

Hazardous Waste Management Commission Report

July through September 2012

Quarterly Report



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Hazardous Waste Management Commissioners

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"The goal of the Hazardous Waste Program is to protect human health and the environment from threats posed by hazardous waste."

For more information

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Past issues of the Hazardous Waste Management Commission Report are available online at dnr.mo.gov/env/hwp/quarterlyreport.htm



**Missouri Department of Natural Resources
Hazardous Waste Program**

Program Update

In the months from June to September, our state as a whole suffered a severe drought, making access to adequate water supplies difficult for Missouri's agricultural producers. On July 23, Gov. Jay Nixon signed an executive order providing emergency assistance to agricultural producers by providing a program for water source development or water distribution. This program required a tremendous amount of coordination and review effort to ensure a relatively seamless process. At last count, 57 percent of our program's staff worked on drought issues, devoting a total of more than 1,825 hours to the effort. I am very proud of my staff and the hours of service they dedicated to working on the drought effort. This time away from their normal duties meant they would need to work even harder to complete their routine projects after they returned to their normal job functions. Our staff's service minded approach in assisting the citizens of Missouri, along with the teamwork of the remaining staff who also deserve praise for stepping up to maintain essential program operations, helped make the drought response effort such a success.

Also during this time, House Bill 1251 was signed on July 10 and went into effect on Aug. 28. This legislation includes a provision restricting the Hazardous Waste Management Commission from publishing rules or regulations stricter than certain parts of the Resource Conservation and Recovery Act. This law also requires the department to review existing rules in chapters 3, 4, 5 and 7 of the hazardous waste regulations, found in Title 10, Division 25 of the Code of State Regulations, to determine which of these rules are stricter than current federal regulations, and to begin the process to rescind those rules. Meeting the requirements of this new law is and will be a significant undertaking for the Hazardous Waste Program. With these rule changes will also come the need to revise numerous technical bulletins and guidance documents, retrain inspectors and provide outreach to the regulated community to help prepare them for these changes. This makeover of the hazardous waste regulations is no small undertaking and will take years to accomplish. More information about this issue is in the Budget and Planning and Enforcement and Permit sections of this report.

While efforts to work on the drought and House Bill 1251 activities took a significant amount of time and resources from this past quarter, Hazardous Waste Program staff realized many other important accomplishments as well. Our Superfund Section has completed several records of decisions and five year review reports and our Brownfield/Voluntary Cleanup Program Section has issued nine certificates of completion. Summaries of these projects, along with reports of the activities from the other sections of the Program are detailed in this report

I could not be prouder of the program staff and their efforts this quarter, as they truly worked as a team during this time and shown their dedication as public servants. I hope you enjoy reading about their efforts in this edition of the Commission Quarterly Report.

Sincerely,



David J. Lamb

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**How House Bill 1251 Will Affect Hazardous Waste Budget and Planning
 Related Activities**

HB1251 requires the department allow large quantity generators, or LQGs, and treatment, storage, and disposal facilities, or TSDFs, to report on an annual basis, rather than the current quarterly reporting requirement, if they file their reports electronically by means specified by the department. The bill requires this be implemented for the July 1, 2015 to June 30, 2016 reporting year. That report will be due by Aug. 14, 2016.

Current Reporting Requirements**

	Generator's Hazardous Waste Summary Report (MO 780-1097)	Facility Summary Report (MO 780-0408)	"Biennial Report" (EPA form 8700-13 A/B)*
Small Quantity Generator, or SQG	Annually	NO	NO
Large Quantity Generator, or LQG	Quarterly	NO	YES
Treatment, Storage, or Disposal Facility, or TSDF	Assumed to be LQG	Quarterly	YES
Resource Recovery Certificate holder, or RR	Assumed to be SQG or LQG	Quarterly	YES

* Federal Requirement.

** These requirements will still apply if the reporter does not use the electronic method developed by the department.

Reporting Requirements After Implementation of HB1251***

	Generator's Hazardous Waste Summary Report (MO 780-1097)	Facility Summary Report (MO 780-0408)	"Biennial Report" (EPA form 8700-13 A/B)*
Small Quantity Generator, or SQG	Annually	NO	NO
Large Quantity Generator, or LQG	Annually	NO	YES
Treatment, Storage, or Disposal Facility, or TSDF	Assumed to be LQG	Annually	YES
Resource Recovery Certificate holder, or RR	Assumed to be SQG or LQG	Annually	YES

* Federal Requirement.

***These requirements will only apply if the reporter uses the electronic method developed by the department.

The program has started working with the Information Technology Services Division, or ITSD, on development of a Web based reporting system. We are also exploring the possibility of assisting those completing the biennial report by prepopulating their report with data we receive from our reporting. This information was presented at the REGFORM seminar. At that seminar, we asked the regulated community for ideas to include in the system and for volunteers to test the new system.

Certificates of Completion

The Brownfield/Voluntary Cleanup Program issued certificates of completion to 10 sites between July and September 2012. Brownfields are real property, where the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant. These properties bring the total number of sites cleaned up under this program to 663.

Through the BVCP, private parties agree to clean up a contaminated site and are offered some protection from future state and federal enforcement action at the site in the form of a no further action letter or certificate of completion from the state.

Lewis Elementary School – Excelsior Springs

The Lewis Elementary School site is located at 501 Leavenworth Street in Excelsior Springs. The site is five acres and contains a 77,219 square foot elementary school. While removing a walk-in refrigerator, a 1,000 gallon fuel oil tank was discovered. The tank's contents were removed and the tank was closed in place. Soil and groundwater sampling showed elevated levels of diesel range organics and polycyclic aromatic hydrocarbons.

The heating oil tank was closed in place then filled with concrete. Groundwater samples, obtained from temporary wells at closure, indicated high levels of total petroleum hydrocarbons - diesel range organics, or TPH-DRO. However, permanent monitoring wells installed in September 2009 during site characterization, in the same area as the original temporary wells, showed little to no DRO. A confirmation round of sampling was performed in September 2011 indicating minimal DRO in the groundwater well below the default target levels. The department determined the site is safe for its intended use.

Cave Springs Crossing Shopping Center – St. Charles

The Cave Springs Crossing Shopping Center site is located from 3801 to 3865 Mexico Road in St. Charles. This site has been developed for retail use since 1979. It is currently occupied by the Cave Springs Crossing Shopping Center. Tenants include a Wendy's restaurant, Sears Home Appliance and TJ Maxx. Previous tenants included several dry cleaning facilities. Phase II investigations at the site revealed elevated levels of tetrachloroethene. In addition, a couple of store units have suspect asbestos-containing material.

Soil contaminated with tetrachloroethene around the former dry cleaner was excavated to residential standards. Asbestos-containing window caulking was removed from two store units on-site. The department determined the site is safe for its intended use.

Forest West – St. Louis

The Forest West site is located at 4359 Chouteau Ave. in St. Louis. The site consists of a city block on the south side of Highway 40, bounded by Chouteau, Newstead and Tower Grove Avenues. The City of St. Louis Department of Parks acquired the block to convert it into a city park. The site was originally residential and later commercial, including an auto repair shop, grocery store, window cleaning company and construction equipment yard. Sampling detected elevated levels of lead in surface soils, in various areas of the site, probably derived from lead paint used on the former buildings.

A risk assessment was performed using the Missouri Risk-Based Corrective Action Guidance, or MRBCA. The city chose to use conservative target levels for the site allowing for unrestricted (including residential) use. The work included the excavation and disposal of 2,225 tons of lead-contaminated soil and debris from the site.

The new park came about as part of an arrangement between the City of St. Louis and Barnes-Jewish Hospital, which lies just across Highway 40 from the site. Barnes wanted to lease a parcel of Forest Park for expansion and the city agreed to a long-term lease for the property in exchange for cash it then used to purchase two locations for new parks. Land for the new Chouteau Park was assembled by Forest West Properties, a redevelopment arm of the Washington University Medical Center Redevelopment Corp., which is associated with Barnes. The department determined the site is safe for its intended use.

Sunshine Electronic Display Corporation – St. Joseph

The Sunshine Electronic Display Corporation site is located at 501 Sylvania St. in St. Joseph. This 1.43 acre site saw numerous uses between 1883 and 1979, including a hotel, photography companies, photographic chemicals company, auto repair garages, paint shops and a printing facility. Currently, the site serves as an electronic sign production facility, with a 24,000 square foot manufacturing building, a building under construction and a parking lot/staging area.

Concentrations of metals were found in the surficial and subsurface soil in excess of the department's risk-based target levels for residential land use. An environmental covenant has been placed on the property restricting the use of the site to non-residential use, prohibiting the drilling of drinking water wells and notifying construction workers of the soil contamination. In addition, any soil disturbance at the site will be done in accordance with the department approved soil management plan, attached to the covenant as exhibit C. The department determined the site is safe for its intended use.

North Park – Phase II - Berkeley

The North Park – Phase II site is located at the northeast corner of I-70 and I-170 in Berkeley. The phase II area of the North Park site comprises the northern portion of the entire 600 acres, with North Hanley Road and the Maline Creek forming the southern boundaries. The environmental concerns of the phase II portion of the property included:

- Asbestos and miscellaneous waste within on-site structures.
- Miscellaneous solid waste within and around residential buildings.
- Petroleum hydrocarbon contamination from an unknown spill.
- PCBs and miscellaneous hydrocarbons from a former power house.

Asbestos was removed from on-site buildings and disposed, along with miscellaneous buried debris, 55 gallon drums of oil and PCB containing light ballasts. Approximately 150 tons of petroleum-contaminated soil was excavated and disposed from the area known as the Lurch Avenue spill. Confirmation samples revealed concentrations of contaminants in the soil were below residential risk-based target levels. Filed in the property chain-of-title is a soil management plan, which is an informational notice that focuses on how to manage any debris at the site that might be excavated in the future. The department determined the site is safe for its intended use.

McDonalds State Line – Kansas City

The McDonalds State Line site is located at 7833 State Line Road in Kansas City. The former State Line Cleaners was enrolled in BVCP in 1999 after it was purchased by McDonalds Corporation, which has a store adjacent to the site. Perchloroethylene, or PCE, dry cleaning solvent was detected in soil and groundwater around the sewer line leaving the building. The site was also enrolled in the Dry Cleaning Environmental Response Trust, or DERT, Fund in 2006. The site adjoins a former gas station, which was remediated under the department's tank program.

Site investigations revealed the presence of a dissolved plume of perchloroethylene, dry cleaning fluid and its degradation products in soil around the building's sewer line and in shallow groundwater at the site. McDonalds excavated contaminated soil along the building's sewer lateral in 2002. Groundwater investigation and monitoring was performed to determine the extent of the groundwater plume and to evaluate stability. The adjacent tank site did not affect groundwater at the subject site. Risk assessment for the plume was performed using the Missouri Risk Based Corrective Action Guidance, or MRBCA, of June 2006. The plume was treated beginning in 2006 with injections of zero valent iron/elemental carbon slurry to promote natural biodegradation. Contaminant concentrations decreased significantly and a second treatment was performed in 2011 on a single well in the source area. Upon closure of the site, all monitoring points were below MRBCA target levels and were stable or decreasing. The department determined the site is safe for its intended use.

The MRBCA guidance was introduced during the investigation and remedial design process for the McDonalds site. Amongst other advancements over the department's old cleanup guidance, MRBCA introduced vapor intrusion from groundwater as a potential exposure pathway for volatiles such as PCE. The McDonalds site was remediated to standards protective of the vapor intrusion pathway, ensuring safety for future occupants of the property as well as the surrounding neighborhood.

MicroFinish Facility – St. Louis

The MicroFinish Facility site is located at 4001 Gratiot St. in St. Louis. This 2.799-acre site contains a single-story building. The facility, comprised of 123,797 square feet and originally built in 1976, is currently home to MicroFinish, a metal plating facility. Metals and TCE are present, above the default target levels or DTLs, in the soil and groundwater at the site.

Site investigations revealed no contaminants of concern in the soil or groundwater exceed residential risk-based target levels. The department determined the site is safe for its intended use.

St. Louis Army Ammunition Plant – St. Louis

The St. Louis Army Ammunition Plant site is located at 4801 Riverview Blvd. in St. Louis. This action is the final step in investigation and cleanup of environmental issues at the site and it signifies the site is ready for reuse.

Its official name was the St. Louis Army Ammunition Plant, but people called it the "Chevrolet Shell Plant." Located at I-70 and Goodfellow, the fireproof Forge Building was an iconic building with weird 'wings' on the roof designed to provide ventilation for hot machinery inside. The building looked as though it could dock alien spacecraft and was a St. Louis landmark until the building was demolished a couple of years ago.

Now, the St. Louis Land Clearance for Redevelopment Authority, or LCRA, plans to turn the property located at a very busy intersection into a productive business location. 100,000 cars pass the site each day and 140,000 people live within a three mile radius.

During World War II, 18 acres of the sprawling St. Louis Ordinance Plant were converted from small arms munitions production to produce 105 mm Howitzer shells. The new plant was designated the St. Louis Army Ammunition Plant, or SLAAP.

A total of 2.5 million shells were produced for World War II until the plant was placed on standby in 1945. The plant was reactivated for the Korean and Vietnam wars and produced almost 24 million shells before production stopped in 1969.

In 1984, some of the buildings were renovated to house Army clerical and administrative operations. In 1989, the Army determined SLAAP was no longer required to support its munitions mission and production equipment was removed. The site was slated for complete closure and the Base Realignment and Closure, or BRAC, program took over in 2003.

Environmental investigations by the Army began at the site around 1999. Ammunition production involved producing brass shells using heavy presses. The pressing process used PCB-containing lubricating oil, which contaminated areas of the facility. The Army performed a major cleanup of PCB contamination and removed the large building in the center of the site (Building #3) around 2002 under the oversight of EPA and the department's Federal Facilities Section.

After the majority of cleanup was complete, the property was transferred to the LCRA in early 2006, under an agreement where LCRA would demolish remaining structures and perform final soil investigation and cleanup. The site was accepted into the BVCP in February 2006.

Investigation and remediation activities included:

- Removal and disposal of asbestos cement exterior siding and asbestos-containing thermal insulation, window glazing, floor tile and mastic prior to demolition.
- Disposal of light ballasts, fluorescent tubes, refrigerants and miscellaneous wastes from building interiors prior to demolition.
- Sampling, removal and disposal of fire brick containing naturally-occurring radioactive material, or NORM.
- Investigation of underground tunnels for lead-based paint and asbestos prior to demolition.
- Sampling of concrete foundations and masonry prior to crushing and reuse as fill on the site.
- Re-evaluation of soil and groundwater investigation and remediation performed prior to enrollment of the site into the BVCP, including screening of sampling results against MRBCA standards.
- Additional soil investigation in areas identified by the data review.
- Excavation and landfill disposal of soil contaminated with metals, polycyclic aromatic hydrocarbons, or PAHs, and pesticides.
- Removal and disposal of contaminated sediments from sewer lines.
- Filing of an environmental covenant in the property chain of title to restrict future use to non-residential.

The department determined the site is safe for its intended use.

The final phase of cleanup conducted under the BVCP included the disposal of 900 tons of contaminated soil, 3,600 gallons of sewer sediment and wash water and removal and disposal of asbestos containing materials including:

- 30 square feet of tank insulation.
- 1,360 linear feet of pipe insulation.
- 26,600 linear feet window glazing.
- 160,478 square feet of asbestos cement (Transite) panels, tar paper and metal siding from building exteriors.
- 29,800 square feet of roofing materials.

Missouri Department of Natural Resources - Hazardous Waste Program Brownfields/Voluntary Cleanup Section

Aviator Business Park, LLC - Hazelwood

The Aviator Business Park LLC site is located from 6050 to 6080 North Lindbergh in Hazelwood. The site is a portion of the former Ford St. Louis Assembly Plant, or SLAP. The 41-acre parcel contained a large warehouse built by the Schnucks grocery chain, which was purchased by Ford for use as warehouse space for the adjacent auto plant. Following closure of the Ford plant, the property was purchased from Ford by Panattoni Development Co., which enrolled the site in BVCP in 2008 for remediation of lead paint, asbestos and miscellaneous hazardous materials inside the building.

Site investigations identified asbestos containing materials, or ACMs, lead-based paint and miscellaneous hazardous materials inside the warehouse building. Prior to demolition of the building, ACM was removed from the building and properly disposed. Miscellaneous hazardous materials, including mercury switches and PCB fluorescent ballasts, were removed from the building and properly disposed. Concrete and masonry was pre-characterized and categorized based on lab results and reused or disposed off-site according to an approved concrete reuse plan.

Suspect areas of potential soil contamination with petroleum products were sampled. An oil/water separator vault and 44.6 tons of surrounding soil were removed and disposed. Other investigation areas were found to be below applicable target levels.

The site was cleaned to standards suitable for unrestricted use. Risk assessment for the site was performed using MRBCA guidelines. The project involved large volumes of material, which were recycled to a high degree by Panattoni Development and its demolition contractor, Brandenburg.

ACM abatement included:

- 100,000 square feet of wall and ceiling panel mastic.
- 57,400 linear feet of expansion joint material.
- 6,000 square feet of floor tile and mastic.
- 1,100 linear feet of caulk and window glazing.
- 2,500 square feet plus 350 linear feet of other miscellaneous ACM.

Other hazardous materials removed from the building included:

- 405 high pressure sodium lamps.
- 2,750 fluorescent tubes.
- 110 PCB containing light ballasts.
- 11 mercury thermometers and switches.
- 12 exit signs.

Panattoni recycled and reused as much concrete and masonry as possible to minimize landfilled waste. The concrete reuse plan included four categories of material, ranging from clean fill that could be used without restrictions, two grades of lightly impacted material for controlled reuse and waste requiring landfill disposal. Concrete pavement, gravel base course and building masonry were pre-sampled prior to demolition and crushing.

The project involved:

- 42,500 tons of clean material crushed and reused on-site.
- 11,900 tons of material meeting non-residential target levels used as fill at the adjacent Ford Main Plant site.
- 120 tons (about 0.2 percent of the total) of lead-painted masonry disposed at a permitted landfill.

There were 4,414 tons of scrap metal recycled resulting in a total recycling rate of 95 percent for the entire project. Panattoni plans to turn the majority of the site into a business park and has already constructed an office building on the Lindbergh Avenue frontage and moved its offices into the building. The department determined the site is safe for its intended use.

JRG Hempstead – St. Joseph

The JRG Hempstead site is located at 3800 S. 48th Terrace in St. Joseph. This site consists of a 10 acre lot with a single story 155,000 square foot building, built in 1974. The site was formerly known as Acoustics Development Corporation, or ADCO, and has been used for various manufacturing operations since its construction, including metal anodizing, washing of metal components, above ground storage tank operations and the use of paint and paint related wastes. A phase II assessment indicated slightly elevated levels of trichloroethene, cis-1,2-dichloroethene and heavy metals in soil and groundwater. The phase I indicated there is a potential for lead-based paint and asbestos inside the building.

Initial investigations determined chlorinated solvents and heavy metals were present in soil and groundwater at the site. Further investigation included additional soil sampling and the installation of 12 groundwater monitoring wells. Metals in soil were determined to be consistent with background levels and chlorinated solvents in soil fell below the lowest risk-based target levels, the default target levels, or DTLs. Chlorinated solvents in groundwater did exceed the DTLs, however, following a quarterly series of groundwater monitoring and a risk assessment, it was determined the site meets the standards for unrestricted use.

Although the phase I environmental site assessment mentions the possibility of asbestos and lead-based paint, these items were not addressed as part of this cleanup. The department determined the site is safe for its intended use.

Sites in Brownfields/Voluntary Cleanup

	Active	Completed	Total
July	250	653	903
August	254	654	908
September	255	657	912

New Sites Received

July

- Davis Cleaners & Laundry (former), Columbia
- QuikTrip 671, St. Louis
- Historic Hall of Waters Building, Excelsior Springs

August

- De Tray Plating Works, Independence
- Riverview Commerce Park - Port Site, Herculaneum
- Igloo Cowork Building (The), St. Louis
- American TV & Appliance (Former), St. Louis
- Prescott Avenue Truck Terminal, St. Louis

September

- Shaw Neighborhood Gas Station, St. Louis
- Woodruff Building Parking Lot, Springfield
- Bogen Building, St. Louis
- BNSF Sugar Creek Derailment, Sugar Creek

Sites Closed

July

- McDonalds State Line, Kansas City
- North Park - Phase II, Berkeley
- Lewis Elementary School, Excelsior Springs
- Forest West, St. Louis
- Cave Springs Crossing Shopping Center, St. Charles
- Sunshine Electronic Display Corporation, St. Joseph

August

- MicroFinish Facility, St. Louis

September

- St. Louis Army Ammunition Plant, St. Louis
- JRG Hempstead, St. Joseph
- Aviator Business Park, LLC, Hazelwood

Drycleaning Environmental Response Trust Fund

The department’s Drycleaning Environmental Response Trust, or DERT, Fund provides funding for the investigation, assessment and cleanup of releases of chlorinated solvents from dry cleaning facilities. The two main sources of revenue for the fund are the dry cleaning facility annual registration surcharge and the quarterly solvent surcharge.

Registrations

The registration surcharges are due by April 1 of each calendar year for solvent used during the previous calendar year. The solvent surcharges are due 30 days after each quarterly reporting period.

Calendar Year	Active Dry Cleaning Facilities	Facilities Paid	Facilities in Compliance
Jan - March 2012	210	99	47.14%
Apr - June 2012	207	180	86.96%
July - Sept 2012	207	192	92.75%

Calendar Year 2012	Active Solvent Suppliers	Facilities Paid	Suppliers in Compliance
Jan - March 2012	11	11	100%
Apr - June 2012	11	11	100%
July - Sept 2012			

Cleanup Oversight

Calendar Year 2011	Active	Completed	Total
Jan - March 2012	24	10	34
Apr - June 2012	24	10	34
July - Sept 2012	25	11	36

New Sites Received

July
 Ambassador Cleaners, Ellisville
 Davis Cleaners & Laundry (former), Columbia

New Sites Closed

July
 McDonalds State Line, Kansas City

Missouri Department of Natural Resources - Hazardous Waste Program

Brownfields/Voluntary Cleanup Section

Reimbursement Claims

The applicant may submit a reimbursement claim after all work approved in the work plan is complete and the fund project manager has reviewed and approved the final completion report for that work. The fund applicant is liable for the first \$25,000 of corrective action costs incurred.

	Received	Under Review	Paid/Processed
July	5	6	5
August	2	8	5
September	0	3	1

	Received	Under Review	Paid/Processed
July	\$181,155.27	\$108,346.62	\$62,829.64
August	\$21,952.50	\$230,627.02	\$153,456.90
September	\$0	\$66,900.15	\$17,539.80

Reimbursement Claims Processed:

A G Cleaners	Kirkwood	\$17,539.80
Antioch One Hour Cleaners	Kansas City	\$35,070.30
Charter Dry Cleaning	Ellisville	\$30,078.00
Colonial Cleaners (Arsenal St.)	St. Louis	\$15,932.00
Grandview Plaza	Grandview	\$27,114.37
Park Lane Cleaners	Chillicothe	\$11,965.20
Plaza Ford Ideal Laundry & Dry Cleaners, Inc.	Kansas City	\$3,006.32
Tri State Service Co - E. Trafficway Site	Springfield	\$89,851.70
Tri-States Service Company	Springfield	\$25,030.48
Yorkshire Cleaners	Marlborough	\$3,238.17

Total reimbursements as of Sept. 30, 2012: \$2,052,246.04

DETR Fund Balance as of Sept. 30, 2012: \$1,087,626.83

How House Bill 1251 Will Affect Hazardous Waste Compliance and Enforcement Related Activities

Considering future changes prompted by recently signed House Bill 1251, Compliance and Enforcement Section staff are, and anticipate being, more busy and involved with these changes. House Bill 1251 was passed by the General Assembly and signed into law by Gov. Nixon on July 10. It became effective on Aug. 28. Section 260.373.1 of the bill states the Missouri Hazardous Waste Management Commission shall not publish rules stricter than U.S. Environmental Protection Agency rules in certain subject areas.

In general, affected topics include definitions; identification of hazardous waste; hazardous waste generators, and treatment, storage and disposal facilities, or TSDs. Topics that would not be affected by these changes include hazardous waste transporters, used oil, universal waste, resource recovery, underground storage tanks, solid waste and other state programs including Brownfields, radioactive waste fees, Dry Cleaner Emergency Response Trust Fund and Registry of Abandoned Sites.

House Bill 1251 gives the Hazardous Waste commission authority to retain or modify rules for:

- Waste generation thresholds for conditionally exempt, small quantity and large quantity generators.
- Descriptions of applicable registration requirements.
- Reporting of hazardous waste activities to the department (provided the department adopts rules effective for a reporting period from July 1, 2015, to June 30, 2016, which allow for electronic reporting on an annual basis by large quantity generators and TSDs).
- Display of hazard labels on containers and tanks during storage.
- Zinc fertilizer.
- Hazardous secondary materials burned for fuel or recycled.

To name a few actions, Compliance and Enforcement Section staff:

- Reviewed impacted chapters 3, 4, 5 and 7 of the Missouri Hazardous Waste Management regulations to help determine if and how each regulation may change based on the new “no stricter than” legislation.
- Will participate in the Hazardous Waste Forum with stakeholders to review regulations, seek forum input and discuss potential changes.
- Will focus particularly on impacts to regulations such as packaging, marking, labeling and satellite accumulation. We developed alternative language during previous Hazardous Waste Forum meetings.
- Is reviewing existing fact sheets, past regulatory determinations, interpretation letters and general compliance and enforcement procedures to determine what will change.
- Will work on compliance assistance bulletins for the regulated community.
- Will prepare new training and procedures for department hazardous waste inspectors and giving training based on final rule changes.

Inspections and Assistance

Regional Office Hazardous Waste Compliance Efforts

Conducted 103 hazardous waste generator compliance inspections:

- 11 at large quantity generators.
- 57 at small quantity generators.
- 29 at conditionally exempt small quantity generators.
- Five at E-waste recycling facilities.
- One targeted re-inspections.

Conducted three compliance assistance visits at hazardous waste generators.

Issued 44 Letters of Warning and three Notices of Violation requiring actions to correct violations cited during the 102 inspections conducted.

Received and investigated two citizen concerns regarding hazardous waste generators and 25 citizen concerns regarding waste oil.

Hazardous Waste Compliance and Enforcement Efforts

Conducted 13 inspections of commercial hazardous waste treatment/storage/ disposal facilities, two of which resulted in an issuance of a notice of violation.

Worked with the Attorney General's Office to prepare three settlement agreements.

Resolved and closed seven hazardous waste enforcement cases.

Received nine new enforcement cases and issued five letters of intent to initiate enforcement action.

Finalized nine settlement agreements.

Tanks Compliance and Enforcement Unit

Tanks Compliance and Enforcement Unit, or TCEU, staff continues to assist owners, operators and contractors with questions about amended underground storage tank regulations. On a daily basis, questions are answered about how regulations are interpreted and applied regarding closure requirements, assessing out-of-use tank systems, assessments to allow steel tanks to remain in use and reporting of underground storage tank, or UST, system tests and evaluations. These efforts are having positive results with closure of out-of-use UST systems.

The Missouri Legislature passed a bill during the 2011 session for the Petroleum Storage Tank Insurance Fund, or PSTIF, to initiate action for UST operator training. During its July 25, meeting, the PSTIF board voted in favor of moving forward with development of this EPA requirement. Heather Peters will continue to serve as liaison with PSTIF on this project, working with Tanks Section staff, other department programs and management to provide input and support.

During July through September, staff created 12 enforcement records for UST sites that had lapsed financial responsibility, or FR coverage. UST owners or operators subject to FR requirements must have a financial mechanism to clean up a site if a release occurs, to correct environmental damages and to compensate third parties for injury to their property and themselves. Releases can be costly and FR is an important component in protecting the health and property of tank owners or operators and neighbors. Staff resolved 75 enforcement cases, including 44 that also had FR violations. The unit also referred four facilities to the Attorney General's Office to take action for continuing FR violations.

Polychlorinated Biphenyl Inspector

Twenty five compliance inspections were conducted at various types of facilities throughout the state. These reports are forwarded to EPA Region 7, which has authority for taking any necessary enforcement action regarding polychlorinated biphenyl according to the Toxic Substances Control Act.

Hazardous Waste Transporter Inspector

The section's hazardous waste transporter inspector conducted 24 commercial vehicle inspections, during which three vehicles were placed out of service. The inspector also wrote up 11 other Department of Transportation safety violations. Currently, the inspector is putting 10 percent of inspected trucks out of service for safety violations. As part of Commercial Vehicle Safety Association's protocol, the department sends inspection reports to Missouri Highway Patrol. The transporter must certify to highway patrol the violations were corrected.

The inspector sent 48 letters to inactive, unregistered or conditionally exempt small quantity generator companies that shipped either small or large quantities of hazardous waste. These facilities are required to register as generators with the department.

As of Sept. 30, there were 255 licensed hazardous waste transporters in the state. The number of licensed hazardous waste transporters has slowly increased over two years.

Liberty Environmental and Recycling LLC - Cape Girardeau

Liberty Environmental and Recycling LLC transports and processes used oil in Cape Girardeau.

Liberty Environmental was inspected by the Compliance and Enforcement Section of the Hazardous Waste Program. Inspection found this facility failed to do the following:

- Carry proof of license.
- Register and obtain an EPA identification number.
- Have a secondary containment system for used oil.
- Have a secondary containment system with a capacity equal to at least 10 percent of the maximum containerized volume.
- Have secondary containment that contained a dike, berm, or retaining wall and floor.
- Have secondary containment with an impervious surface.
- Maintain current files about vehicle inspections, training records and incident reports.
- Keep a written analysis plan.
- Operate and maintain its own self to minimize the possibility of a release of used oil.
- Have proper emergency equipment.
- Have a contingency plan.
- Have a written operating record.
- Mark used oil containers "Used Oil."

Liberty Environmental also transported hazardous waste without a Missouri hazardous waste transporter license.

As a result of the department's actions, this facility:

- Constructed a used oil secondary containment area with impermeable surface and sufficient volume to contain spills.
- Obtained EPA and Missouri Department of Natural Resources generator identification numbers.
- Obtained a Missouri Hazardous Waste Transporter License.
- Obtained emergency and spill equipment, which is maintained near its storage area.

These actions resulted in safer working conditions for employees. The penalty was \$6,660, of which \$3,330 was suspended, contingent upon Liberty Environmental not committing any repeat or Class I violations for two years following the effective date of the settlement agreement. The remaining penalty of \$3,330 was made payable in four quarterly installments of \$832.50 to the Cape Girardeau School Fund.

Missouri Department of Natural Resources - Hazardous Waste Program Compliance and Enforcement Section

Compliance and Enforcement

SantoLubes, LLC - St. Charles

SantoLubes is a lubricant manufacturer in St. Charles. The department's St. Louis Regional Office inspectors found the facility:

- Operated as an unpermitted treatment, storage and disposal facility.
- Stored waste in containers in poor condition.

The inspection also found SantoLubes failed to do the following:

- Update notification information.
- Determine if waste was hazardous.
- Have a containment system for liquid waste.
- Properly package, mark and label containers.
- Inspect weekly and daily.
- Post "No Smoking" signs near ignitable waste.
- Operate and maintain the facility in a way to minimize the possibility of an emergency.
- Maintain a contingency plan on-site.
- Maintain a personnel training plan on-site.

As a result of the department's actions, SantoLubes:

- Removed all of the waste on-site and disposed of it properly at a permitted treatment, storage and disposal facility.
- Provided training and contingency plans.
- Ceased storing waste on-site.

The penalty was \$14,700, of which \$3,675 was paid up front to the St. Charles County School Fund. The remainder of the penalty will be paid in three quarterly installments of \$3,675 each to the school fund.

Trinity Products Inc. - O'Fallon

Trinity Products Inc. is custom steel fabricator in O'Fallon. During the inspection conducted by the St. Louis Regional Office, this facility failed to:

- Register as a hazardous waste generator.
- Maintain manifests for a three-year period.
- Have waste packaged, labeled and marked per DOT requirements during entire on-site storage period.
- Mark starting dates of accumulation on containers.
- Have placards available for transporters.
- Have emergency coordinator's name and phone number posted near a phone.
- Post phone number for their local fire department near the phone.
- Post, near the telephone, the location of fire extinguishers and spill control equipment, and if present, fire alarms.
- Ensure employees are familiar with waste handling and emergency procedures relevant to their responsibilities during normal operations and emergencies.
- Make arrangements with local emergency agencies.

As a result of the department's actions, the facility:

- Properly disposed of approximately 1,700 pounds of hazardous waste.
- Updated its notification with the state.
- Developed emergency procedures and coordinated plans with local emergency response agencies.

The penalty was \$26,000, of which \$10,000 is suspended contingent upon not committing any repeat or Class I violations for two years following the effective date of the consent judgment. The remaining penalty of \$16,000 was payable to the St. Charles County School Fund in four quarterly installments of \$4,000 each.

Exide Technologies Inc. - Forest City

Exide Technologies is a secondary lead smelter for recycling lead-bearing materials in Forest City. Department inspectors found they failed to:

- Properly mark and label hazardous waste storage containers.
- Maintain containers in good condition.
- Keep containers closed in storage.
- Inspect storage areas daily.
- Maintain inspection logs.
- Conduct annual review of initial training.

As a result of the department's actions, Exide:

- Provided a response letter to the department to address each violation.
- Submitted a permit appeal to the Hazardous Waste Management Commission.
- Ceased the practice of accepting trucks with noncompliant trailers.

The Hazardous Waste Management Commission voted to uphold the conditions of the permit on Dec. 15, 2011. The penalty was \$13,000 payable to the Holt County School Fund.

Advanced Industries Inc. - Odessa

Advanced Industries Inc. is a fabrication and manufacturing facility for military hardware located in Odessa. In addition to operating as a hazardous waste treatment/storage disposal facility without a permit, Advanced Industries failed to:

- Register as a hazardous waste generator.
- Use a licensed hazardous waste transporter.
- Update notification of regulated waste activity as required.
- Remove wastes within 90 days, if facility accumulates 100 kilograms or more of hazardous waste per month.
- Clearly mark containers with "Hazardous Waste".
- Package, label or mark waste per DOT standards during the entire on-site storage period.
- Mark starting dates of accumulation on containers.
- Inspect and maintain the facility weekly.
- Conduct daily inspections of areas subject to spills (i.e., waste handling areas).
- Have placards available for transporters.
- Include generator's EPA identification number.
- Include generator's name, address and telephone number.
- Keep satellite containers closed.
- Mark containers identifying contents and the beginning date of accumulation.
- Remove wastes stored in satellite areas for one year or more.
- Have adequate and proper spill control, decontamination and safety equipment available (fire blankets, respirators, SCBA, absorbents, etc.).
- Have communication and emergency equipment tested and maintained.
- Provide a device in the hazardous waste operation area capable of summoning emergency assistance.
- Ensure personnel are trained to respond to emergencies including the use of alarm systems, emergency equipment and contingency plan.
- Ensure employees do not work in unsupervised positions until completely trained.
- Have training reviewed annually.
- Have the program director trained in hazardous waste management procedures.
- Provide personnel training plans on-site.

- List job title, job description and name of employee filling each position.
- Provide a written description of introductory and continuing training given for each position.
- Provide documentation of training completed by personnel.
- Designate a primary emergency coordinator.
- List emergency equipment including description, location and capabilities.
- Provide, and maintain until facility closure, records of current personnel.
- Maintain former employee records for at least three years.
- Have a contingency plan maintained on-site.
- Have an emergency plan submitted to local emergency response agencies.
- Have an emergency coordinator on-site or on call.
- Provide a plan that describes actions personnel must take in response to fires, explosions or other releases of hazardous waste.
- Describe arrangements with emergency response agencies.
- Provide a list of names, addresses and phone numbers, both home and office, of emergency coordinators.
- Designate a primary emergency coordinator.
- List emergency equipment including description, location and capabilities.

As a result of the department's actions, Advanced Industries evaluated all of its processes to minimize its waste generation and in turn are making significant steps to reduce its generation rate. The penalty was \$40,000 with \$28,000 suspended for two years. The remaining \$12,000 was made payable by quarterly installments to the Lafayette County School Fund. These actions resulted in protection of the environment, adjoining property and persons, as well as providing safer working conditions for employees.

Missouri Pesticide Collection Program

This summer through fall, the department's Environmental Services Program staff oversaw the Missouri Pesticide Collection Program. The Missouri Pesticide Collection Program is part of a Supplemental Environmental Project funded by Walmart in settlement of a hazardous waste enforcement case. The settlement agreement was signed in March and required \$1,050,000 be spent providing opportunities for farmers and households in Missouri to properly dispose of their waste pesticides and herbicides.

The collection program was open only to households and farmers, and was focused on the rural areas of the state. The program was overseen by Hazardous Waste Program, while the events themselves were conducted by a contractor, The Environmental Company.

Collection events in this quarter were conducted on July 7 in St. Joseph, July 21 in Cameron, Aug. 4 in Bunceton, Aug. 18 in Macon, Sept. 8 in Marshall and Sept. 22 in Warrenton. As of Oct. 6, all nine of the scheduled events were completed. Based on estimates, approximately \$500,000 remains at the conclusion of the final scheduled event. The program is currently accepting recommendations and reviewing options for additional pesticide collection events in the future, likely resuming in spring 2013.

For more information or questions about the pesticide collection program, visit the website at www.dnr.mo.gov/env/hwp/pesticide or contact Ricardo Jones at 573-526-3214.

Ecological Risk Assessment

Background

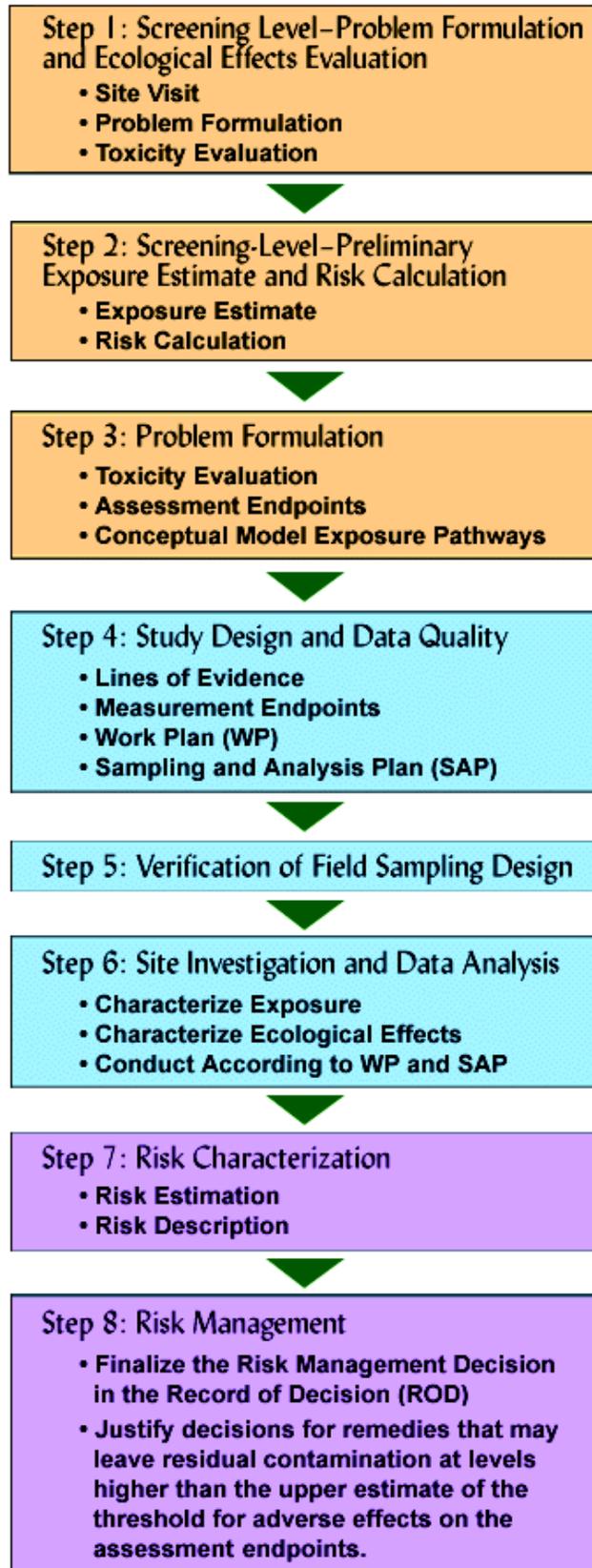
Ecology is defined as the study of the relationship of organisms to their environment. An ecological risk assessment, or ERA, evaluates the potential adverse effects human activities have on the living organisms that make up ecosystems. Further, a risk exists if a contaminant has the ability to cause one or more harmful effects on the ecosystem. According to Missouri Risk-Based Corrective Action, or MRBCA, guidance, a risk may exist if contaminants' concentrations are above default target limits and a natural habitat exists on or near a site. An extreme example is a duck in an oil spill. Oil is a stressor and a duck is an ecological component that is in direct contact with harmful levels of oil contaminant.

EPA Ecological Risk Assessment

EPA breaks this assessment into two parts. First a screening ecological risk assessment, or SERA, is conducted. If SERA detects no potential for ecological risk, the assessment ends. If SERA detects potential ecological risk, a baseline ecological risk assessment, or BERA, is conducted, which could involve testing of potentially impacted wildlife or vegetation.

MRBCA Ecological Risk Assessment

Similarly, ERAs in MRBCA begin with a Level 1 Qualitative Screening Evaluation. Qualitative versus quantitate: A qualitative risk is determined by a presence or absence of certain risks and a quantitative risk focuses on amount of contaminant. If no qualitative risks are detected during a Level 1 Screening, the MRBCA ecological risk process ends there. A Level 1 Screening includes an assessment of whether site contaminants are near surface water bodies, wetlands, karst, rare, threatened or endangered species, or environmentally sensitive areas. If a Level 1 Screening detects potential risk, further analysis is conducted. This additional analysis includes comparison of site specific contaminant levels to applicable standards and a site specific evaluation.

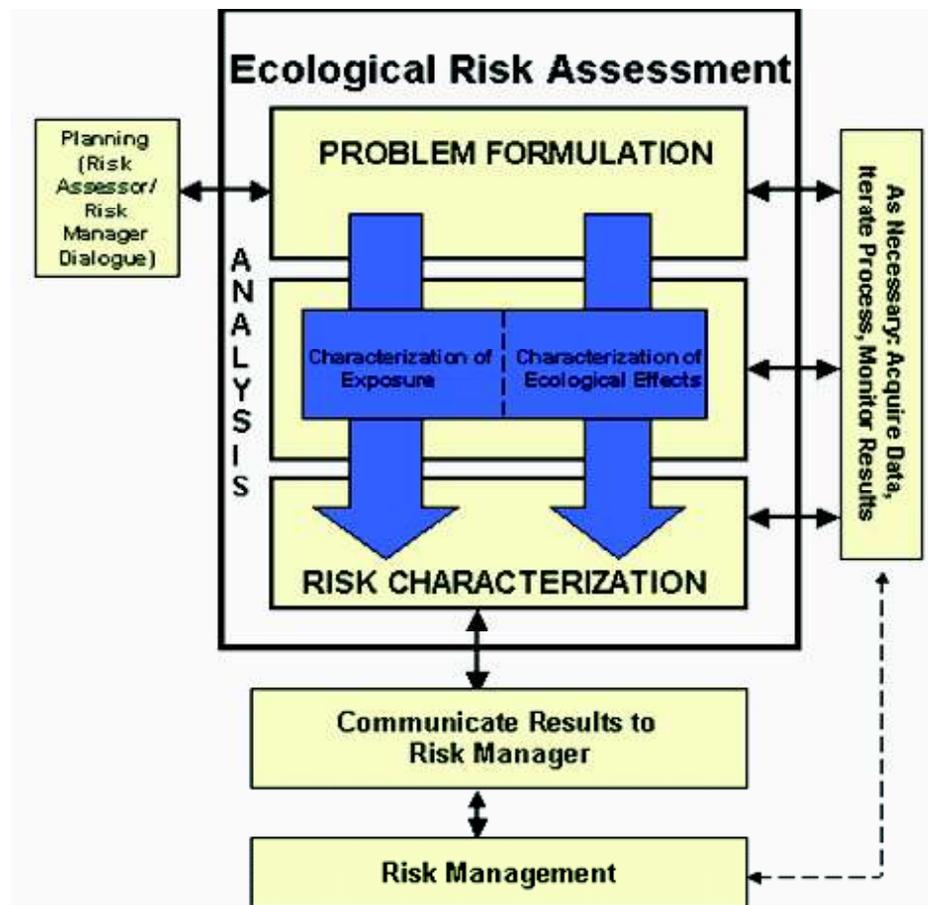


Results of an ERA along with human health risk assessments are necessary to determine what level of cleanup or long term stewardship is required at a hazardous waste site. Moreover, data from an ERA can be incorporated into a natural resource damages assessment.

Ecological Risk Assessment at Federal Facilities Section Sites

EPA formalized guidance for ERAs in 1998. ERAs are now required along with human health risk assessments at all CERCLA and RCRA sites. All Federal Facilities Section sites that require cleanup or long term stewardship now require ERAs whether they fall under CERCLA, RCRA or MRBCA authority. Similarly, ecological risk is considered in all five year reviews at sites that are closed or put into long term stewardship.

Important contaminants at Federal Facilities Section sites across the state include trichloroethylene from industrial processes, radioactive waste from weapons production, metals such as lead and mercury, and PCBs from electrical transformers. Ecological receptors that are potentially at risk at these sites include soil micro flora, or very small plants, wetland habitats, forest habitats, birds and mammals. ERAs will become even more important at sites as more data is generated about effects of contaminants on vegetation, wildlife and ecosystems.



An EPA flow chart of the ERA process

How House Bill 1251 Will Affect Hazardous Waste Permitting and Related Activities

The Permits Section is currently evaluating several chapters of Title 10 Division 25 of the Code of State Regulations, or 10 CSR 25, to determine which existing state regulations are stricter than the corresponding federal Resource Conservation and Recovery Act, or RCRA, regulations. This article focuses on the potential effects House Bill 1251 will have on Chapter 7, or 10 CSR 25-7, the requirements of which are mainly overseen by the Permits Section. The subsections in Chapter 7 affected include 10 CSR 25-7.264, 7.265, 7.266, 7.268 and 7.270. The existing fee and cost recovery regulations are not impacted by House Bill 1251.



A Typical Permit Application

The “no stricter than provisions” of House Bill 1251 contain several exceptions. The bill’s language allows the department to keep existing state regulations stricter than federal RCRA regulations when those state regulations are based on an existing state statute expressly supporting stricter standards or requirements. These exceptions pertain to specific subjects such as the hazardous waste generator categories, generator registration and reporting requirements, the display of DOT hazard labels on individual containers of hazardous waste, the regulation of hazardous secondary materials used to make zinc fertilizers and exclusions for hazardous secondary materials, which are materials burned for fuel or recycled.

The bill requires the department to review and ultimately file amendments to rescind state regulations having no underlying state statutory basis and are stricter than corresponding federal RCRA regulations. However, hazardous waste permits issued under state regulations and more stringent will remain in effect under those requirements until those permits are formally modified to remove those requirements.

Changes required by the bill will affect information required for imported hazardous waste; notification of state authorities of emergency situations; how surface water is monitored; siting of container storage areas for ignitable or reactive waste; siting, design and construction requirements for surface impoundments and waste piles; landfill standards for leachate monitoring, leak detection and minimum standoff distance from the property line, and more stringent requirements for railcar management.

Used oil, which is classified as a hazardous waste solely because it exhibits a hazardous waste characteristic, will only be regulated as used oil. Small quantity burners burning hazardous waste and exempt from regulation under the small quantity burner exemption will not be required to comply with requirements for blending or treating hazardous waste.

The Overall Impact

In considering the overall impact of House Bill 1251 on permitting activities, it is worth noting that the department retains “omnibus authority” to include terms and conditions in hazardous waste permits as necessary to ensure protection of human health and the environment. This includes technical and administrative requirements that may not otherwise be specified in federal or state regulations but are determined to be necessary on a case by case basis to protect human health and the environment.

Ultimately, the bill attempts to align state and federal hazardous waste regulations in specific areas of regulation at Missouri's hazardous waste facilities. There is much work to do over the next three years in review of state regulations and rulemaking actions to ensure compliance with 260.373, RSMo., as modified by House Bill 1251, as well as associated changes needed to our program policies and procedures, guidance documents and checklists.



Hazardous Waste - Surface Impoundment

Five Year Reviews

The five year review, or FYR, process is required at Superfund National Priorities List sites where hazardous substances, pollutants or contaminants remain above levels that allow for unlimited use and unrestricted exposure.

Conservation Chemical Company – Mission Hills

EPA conducted a third FYR for Conservation Chemical Company, or CCC, site from April through Aug. 2012. The triggering action for this statutory review was initiated by EPA signing a second review on Sept. 20, 2007. The review was conducted to determine if the chosen remedial action is still protective of human health and the environment. The report documents the results of that review.

This third FYR was completed to evaluate the protectiveness of the remedial action selected in the record of decision, or ROD, and identify issues and recommendations.

The remedial action in the ROD consisted of:

- Surface cleanup and removal of the on-site buildings and septic system, tanks and solid debris.
- Regrading site surface to prevent flood erosion.
- Placement of a two layer surface cap and raising surface elevation to above a 100 year flood elevation.
- Placement of rip-rap to prevent flood erosion and installation of a six foot metal security fence along site perimeter.
- Installation of two on-site extraction wells capable of withdrawing a combined total of 300 gallons per minute, or gpm.
- Construction of an on-site 300 gallon per minute capacity groundwater treatment plant.

When the ROD was signed no institutional controls, or ICs, were required. EPA and the department determined remedial action was constructed and functioning as designed and thus the site achieved construction completion. This was documented with signing an interim close out report for long term remedial action for the site on Sept. 23, 1991.

EPA completed and the department concurred with five- and 10-year review reports for the site in February 2000. The report determined response actions were fulfilling cleanup objectives for the CCC site. However, two components of the remedial action needed to be addressed for completion of the next, or second, FYR. Components were necessary to maintain sulfide metals treatment for protectiveness and whether remaining high asymptotic concentrations of volatiles and phenols in northern wells posed unacceptable risk.

Investigations determined the treatment process operated as designed without a sulfide system as a secondary metal treatment process. So in January 2003, EPA completed and the department concurred with the explanation of significant differences, or ESD. ESD allowed Front Street Remedial Action Corporation, or FSRAC, to eliminate sulfide metals treatment and set effluent criteria for metals based on current ecological guidance.

Investigations, including current risk assessments, were conducted; however, an additional ecological risk assessment adjacent to Missouri and Blue Rivers was recommended before determination regarding remaining high asymptotic concentrations of volatiles and phenols in northern wells posed an unacceptable risk. The second FYR, completed in September 2007, determined the CCC site is well managed and the pump and treat system for containment was operating as intended by design and within requirements specified in the consent decree statement of work.

Between the second and third FYRs, the southern extraction well collapsed. The FSRAC with agency approval replaced the old southern extraction well in June 2008. As required by the second FYR, the FSRAC conducted a limited optimization investigation that was completed in January 2011.

During the period covered by the third FYR, FSRAC met conditions in the 1989 (revised February 2012) off-site groundwater monitoring plan. Annual sampling was conducted from 2007 to 2009 and the first biennial event was conducted in 2011. Groundwater monitoring is conducted on six piezometer well pairs located around the site's perimeter or slightly down gradient of the CCC site. Most monitoring wells installed to characterize hydrogeology and groundwater quality are not monitored and their current status is uncertain.

Site contaminants had already migrated outside the capture zone of two extraction wells by the time a remedial system started operation in 1990. Results of 2004 groundwater investigation indicated that site related contaminants, including dense non-aqueous phase liquids, or DNAPL, had probably migrated to the western edge of the current Big Blue River channel, just upstream of its confluence with the Missouri River. Groundwater investigation found concentrations of CCC site indicator compounds increased with depth to the point of drill rod refusal, at which point contaminant concentrations were indicative of DNAPL dissolution.

Data and information found in the third FYR made it impossible to determine protectiveness of the remedy without additional data and information. Therefore determination of protectiveness of the remedy is deferred since there are uncertainties regarding lateral extent of the off-site contaminant plume. Five issues were identified in the third FYR report that require further work, including additional institutional controls, a determination of vertical extent of site related contaminant plume, a determination of performance of remedial action, a potentially new determination for verifying hydraulic control, and additional groundwater monitoring of the entire contaminant plume. The Superfund Section concurs with report contents, including protectiveness statement deferring protectiveness determination and issues and recommendations identified.

Annapolis Lead Mine – Iron County

This first FYR report identifies several issues and recommendations to assure protectiveness of site remedy in the long term. One recommendation made is environmental covenants, or ECs, required as institutional controls, or ICs, in the operable unit 1 ROD, need to be put in place. We believe this is especially true on land where a capped tailings pile exists and on the contaminated field south of the tailings pile. ECs will assure affected properties are not used for residential purposes and groundwater from those properties is not used as a drinking water supply. We believe EPA is responsible for implementation of ICs, since they are a part of site remedial action not yet implemented. Another recommendation made is to repair minor erosion around and on the tailings and contaminated soil repository. This issue is a part of the state funded operation and maintenance at the site and was completed in October 2012. In addition, a recommendation to cover exposed sediment at the former point of entry, or POE, into Sutton Branch Creek was further investigated during an inspection conducted jointly by the Superfund Section and EPA and it was determined that no additional action was needed at the POE at this time.

Two final recommendations include:

- Sampling of sediment, surface water and macro invertebrates at established locations in the year before the next FYR.
- Continued inspections of the site on at least an annual basis to check on and document site conditions.

The Superfund Section believes that environmental sampling data should be collected so it can be compared to data collected by EPA semiannually since completion of remedial action. Comparison should be included as part of the next FYR. The Superfund Section agrees to conduct site inspections (jointly with EPA staff when possible) at least annually as recommended. However, additional inspections may be conducted in response to large rain events in the area of the site if deemed necessary.

Oronogo Duenweg Mining Belt –Cherokee County

This third FYR report indicates that remedies implemented for completed operable units, or OUs, of Oronogo Duenweg Mining Belt Superfund Site continue to be protective.

The remedy at OU2 and OU3 involved removal of lead contaminated soil from residential yards. The remedy currently is considered protective of human health because all properties with current residents where soil exceeded action levels have been cleaned up. Institutional controls, in the form of residential development ordinances, were adopted and implemented by local governments to ensure proper development of new residences in contaminated areas.

The remedy for OU4 involved removal of the exposure to contaminated groundwater used for domestic purposes. This included installation of public water supply systems or the drilling of new wells into deeper uncontaminated aquifer. Regulations prohibiting installation of new potable wells into shallow aquifers in areas where contamination is known to exist have been in place since late 2001.

The remedy for OU1 involves removal of mine and mill waste wide spread throughout the county. Approximately 7,500 acres of Cherokee County was covered with mine and mill waste. To date approximately 1,500 acres have been remediated. The remaining mine and mill waste will continue to present a risk to the environment until it is remediated, which may take five to eight more years.

Remediation of stream sediments in OU5 is not scheduled to commence until all mining wastes have been removed from OU1. Therefore, stream sediments still pose a significant risk to the environment.

The public comment period for the third FYR began on June 22, 2012. The public was allowed 30 days to submit comments. No public comments were received on the FYR or effectiveness of remedies.

Syntex Facility – St. Louis County

The fourth FYR report was completed in Sept. 2012. In a letter to EPA dated Sept. 27, 2012, the department concurred with EPA. Protectiveness of remedies implemented at OU1 and OU2 of the Syntex Facility Superfund Site cannot currently be determined with available information. The department also concurred with recommendations provided within the review report to allow site protectiveness to be determined in the future.

OU1 includes on-site soils and a trench area on the western portion of the former Syntex property that were impacted by dioxin. A recent change in reference dose for dioxin questions the protectiveness of the remedy prescribed in the ROD for OU1. Given sampling data for OU1 is over 20 years old and analytical methods have improved significantly since then, review recommends a reassessment of on-site soils by conducting additional investigation and evaluating current risk based upon new data. It also recommends an ecological risk assessment, or ERA, be conducted using new data, given that an ERA has not been conducted.

The trench area is an area consisting of five trenches, two of which are known to contain dioxin contaminated material capped into place. Previous FYR report indicates there were buried drums within the trench area, some of which were never fully characterized. It was suspected dioxin and TCE could be in the buried drums. The remedy included capping the area with a clay layer and a soil cap. It also included diverting water away from the buried material, as well as installation of a network of monitoring wells to monitor groundwater downgradient of the trench area for future releases of contaminants. FYR recommends an assessment of the effectiveness of monitoring well network and as an assessment of the decision to contain/cap buried wastes in the trench area.

OU2 includes shallow groundwater where volatile organic compounds were detected. The ROD for OU2 was a no action ROD, but it required two years of limited monitoring and an evaluation of risk to human health. A draft human health risk assessment was completed based on that data in 2000, but the report was never finalized by EPA. FYR recommends collecting new data, including data for 1,4 dioxane and incorporating it into a new assessment of human health risk.

FYR sets September 2014 as the date for all recommendations to be implemented. By Sept. 2015 protectiveness is to be determined through an addendum to the fourth FYR.

Solid State Circuits – Greene County

Missouri Department of Natural Resources, assisted by EPA, conducted the fourth FYR for Solid State Circuits Inc., or SSC, site in Republic. The fourth FYR was conducted from July 15, 2011, through September 2012. Approval of the third FYR is triggering action for this statutory review, signed on Sept. 12, 2007. The fourth FYR was conducted to determine if chosen remedial action selected in the ROD is still protective of human health, environment, identified issues and recommendations.

The remedial action in the ROD includes extraction of contaminated groundwater from three aquifers: unconsolidated fractured shallow bedrock; shallow bedrock; and deep bedrock. On-site physical/chemical treatment by a dual tower air stripper to promote volatilization of contaminants from extracted groundwater; discharge of treated effluent to the Republic publicly owned treatment works, or POTW, to undergo additional off-site treatment; enactment of a city of Republic ordinance to prevent construction of drinking water wells in or near contaminated plumes thus preventing direct contact/ingestion of contaminated groundwater before remediation is complete; and continued monitoring to determine effectiveness of remedy. The remedy did not include contaminated soils and debris, since it was assumed at the time the ROD was written previous removal response actions had fully addressed them.

The SSC site was determined operational and functional on May 19, 1994. The SSC site is on the National Priorities List and the Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites. The first three FYRs found the remedy was implemented in accordance with requirements of the 1989 ROD. Long term trends indicate progress toward achievement of remedial action objectives, or RAOs, is ongoing; however, recent progress has slowed. It is unlikely the remedy will be completed within the estimated timeframe of 40 years at current pace.

Based on data and information presented in the fourth FYR, a protectiveness determination of the remedy is deferred since:

- Footprint of contaminant plume in all three water bearing zones is not fully delineated.
- Migration of contaminant plumes is not under control due to destruction of the treatment system by fire in December 2011.
- Soil source contamination discovered on-site may continue to contribute to groundwater contamination.

- It is unclear if institutional controls, or ICs, fully address the entire contaminant plume footprints, or if different ICs would be more appropriate.
- To date, it does not appear sufficient data exists to state vapor intrusion, or VI, is not an issue for all structures over contaminant plumes.

Further data and information will be obtained by taking the following actions:

- Completing a comprehensive vapor intrusion study of all structures overlying potentially impacted groundwater.
- Addressing all soil source areas.
- Delineating contaminant plumes in all three water bearing zones.
- Fully containing contaminant plumes in groundwater.

It is expected these actions will take approximately three-and-one-half years to complete, at which time a protectiveness determination will be made.

The next FYR for SSC site is due in September 2017, five years from the signature date of this review.

Regional State Improvement Project of 2012

The Regional State Improvement Project of 2012, or RSIP, is the department's intent to use \$43,000 dollars received from EPA to meet the Petroleum Storage Tank Insurance Fund deductible at abandoned underground petroleum storage tank sites and promote the redevelopment of those sites. To date the department has used approximately \$17,000 at two sites.

One site, known as the Former Logsdon Store, is located in St. Patrick. The department had previously used American Recovery and Reinvestment Act, or ARRA, funds at this site to conduct contamination source removal. Recently, \$4,240 of RSIP associated funds were used to hire a contractor to conduct a risk assessment there. The risk assessment is under review to determine if it can be closed or if further investigation is necessary.

The other site where RSIP funds were used is known as C&C Bargain Center in Noel. Previously, ARRA funds were used to conduct contamination source removal activities here. Approximately \$12,500 of RSIP funds were used recently to hire a contractor to perform site characterization and risk assessment activities. Reports are under review to determine what additional work is needed before the department can close the release file associated with the Noel property. The Petroleum Storage Tank Insurance Fund is reviewing costs associated with work regarding how much of the expended RSIP funds will count toward reaching the deductible.

The department also plans to use RSIP funding to conduct additional work at a site in Racine. The department has recently received approval from the EPA to include this site in the project and is working on issuing new contracts for this work.