RSMo § 319.022.

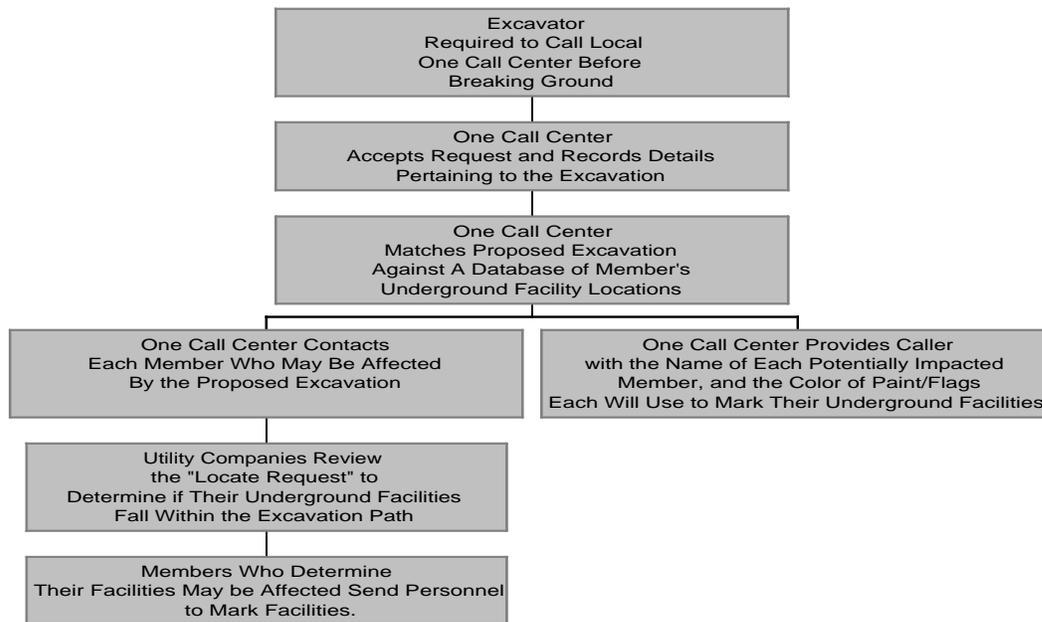
¹⁴⁸ RSMo § 390.015(10).

contamination and, thus, underground contamination does not seem to allow membership into Missouri One Call or otherwise trigger the statute's requirements.

In a recent one-call pilot project, the state of Mississippi confronted this same legal impediment. At the time of this report, Mississippi and their state's one-call center remained in negotiations concerning whether Mississippi, as an operator of contaminated sites, could participate in the Mississippi one call system.¹⁴⁹

Even if legal impediments do not exist, significant practical, but not insurmountable, preparations might be necessary prior to joining one call. First, underground facility owners (whether the DNR, responsible parties, local governments in which contaminated property exists) must identify no dig zones. Madison County, Missouri has performed this effort. In Madison County, the US EPA provided them with maps of lead contaminated soil. These maps allowed the county to easily convey no-dig zones to Missouri One Call.¹⁵⁰ As a technical matter, identifying no-dig zones is not a complicated matter. New members may even identify no-dig zones on paper maps and send those maps to Missouri One Call. If environmental contamination maps do not exist, the process of identifying no-dig zones may be significantly more difficult. Mississippi estimated approximately \$60,000 dollars to prepare for one-call deployment.¹⁵¹

Figure 3 One Call Process Overview



¹⁴⁹ Personal correspondence between Michael Sowinski, DPRA and Trey Hess, Mississippi Department of Environmental Quality (Jun. 23, 2006).

¹⁵⁰ Personal Communication between Michael Sowinski, DPRA and Rebecca Hunt, Madison County Health Department (Jun. 20, 2006). At the time of this report, Madison County had not proceeded past the stage of identifying no-dig zones. It had not actually joined Missouri One Call as a member.

¹⁵¹ Mississippi One Call System Feasibility Study (Sept. 2005) (on file with author).

The one call process expects underground facility owners to respond, within two days, to notices of upcoming excavation.¹⁵² “The owner or operator shall provide the approximate location of underground facilities by use of markings.” Thus, as a practical matter, in order to participate in one-call, underground facility owners/operators (whether DNR, private parties, local government, or whoever) must have an efficient system to screen excavation request notification in order to quickly determine whether an excavation will conflict with residual contamination and, if so, a means to communicate the contaminated area to excavators by the “use of markings.” For implementing a one-call program, assuming an average of approximately 300 sites (which is somewhat lower than the 550 sites which seem to squarely qualify as LTS sites in Missouri) and assuming that Mississippi would act as the one-call member who receives and responds to excavation requests, Mississippi estimated a five-year total cost of \$584,000 dollars. Madison County estimated the cost of one full time employee per year, for its anticipated county-wide one call membership.

The one-call regime provides a potentially powerful LTS tool. But statewide implementation deserves additional research. Mississippi spent approximately \$80,000 dollars on a one-call feasibility study.

¹⁵² RSMo § 319.030.

8. THE UNIFORM ENVIRONMENTAL COVENANT ACT, SIMILAR STATE LAWS, & MRBCA

Environmental covenants provide a potentially powerful and efficient IC. Covenants can precisely describe requisite future use limitations and they can be recorded in a property's chain of title and, therefore, leverage the longstanding property recording and title search process. Environmental covenants hold the potential to prove especially useful at notifying prospective property purchasers that environmental-related future use conditions exist.

The “common law” (otherwise known as judge-made law or case law) disfavors environmental covenants, because they restrict the use of property without directly benefiting neighboring properties. Historically, American property law has favored free use of property and, in turn, disfavored the precise types of restrictions that environmental covenants impose. Recognizing the public benefit of environmental covenants, however, the Uniform Environmental Covenant Act (UECA) seeks to over-ride or supersede such common law impediments.

The National Conference of Commissioners on Uniform State Laws (NCCUSL) drafted UECA. NCCUSL is a non-profit unincorporated association made up of 300 uniform law commissioners, all of whom are attorneys, and all of whom are appointed to NCCUSL under various state-specific procedures. As its primary purpose, NCCUSL seeks to develop uniform laws when, based on their research, they identify areas of the law which would benefit from uniformity. NCCUSL has published uniform laws since 1892. A NCCUSL task group drafted UECA, but the process involved the participation of advisors who NCCUSL selected as persons who represent the varied mix of IC stakeholders. For additional information on NCCUSL, see www.nccusl.org.

Primarily within the BVCP Section, as discussed above, the Missouri DNR employs covenants to restrict future use or future activities at residually contaminated properties. Indeed, along with other types of AULs, the MRBCA suggests the use of environmental covenants.¹⁵³ More specifically, MRBCA recommends the use of a Declaration of Restrictive Covenant and Grant of Access.¹⁵⁴ MRBCA provides a model document for this.¹⁵⁵ The Missouri Cleanup Levels for Missouri guidance (CALM) also suggested the use of this Declaration of Restrictive Covenant and Grant of Access.¹⁵⁶

¹⁵³ MISSOURI DEPARTMENT OF NATURAL RESOURCES DIVISION OF ENVIRONMENTAL QUALITY, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE, 11-3 (Apr. 2006).

¹⁵⁴ *Id.* at Appendix J.

¹⁵⁵ *Id.*

¹⁵⁶ See MISSOURI DEPARTMENT OF NATURAL RESOURCES, HAZARDOUS WASTE PROGRAM, MISSOURI RISK-BASED CORRECTIVE ACTION TECHNICAL GUIDANCE, App. E (Sept. 1998).

Restrictive covenants have been upheld in many instances by Missouri courts, and these courts have generally held that restrictive covenants run with the land.¹⁵⁷ But Missouri's restrictive covenant cases typically involve neighboring properties where the burden of the covenant directly benefits neighboring property. Missouri case law is sparse, if not silent, on the question of whether a non-neighboring entity, such as a state agency, may enforce a restrictive covenant and, in turn, whether a state agency's enforcement rights run with the land to subsequent purchasers.

The model Declaration of Restrictive Covenant and Grant of Access, as set forth in both MRBCA and in CALM, require the party seeking the covenant to also enter into an institutional control contract with DNR. Rather than relying on Missouri's common law concerning covenants, the contract authorizes the DNR to bring an enforcement action against the person who signed the contract (which would typically be the site owner and, in turn, the person seeking the environmental covenant) for any violations of the provisions contained within the provisions of Declaration of Restrictive Covenant and Grant of Access.

Subsequent owners would not be bound by the contract. DNR plans to enter into new institutional contracts with subsequent owners of properties affected by a Declaration of Restrictive Covenant and Grant of Access. To do this, DNR needs to keep track or otherwise know when covenant-burdened property changes ownership.¹⁵⁸

8.1 Primary Features of UECA

A UECA¹⁵⁹ statute in Missouri would provide for environmental covenants which DNR could directly enforce, and which run with the land to subsequent owners (without the need for institutional control contracts). The following paragraphs overview UECA's primary features.

- ***Covenants run with the land.*** UECA defines Environmental Covenants as property interests which operate perpetually, regardless of future ownership changes, until terminated.¹⁶⁰
- ***Covenants do not extinguish.*** UECA provides that common law threats to classic covenants, such as (among others) tax lien foreclosures, adverse possession, and waiver do not destroy or otherwise extinguish Environmental Covenants, and neither do state marketable title acts (which extinguish certain

¹⁵⁷ See, e.g., *Buoncrisani v. Randall*, 526 S.W.2d 68 (1975).

¹⁵⁸ Personal communication between Michael Sowinski, DPRA Inc. and Chris Cady, Missouri Department of Natural Resources (Jun. 21, 2006).

¹⁵⁹ See www.environmentalcovenants.org (providing a copy of the model act).

¹⁶⁰ NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS, UNIFORM ENVIRONMENTAL COVENANT ACT §§ 2 & 5 (avail. at www.environmentalcovenants.org) (hereafter UECA).

property encumbrances automatically after a prescribed period of time, such as forty years).¹⁶¹

- ***The holder.*** UECA defines a new property law term, “holder.” Holder means the grantee of an Environmental Covenant. An Environmental Covenant may be granted to more than one holder. A holder may include the same person who owns the restricted property (thus an owner of contaminated property can also be the holder of the Environmental Covenant). A holder may be any person, a unit of local government, or the state agency.¹⁶²
- ***Covenant creation.*** In order for an environmental covenant to take effect, UECA requires the overseeing environmental agency to approve and sign the Environmental Covenant. By doing so, the agency does not become a holder and, in turn, it does not own a property interest simply by approving and signing. If the environmental oversight agency chooses to become a holder, however, it may. UECA also requires the environmental covenant to contain a legal description of the property it affects, and the activity and use limitations which it contains.¹⁶³
- ***Additional covenant contents.*** Though not necessary for Environmental Covenant creation under UECA, UECA provides that Environmental Covenants may (or state enactment may require that covenants) contain other information such as, among others: 1) a description of residual contamination; 2) requirements to notify the agency upon future land sales or upon future building permit applications or upon any proposed change to future land use or activity; and 3) self-monitoring and reporting requirements concerning covenant compliance.¹⁶⁴
- ***Covenant recording and notice.*** In addition to chain-of-title recording, UECA requires that notice of the Environmental Covenant be provided to: 1) owners of the property subject to the covenant; 2) persons in possession (i.e., leaseholders) of property subject to the covenant; 3) each municipality or other unit of local government in which the covenant-affected property lies; and 4) any other person which the environmental oversight agency requires.
- ***Modifying or terminating.*** UECA provides for “termination by consent” and, in limited circumstances, forced termination. Termination by consent may occur upon the consent of the agency, the current owner of the covenant-encumbered property, all parties who originally signed the covenant, *and* the holder(s).¹⁶⁵ Forced termination may occur if the environmental oversight agency determines that the intended benefits of the covenant can no longer be

¹⁶¹ UECA § 9(b).

¹⁶² UECA § 2.

¹⁶³ UECA § 4.

¹⁶⁴ UECA § 4.

¹⁶⁵ UECA § 10.

realized. In this case, a court action may be initiated and, pursuant to the doctrine of changed circumstances, a court may amend or terminate the Environmental Covenant.¹⁶⁶

- ***Broad enforcement but only by court action.*** Environmental Covenants can be enforced by the agency (regardless of whether the agency opted to be a holder), the local government where the land is situated, a person whose interest may be affected by the violation of the covenant, and any party to whom the covenant grants enforcement rights.¹⁶⁷ But enforcement actions may only be brought by a judicial civil action.
- ***UECA envisions a covenant registry.*** UECA does not require the creation of covenant registries, but it authorizes them. It explains that the state may create a covenant registry. And instead of recording covenants in the property recorder office, covenants may be recorded in the registry. But, the registry must provide notice, in the form provided by UECA, to the property recorder's office. The notice would alert title searches to the presence of a covenant, but the actual covenant would exist in the Registry and not in the property records.¹⁶⁸

8.2 State Modification to UECA and Other non-UECA State Models

Fifteen (15) states have enacted UECA.¹⁶⁹ Generally, especially where no statutory environmental covenant provisions exist in state law, UECA significantly improves the reliability of environmental covenants.

But not all states have enacted UECA in its exact form. Rather, some states have modified UECA to suit the needs of their environmental program. And some non-UECA states, such as Colorado, have raised points about imbedded policy decisions within UECA. Minnesota's Pollution Control Agency suggested amendments to UECA and, with the amendments, it supports the adoption of UECA. The UECA bill exists before the Minnesota Senate, which includes the UECA modifications which MPCA suggested. Some of the key points which some states have changed include the following.¹⁷⁰

¹⁶⁶ UECA § 9.

¹⁶⁷ UECA § 11.

¹⁶⁸ UECA § 12.

¹⁶⁹ See www.EnvironmentalCovenants.org (which also provides a copy of the model act).

¹⁷⁰ For additional details, see Dan Miller, Uniform Environmental Covenant Act, Issues for States, Presented at the Institutional Controls Roundtable (April 4, 2006) (avail. at <http://www.epa.gov/superfund/action/ic/roundtable.htm#ueca>); also see Alan Williams, Adopting UECA in Minnesota – Pros and Cons as Seen by the Minnesota Pollution Control Agency Presented at the Institutional Controls Roundtable (April 4, 2006) (avail. at <http://www.epa.gov/superfund/action/ic/roundtable.htm#ueca>).

A covenant trigger. UECA does not set a trigger for when an environmental covenant must be recorded. The Colorado statute, by contrast, requires covenants for all cleanups which employ engineered controls or which attained risk-based cleanup standards, rather than unrestricted use standards.

Covenant approval. UECA authorizes the state or federal agency, with authority to determine or oversee the cleanup, to approve environmental covenants. Under UECA, therefore, DOD, DOE, EPA or the state, depending, could authorize a covenant – because in varying cases, these agencies would possess environmental oversight authority. Colorado requires state approval of all environmental covenants, regardless of the cleanup program, federal or state, under which a cleanup occurs.

Covenant modification/termination. UECA requires mutual consent, including the consent of the original covenant signatories, in order for modification or termination to occur. Because original signatories could divest themselves of any property interest, some argue that a potential exist for outside, disinterested parties to veto or otherwise prevent future covenant modifications. The Colorado environmental covenant statute does not require the consent of original covenant grantors. Minnesota’s suggested amendments to UECA do not require the consent of original covenant signors who do not respond to certified mail notice. Minnesota’s amendments to UECA also establish an administrative procedure whereby a party may petition the agency to modify or terminate a covenant, upon which the agency holds an administrative proceeding on the matter, and the agency’s ruling on modification/termination may be appealed to a trial court.

Covenant enforcement. UECA allows judicial enforcement only. Colorado and Minnesota allow enforcement through either administrative or judicial means. The option for administrative enforcement ostensibly provides a less burdensome means of enforcement and, in turn, does not discourage enforcement.

Pre-UECA Covenants. Minnesota’s suggested UECA amendments include language which would preserve the force of its pre-UECA environmental covenants.

At least one state, Wisconsin, rejected the use of covenants or deed restrictions altogether at Brownfield sites. Instead, Wisconsin recently passed Brownfield legislation which, instead of relying on environmental covenants to restrict future land uses at residually contaminated sites, authorized the environmental agency to directly impose land use limitations.¹⁷¹ As a result, “case closure letters are now more detailed, spelling out the conditions that must be maintained to ensure that the residual contamination is properly managed.”¹⁷²

¹⁷¹ 2005 Wisconsin Act 418 (avail. at <http://www.dnr.state.wi.us/org/aw/rr/brownfields/act418.pdf>).

¹⁷² Questions and Answers on Land Use Conditions in the New Legislation (avail. at <http://www.dnr.state.wi.us/org/aw/rr/brownfields/legislation.htm>).

The Wisconsin Act required the agency to maintain a database of such limitations, and to make it available to the public. “The state will use DNR’s existing GIS Registry of Closed Remediation Sites to notify the public.”¹⁷³ The Act empowers the agency to enforce the land use limitations upon any person who owns the affected property, including subsequent purchasers. Thus, the agency-imposed and agency-tracked land use limitations run with the land. Beginning July 2006, the Wisconsin Brownfield program does not utilize environmental covenants or deed restrictions.

8.3 UECA Compared to MRBCA

MRBCA suggests the use of environmental covenants. Section eleven of MRBCA lists the requirements for such environmental covenants. Based on these MRBCA-stated requirements and MRBCA’s model Declaration of Restrictive Covenant and Grant of Access, the following table compares UECA and MRBCA requirements related to environmental covenants.

Table 4 Comparison of UECA to MRBCA § 11

	UECA	MRBCA § 11
<i>Covenants run with the land.</i>	By statute, environmental covenants run with the land notwithstanding common law rules to the contrary.	Common law unclear. IC contract, combined with state tracking of change in ownership required to ensure subsequent owners are bound by covenant.
<i>Covenants do not extinguish</i>	Events which would conventionally, under common law, extinguish a covenant (i.e., tax lien foreclosure, adverse possession, abandonment, waiver) or because of state marketable title acts would extinguish a covenant.	Silent.
<i>The holder.</i>	UECA defines as new property law term. Property owner also be holder – thus owners can convey covenants to themselves.	Silent.
<i>Covenant creation.</i>	Requires environmental oversight agency approval and signature, signatures of holders, and property owner(s).	Property owner signature required.
<i>Covenant contents</i>	Required –legal description of the property it affects, and the activity and use limitation which it contains. Optional - description of residual contamination; requirements to notify the agency upon future land sales or upon building permit application or upon any anticipated land use change; narrative description of the	Required – description of future restrictions, scaled map, horizontal and vertical extent of contamination, GPS data, listing of ECs, identification of contaminant source, groundwater flow movement.

¹⁷³ Id.

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

	UECA	MRBCA § 11
	contaminants and remedy; and self-monitoring and reporting requirements concerning covenant compliance.	
<i>Covenant recording and notice.</i>	Recording, notice to agency, local government, owner, possessor (i.e., lessee) required.	Recording required.
<i>Modifying or terminating.</i>	By mutual consent of original signatories, current owner(s), environmental oversight agency; or by forced termination pursuant to doctrine of changed circumstances.	By a written instrument between Owner at the time of modification/termination and DNR.
<i>Broad enforcement but only by court action.</i>	Enforceable by environmental oversight agency, holder, local government, covenant signatories, any party affected by violation. Enforcement action by judicial civil action only.	Enforceable by state. MRBCA silent on whether court action is required.
<i>Trigger.</i>	None.	“Activity and use limitation are required for any site where COC concentrations exceed levels that are safe for unrestricted use.” ¹⁷⁴

¹⁷⁴ MRBCA at 2-9.

9. LTS Information Management

Approximately 35 states provide some type of publicly available IC tracking.¹⁷⁵ These tracking systems vary widely. Some simply provide a spreadsheet containing site cleanup information which, in some cases, note whether an IC exists at the site. Some only pertain to brownfield sites. Some do not expressly identify ICs, but they provide access to environmental documents which, in turn, discuss ICs. Some allow on-line queries for site data, and some of these types of systems provide details about residual contamination and ICs.¹⁷⁶ The more sophisticated tracking systems directly track ICs, either by providing IC lists or GIS maps which identify IC sites.

Our study did not identify any information management systems which track LTS life-cycle information, including IC selection, implementation, monitoring, enforcement, and termination, in the way the IC Data Standards envisions (see below for more discussion on IC Data Standards). Even the more sophisticated LTS systems only list IC sites and summarize the ICs which apply, or in some cases, provide direct access to electronic versions of IC instruments, such as environmental covenants.

Though it is not publicly available, the LTS module of Missouri's SMARS tracked IC life cycle information similar to the way envisioned by the IC data standards. In doing so, SMARS provides a more thorough set of LTS information for the sites it tracks.

The following sections:

- Overview the IC Data Standards.
- Review existing IC tracking systems.
- Review state laws which require IC tracking.
- Identify and loosely rank important LTS tracking elements.
- Review and evaluate Missouri's systems to track and manage LTS information.

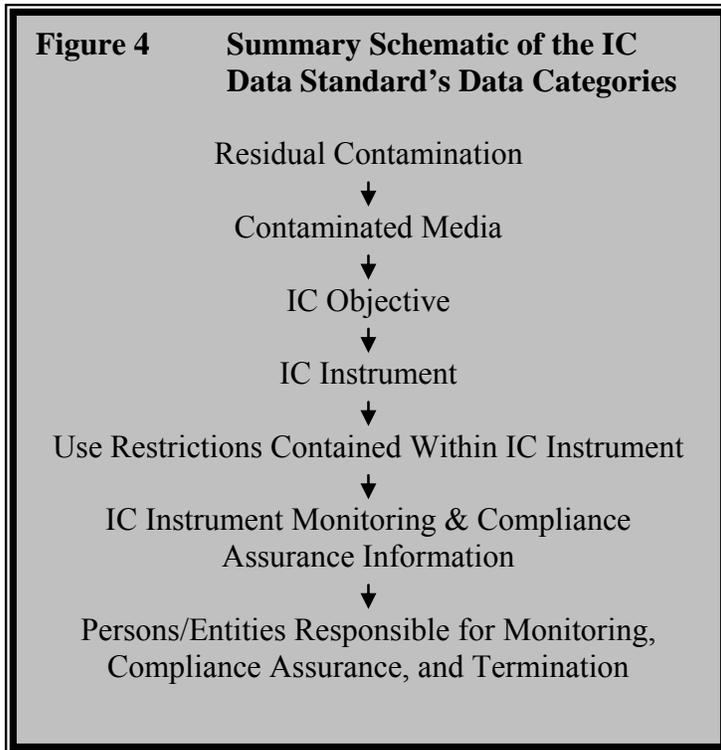
9.1 EPA IC Data Standards

The Environmental Data Standards Council, a partnership among US EPA, States, and Tribes, has published Institutional Control Data Standards.¹⁷⁷ The IC data

¹⁷⁵ Amy Jiron, Stephen Merrill Smith, Susan Eddy, and Keith Hagg, Notes from The Field: Land Use Controls Tracking; A Status Report (Apr. 2006) (avail. at www.lucs.org); see <http://www.lucs.org/links.cfm?id=23> (providing web links to state tracking systems).

¹⁷⁶ See, e.g., the Arizona Remediation and DEUR Tracking System (avail. at <http://www.azdeq.gov/databases/deursearch.html>).

¹⁷⁷ See the Environmental Data Standards Council at <http://www.envdatastandards.net>.



standards set forth information elements which define the universe of IC data elements necessary for IC life-cycle tracking.

Thus, the IC data standards contemplate a tracking system which identified residual risk, the IC tools employed to address that risk, and the persons or entities responsible for carrying out IC and LTS responsibilities. In addition to setting forth a comprehensive vision for IC tracking, the IC data standards seek to standardize the way other

jurisdictions track LTS information. Such standardization might allow, eventually, the sharing of IC and LTS information among jurisdictions.

9.2 Non GIS IC Tracking System

The California EnviroStor database, among other things, lists deed restricted sites.¹⁷⁸

Figure 5 California Land Use Restriction Web Site.

SITE NAME	AREA	SUB AREA	SITE TYPE	STATUS	ADDRESS	CITY	ZIP	COUNTY	DATE RECORDED
VIEW COVENANT 241 SIXTH STREET	PROJECT WIDE		VOLUNTARY CLEANUP	CERTIFIED / OPERATION & MAINTENANCE	241 6TH STREET	SAN FRANCISCO	94103	SAN FRANCISCO	6/17/1994
VIEW COVENANT 518 MINNA STREET APARTMENTS	PROJECT WIDE		STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	518 MINNA STREET	SAN FRANCISCO	94103	SAN FRANCISCO	12/30/1994
VIEW COVENANT A Z DECASINO COMPANY	PROJECT WIDE		STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	1420 SOUTH SIGNAL DRIVE	POMONA	91766	LOS ANGELES	3/10/2003
VIEW COVENANT A BERCOVICH 18TH STREET	PROJECT WIDE		VOLUNTARY CLEANUP	ACTIVE	1039 18TH STREET	OAKLAND	94607	ALAMEDA	3/27/2000
VIEW COVENANT ACME STOCKTON SALVAGING WORKS	PROJECT WIDE		STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	640 WEST SCOTTS AVENUE	STOCKTON	05203	SAN JOAQUIN	8/17/1980
VIEW COVENANT ACME STOCKTON SALVAGING WORKS	PROJECT WIDE		STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	640 WEST SCOTTS AVENUE	STOCKTON	05203	SAN JOAQUIN	1/25/1991
VIEW COVENANT SUBCULTURAL TRACT	PROJECT WIDE		VOLUNTARY CLEANUP	CERTIFIED	1030 APOLLO COURT	ANTIOCH	04600	CONTRA COSTA	6/30/2005
VIEW COVENANT ALAMEDA NAVAL AIR STATION EAST BUILDING	EAST HOUSING		STATE RESPONSE	CERTIFIED	950 W. MALL SQUARE	ALAMEDA	04501	ALAMEDA	7/20/2000

Though it lists deed restrictions on the registry, California relies on the legal force of environmental covenants for enforcement authority – thus, environmental covenants would be enforceable even if not listed on the registry.

¹⁷⁸ See http://www.dtsc.ca.gov/Mandated_Postings.cfm#CP_JUMP_103495.

The registry simply provides notice. The environmental covenants, which it lists, must also be recorded within local records office, pursuant to California’s property recording law. But the registry provides important stakeholder and public information. In one place, it allows for a summarized view of all sites where environmental covenants exist, and a link to a copy of the actual environmental covenant.

Colorado provides the “Environmental Covenant List” - a list of sites at which real covenants exist.¹⁷⁹ Like California, rather than the registry, Colorado relies on the legal force of environmental covenants for enforcement. The registry simply provides notice. Also like California, in one place, the Colorado list allows for a summarized view of all sites where environmental covenants exist. The list also summarizes the various environmental covenant restrictions, but it does not provide an actual link to the actual covenant.

The New York Environmental Site Remediation Database contains records of all the sites being remediated under any of the Division of Environmental Remediation’s remedial programs. The database includes the Registry of Institutional and Engineering Controls. The database can be accessed at <http://www.dec.state.ny.us/cfm/extapps/derfoil/index.cfm?pageid=3>. The database allows one to select from a variety of IC types (i.e., environmental easement, deed restriction, consent order) in order to search through the entire database to find sites that employ the IC. The database shows that ICs exist, but it does not provide links to the actual IC documents.

Pennsylvania has developed a spreadsheet that lists institutional controls implemented under Act 2. See <http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?A=1243&Q=465692>. The list simply provides notice that ICs exist but, unlike California, it does not provide links to the actual IC documents.

Figure 6 Colorado Environmental Covenant Web Listing

Site Name	Covenant Number	County
26th Street Landfill	HMC0V00007	El Paso
Andersons Formal Wear	HMC0V00013	Adams
Asarco Globe Plant	HMC0V00014	Adams, Denver
Blitz Hangar	HMC0V00009	Pueblo
CDOT 2000 South Holly Street	HMC0V00011	Denver
Clean Harbors Deer Trail	HMC0V00021	Adams
Durango Mill Site - North Parcel	HMC0V00008	La Plata
Gem Park Mine	HMC0V00018	Fremont
Idarado (Telecom Property)	HMC0V00010	San Miguel
Lowry Air Force Base	HMC0V00022	Denver
Lowry Air Force Base Parcel 2	HMC0V00023	Denver
Lowry Air Force Base Mira Vista Golf	HMC0V00024	Denver

¹⁷⁹ See <http://www.cdphe.state.co.us/hm/covenant/envcovenantslist.asp>

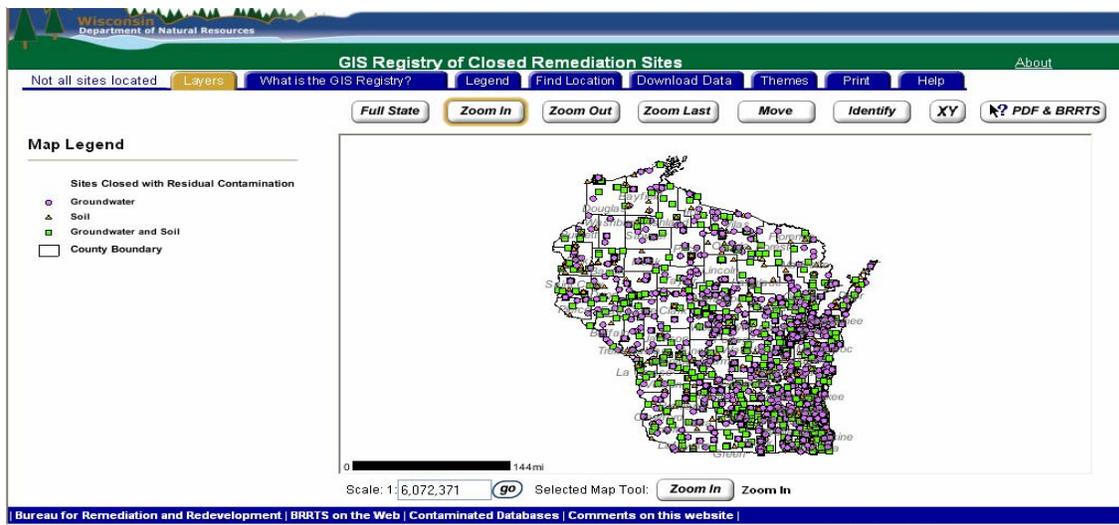
9.3 GIS IC Tracking Systems

In Florida, all institutional controls are recorded on the Florida DEP’s Institutional Controls Registry to allow for agency tracking and enforcement. See <http://www.dep.state.fl.us/waste/default.htm>. The IC registry utilizes GIS tools to provide a user-friendly web-based interface to interactive maps. The maps show the state and mark locations within the state where ICs have been placed. The registry also allows for a search by address, city, and county. By selecting an IC location, the registry then provides summary information about the IC employed. For IC submittals into the registry, Florida provides an IC data form – which asks submitters for the necessary information. Also for submitters, Florida provides data standards for GIS location information.¹⁸⁰

As discussed above, New Jersey largely relies on its registry for compliance assurance with deed notices and classification exception areas. Accordingly the registry provides a robust GIS-based system, accessible on the word wide web. See <http://www.state.nj.us/dep/gis/depsplash.htm#>. This GIS system, among other things, precisely identifies the location boundaries of deed notices and classification exception areas. It then allows users to “drill down” to gather additional information about the deed notice and/or classification exception area such as, among other things, site name, type of IC, and residual chemical contaminants.

Wisconsin also provides a robust IC tracking system using GIS technology.¹⁸¹ Wisconsin’s “GIS Registry of Closed Remediation Sites” identifies closed sites with groundwater or soil contamination remaining above state cleanup levels. The

Figure 7 Wisconsin GIS Registry of Closed Remediation Sites.



¹⁸⁰ For additional information, see FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WASTE MANAGEMENT, INSTITUTIONAL CONTROLS PROCEDURE GUIDANCE (Feb. 2004) (avail. at <http://gisweb.dep.state.fl.us/dwm/icr/viewer.html>).

Wisconsin registry provides a statewide view of IC locations and, by zooming in, precisely shows the location boundaries of soil and groundwater ICs. The registry also allow users to “drill down” to both summary information about the site as well as portable document files (.pdf) of, among other things, remediation plans, closure letters, and conditional closure letters.

9.4 State Legislation Requiring IC Tracking

Many states law actually require IC tracking. Such laws provide a clear mandate for IC and IC-related tracking and public reporting.

In 2002, California passed legislation (Assembly Bill 2436) which required the state to inventory all environmental-related land use restriction.¹⁸² Each of California’s environmental cleanup agencies, including the Department of Toxic Substances Control, the State Water Resources Control Board, the California Integrated Waste Management Board “shall maintain a list of all instruments and agreements restricting land uses imposed by that agency.”¹⁸³ Each agency shall display the list on that agency’s web site.¹⁸⁴ The List shall describe the properties address and parcel number (or if not available, geographic coordinates), any restricted uses of the property, residual contaminants, and cleanup information.¹⁸⁵ In lieu of these details, the agencies may provide a copy of the recorded instrument.¹⁸⁶

Colorado’s 2001 environmental covenant law simply provides that “[t]he department shall create and maintain a registry of all environmental covenants, including any modification or termination thereof.”¹⁸⁷

Kansas’s recently enacted Environmental Use Control (EUC) law, among other things, requires the Kansas Department of Health & the Environment to track institutional controls or, in their parlance, EUCs.¹⁸⁸ It requires EUCs to be recorded in the register of deeds.¹⁸⁹ But the EUC law also requires that “[t]he department shall develop and maintain an environmental use control tracking system on all approved [EUCs].”¹⁹⁰ It further requires that “[t]he tracking system shall be made available to

¹⁸¹ See <http://maps.dnr.state.wi.us/imf/dnrimg.jsp?site=brts>.

¹⁸² CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, DEPARTMENT OF TOXIC SUBSTANCES CONTROL, FACT SHEET: RECORDED LAND USE COVENANTS (ASSEMBLY BILL 2346) AND REGULATIONS, 2003 (avail. at http://www.dtsc.ca.gov/sitecleanup/upload/SMBR_FS_AB2436.pdf).

¹⁸³ Cal. Health and Safety Code § 57012(a).

¹⁸⁴ Id. at 57012 (a)(3).

¹⁸⁵ Id. at (a)(1)-(2).

¹⁸⁶ Id.

¹⁸⁷ C.R.S.A. § 25-15-323.

¹⁸⁸ See K.S.A § 65-1,221 *et. seq.*

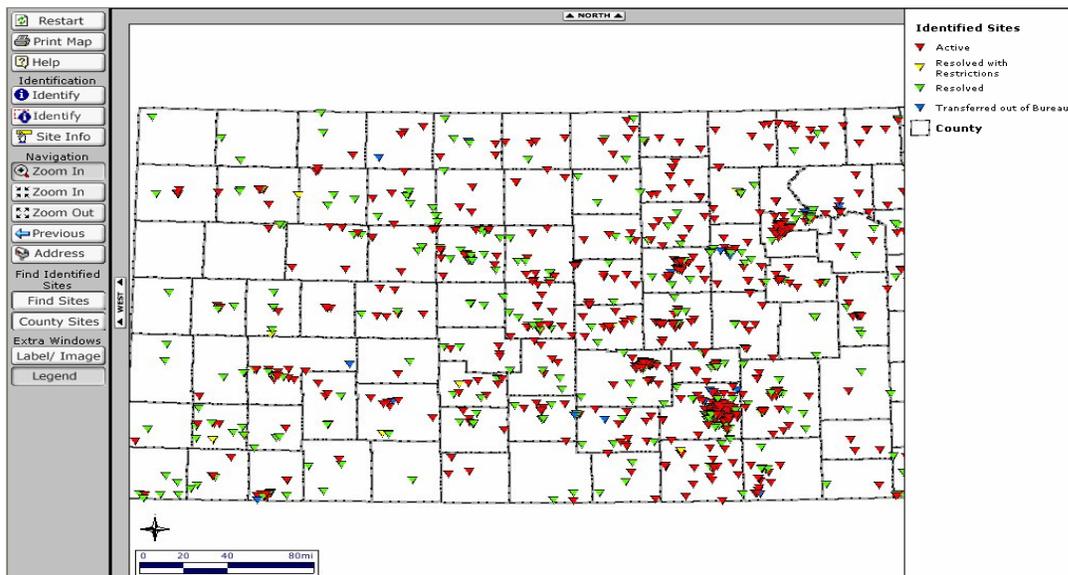
¹⁸⁹ Id. at § 65-1,225.

¹⁹⁰ Id. at § 65-1, 230(b).

the public in a manner which allows review by either city or county.”¹⁹¹ And, it must include:

- Name of the property.
- Address of the property.
- Legal description of the property.
- Cause and type of environmental contamination.
- Description of the EUC.
- Duration of the EUC.¹⁹²

Figure 8 Kansas Environmental Cleanup Site Map



KDHE provides an interactive map of cleanup sites, including ones “resolved with restrictions.”¹⁹³ The site identifies such sites in yellow and by selecting such sites, the tracking system links users to summary sheets of the cleanup which, among other things, provides details about the EUC employed.

Other than the statute-required items, the Kansas interactive systems does not track additional items such as compliance assurance, monitoring, and enforcement information.

¹⁹¹ Id.

¹⁹² Id. at § 65-1, 230(b)(1)-(5).

¹⁹³ See http://www.kdheks.gov/remedial/isl_disclaimer.htm (providing access to “identified sites” interactive mapping).

9.5 Key Features of LTS Information Management Systems

Based on the IC information within existing state systems, the IC Data Standards, and DPRA's professional judgment and experience,¹⁹⁴ LTS tracking systems should include the following information elements. As the following discussion explains, these categories of LTS information may hold varying degrees of importance for internal agency purposes as compared to public consumption.

In general order of importance, LTS information categories include the following:

- ① ***Identity of LTS Sites.*** At a minimum, any LTS tracking system should identify the sites at which LTS activities must occur. This fundamental feature of a LTS tracking system provides the universe of sites that fall subject to LTS obligations. This information category holds similar importance for both internal agency purposes as well as public consumption.
- ② ***Directions for Accessing Additional LTS Information.*** In addition to the identity of LTS sites, LTS tracking systems should provide direction for accessing additional information. For internal agency purposes, this may include a reference to an internal file number or storage location. For public consumption purposes, this may include the name of a contact person or instructions for public review of LTS information.
- ③ ***Location of LTS Sites.*** An LTS tracking system should also identify the location of LTS sites. Varying methods exist to accomplish this, and each provides varying degrees of specificity. LTS locations may be identified by any or all of the following: 1) address; 2) latitude/longitude point; 3) geospatial "polygon" identifying the entire boundary of the LTS-affected area; 4) parcel numbers, which many local jurisdiction rely on to identify real property; 5) a land survey map which precisely maps the boundaries of the LTS-affected area.
- ④ ***Land Use Restrictions, Activity Limitations, and Related Notice.*** LTS often restricts the activities that may occur or the type of future use of real property. Rather than directly limiting future activities or uses, LTS may simply provide notice concerning residual contamination-related risk. In either case, an LTS tracking system should provide users with information concerning: 1) whether and which future activity or use restrictions; and/or, 2) whether and which LTS-related notice exists. An LTS system may provide a summary of such

¹⁹⁴ DPRA has participated in IC information management and tracking project for over seven years. See, e.g., Michael Sowinski, AUL/IC Tracking System Minimum Elements, Submitted to ASTM Task Force (Sept. 19, 2003) (avail. at <http://denver.dpra.com/envsolutions/InstitutionalControls/articles.html>).

restrictions or notice. Or, LTS system may provide direct access to electronic versions of the actual documents which set forth future restrictions or provide notice. This information allows public users to know about land use limitations. It allows agencies to keep track of restrictions that they set, and it facilitates future monitoring and enforcement efforts.

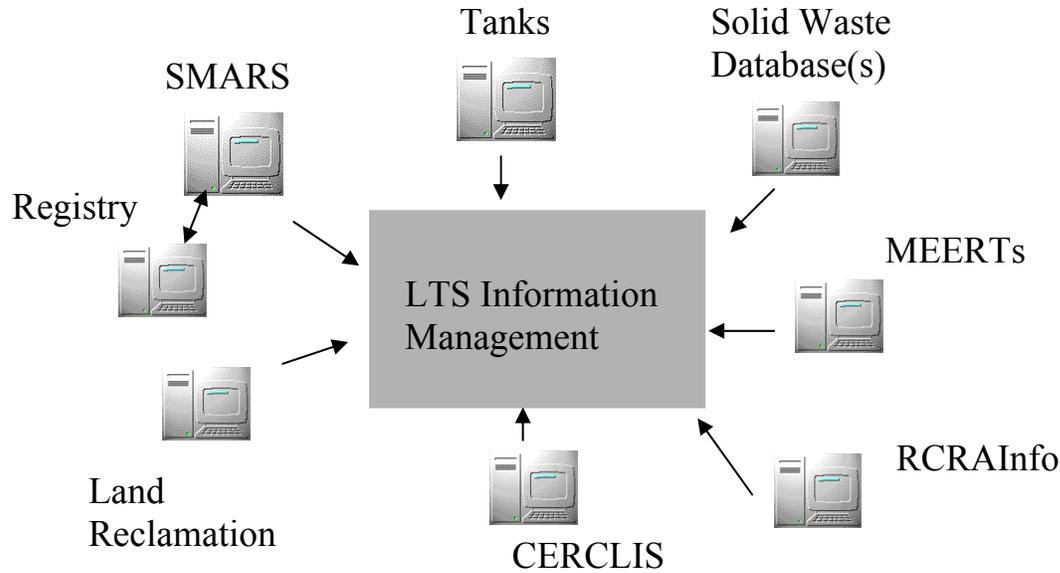
- ⑤ ***Residual Risk (Contaminated Media and Chemical Contaminants).*** In addition to the future restrictions and notice, an LTS system may also provide users with information about the residual risk which triggered the need for LTS in the first instance. Residual risk often exists because of contamination remains in soil or groundwater or because engineered controls or cleanup equipment exist that may not be damaged. This information allows users to know the underlying reason for LTS. It may also allow internal-agency users to evaluate whether LTS adequately protects against the residual risks.
- ⑥ ***Type of LTS Instrument Employed.*** An LTS management system may also identify the type of LTS instrument employed, such as covenants or ordinances, for example. Since the LTS instrument often memorializes or otherwise provides the legal authority for imposing LTS obligations, LTS stakeholders find access to LTS instruments very important.
- ⑦ ***Monitoring/Enforcement Information.*** An LTS management system may also track LTS monitoring and enforcement events. This information identifies planned monitoring events, and it reports on prior conducted ones. It may also identify the person or entity responsible for conducting monitoring. For internal purposes, an agency may utilize this information to help organize and target monitoring efforts. Public stakeholders may utilize this information to review compliance activities at LTS sites.

9.6 Review and Evaluation of LTS Information Management at Missouri DNR

Based on our research, no law, regulation, or policy requires the establishment of LTS databases in Missouri. But as a practical matter, DNR's cleanup programs have found it necessary to track sites and, in doing so, they track some AUL and LTS information. The HWP's SMARS¹⁹⁵ contains an LTS module, which directly tracks LTS information. Within DNR's cleanup programs, varied database systems cover cleanup sites and, in turn, include LTS information.

¹⁹⁵ The analysis in this Report relied on a March 31, 2006 version of SMARS.

Figure 9 LTS Information Management Schematic



The following table summarizes the various system’s capabilities against the LTS information elements listed above. Generally, SMARS fares very well. But, SMARS does not provide public information and it only covers some Sections, not all. The remaining databases contain some LTS information, but not to the extent contemplated by the IC Data Standards, achieved by SMARS, or listed above. The subsequent paragraphs provide more details concerning DNR’s LTS-related information management.

Table 5 Summary of LTS Tracking Within DNR Systems

Systems	Identity of LTS Sites.	Access to Additional LTS Information.	Location of LTS Sites.	Land Use Restrictions, Activity Limitations, and Related Notice.	Residual Risk.	Type of LTS Instrument Employed.	Monitoring/Enforcement Information.
SMARS	✓ (internal only)	✓ (internal only)	✓ (internal only) ¹⁹⁶	✓ (internal only)	✓ (internal only)	✓ (internal only)	✓ (internal only)
Tanks							
Solid Waste	✓	✓	✓ (address only) ¹⁹⁷				

¹⁹⁶ SMARS provide a single latitude/longitude point for each LTS site.

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

	Identity of LTS Sites.	Access to Additional LTS Information.	Location of LTS Sites.	Land Use Restrictions, Activity Limitations, and Related Notice.	Residual Risk.	Type of LTS Instrument Employed.	Monitoring/Enforcement Information.
Systems							
Registry	✓	✓	✓	✓	✓	✓	
MEERTs							
Reclaimed Mine Lands							
CERCLIS							
RCRA Info ¹⁹⁸	✓	✓	✓	✓	✓	✓	

In addition to the database-specific topics summarized in Table 5, we observed the following management-level issues:

- DNR’s information management systems only provide very limited public information (significantly more information exists internally than has been made publicly accessible from DNR’s web page).
- While SMARS’ LTS module provides more comprehensive LTS information than any other State, other States provide much better public access to LTS information.
- No systematic means, or business process, exists within any individual Section (except for the Registry) or across the Sections, to set rules for when a database system would identify a site as an LTS site.
- No person seems directly in charge of managing, providing quality assurance, or otherwise ensuring the timeliness and completeness of LTS information within any one database (except for the Registry) or across the Section’s various database systems.

SMARS. The Superfund Section, in cooperation with the BVCP Section and the Federal Facility Section, maintain SMARS. SMARS contains a wide variety of cleanup-related information on: 1) six hundred and eighty two (682) sites administered by the Superfund Section; 2) one hundred and fourteen (114) sites

¹⁹⁷ The Solid Waste Section lists address information for the landfill owner. This may or may not match the address of the actual landfill.

¹⁹⁸ The RCRA Corrective Action Profile, for some sites, provides the LTS information indicated with a check-mark here. See, e.g., http://oaspub.epa.gov/enviro/rcra_profile.getmain?p_handler_id=MOD054950670.

administered by the Federal Facility Section; 3) five hundred and ninety five (595) sites administered by the BVCP Section; and 4) ninety seven (97) Tank sites.

SMARS also includes an LTS module. The LTS module seems to closely match the IC data standards. It identifies contaminants, media, IC objectives, IC instruments, IC contacts, IC monitoring and events. The LTS module includes LTS information about: 1) one hundred and seventy three (173) sites administered by the Federal Facility Section; 2) seventy five (75) sites administered by the Superfund Section; 3) six (6) tank sites; 4) ninety four (94) sites administered by the BVCP Section. SMARS is not readily available to the public on DNR's web site.

Tanks Database. The Tanks Section maintains the tanks database, which includes a large amount of information concerning regulated tanks. The tanks database identifies 6,459 tank sites as remediation sites. Of these, the database identified approximately 4,600 as sites where cleanup was complete. Of these, many were cleaned to risk-based standards, including those which contemplated future tank use or otherwise future commercial use standards – not unrestricted use standards. During our study, we were not able to identify a ready means to identify which sites were cleaned to unrestricted use standards versus sites cleaned to risk-based standards. As discussed above, the Tank Section estimates that over one-thousand (1000) tank sites may be cleaned to standards which contemplate future tank use or otherwise contemplate a limited future use. The tanks database is not available to the public on DNR's web site.

Registry. The Superfund Sections maintains a Registry of Uncontrolled Hazardous Waste Sites, and publishes an electronic report which lists the registry sites. Much of the Registry data actually resides on SMARS. The Registry report, available to the public, lists the Registry sites as well as sites that, in lieu of being listed on the registry, were remediated under the Superfund Section's oversight (and typically under the terms of a Consent Agreement). For each Registry site, the annual Registry report provides significant detail, in narrative form, about the site contamination and cleanup status. The Registry report does not provide this detail for the sites which were remediated in lieu of being placed on the Registry.

Solid Waste. The Solid Waste Management makes basic information available on the world wide web for sites under its jurisdiction. It identifies the site name, permit number, site owner name, and contact information for "permitted facilities" including: 1) three (3) demolition landfills; 2) five (5) utility waste landfills; 3) three (3) special waste landfills; 4) twenty-one (21) sanitary landfills; 5) two (2) infectious waste processing facilities; 6) three (3) material recovery facilities; 7) one (1) composting facilities; and 8) fifty (50) transfer stations.¹⁹⁹ In addition to permitted facilities, the Solid Waste Management Unit also provides a list of approximately one hundred and forty four (144) closed facilities and 130 inactive facilities.²⁰⁰

¹⁹⁹ See <http://www.dnr.mo.gov/env/swmp/facilities/infelist.htm>.

²⁰⁰ See <http://www.dnr.mo.gov/env/swmp/facilities/Inactive.htm>.

Environmental Emergency Response. The Environmental Emergency Response Program maintains a database of all emergency response incidents including information about the materials spilled, the spill date, and the spill location. In

Figure 10 Missouri Environmental Emergency Response Tracking System

addition to the information in the Missouri Environmental Emergency Response Tracking System (MEERTs), EER often completes paper spill reports. These reports often include response and cleanup-related details. Generally, though, neither MEERTs nor the spill reports provide details about the level of cleanup eventually attained. MEERTs began in or around 1993. Prior to that, EER only maintained paper records. Paper records date back to the 1970s, and exist as archived records in the Missouri Secretary of State office.

CERCLIS. The U.S. EPA maintains the CERCLIS database, which it makes available and searchable on the web.²⁰¹ CERCLIS tracks a wealth of milestone accomplishments related to cleanups, including sites listed on the NPL, and active as

Spill Number	Potential Responsible Party	Spill Location	Spill City	Spill County	Reported	Materials
0501030800RDS	Unknown Unknown, XX 00000	1616 Old State Road	Eureka	St. Louis	01-03-2005	UNKNOWN
0501051012EJS	Private Citizen 1 Clermont Lane Ladue, MO 63124	1 Clermont Lane	Ladue	St. Louis	01-05-2005	KEROSENE
0501051812RDS	Metropolitan Sewer District 10 East Grand St. Louis, MO	5404 Jedmed Court	St. Louis	St. Louis	01-05-2005	SEWAGE
0501060725RDS	Dyno-Nobel 103 Loutre Lane Hermann, MO 65041	Highway 40 and Route DD	Hermann	St. Louis	01-06-2005	EXPLOSIVES/ORDNANCE
0501061020RDS	Jacobus Energy (aka Gateway Ta 246 Grand Kirkwood, MO	246 Grand Avenue	Kirkwood	St. Louis	01-06-2005	DIESEL FUEL/FUEL OIL
0501061306RDS	AMEREN-LIE 1901 Chouteau Avenue St. Louis, MO 63103	6440 Lennox Avenue	Wellston	St. Louis	01-06-2005	PCB
0501061800RDS	Emerson Electric 8100 West Florissant Florissant, MO	8100 West Florissant	Florissant	St. Louis	01-06-2005	OTHER INORGANIC MATERIAL
0501101318CRJ	Norfolk Southern Railroad 1735 East Grand Decatur, IL 62521	7021 Hall Street	St. Louis	St. Louis	01-10-2005	OTHER PETROLEUM PRODUCT
	Unknown					

well as archived non-NPL sites. CERCLIS only provides minimal information on non-NPL sites, and no information directly related to LTS. For NPL sites, CERCLIS provides “profiles” which, in

narrative form, provide details about site cleanup. Based on our review, CERCLIS NPL profiles do not include IC or LTS information.

RCRAInfo. The US EPA maintains the RCRAInfo database, which includes a variety of hazardous waste management and hazardous waste cleanup information for sites subject to RCRA. The Permits Section submits data into RCRAInfo and, thus, the Permits Section relies on RCRAInfo for its information management.

RCRAInfo’s online query allows users to list all of Missouri’s Corrective Action, Closure, or Post-Closure Sites.²⁰² It displays summary information about each site,

²⁰¹ <http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>.

²⁰² See http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

including whether ICs or ECs were employed. For some sites, RCRAInfo employs a “profile” which provide significant detail, in narrative form, about the profile site. RCRA Info provides a profile section. RCRAInfo was recently updated, in March 2004, to track the use of engineering controls (RCRAInfo event code CA770) and institutional controls (RCRAInfo event code 772). Because of the recent update, MO DNR has not fully populated RCRAInfo with IC information.

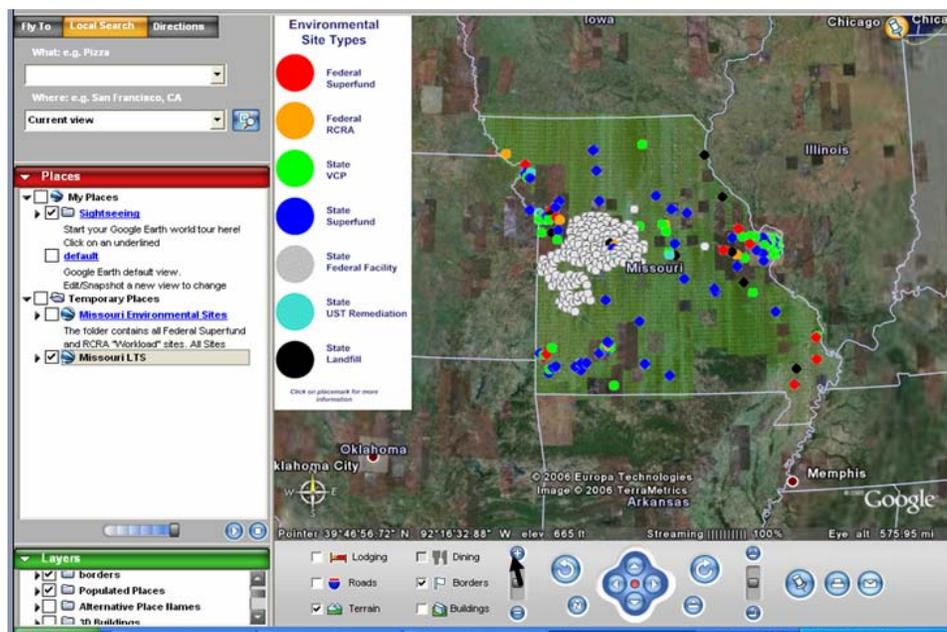
9.7 GIS Prototype of Missouri DNR Cleanup Sites and LTS Sites

For the purpose of performing our overall study, and for the purpose of testing the power and capabilities of new technology for mapping and, in turn, displaying information about cleanup sites, we developed a prototype application for viewing cleanup sites, LTS sites, and related information.

This process draws from existing DNR databases and/or web pages, and simply makes the information available in one familiar place. Thus, the process, if it were actually deployed, would allow each cleanup program to maintain an independent data system. To be most useful, each Section would identify each cleanup site that they administer as LTS (or not) – this, of course, would require an internal “business process” that each Section would follow. For LTS sites, optimally, each system would provide at least some of the information summarized in sub-section 9.5, above.

The following paragraphs describe the prototype effort.

Figure 11 Prototype GIS Map of LTS Sites

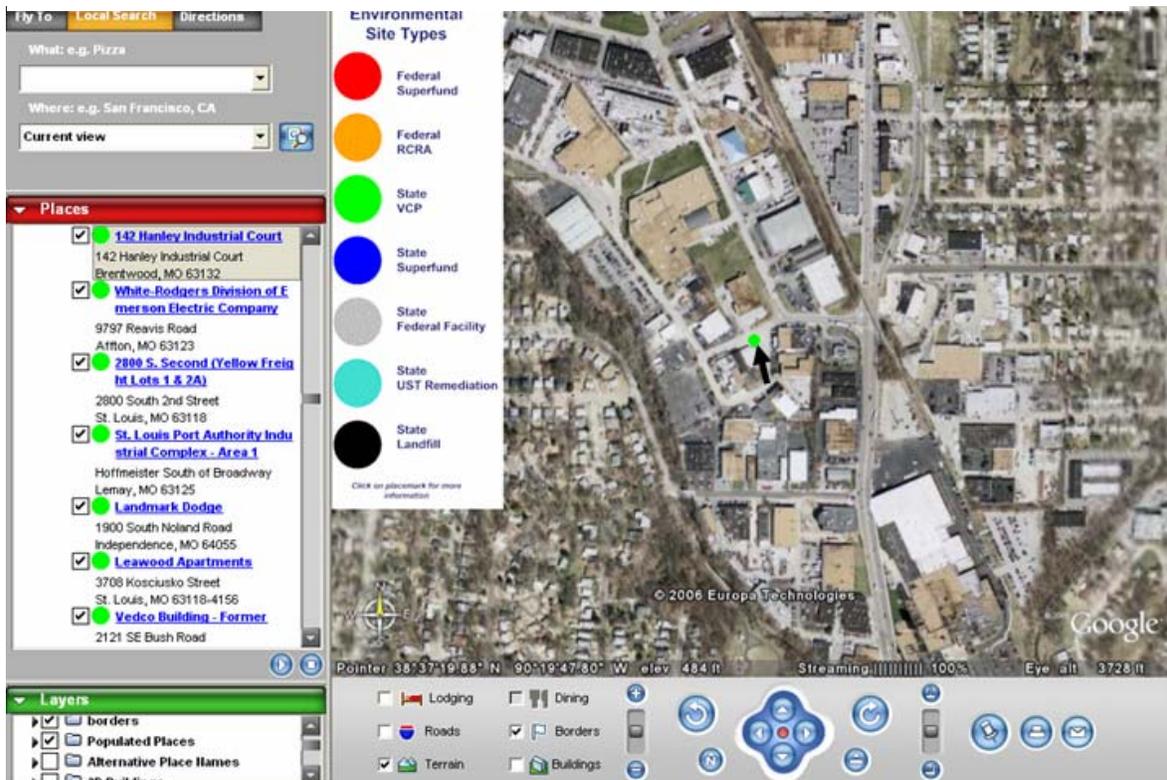


All Environmental Sites Within Google Earth Layer

Approximately 6,868 environmental sites from federal and Missouri data sources may be observed through Google Earth, each site differentiated by the program responsible for their cleanup. By loading a Google Earth KMZ file (available from DPRA), the environmental sites within Missouri are revealed as Placemarks (956 sites do not have latitude and longitude and are therefore not shown).

Viewing the sites requires installing the Google Earth program from Google, and requires an Internet connection. (The same information can be made available through other mapping tools like Google Maps, Yahoo Maps, Microsoft Virtual Globe, etc.) Google Earth applies data files called KML (or their zipped form called KMZ). The files are organized in an XML schema set by Google. Each environmental site is represented as a Placemark on Google Earth. A Placemark has a location, an icon representation, and a description revealed by clicking on the icon or within the layers window. These can be placed into Folders that can be organized to suit the users need. The content can be served from a network source or transmitted as a file attachment. The network source permits refreshing the data as well as releasing smaller portions of the data in order to avoid overwhelming the Google Earth client software from being overwhelmed (a current risk with the size of the data.)

Figure 12 Prototype GIS Map of Single LTS Site



There are two primary sources of data used for this effort: 1) federal data sources including Superfund and RCRA sites, and 2) Missouri Department of Natural Resources data including Voluntary Cleanup Program (VCP) sites, State Superfund sites, Federal Facility sites, Underground Storage Tank (UST) sites being remediated, and landfill sites.

Federal Sources:

- **Superfund Sites.** There are 31 Superfund sites shown as Placemarks. The USEPA describes the location and characteristics of superfund sites with the Superfund Information System (e.g. <http://cfpub.epa.gov/supercpad/cursites/csitinfo.cfm?id=0700777>). The Placemark contains a link to the USEPA website.
- **RCRA Corrective Action Sites.** There are 95 sites shown as RCRA "corrective action work load sites". There are two databases that are utilized: 1) Resource Conservation and Recovery Act Information (RCRAInfo) database in Envirofacts, and 2) the RCRA Corrective Action Site Progress Profile. The sites were selected using a query within RCRAInfo where the Handler Universe was set to "Subject to Corrective Action". The Placemark contains a link to the USEPA website. Of the 95 sites, 65 have Corrective Action Profiles (e.g. http://oaspub.epa.gov/enviro/rcra_profile.getmain?p_handler_id=MOD095486312), others do not have corrective action profiles and their status is represented through the Facility Registry System Facility Detail Report (e.g. http://oaspub.epa.gov/enviro/fii_query_dtl_disp_program_facility?pgm_sys_id_in=MOD001829852&pgm_sys_acrnm_in=RCRAINFO)

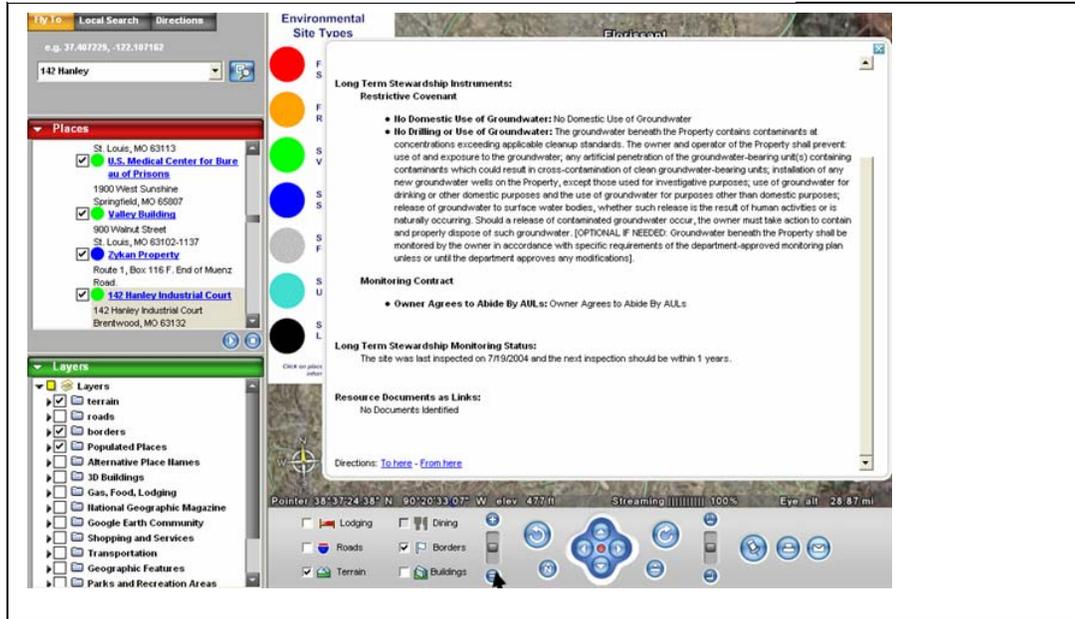
State Sources:

- **VCP Sites.** There are 450 Placemarks for sites with latitude and longitude (75 sites are not shown because they lack latitude and longitude.) The Missouri Site Management and Reporting System (SMARS) database was used to obtain site information. The VCP sites were collected by setting the Ownership field to "VCP" within the SiteOU database table. Only sites with decimal latitude and longitude in the SiteGIS table are shown. The SQL query is shown:

```
SELECT Site.SMNUM AS SiteOrganizationID, SiteGIS.OUName AS SiteName, SiteGIS.Latitude AS SiteLatitude1, SiteGIS.Longitude AS SiteLongitude1, SiteOU.SiteAdd AS SiteStreet, SiteOU.SiteCity, "MO" AS SiteState, SiteOU.SiteZip FROM SiteOU INNER JOIN (SiteGIS INNER JOIN Site ON SiteGIS.SMNUM=Site.SMNUM) ON (SiteOU.OUName=SiteGIS.OUName) AND
```

*(SiteOU.SMNUM=SiteGIS.SMNUM) WHERE (((SiteGIS.Longitude)
Is Not Null) AND ((Site.Ownership)="VCP"))*

Figure 13 Prototype LTS Public Information



- **State Superfund Sites.** There are 601 Placemarks for sites with latitude and longitude (2 sites are not shown because they lack latitude and longitude.) The SMARS database was used to identify these sites with the analogous approach to the VCP sites. The Site Ownership was set to "Superfund."
- **Federal Facilities:** There are 271 Placemarks for sites with latitude and longitude (6 sites are not shown because they lack latitude and longitude.) The SMARS database was used to identify these sites with the analogous approach to the VCP sites. The Site Ownership was set to "Federal Facilities"
- **UST Sites being Remediated:** There are 5,679 Placemarks for sites with latitude and longitude (582 sites are not shown because they lack latitude and longitude.) The Missouri Underground Storage Tank data was used. Only those facilities with a remediation ID were used to make Placemarks. The location of the site came from the "tblGeoSite" table linked through the "tblFacility". The remediation status is shown within the Placemark along with the Remediation ID.
- **Landfills.** No decimal latitude and longitude are available for landfills. The prototype, however, includes 12 Placemarks for sites

with latitude and longitude (297 closed and inactive sites are not shown because they lack latitude and longitude.) The DNR websites for landfills were downloaded and organized into a database. The location information was interpreted through Google Earth, and when the landfill was recognized the decimal latitude and longitude were collected. The Placemark displays the status of the landfill, as well as a link to the applicable webpage describing the landfill.

Long Term Stewardship (LTS) Sites Google Earth Layer

This effort worked with the subset of sites subject to Long Term Stewardship. Within the subset, the intent was to develop a sample description to share the Stewardship Objectives, instruments applied to serve the objectives, site monitoring history and supporting information. The supporting information includes agency web links, downloadable deed restrictions and photographs. All content was lifted from either the SMARS database, RCRAinfo database, or CERCLIS database. Again, only sites with locations as decimal latitude / longitude are presented. The following discussion augments the previous discussion, focusing on implementation of LTS objectives.

Federal Sources:

- **Superfund Sites.** Only 17 of the 31 federal superfund sites had LTS objectives developed within an USEPA institutional control / engineering control database. These IC / ECs are subject to verification, but are reasonable for the objective of this demonstration.
- **RCRA Corrective Action Sites.** Only 9 of the 95 RCRA Corrective Action sites had IC / EC's developed. Other sites may either be closed without LTS obligations, or open with the LTS obligations not yet resolved.

State Sources:

- **VCP Sites.** Placemarks are presented for 80 sites with LTS requirements. There are 6 sites with LTS obligations that do not have geospatial information.
- **State Superfund Sites.** Placemarks are presented for 82 sites with LTS requirements, and all the superfund sites with LTS requirements have geospatial information. The capability of the GE to present polygons, and photographs is shown for the Jasper County Superfund Site. For this site the view will find polygons representing the various Designated Area, the file folder within the side panel that holds the

Designated Area also contains photographs collected from the DNR website.

- **Federal Facilities:** Placemarks are presented for 171 sites with LTS requirements, and all the federal facility sites with LTS requirements have geospatial information. The Minuteman II ICBM Eco 4 LF contains within the Resource Links section of the Description a link to a representative deed restriction as a pdf.
- **UST Sites being Remediated:** The 6 LTS sites shown are those within the SMARS database that had both LTS requirements set and had an "Ownership" set to "Tanks". These sites did not have geospatial information within the SMARS database, but the Remediation ID used as part of the description was used to query the UST database for the geospatial information. The resulting geospatial information from the UST database required improvement, so several of the sites latitude and longitude was improved through geocoding.
- **Landfills.** The same 12 landfills shown in the total sites layer were represented within this LTS layer. These are the only landfills for which the prototype effort collected lat/long information.

10. LTS COSTS AND FUNDING

10.1 How Much Does LTS Cost Per-Site?

Missouri's brownfield regulations estimate a minimum cost of \$5,000 and a maximum cost of \$15,000 dollars of total costs for long term monitoring of ICs. Arizona's Declaration of Environmental Use Restriction regulations sets forth an IC pricing schedule that generally lies within the same range as Missouri's but includes flexibility to go higher for more complex sites.²⁰³ According to Arizona Department of Environmental Quality, DEUR fees could range above \$100,000 dollars.²⁰⁴ Kansas identifies three categories of sites, ranging from low-risk, low complexity to high risk, high complexity. Kansas requires a one time IC fee, and sets a cap of \$2,000 dollars for Category 1 sites and \$10,000 dollars for Category 2 sites. Kansas does not cap the IC fee for Category 3 sites, and its law allows the agency to require financial assurance for long term care at these sites.

US EPA remains in the process of developing guidance to estimate IC life cycle costs. It seeks to describe the processes and methods for estimating IC life cycle costs. In addition, it seeks to identify representative costs for IC implementation, monitoring, information management, enforcement, and termination. Based on the representative costs that EPA has identified to date,²⁰⁵ we developed a prototype IC cost model. The IC cost model estimates costs significantly higher than \$15,000 dollars, more in the range of \$20,000 to \$80,000 dollars per site.

Calculating the life cycle cost of an IC remains a topic of research and, to some extent, controversy. A possibility exists that IC life cycle costs which agencies will bear during the life of an IC, far exceeds \$15,000 dollars.

10.2 How Much Does it Cost to Run a State LTS Program?

The cost of an LTS program, of course, largely depends on the program. In the recommendations section, below, we generally estimate the level of effort required over a three-year planning horizon to implement and maintain the LTS program items which we recommend.

To implement the recommendations that we list below in Section 11, over a three year horizon, we estimate that approximately six (6) to ten (10) full time staff would

²⁰³ ARIZ. ADMIN. R. & REGS. § 18-7-604.

²⁰⁴ Personal communication between Michael Sowinski, DPRA Inc. and Amanda Stone, Arizona Department of Environmental Quality (Mar. 6, 2006).

²⁰⁵ See Michael Bellot, Costing ICs, Presented at the US EPA Institutional Control Workshop, Tucson Arizona (Apr. 2006) (avail. at <http://www.epa.gov/superfund/action/ic/roundtable.htm#cost>).

be required, as well as approximately \$500,000 to \$900,000 per year, in external costs for contractor support. Section 11.0, below, provides additional details on these cost estimates.

10.3 Which Funding Mechanisms Exist to Support LTS?

DNR only collects minimal funds related exclusively to LTS. And these funding sources do not necessarily become preserved solely for LTS purposes, rather than other cleanup related purposes. The BVCP charges IC monitoring fees that range from \$5,000 to \$15,000 dollars. These monies are deposited into the Hazardous Waste Management Fund which supports a wide variety of Department activities. Thus, while BVCP Section may receive LTS fees for a given site, it cannot sequester these funds in a separate account reserved for LTS.

Both the Permits Section and the Solid Waste Section, pursuant to the laws and regulations that they administer, receive financial assurance for closure, post-closure and corrective action. Both Sections remains keenly involved in evaluating whether such financial assurance may support the LTS-related obligations (through permit and orders) that these Sections may impose.

The Kansas Environmental Use Control (EUC) law provides that all payments received from IC fees will be deposited in the State treasury and credited to an EUC fund. The law then enumerates future EUC activities for which monies in the fund may be spent.

11. CONCLUSIONS AND LTS RECOMMENDATIONS

11.1 Should the DNR Seek to Improve LTS Management?

Whether DNR should improve LTS management primarily depends on the risk to public health and the environment if it does not. Over ten thousand cleanup sites exist in Missouri (not including an enormous number of emergency response spill sites). This report did not quantify the residual contamination at these sites and, in turn, the risk to human health and the environment that may remain. Nevertheless, it seems clear that residual contamination and, in turn, some level of risk to human health and the environment exists. As discussed above, in Section 5, many sites exist which might contain residual contamination, but are not involved in any type of LTS. And at least 550 sites squarely exist within LTS.

LTS audits conducted in other states provide some sense of potential LTS issues. A 2005 Rhode Island monitoring effort found twenty eight (28) of one hundred and fifty (150) sites to be out of compliance with required future use restrictions.²⁰⁶ In a study of forty one Kansas LTS sites, Kansas identified one where unauthorized excavation across a remediation cap occurred, and approximately eight (8) sites which did not fully meet IC restrictions.²⁰⁷ Wisconsin inspected twenty four (24) LTS sites and found 17% to be out of compliance.²⁰⁸

Anecdotally, in Missouri cases have arisen which highlight the sometimes fragile nature of LTS. A county sold a site on the Registry to a buyer, without disclosing the site's presence on the Registry to the buyer. And a Minuteman II site was transferred to a subsequent owner without, apparently, any deed restrictions (though such restrictions were meant to run to subsequent purchasers).

Other states have seen LTS failures. In New Jersey, a day care center was constructed on a mercury contaminated site at which the EPA had issued a report explaining that the site was not eligible for the CERCLA National Priority List. Nevertheless, dangerous levels of mercury vapors were detected at the operating day care facility.²⁰⁹ In Northern California, utility excavators secured a local excavation permit and, in turn, unknowingly dug through contaminated soil, even though the state environmental agency restricted excavation of this area.

²⁰⁶ The Rhode Island Audit, Presented at US EPA Institutional Control Roundtable, Tucson Arizona (Apr. 2006) (avail. at <http://www.epa.gov/superfund/action/ic/pdfs/owens.pdf>).

²⁰⁷ Evaluation of Existing Institutional Controls in Kansas, Presented at US EPA Institutional Control Roundtable, Tucson Arizona (Apr. 2006) (avail. at http://www.epa.gov/superfund/action/ic/pdfs/jump_inspect.pdf).

²⁰⁸ Robert Hersh, Direction to Solutions: Institutional Control Audits; What Should They Tell Us (avail. at www.LUCs.org).

²⁰⁹ New York Times, After Mercury Pollutes a Day Care Center, Everyone Points Elsewhere (Aug. 14, 2006).

When faced with this same issue of whether to improve LTS management, US EPA clearly feels that it should. Indeed, the US EPA published an LTS strategy which set forth goals and targets for LTS management improvements. In addition, EPA published an IC Strategy, which explains the methods, milestones, and other details of EPA's plans to insure proper implementation and proper operation of ICs at NPL sites.²¹⁰

DNR, like all state agencies, possesses finite resources under which it operates. Whether to improve LTS, therefore, requires a weighing of the health and environmental protection that might be gained, versus the health and environmental protection that might be gained if commensurate efforts were directed towards a different goal. Based on the apparently increasing number of residually contaminated sites, and the likelihood that without LTS, eventually, exposure seems likely to occur, LTS improvements seem necessary. The land management that LTS provides will protect persons from conducting activities at land that might be dangerous to people or the environment. At least 550 sites squarely exist within LTS, and this number continues to increase. And, as discussed above in Section 5, many sites exist which might contain residual contamination, but are not (yet) involved in any type of LTS.

11.2 LTS Program Recommendations (and Cost Estimates)

To implement the recommendations listed below, over a three year planning horizon, we estimate that approximately six (6) to ten (10) full time staff would be required as well as approximately \$500,000 to \$900,000 dollars per year in external costs for contractor support. As described below, we estimate that the majority of external contractor costs would support LTS information management (recommendation 2) and the effort to review DNR's backlog of sites to identify which qualify as LTS sites (recommendation 4).

Recommendation 1: Establish Centralized Long Term Stewardship Management.

The Superfund Section's SMARS database helps to track LTS activities for sites in the BVCP, Federal Facility, and Tank Sections. But generally, Missouri DNR performs various LTS activities within its separate Sections. Good reasons exist for why various Sections should operate – primarily, that varying cleanup laws require specific and separate cleanup program administration.

But no LTS law exists, and the law governing each cleanup program only addresses LTS to a limited extent. Regardless of cleanup administration, once sites reach LTS nothing seems to prevent consistent LTS administration. For example, regardless of

²¹⁰ US EPA, STRATEGY TO ENSURE INSTITUTIONAL CONTROL IMPLEMENTATION AT SUPERFUND SITES (Sept. 2004) (avail at <http://www.epa.gov/superfund/action/ic/icstrategy.pdf>).

whether a site came into LTS through CERCLA, RCRA, VCP, or whichever Section, the monitoring, information management, and enforcement of environmental covenants proceed the same way. The varied cleanup laws do not seem to set any unique requirements on LTS.

Separate systems of LTS management, like any non-uniform system, will treat different sites differently and may allow LTS gaps to exist. DNR should employ a centralized management process to govern LTS. This may take the form of a work group or task force of representatives from various Sections. Or it may (perhaps, eventually) take the form of a separate and distinct LTS Program or Section within DNR.

We did not estimate a cost for this. This management decision seems like one that could occur within the normal operating procedure of DNR, and one that would not require external expenditures. The actual implementation of a central LTS work group, task force, or office, we estimate, would require approximately five (5) people, at approximately one-fourth of full time and, perhaps, one full time person. Such a group might divide its responsibilities among: LTS information management; local government outreach and coordination; UECA legislative initiatives; LTS monitoring and auditing; and LTS funding.

Recommendation 2: Improve LTS Information Management & Related Business Processes.

DNR manages LTS information in SMARS for Superfund, Federal Facility, BVCP and Tanks Section sites. SMARS contains LTS life-cycle information, including IC selection, implementation, monitoring, enforcement, and termination. But SMARS is not publicly accessible through DNR's web page. RCRAInfo provides a good means to track and publicly present LTS information, but it does not include LTS monitoring and enforcement information. Because of the level of effort necessary to collect and, in turn, populate LTS information into RCRAInfo, the DNR Permits Section has only populated RCRAInfo with LTS information for one site. DNR's other Sections maintain some, but limited, LTS information within their database systems.

With the exception of the Registry, no person seems in charge of ensuring that LTS information remains up-to-date, accurate, and complete within either SMARS or other DNR databases.

DNR should improve public access to SMARS Information. DNR should perform SMARS-like LTS tracking for the Sections which SMARS does not cover. In order to improve public access to SMARS, DNR should employ GIS technologies which display the location of LTS sites and, in turn, allow users to view details about residual contamination, AUL requirements, and AUL monitoring. SMARS-like tracking may occur in a single data system, or it may occur in the existing separate systems. Each separate database system should, however, employ uniform means to identify sites as LTS sites (or not). This will allow a clear display, to the public, of

LTS sites. DNR should assign a manager or manager(s) to LTS information management, and such manager(s) should be accountable for the accuracy and completeness of LTS information.

Based on a survey of eight states, who have constructed LTS tracking system, the initial cost to construct the system ranged from \$200,000 to \$300,000 dollars, and approximately \$185,000 dollars for annual maintenance and updating.²¹¹ Based on our review of DNR's LTS Information Management efforts, this range seems like a reasonable estimate for improved LTS management at DNR. The effort to collect data necessary to populate such a system, especially at historical sites, could meaningfully increase this estimate.²¹²

Recommendation 3: Enact UECA or Similar Legislation.

Among other things, a UECA statute in Missouri would provide for environmental covenants which DNR could directly enforce, and which run with the land to subsequent owners (without the need for DNR entering into institutional control contracts). UECA's provisions, or any modifications to UECA that Missouri might feel necessary, provide opportunities for Missouri to require LTS tracking, responsible party/current owner LTS auditing, local government involvement or similar policy choices into the law.

DNR should prepare a white paper which sets forth its policy recommendations in support of a UECA or UECA-modified statute. This effort, we believe, should largely be conducted by in-house staff. However, contractor support which might research specific questions and which studies the experiences of similarly situated states might add meaningful value. We estimated the cost for such contractor support at approximately \$20,000 dollars.

Recommendation 4: Define a Common Threshold for LTS And Characterize All Cleanup Sites as Either LTS or Not.

A clear line should distinguish LTS sites from cleanup sites. This defining point should clearly exist for every cleanup in every program. Every site should be characterized as in LTS, or not. A clearly and reliably defined universe of LTS sites could be readily captured within DNR information management systems and, in turn, made transparent to the public (see recommendation 2). This would provide clarity to the LTS-affected regulated community and other stakeholders, and it would allow DNR to squarely manage a well defined universe of LTS sites.

²¹¹ Amy Jiron, Stephen Merrill Smith, Susan Eddy, and Keith Haag, Noted from the Field: Land Use Controls Tracking; A Status Report, (Apr. 19, 2006) (avail. at <http://www.lucs.org>).

²¹² The DNR Permits Section has lacked resources to populate RCRAInfo with IC information, in part, because of the rather large effort to identify IC information at historical sites.

We did not estimate the cost to make this management decision. Nor did we estimate the cost of defining the line which distinguishes LTS from cleanup and, in turn, triggers a cleanup site into the LTS process. The cost to actually implement it may be significant, depending. On a prospective basis, very little cost might be necessary to characterize cleanup sites as LTS (or not), once a clear standard exists. Performing this characterization on historical sites may be difficult. As discussed in Section 5, above, nearly ten thousand (10,000) cleanup sites exist, yet only five hundred and fifty (550) squarely fall in LTS. Thus, over nine-thousand sites might need review (not including emergency response spill sites). The most ripe sites for this analyses probably include archived non-NPL sites, pre-law landfills, underground tank sites, and emergency response spill sites. Such an effort, we estimate, might require (at least) three full time employees over three years. External contractor costs for such an effort might range from about \$150,000 to \$200,000 dollars per year.

Recommendation 5: Develop an LTS Monitoring and Auditing Program That Involves Responsible Parties and Property Owners.

As described above, increasingly states turn to either responsible parties or contaminated site owners to monitor and self-certify that ICs continue to work properly. This approach eases the burden of state agency staff. LTS sites in Missouri seem likely to increase. As more sites become closed under the BVCP and other programs and, perhaps, as DNR otherwise shifts sites into LTS. Even with the current number of LTS sites, DNR staff largely suggested that their internal resources would constrain their LTS monitoring activities.

DNR should develop a program, by regulation or as mentioned above, through legislation, which requires responsible persons and/or current site owners to inspect and certify IC compliance. DNR should specify audit “checklist” items and should closely consider whether to require title review (at some frequency) to ensure enforceable covenants remain in place, not out-prioritized by other title encumbrances. In addition to this self-certification program, DNR should conduct random audits, to ensure that persons truthfully self-certify. DNR should post the result of its random LTS audits conspicuously on their web page.

The cost of initially establishing this program would include the development of an audit checklist, and the internal processes to track and review self-audits. We estimate that this initial effort could be handled internally within the course of DNR staff’s normal workload. Maintaining the program would include reviewing self-audits, tracking audits within a DNR database(s), conducting periodic DNR audits, and posting such audit results on the DNR web page. Based on the current and growing number of LTS sites, we estimate that this auditing program could be handled by two (2) to three (3) full time employees.

Recommendation 6: Improve Environmental Covenant Implementation.

Other than requiring the recording of environmental covenants, Missouri law, regulation, nor guidance seem to address implementation. The current state of a property's title may significantly impact the force of an environmental covenant. Prior to environmental covenant approval, the Florida Department of Environmental Quality requires that its office of general counsel receive and review a title ownership and title encumbrance search "which identifies who has title to the property, and ALL others with an interest in the property such as lessees, mortgage holders, liens, and easement."²¹³ Similarly, US EPA may not acquire an environmental covenant interest unless the Department of Justice Land Acquisitions Section first reviews title evidence and determines that the state of the title will allow the covenant to work as EPA intends.²¹⁴

DNR should employ a process to review title ownership and title encumbrances prior to recording environmental covenants. This will help ensure the long-term reliability of the covenant. This process may be especially important if, as discussed above, Missouri enacts a UECA or UECA-like statute.

We estimate that title search and title review costs would cost approximately \$1,000 dollars per parcel, and up to ½ of a full time effort for DNR staff attorney.

Recommendation 7: Pursue Opportunities to Expand Missouri One Call to Include Residual Contamination or IC Information.

Missouri One Call holds promising potential as an LTS tool. This One Call program currently prevents excavation activities from damaging underground utilities. Similarly, it might prevent excavation into contaminated soil or drilling into contaminated groundwater. Although not insurmountable, legal impediments and technical challenges pose barriers to One Call's expansion into environmental contamination.

DNR should support Madison County's current efforts to enter areas of contaminated soil into Missouri One Call. DNR should otherwise invest time to study the feasibility of a One Call process for environmental contamination in Missouri. DNR should evaluate whether DNR would join member and, in turn, bear the burden of responding to excavation requests. Or whether DNR (through regulation or perhaps legislation) would require responsible parties or site owners to join One Call.

We estimate that a One Call feasibility study may cost DNR approximately \$40,000 dollars. Eventual implementation costs to ENR will vary on number of sites and

²¹³ FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WASTE MANAGEMENT, INSTITUTIONAL CONTROL PROCEDURES GUIDANCE 7 (Feb. 2004).

²¹⁴ Personal communication between Michael Sowinski, DRPA Inc. and Greg Sullivan, US EPA.

whether DNR or private parties join as One Call members. For approximately three hundred sites, Mississippi estimated its operational cost at \$100,000 dollars per year.

Recommendation 8: Outreach to and Secure LTS Involvement from Local Governments.

Local government holds an enormous potential to contribute to LTS activities and, in turn, to operate as DNR's most important LTS partner. Local government's most crucial role may include so called non-transaction LTS monitoring, where land use modifications, such as grading or building, occur under the same property owner. Cities, towns, townships, and counties in Missouri vary widely in their legal and practical ability to contribute to LTS. But even so, very many local governments in Missouri control or otherwise manage land use, building code enforcement, septic system regulation, flood control, or other land-related activities. This puts them closely in touch with land activities and, in turn, fertile grounds to support LTS.

DNR should develop a local government campaign. The campaign should seek to keenly understand local government authorities, abilities, and practical resolve. The campaign should look to other state-local cooperative models, including septic tank regulation, for guidance and leverage. The campaign should understand how DNR LTS sites distribute across various local governments, in order to help prioritize the campaign's activities. DNR should seek to involve local governments in every cleanup decision, especially ones that will involve LTS. Through a combination of outreach, education, relationship-building, agreement and, perhaps, legislation, DNR should seek to forge a collaborative LTS relationship with local governments. An increased LTS role would impose new costs on local governments which might be difficult for them to justify. To help address this important issue, DNR's local government campaign should seek to help identify the cost benefits of increased local government involvement. This will be a significant effort.

This effort will require, we estimate, two full-time employees for at least three years. In addition, it may require external consultant costs on the order of \$100,000 dollars per year. This investment, however, will likely result in the reduction of LTS burdens (and costs) that DNR will bear over the long term.

Recommendation 9: Reconsider LTS Fee Estimates, Apply Such Fees Beyond the Brownfields Program, and Establish a Fund or Other Mechanism Which Preserves LTS Funds Directly for LTS Purposes.

DNR should re-estimate LTS life cycle costs, in light of forthcoming EPA guidance, an evolving understanding of LTS obligations, and based on the estimated costs of an expanded LTS management program (as outlined in this report). DNR should charge LTS fees at all LTS sites, not only brownfield sites. DNR should evaluate the feasibility of charging LTS fees on an annual basis, similar to a discharge permit, at

Missouri Long Term Stewardship:
Current Practices and Future Recommendations

sites which continue to require LTS. DNR should establish a trust fund or similar mechanism which preserves LTS fees for LTS purposes.