

# 2005 Land Report



*Compass Industries Landfill Superfund Site fifteen years after the cap was put in place.*



*The landfill is covered with Tallgrass and wildflowers.*

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# The Land Report

## January 2005 through December 2005

By the Land Protection Division of the Oklahoma Department of Environmental Quality



*Killdeer nesting in an abandoned refinery.*

This report highlights land restoration projects carried out in several programs: Brown-field/Voluntary Cleanup; Oil and Mining Land Restoration; Hazardous Waste Generator Cleanup; Superfund and Waste Tire sites. There are a number of projects that are not in this report including smaller, or short-term projects or projects where negotiations for a consent order are underway. For more information, contact the Land Protection Division.



*Duncan Refinery*

## Brownfields/Voluntary Cleanup



*Flintco Brownfields redevelopment*

### Brownfields

Nationally, the cleanup and reuse of contaminated properties is on the rise. The term “Brownfields” describes properties with environmental concerns that affect their value and marketability. The term is also used to distinguish moderately contaminated properties from Superfund Sites. Superfund sites are considered the worst contaminated sites in the United States, and the potential for Superfund liability means developers, lenders, and potential purchasers avoid acquiring former industrial properties for fear that contamination might exist.

The passage of state and federal Brownfields laws has helped to revitalize interest in former industrial facilities, and has helped resurrect urban areas.

Entering and completing the DEQ Brownfield Program provides specific release to

participants from state and federal environmental liability.

The Brownfield Program breaks the chain of liability that for years discouraged redevelopment nationwide.

Oklahoma’s Brownfield Program includes an EPA sanctioned cleanup program, a low interest loan program for the cleanup of contaminated properties and the Targeted Brownfield Assessment program. Together these help local governments and non-profit interest groups evaluate the environmental condition of properties they own or plan to buy.

### Voluntary Cleanup

The DEQ has operated a Voluntary Cleanup Program since the late 1980s. Companies wanted a way to clean up the historic contamination on their properties without having the EPA Superfund Program involved. It was acknowledged that some governmental over-

sight was needed to satisfy federal authorities and concerned neighbors that the cleanup was properly conducted. The VCP allows compa-

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**The  
Brownfield  
Initiative is  
a decade old  
this year.**

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nies or individuals to clean up property under negotiated consent orders that give the DEQ oversight authority of the cleanup. This cleanup option is often selected by companies or individuals that do not need specific liability release under federal and state law, but need to document that the cleanup was conducted properly. The process generates a record of the cleanup and ensures it is protective of human health and the environment.

## Brownfield/Voluntary Cleanup Sites



*Process area at Duncan Refinery*

### **Duncan Refinery Voluntary Cleanup**

Meridian, Stephens County

DEQ Contact:

Amy Brittain  
(405) 702-5133

Status:

Interim Action &  
Remedial Investigation

ConocoPhillips, Stephens County and the DEQ have been working together to investigate and clean up this 400-acre inactive refinery, located five miles south of Duncan. It operated from the 1920s until 1983.

In 2005, ConocoPhillips performed extensive asbestos abatement and demolition activities at the refinery. This work included emptying and removing tanks and piping.

ConocoPhillips has removed deteriorated tanks and vessels, abandoned buildings, waste, and chemicals that were not properly addressed when the refinery stopped operating.

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**State and federal Brownfields laws have helped to revitalize interest in former industrial facilities, as well as helped resurrect urban downtown areas.**

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ConocoPhillips performs this work with an emphasis on the health and safety of on-site workers and nearby residents. They have constructed a treatment plant to treat water from two cutoff trenches installed in January 2005. The trenches will help mitigate oil and chemical seeps which feed into Clarity Creek. After demolition activities are complete a site-wide environmental investigation will be performed.



*Billboard at Duncan Refinery*

## **OCURA Phase I Brownfields**

Oklahoma City

DEQ Contact:

Dale Johnson

(405) 702-5122

Status:

Phase I, Bricktown Redevelopment Project: Site Investigation

The Bricktown area sits above the old Oklahoma City oil and gas field and has been in constant commercial use throughout its history. Businesses include oil and gas related industries, railroad operations, manufacturing, warehousing and retail operations. The area is being redeveloped including the new Sonic Corporation Headquarters, several new restaurants, a multi-screen theatre, a combined residential-retail development and canal, park and recreation areas.

There are twenty-one acres in Phase I of the Oklahoma City



*Bricktown area*

Urban Renewal Authority's Bricktown Redevelopment Project.

Gasoline and diesel from past commercial activities contaminated the soil and

ground water. The site has undergone extensive soil and ground water investigation and soil remediation. The Phase I Brownfields Application has been reviewed and approved.

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## Skirvin Hotel - Brownfield Cleanup Loan Clears the Way for Restoration of Historic Hotel

Oklahoma City,  
BCRLF Coordinator –  
Rita R. Kottke, Ph.D.

The historic Skirvin Hotel in downtown Oklahoma City has been vacant since 1988. Many attempts have been made to reopen the grand hotel. The 14 story hotel is on the National Register of Historic Places and is the oldest remaining hotel in Oklahoma. In 2001, the City of Oklahoma City acquired the hotel to ensure that it would be restored. The City needed downtown hotel rooms to make it competitive in the regional convention market and wanted to preserve one of Oklahoma's landmarks. Financing for a project this size is difficult, and Oklahoma City put together a public/private partnership to finance the project. A small but important piece of the financing is a loan from the DEQ's Brownfield Cleanup Revolving Loan Fund (BCRLF). The \$780,000 loan funded the cleanup of the hazardous materials in the old hotel including asbestos, lead paint, mercury thermostats, and PCB containing fluorescent light ballasts. Other environ-



*Skirvin Hotel at beginning of restoration.*

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### **A DEQ Brownfield Loan allowed the City to move forward with the \$46 million restoration of the Skirvin Hotel.**

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mental problems such as bird droppings, which harbor the fungus that causes the respiratory disease histoplasmosis, will also be cleaned up.

The BCRLF loan allowed the City to move forward on the \$46.4 million restoration project. The hotel will reopen as the "Skirvin Hilton" in the winter of 2006.



*Hallway in Skirvin ready for restoration*

## TARGETED BROWNFIELDS ASSESSMENTS

A Targeted Brownfields Assessment (TBA) is an environmental study, much like a Phase I or Phase II Environmental Site Assessment. The TBAs are done at the request of public and non-profit entities. The assessment is used to determine if contamination is likely to be found at a site where redevelopment is planned. The assessment work is conducted by the Land Protection Division Staff at no cost to the participant. DEQ is planning an outreach effort in 2006 to increase awareness of the program.

### Who is Eligible to Apply?

Public and non-profit entities such as municipalities and community development organizations interested in redeveloping abandoned or underused properties are



*Sampling during a Targeted Site Assessment*

eligible. TBAs will be at sites where there are reuse plans but where the environmental condition of the property is unknown. Reuse can involve the creation of commercial, industrial, recreational, conservation or other uses.

For More information  
Contact Hal Cantwell at (405)  
702-5139.

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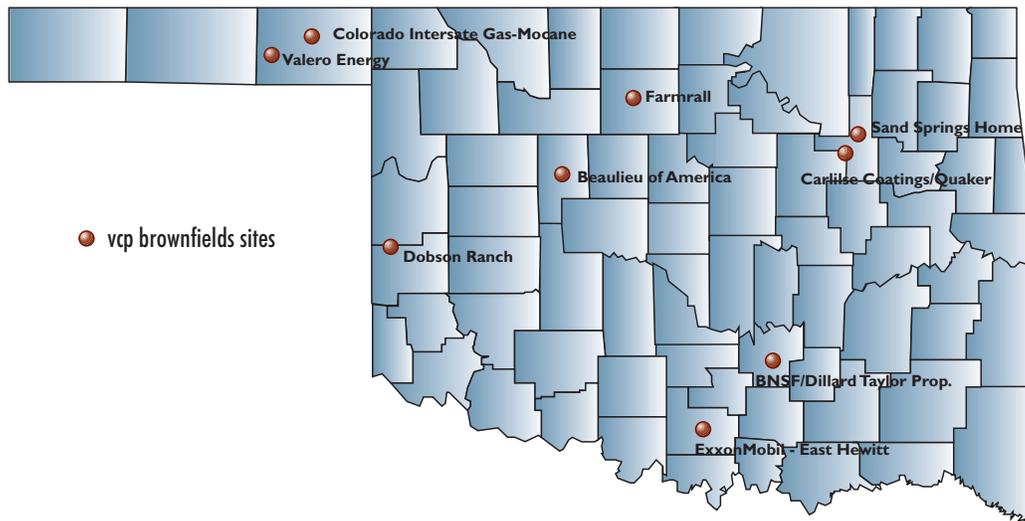
## 2005 TARGETED SITE ASSESSMENTS

**Ardmore**  
**Miami**  
**Oklahoma City**  
**Sand Springs**

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# Brownfields Redevelopment and the Reverse Domino Effect

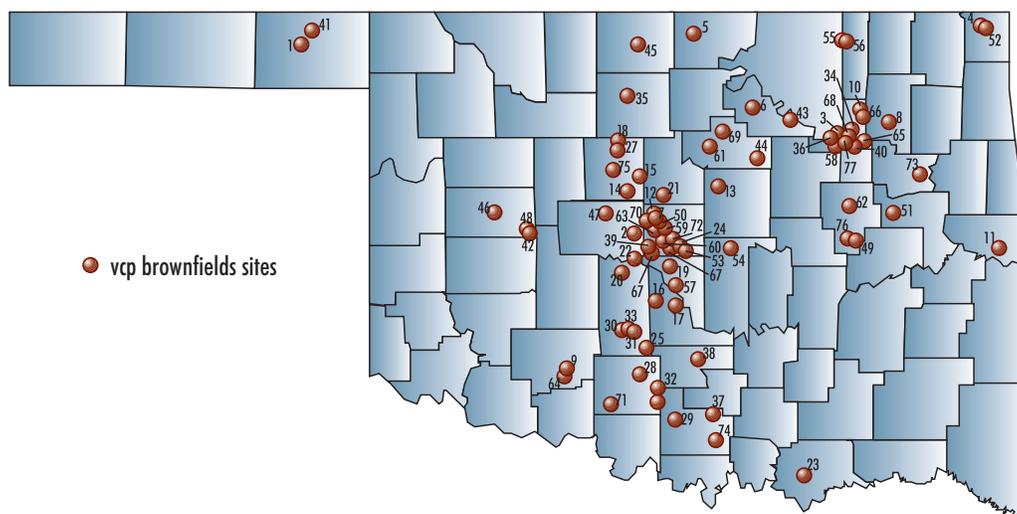
Brownfields/Voluntary Sites Cleaned up in 2005



## Brownfield/Voluntary Sites Cleaned Up in 2005

Site	Location	Contact
BNSF/Dilliard Taylor Prop.	Ada	Amil Lyon (405) 702-5140
Beaulieu of America	Watonga	Kendel Posey (405) 702-5120
Carlilse Coatings/Quaker	Sapulpa	Amil Lyon (405) 702-5140
Colorado Interstate Gas-Mocane	Forgan	Report Replogle (405) 702-5118
Dobson Ranch	Sweetwater	Amil Lyon (405) 702-5140
Farmrail	Enid	Amil Lyon (405) 702-5140
ExxonMobil-East Hewitt	Carter Co.	Dale Johnson (405) 702-5122
Sand Springs Home	Tulsa	Amil Lyon (405) 702-5140
Valero Energy	Turpin	Askari Zaidi (405) 702-5145

VCP Brownfields Active Sites for 2005



## Brownfield/Voluntary Cleanup Sites

There are numerous other sites undergoing Brownfield/Voluntary cleanups. Additional information is available from the DEQ Contact

1	Adolf's Conv. Store/Tim McFarl	Replogle, Robert	702-5118	40	Home Depot/Emerson	Replogle, Robert	702-5118
2	Altec Lansing/Telex Comm.	Replogle, Robert	702-5118	41	Howard Drilling (OCC-1006)	Replogle, Robert	702-5118
3	Baker Petrolite	Posey, Kendel	702-5120	42	Imation Enterprises Corp (3M)	Posey, Kendel	702-5120
4	BF Goodrich/Ottawa Mgmt Co	Roberts, Ray	702-5137	43	Kerr McGee Cleveland	Roberts, Ray	702-5137
5	Blackwell Zinc	Thomas, George	702-5126	44	Kerr McGee Cushing	Thomas, George	702-5126
6	BNSF/(Burk/Bales)/Phillips Pet.	Roberts, Ray	702-5137	45	Koch Hydrocarbon, LP	Davis, Paul	702-5132
7	Casady Square/MVP Part.	Roberts, Ray	702-5137	46	Koch Ind./Custer City	Davis, Paul	702-5132
8	Claremore, City of (Hosp.Med. Bldg.)	Roberts, Ray	702-5137	47	Koch Ind./El Reno	Davis, Paul	702-5132
9	City of Lawton	Lyon, Amil	702-5140	48	Kodak Polychrome Graphics	Posey, Kendel	702-5120
10	Collinsville smelter/Cyprus Amax	Thomas, George	702-5126	49	Kusa/ASARCO	Roberts, Ray	702-5137
11	Coltec	Roberts, Ray	702-5137	50	M-D Building Products	Roberts, Ray	702-5137
12	Dollar 75/MVP	Roberts, Ray	702-5137	51	Marathon Oil/Boynon	Posey, Kendel	702-5120
13	Duke Energy-Carney GP	Johnson, Dale	702-5122	52	Michelin/BFG	Roberts, Ray	702-5137
14	Duke Energy-Cashion GP	Johnson, Dale	702-5122	53	Midwest City/MidAmerica Mall	Posey, Kendel	702-5120
15	Duke Energy-Crescent CS	Johnson, Dale	702-5122	54	Mobil Chem/Midwest Films	Lyon, Amil	702-5140
16	Duke Energy-Dibble CS	Replogle, Robert	702-5118	55	National Zinc	Datin, Dennis	702-5125
17	Duke Energy-Goldsby GP	Lyon, Amil	702-5140	56	National Zinc	Datin, Dennis	702-5125
18	Duke Energy-Hennessey GP	Johnson, Dale	702-5122	57	Normandy Creek	Posey, Kendel	702-5120
19	Duke Energy-Moore CS	Replogle, Robert	702-5118	58	Norris Sucker Rod Plant	Lyon, Amil	702-5140
20	Duke Energy-Mustang GP	Johnson, Dale	702-5122	59	OCURA//City of OKC	Johnson, Dale	702-5122
21	Duke Energy-S. Cashion CS	Johnson, Dale	702-5122	60	OKC-S. Canal Landcell	Johnson, Dale	702-5122
22	Duke Energy-S. Mustang CS	Johnson, Dale	702-5122	61	Okla. State Univ. burial site	Davis, Paul	702-5132
23	EMC Test Systems/Emerson	Johnson, Dale	702-5122	62	Okmulgee Refinery	Roberts, Ray	702-5137
24	Epperly/Mr. Keens Cleaners	Roberts, Ray	702-5137	63	Omni Services	Johnson, Dale	702-5122
25	ExxonMobil-Bradley CS	Johnson, Dale	702-5122	64	Omni Servs/Western Uniform	Johnson, Dale	702-5122
26	ExxonMobil-Bumpass CS	Johnson, Dale	702-5122	65	Omni Servs/Western Uniform	Johnson, Dale	702-5122
27	ExxonMobil-Dover/Hennessey	Lyon, Amil	702-5140	66	Owasso Land Trust	Replogle, Robert	702-5118
28	ExxonMobil-Doyle CS	Johnson, Dale	702-5122	67	Pilchers Lakewood Shpng Ctr.	Roberts, Ray	702-5137
29	ExxonMobil-Fox CS	Johnson, Dale	702-5122	68	Southern Specialties Corp.	Replogle, Robert	702-5131
30	ExxonMobil-Hughes CS	Johnson, Dale	702-5122	69	Stillwater Regional Airport	Lyon, Amil	702-5140
31	ExxonMobil-S. Chitwood GP	Johnson, Dale	702-5122	70	Summit Machine Tool/Seagate	Lyon, Amil	702-5140
32	ExxonMobil-Sholem Alec. GP	Johnson, Dale	702-5122	71	Tosco Corp./Duncan Refry.	Johnson, Amy	702-5133
33	ExxonMobil-W. Chitwood CS	Johnson, Dale	702-5122	72	Trumbull Asph/Owens Corning	Davis, Paul	702-5132
34	Facet International	Replogle, Robert	702-5118	73	Unarco/Thorco	Davis, Paul	702-5132
35	Farmland Industries	Roberts, Ray	702-5137	74	Union Oil Co. of California	Posey, Kendel	702-5120
36	Federated Metals	Roberts, Ray	702-5137	75	Union Pacific Railroad Kingfisher	Cates, David	702-5124
37	Halliburton Services - Davis	Roberts, Ray	702-5137	76	US Zinc Smelter	Lyon, Amil	702-5140
38	Halliburton Services - Pauls Valley	Roberts, Ray	702-5137	77	Yale Cleaners #4	Posey, Kendel	702-5120
39	Harcros Chemicals	Replogle, Robert	702-5118				

## Sand Springs, Tulsa County



*The area of the Sand Springs Targeted Site Assessment in 1955*



*Part of the Sand Springs Targeted Site Assessment area today*

Abandoned industrial sites add to the distress and blight of communities. One of the claims of the Brownfield Initiative was that if a Brownfield site were cleaned up and redeveloped, the



*Sign marking revitalization area*

entire area would be revitalized, one property at a time – like the domino effect in reverse. Sand Springs seems to epitomize this Brownfield vision. A former zinc smelter site in a depressed portion of town was cleaned up through the DEQ Brownfield Program and redeveloped into a shopping center. A Wal-Mart Super Center is the anchor chain-store. The project was so successful, city officials began to look for additional economic opportunities in the area. Sand Springs is using its Vision 2025 funds (\$14.5 million), to fund development and capital improvements throughout the county to revitalize the area. DEQ is assisting the City of Sand Springs by performing Targeted Brownfield Assessments of more than 160 properties that the City may acquire for the project. This helps the City take advantage of legal protections from environmental liability provided under the federal brownfields law.

## National Priorities List (NPL) - Superfund

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or Superfund, was enacted in 1980. It created a large-scale national program to identify and clean up sites contaminated from previous hazardous waste management practices. This effort is known as Superfund because CERCLA established a national trust fund to pay for cleanup at sites whose owners were no longer available or financially solvent.

CERCLA also established a mechanism to recover cleanup costs from potentially responsible parties (PRPs). The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA in 1986. Eleven sites in Oklahoma are on EPA's national priorities list (NPL). Sites on the national priorities list are often referred to as Superfund sites. The DEQ is the designated lead agency for remediation activities on five of these Superfund sites.



*Drilling a monitor well during the Imperial Refinery Remedial Investigation field work.*



*Leaking tank valve.*



Plugging the 17 ground water monitoring wells.



Drilling out a monitoring well.

### Double Eagle Refinery NPL-Superfund

Oklahoma City  
DEQ Contacts:  
Amy Brittain  
(405) 702-5133,  
Dennis Datin  
(405) 702-5125

Status:  
Source Control:  
Remedial Action complete  
Groundwater:  
Remedial Action ongoing

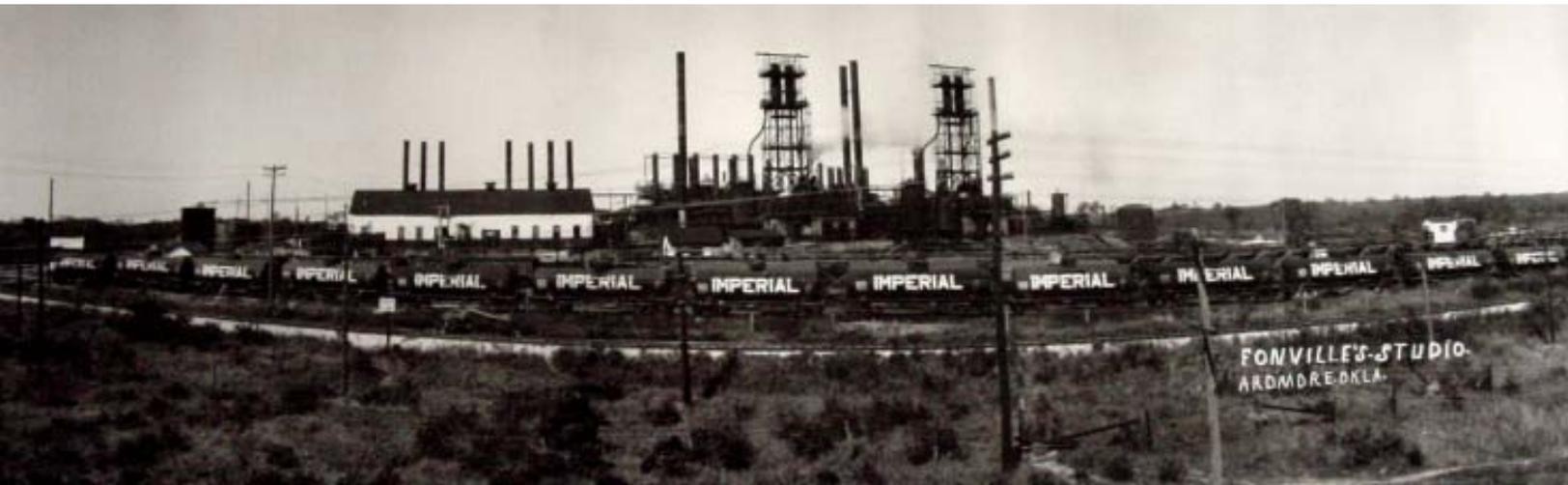
### Fourth Street Refinery NPL-Superfund

Oklahoma City  
DEQ Contacts:  
Amy Brittain  
(405) 702-5133,  
Dennis Datin  
(405) 702-5125

Status:  
Source Control:  
Remedial Action Complete  
Groundwater:  
Remedial Action ongoing

These two Superfund sites in south central Oklahoma City border each other. Both operated as oil re-refiners over many years, one beginning in 1929 and the other in 1940. Because the sites share common ground water monitoring wells, they are listed here together. Historical operations resulted in widespread deposition of residual waste, mostly in pits, on both sites. These pits were generally acidic tar sludges with high lead concentrations. On both sites, the acidic sludges were neutralized, stabilized and disposed of in an off-site landfill. The excavated areas were filled with clean soil and vegetated. The surface is considered clean and available for reuse. The ground water in the alluvial and shallow Garber-Wellington aquifers under the site are contaminated with chlorinated solvents, hydrocarbons and metals from the

refining operations. DEQ sampled the 13 wells for five years to establish background levels and last year completed three additional years of semi-annual monitoring. At the end of 2004, DEQ drilled four additional shallow wells and sampled the ground water to identify possible off-site contaminant sources and to evaluate vapor intrusion as a possible pathway for contamination. This area is part of Oklahoma City's Empowerment Zone, which is a local, state, and federal initiative to promote redevelopment. The results of the sampling will assist all parties in developing appropriate reuse and long-term monitoring strategies. The seventeen monitoring wells on the site were closed out and plugged in the fall of 2005. This is the first step to deleting the sites from the Superfund National Priorities List.



*The Imperial Refinery taken in the early years of the last century*

## **Imperial Refining Company NPL Site - Superfund**

Ardmore, Carter County

Contact:

Angela Brunsman

(405) 702-5135

Status: RI/FS

Field work began in September 2005 at this 72-acre abandoned crude oil refinery located on both sides of State Highway 142 in northeast Ardmore. Sampling of soil, sediment, surface water, and ground water is underway. Results will be used to assess the risk to human health and the environment. The next phase will include evaluation of remedial alternatives to address site hazards.

Imperial operated from 1917 until 1934. All tanks and storage equipment were dismantled by 1948. Numerous waste pits, waste piles and water impoundments contaminated with metals and refining wastes remain and have impacted an adjacent wetland. The site was listed on the National Priorities List (Superfund) in July 2000.

DEQ worked together with the EPA, Agency for Toxic Substances and Disease Registry, and the U.S. Fish & Wildlife to develop plans for an investigation and feasibility study. DEQ will hold periodic public meetings to keep the community informed of the progress at the site.



*Sampling the pond at IRC*



*Taking a sediment sample*

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**Oklahoma Refining Company (ORC)  
NPL Site - Superfund**

Cyril, Caddo County

DEQ Contact

ORC South:

Angela Brunzman

(405) 702-5135

DEQ Contact

ORC North:

Ray Roberts

(405) 702-5137

ORC South

Status: Remedial Action

ORC North

Status: Investigation

This 220-acre abandoned oil refinery operated from 1908 to 1984. Petroleum related contamination of soil, sediment and shallow groundwater occurred from leaking tanks, product lines, pits and impoundments.

**ORC South:**

Status: Remedial Action

Initial investigations resulted in placing the site on

the National Priorities List in 1990. The remedy, completed in 2002, included bioremediation, in-situ stabilization, neutralization and disposal in onsite landfills. The ground water remedy was postponed until the source remedial action was complete. DEQ and EPA are evaluating the next steps for ground water monitoring and remediation.

**ORC North:**

Status: Remedial Action

In 2002, the north portion of the ORC refinery, considered an active facility and regulated under RCRA, was referred to Superfund. Improperly stored, drums of unknown chemicals and an abandoned laboratory with a mix of chemicals remained onsite. Tanks were leaking unknown contents. Deteriorated asbestos hung from vessels and littered the ground. After DEQ requested assistance from EPA an

Emergency Removal removed the laboratory chemicals, drums, refinery structures and all the storage tanks at the facility. The final small amount of asbestos was removed in October 2005.

**Tar Creek  
NPL - Superfund**

Ottawa County

DEQ Contacts:

Angela Brunzman

(405) 702-5135

David Cates

(405) 702-5124,

Dennis Datin

(405) 702-5125

Tar Creek is Oklahoma's largest and most challenging Superfund site. The Oklahoma portion of the former Tri-State Mining District encompasses more than 40 square miles, five towns, and an entire watershed in far northeastern Oklahoma.

- Extensive lead and zinc mining and ore processing



*The chat landscape at the edge of Cardin, Oklahoma.*

left tons of mine waste (called chat) in huge piles and flotation ponds that contain high concentrations heavy metals.

- After the mining and mine pumping ceased, the mines refilled and seeps of metal laden, sometimes acidic mine water contaminated the streams in the area.
- This led to contamination of the shallow ground water and surface water with iron, sulfate, zinc, lead and cadmium throughout the Tar Creek area.
- Abandoned mine shafts and subsidence features that pose safety hazards were found everywhere.
- Exposure to lead from the mining wastes resulted in elevated blood lead levels in children.

Early actions at this site were focused on mine discharges to surface water, but as information became avail-

able on the effects of lead on area children, EPA began work to remove lead from residential yards and other high access areas.

The site is divided into four different operable units, which are described in the following paragraphs.

### **Operable Unit 1: Ground Water and Surface Water in Tar Creek**

Status: Monitoring

Remedial action began in 1986 with plugging of ground water wells and the construction of dikes to divert mine discharges from Tar Creek and reduce inflow of surface water into the mines. The dikes did not function as intended and mine discharges continued. DEQ routinely monitors public water supply wells and is monitoring wells in the Roubidoux aquifer to assess whether the shallow contami-

nation is impacting the deeper aquifer. Several deep wells that could serve as conduits between the two aquifers are being plugged. Any problem wells found in the future will also be plugged.

### **Operable Unit 2:**

Residential Property

Status: Remedial Action

Removal of contaminated residential soils began in 1997 and continues today. To date, the EPA has cleaned up 2,153 residential properties with 130 additional properties underway. The cleanup consists of removing soil contaminated above 499 mg/kg lead and replacing it with clean soil. An aggressive health education campaign headed by the Ottawa County Health Department on ways to reduce exposure to lead is also part of the remedial action and is ongoing. Since the start of this work, the percentage of chil





Excavating a yard in Picher.

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**Since the start of this work, the percentage of children in Ottawa County with elevated blood lead levels in has dropped from 33 % to 3 %.**

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dren in Ottawa County with elevated blood lead levels in has dropped from thirty-three to three percent.

### **Operable Unit 3:**

Drum Removal in Cardin  
Status: Complete

### **Operable Unit 4: Nonresidential Properties**

Status: Remedial Investigation/Feasibility Study

The EPA is working with two mining companies and the Department of the Interior as potentially responsible parties for the investigation and feasibility study of mine wastes. This summer the chat piles, mill-ponds and soils were sampled to assess risk to human health and the environment and to formulate alternatives for cleanup. EPA is conducting pilot tests to evaluate injecting chat into the underground mine voids.

### **Operable Unit 5:**

Investigate Tar Creek Sediments from confluence with Lytle Creek downstream to Grand Lake.

Status: just beginning

## Relocation Buy out

Governor Henry and the Oklahoma Legislature wanted families with children to be able to move from the Tar Creek Superfund Site. A relocation trust authority was established to buy out and/or provide moving assistance for families with children under the age of seven. Scientific evidence shows that those children and developing fetuses are most at risk from exposure to lead. Three million dollars was appropriated to buy out homeowners, provide rental assistance to renters and compensate landlords for rent they would not receive from rental properties up to one year. The people who receive this assistance agree to move out of the most impacted area. Properties can then be resold or rented but not to families with children. In addition, the city utilities and the school are compensated for lost revenue due to declining customer base for a period of up to 10 years. A private company was contracted to perform the appraisals and comparable valuations of properties.

Fifty-one families have relocated under this initiative. The trust authority has demolished the vacated homes. The EPA will remediate the soil on the footprint of the homes to remove contaminants.

## The Oklahoma Plan

The Plan is a multi-faceted, multi-agency plan to resolve the environmental legacy of the Tar Creek area. Planning and implementation of the Plan began in 2004. The goals of these projects are:

- Improving surface water quality
- Reducing exposure to lead dust
- Attenuating mine hazards
- Land reclamation

## The Plan includes:

- Passive Treatment
- Stream Restoration
- Chat Utilization for Asphalt Roads
- Land Remediation and Restoration
- Mine Hazard Attenuation
- Remediation Monitoring
- Stakeholder Involvement

Progress to date includes closing 60 high priority mine shafts, reclamation of 14 acres of land, engineering design for reclamation of another 380 acres of land, engineering design for paving 16 miles of unpaved roads, and design of passive treatment wetlands.

In the coming year, these design projects will be under construction and new design projects will begin.



*A child's coloring book found on a chat pile.*

## Tulsa Fuel & Manufacturing NPL - Superfund

Collinsville, Tulsa County  
DEQ Contact:  
George Thomas  
(405) 702-5126

Status:  
Remedial Investigation /  
Feasibility Study

DEQ is leading the investigation of this 50-acre former horizontal retort zinc smelter that operated from 1914 until

1925. Arsenic, cadmium, lead and zinc contamination lead to the site being placed on the National Priorities List in 1999. In 2004, a perimeter fence was erected to limit access to the contaminants at the site. The area is frequented by fishermen, hunters and berry-pickers. Burns & McDonnell is performing a site-wide sampling effort to assess risks and

to develop alternatives for cleanup. The DEQ held a town meeting in Collinsville on August 17, 2005 to announce the beginning of the fieldwork. Another town meeting will be held once the sampling results are compiled. Initial sampling was completed in October. If data gaps are found, another round of sampling will begin in February, 2006.

*Looking South*

*Looking West*



*This panorama picture shows the Tulsa Fuel site covered with the remains of old smelting activities.*

*Looking West*

*Looking North*



# Superfund Emergency Response/Removals

## S&K Industries Superfund Emergency Response

Tulsa  
Superfund Emergency  
Response contact:  
Rita R. Kottke, Ph.D.  
(405) 702-5127

The DEQ worked with EPA and the City of Tulsa to clean up the former S&K Plating Industries Site in Tulsa. The site was an abandoned electroplating facility that specialized in nickel and chrome plating. The owner/operator had died and chemical wastes remained in the plating vats and drums within the building. The heirs did not have the money necessary to conduct a cleanup of the property.

The site was located near an elementary school and had a history of break-ins, so the DEQ requested federal Superfund Removal assistance at the site. Investigation showed that the south wall of the sandstone structure was permeated with hexavalent chromium. DEQ, EPA, and the City of Tulsa began exploring the best way to clean up the property. However, the situation became an emergency when a stolen pickup truck crashed into the front of the building, undermining the structure. An emergency response was conducted to remove the chemicals, demolish and properly dispose of the building, and test the soil under the foundation for contamination. The property was cleaned up and seeded with grass.



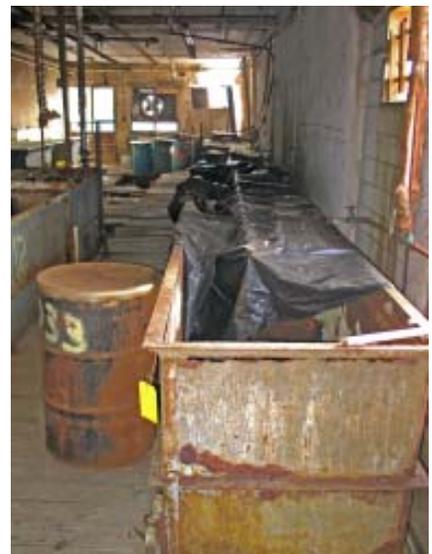
*Demolishing S&K Industries.*



*Barrels of waste chemicals*



*Above: S&K Industries now.*



*Plating waste left behind at S&K Industries.*

## Woods Tank Farm Superfund Time Critical Removal Action

Oklahoma City  
Superfund Emergency  
Response contact:  
Rita R. Kottke, Ph.D.  
(405) 702-5127

Woods Tank Farm is an inactive wastewater, used oil, and chemical storage and disposal facility located in Oklahoma City. The owner operated an oil recycling operation as well as a shipping company. The site contained 85

tanks and approximately 200 drums. Many of the tanks are used, underground storage tanks that were brought to the site and were used as above ground storage tanks. The site had no secondary containment to catch spills, and an unnamed creek borders the site to the west. The creek flows less than one-quarter mile before entering the Oklahoma River. The DEQ and the City of Oklahoma documented several releases of chemicals from this site and have received several complaints about vapors from the site. A trespasser set a fire on the site prompting EPA to install a fence around the facility to control access to the site.

EPA authorities determined that the owner was illegally storing hazardous materials at the site and an order was issued to the owner to cleanup the facility. The owner claimed insufficient funds, and a limited cleanup of the solvents at the site was performed under federal hazardous waste enforcement authority. Wastewater remained on site and reportedly, additional wastes were added to the tanks. EPA, DEQ, and the City of Oklahoma City partnered to remove all wastes at the site and sampled the soil to ensure that the property was not contaminated.



Above: The Woods Tank Farm Site.



Preparing for the Removal at the Woods Tank Farm Site.

## Osage Power Plant Superfund Time Critical Removal Action

Ponca City, Kay County  
Superfund Emergency  
Response contact:  
Rita R. Kottke, Ph.D.  
(405) 702-5127

The Osage Power Plant is located south of Ponca City on the west bank of the Arkansas River. The coal powered, electrical generation plant was taken off the grid in the 1980s. In the late 1980s, illegal removal of asbestos during salvage operations occurred, spreading contamination throughout the building.

The Environmental Protection Agency, the Oklahoma Department of Labor, and DEQ's predecessor agency, the Oklahoma State Department of Health, pursued an enforcement case against the operators under air quality laws. The case was sent to U.S. Department of Justice for trial; however, DOJ chose not to pursue the case in court. In the 90s the site presented a health risk for anyone who entered the building, but since the asbestos was contained within the building, the site was not considered an environmental threat. Recent investigations show that the giant windows of the power plant have been shot or blown out. The broken windows provide a route for the con-

taminants in the building to escape into the environment. The site now presents a real threat to the environment. DEQ requested EPA's assistance in evaluating the environmental

condition of the property and cleaning up the asbestos within the building and the surrounding area. DEQ and EPA are working together to eliminate these threats.

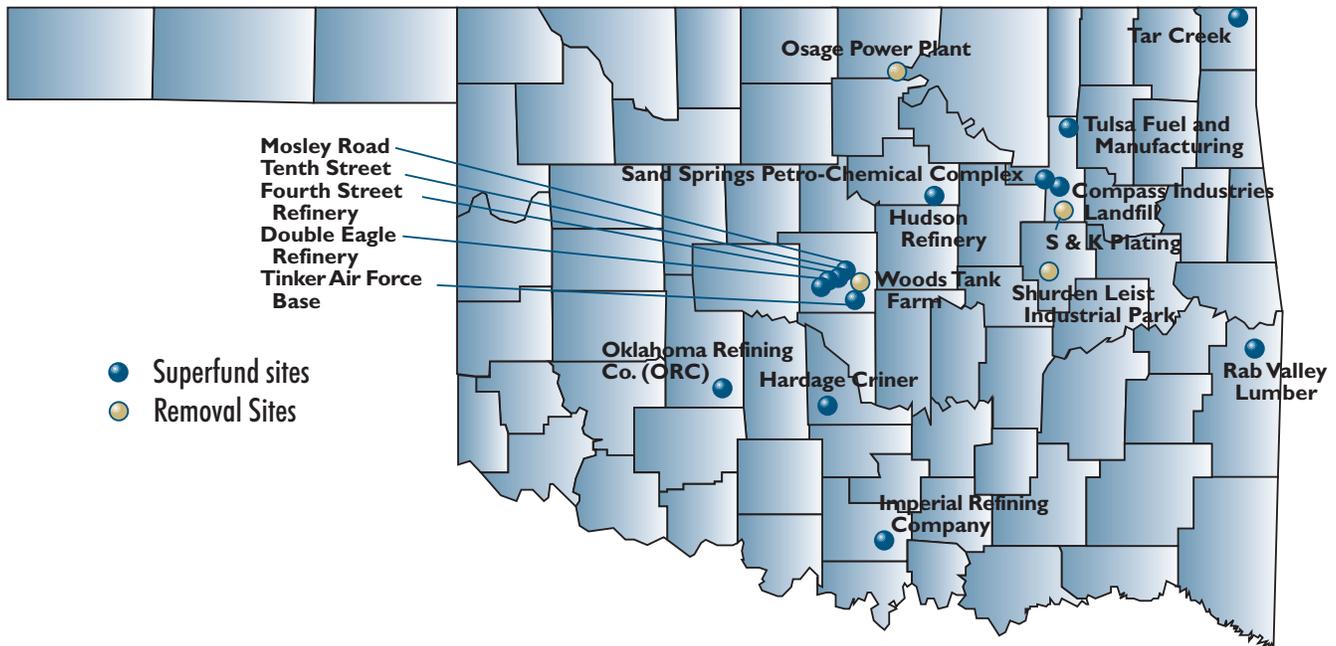


*The Osage Power Plant.*



*View inside the power plant.*

## Superfund and Removal Sites



Other sites in the NPL – Superfund program. Additional information is available from the DEQ Contact.

Site	Location	Contact	Status
Compass Industries Landfill	Berryhill, Tulsa Co.	Hal Cantwell (405) 702-5139	Operation & Maintenance
Hardage/Criner	McClain Co.	Hal Cantwell (405) 702-5139	Operation & Maintenance
Hudson Refinery	Cushing, Payne County	Amy Brittain (405) 702-5133	Feasibility Study
Mosley Road Landfill	Oklahoma City	Dennis Datin (405) 702-5125	Remedial Action
National Zinc	Washington Co.	Dennis Datin (405) 702-5125	Remedial Action
Rab Valley Lumber EPA Removal	Panama, LeFlore Co.	Karen Khalafian (405) 702-5122	Feasibility Study
Sand Springs Petrochemical Complex	Sand Springs, Tulsa Co.	Dennis Datin (405) 702-5125	Operation & Maintenance
Tenth Street	Oklahoma City	Dennis Datin (405) 702-5125	Operation & Maintenance
Tinker AFB	Oklahoma County	Hal Cantwell (405) 702-5139	Operation & Maintenance

## Superfund Site Redevelopment

Shurden Leist Industrial Park/Henryetta Smelter - Superfund Removal Site  
Henryetta, Okmulgee Co.  
Project Manager:  
Marvin Boatright  
(405) 702-5226  
Superfund  
Redevelopment Contact:  
Rita R. Kottke, Ph.D.  
(405) 702-5127

The Henryetta Smelter site was cleaned up by the Superfund Removal program in the late 1990s. The smelter wastes, which contain high concentrations of heavy metals, were consolidated into an on site disposal cell and an engineered cap was constructed on top to ensure that water did not infiltrate the buried wastes. The site was renamed the Shurden Leist Industrial Park and expectations were high that the property would be reused. Unfortunately, the site sat idle for many years. A major deterrent to development was the lack of infrastructure, such as sewer, water, gas and electric lines. Another major deterrent was the problem of installing the necessary infrastructure without disturbing the disposal cell. The DEQ worked with the City to solve these problems, proposing ways of modifying the disposal cell to accommodate development and suggest-

ing potential federal funding opportunities.

This year, the City of Henryetta acquired Housing and Urban Development (HUD) funds to install the necessary infrastructure to establish an industrial park. The City is working closely with the DEQ to ensure that the disposal cell is disturbed as little as possible during the installation of clean corridors for the utility lines. This involves trenching into the disposal cell and moving the waste to another designated part of the disposal cell for reburial, laying the utility lines, and backfilling with clean material. The installation of clean utility corridors will allow maintenance of utility lines without any special training and handling requirements, which, in turn, will allow the development of desirable business sites. The Shurden Leist Industrial Park's first tenant, a custom motorcycle manufacturer, is eager to build on the site and commence operation. Henryetta officials believe that the industrial park's excellent location, just off Interstate 40 on U.S. Highway 75, will attract many new businesses to the area.

The City acquired 17 acres of land adjacent to the north side of the site. This allows for better maintenance access to an area of the disposal cell where erosion had begun to

damage the vegetative cover of the disposal cell. DEQ, the City of Henryetta, and the Okmulgee County Conservation District partnered to repair the erosion damage and establish a vegetative cover of Bermuda grass. DEQ provided \$59,000 for the project and the City provided in-kind services and equipment and labor equaling \$15,000 to protect the integrity of the cap.



*Roadwork at the Shurden Leist Industrial Park.*



*Working to develop the Shurden Leist Industrial Park.*

## Resource Conservation and Recovery Act (RCRA)



DEQ and Facility representatives work together to perform regular sampling.

The 1976 Resource Conservation and Recovery Act (RCRA) was the nation's first comprehensive hazardous waste management law. RCRA created a system that regulated the treatment, storage and disposal of hazardous waste. This program has subsequently been delegated to the State by the EPA. It has been amended several times, and for the most part, addresses land disposal of hazardous waste and corrective action.

### Clean Harbors Lone Mountain

RCRA Generator Cleanup Site  
Major County  
DEQ Contact:  
Sam Ukpaka  
(405) 702-5148  
Status: Active Remediation

The Clean Harbors Lone Mountain Facility is a commercial facility that treats, stores and disposes of hazardous and non-hazardous wastes generated in the United States. The facility has one source of ground water

contamination located in the Drum Cell area. The facility is working to remediate the plume in this area.

The facility is using pump and treat technology to clean up the ground water. The latest report indicates contamination has not migrated to any of the boundary wells. The various components of the cleanup will continue.

An investigation of ground water contamination has been completed and four new monitoring wells have been installed. Volatile organic compounds (VOCs) have not been detected since April 2003. Monitoring of the newly constructed compliance wells will continue until there is evidence that the detected VOCs were an anomaly, and that the Drum Cell is not impacting the ground water.

### ConocoPhillips Ponca City Refinery RCRA Generator Cleanup Site

Ponca City, Kay County  
DEQ Contact:  
J. David Lawson  
(405) 702-5104  
Status:  
Operation and Maintenance

The Conoco Ponca City Refinery, located along the southern edge of Ponca City, includes a petroleum refinery, a corporate research and development operation, bulk petroleum storage operations, and a management services organization. This site has been used for petroleum refining since the early 1900s. As a result of past practices, the site has an underground plume of petroleum product and contaminated ground water. RCRA facility investigations identified several areas needing cleanup.

The refinery is working to contain and recover the underground petroleum product plume and contaminated ground water by pumping hydrocarbon and ground water to the surface and recovering the hydrocarbon. The refinery expects closure of all known waste units in 2005.

### **Sunoco, Inc. (R&M) RCRA Generator Cleanup**

Tulsa Refinery  
DEQ Contacts:  
Don Hensch  
(405) 702-5152  
Status: Closure

This refinery, located on the banks of the Arkansas River, has operated since 1913. The site covers over 800 acres, operates 24 hours a day, and employs approximately 400 people. The refinery is an integrated complex with a crude oil capacity of 90,000 barrels per day. Crude oil is refined into a variety of petroleum products. The bulk of hazardous waste that is generated is managed in the wastewater treatment process. The refinery also generates tank bottoms and solvent wastes in the maintenance and electrical shops.

Sunoco has worked under DEQ permits to use land treatment for the onsite disposal of both hazardous and non-hazardous wastes. Sunoco has an extensive free phase hydrocarbon plume on the groundwater below the facility. Additional information on groundwater has been submitted and is under review by the DEQ. Sunoco has performed several focused investigations on older disposal areas and is cleaning up these older disposal sites to formally close them. This work is planned to continue through 2006.

### **Tinker Air Force Base RCRA Program**

Oklahoma City,  
Midwest City & Del City  
DEQ Contacts:  
Robert Replogle  
(405) 702 5131  
Status: Investigation  
and Cleanup

Tinker Air Force Base has completed most of the requirements of a RCRA Facility Investigation. The soil clean up is complete, and a separate investigation of ground water under the entire facility is taking place. Several waste management units have been cleaned up. All Base landfills have been closed and covered with caps.

In 2004, the Air Force installed a permeable reactive barrier (PRB) at the southwestern Base perimeter to mitigate off-site migration of contaminated ground water. Initial tests have shown significant reductions of volatile organic compound contamination downgradient from the PRB.

Tinker Air Force Base requested a change to the sampling schedule for nearly 1,200 ground water monitoring wells and permission to close out several units which have been successfully remediated. The requests are under consideration by DEQ and EPA.

## Valero Turpin Refined Products Terminal

Turpin, Beaver County  
DEQ Contact:  
Askari Zaidi  
(405) 702 5145  
Status: Risk-based closure

A slop oil release in 1999 at the Turpin Refined Products Terminal DSRMC (Now Valero) led to an investigation and delineation of the extent of contamination. A risk assessment was completed and submitted with a request for no further action. The DEQ ac-

cepted the request on April 8, 2005 and the site has been closed according to the acceptable risk-based levels.

## Zinc Corporation of America now Horsehead Corp. RCRA Generator Cleanup Site

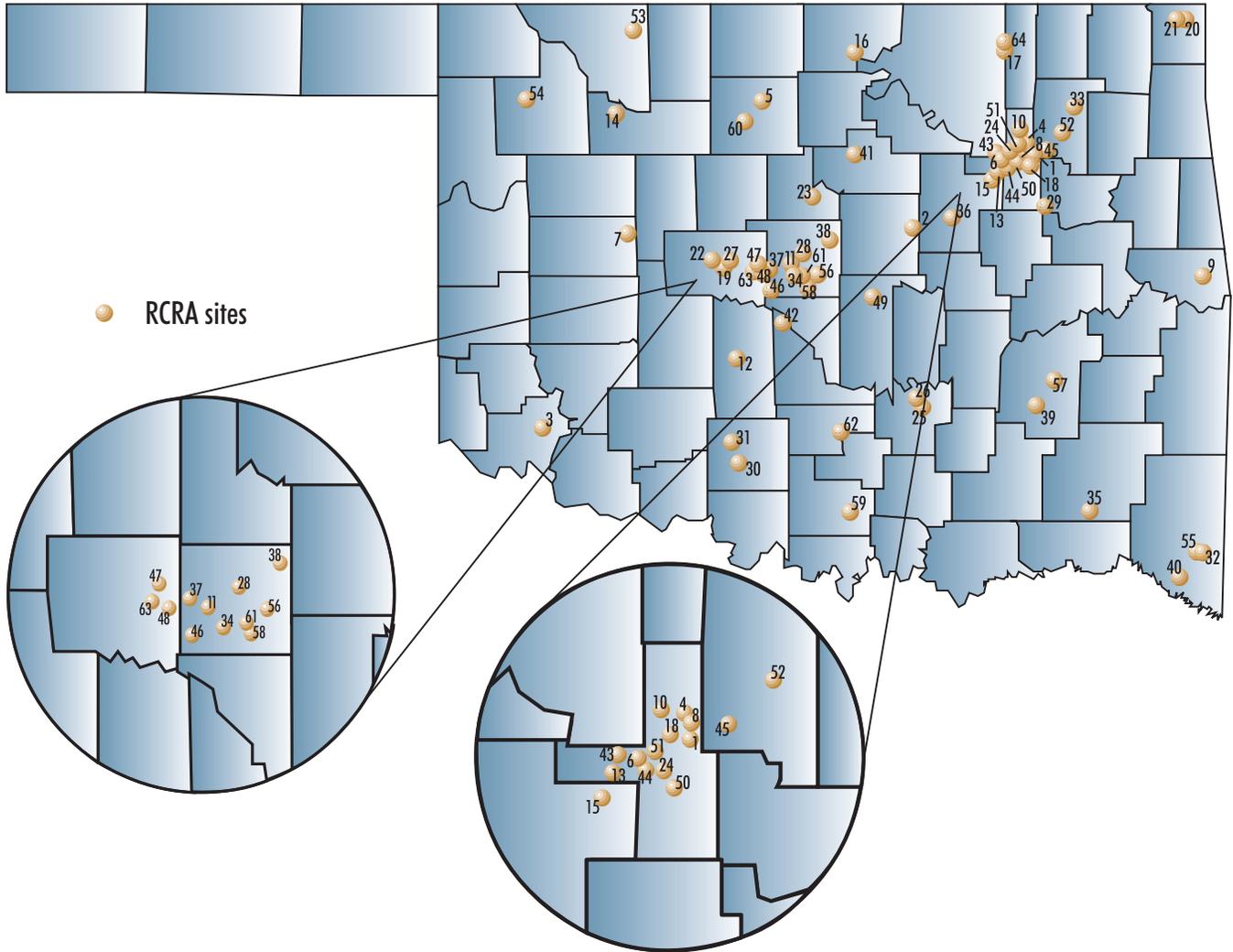
Bartlesville,  
Washington County  
DEQ Contact:  
J. David Lawson  
(405) 702-5104  
Status: Post Closure,  
Compliance Monitoring

The Zinc Corporation of America zinc refinery in Bartlesville produced various metals by refining zinc concentrates and zinc rich materials. The facility has been operating under DEQ RCRA permits since July 1991. The DEQ issued a draft post-closure permit to Horsehead Corp., the successor company to ZCA and current owner of the facility, for the cleanup and closure of the wastes units at the site.



*Drilling through a concrete floor at a voluntary cleanup site*

# RCRA Sites



See list of RCRA sites on next page

## RCRA Generator Cleanup Sites

There are numerous other sites undergoing generator cleanups.

Project Name	Project Manager	Phone	Project Name	Project Manager	Phone
1 Air Force Plant #3 -Tulsa	Repogle, Robert	702-5118	31 Halliburton/Osage Rd - Duncan	Hamill, Gail	702-5112
2 Allied Materials - Stroud	Young, Hillary	702-5106	32 Huffman Wood - Broken Bow	Hensch, Don	702-5152
3 Altus AFB - Altus	Repogle, Robert	702-5118	33 Hughes Centrilift - Claremore	Zaidi, Askari	702-5145
4 American Airlines - Tulsa	Hensch, Don	702-5152	34 Interstate Metals - OKC	Ukpaka, Sam	702-5148
5 Anadarko Petroleum (Union Pacific Resources) - Enid	Young, Hillary	702-5106	35 Julian Lumber - Rattan	Hailes, Cindy	702-5114
6 Ashland Chemical -Tulsa	Hensch, Don	702-5152	36 Kwikset Corp. - Bristow	Young, Hillary	702-5106
7 Barrett Thomas Refinery - Thomas	Hensch, Don	702-5152	37 Lucent Technologies/Celestica (AT&T) - OKC	Bennett, Jeannine	702-5115
8 Boeing/Spirit Aerosystems Tulsa	Lawson, David	702-5104	38 Madewell & Madewell - Jones	Ukpaka, Sam	702-5148
9 Cavenham Forest Industries Sallisaw	Zaidi, Askari	702-5145	39 McAAP (McAlester Army) - McAlester	Lawson, David	702-5104
10 ChemCentral - Tulsa	Zaidi, Askari	702-5145	40 Mixon Bro.. - Idabel	Hailes, Cindy	702-5114
11 Chemical Products Division -OKC	Ukpaka, Sam	702-5148	41 Moore Bus. Forms - Stillwater	Bennett, Jeannine	702-5115
12 Chickasha Manufacturing -Chickasha	Ukpaka, Sam	702-5148	42 Newcastle Land - Newcastle	Zaidi, Askari	702-5145
13 Clean Harbors (Safety-Kleen/HRI) Tulsa	Lawson, David	702-5104	43 Ozark Fluorine (Ozark Mahoning) - Tulsa	Zaidi, Askari	702-5145
14 Clean Harbors-Lone & Grassy Mtn. (Laidlaw/USPCI/Safety Kleen) Waynoka	Ukpaka, Sam	702-5148	44 Perma-Fix (CRT/RTI) - Tulsa	Ukpaka, Sam	702-5148
15 Commercial Distributing, Inc. (CDI) - Sapulpa	Young, Hillary	702-5106	45 Safety Kleen Systems - Tulsa	Young, Hillary	702-5106
16 ConocoPhillips - Ponca City Refinery	Lawson, David	702-5104	46 Safety Kleen Systems - Wheatland	Young, Hillary	702-5106
17 ConocoPhillips Research - Bartlesville	Lawson, David	702-5104	47 Sampson Resources - OKC	Hamill, Gail	702-5112
18 Crosby-McKissic Prod. - Tulsa	Ukpaka, Sam	702-5148	48 Seagate - OKC	Zaidi, Askari	702-5145
19 Dowell Schlumberger - El Reno-	Hamill, Gail	702-5112	49 Shawnee Asphalt - Shawnee	Ukpaka, Sam	702-5148
20 Eagle Picher EOM - (Umicore Quapaw	Zaidi, Askari	702-5145	50 Sinclair - Tulsa	Young, Hillary	702-5106
21 Eagle Picher/Boron - El Reno	Zaidi, Askari	702-5145	51 Sunoco, Inc. (Sun Refining) - Tulsa	Hensch, Don	702-5152
22 El Reno Prison - El Reno	Hamill, Gail	702-5112	52 Terra Nitrogen (Verdigris Plant) Catoosa	Hamill, Gail	702-5112
23 Environmental Mgmt, Inc - Guthrie	Young, Hillary	702-5106	53 Texaco - Alva	Zaidi, Askari	702-5145
24 Envirosolve - Tulsa	Young, Hillary	702-5106	54 Texaco - Woodward	Zaidi, Askari	702-5145
25 Exxon - Ada	Zaidi, Askari	702-5145	55 Thomason Lumber - Broken Bow	Hailes, Cindy	702-5114
26 Flexingate (Ada Gen. Tires			56 Tinker AFB - MWC	Repogle, Robert	702-5118
27 Gemini Coating -El Reno	Bennett, Jeannine	702-5115	57 Tricat - McAlester	Young, Hillary	702-5106
28 GEO Holdings - OKC	Lawson, David	702-5104	58 Unit Parts - OKC	Hamill, Gail	702-5112
29 Greenway (Chief Chemical) Stone Bluff	Hailes, Cindy	702-5114	59 Valero (TPI, Total Petroleum) Ardmore	Zaidi, Askari	702-5145
30 Halliburton SVC Ctr - Duncan	Lawson, David	702-5104	60 Vance AFB - Enid	Hamill, Gail	702-5112
			61 Wall Colmonoy - OKC	Hamill, Gail	702-5112
			62 Wynnewood Refining - Wynnewood	Young, Hillary	702-5106
			63 Xerox - OKC	Hamill, Gail	702-5112
			64 ZCA/Horsehead - Bartlesville	Lawson, David	702-5104

# Oil and Mining Land Restoration Program

DEQ Contact: Fenton Road (405) 702-5159

## Land Restoration

FY 2005	
Acres in planning	1166
Acres treated	110
Acres in follow-up	775

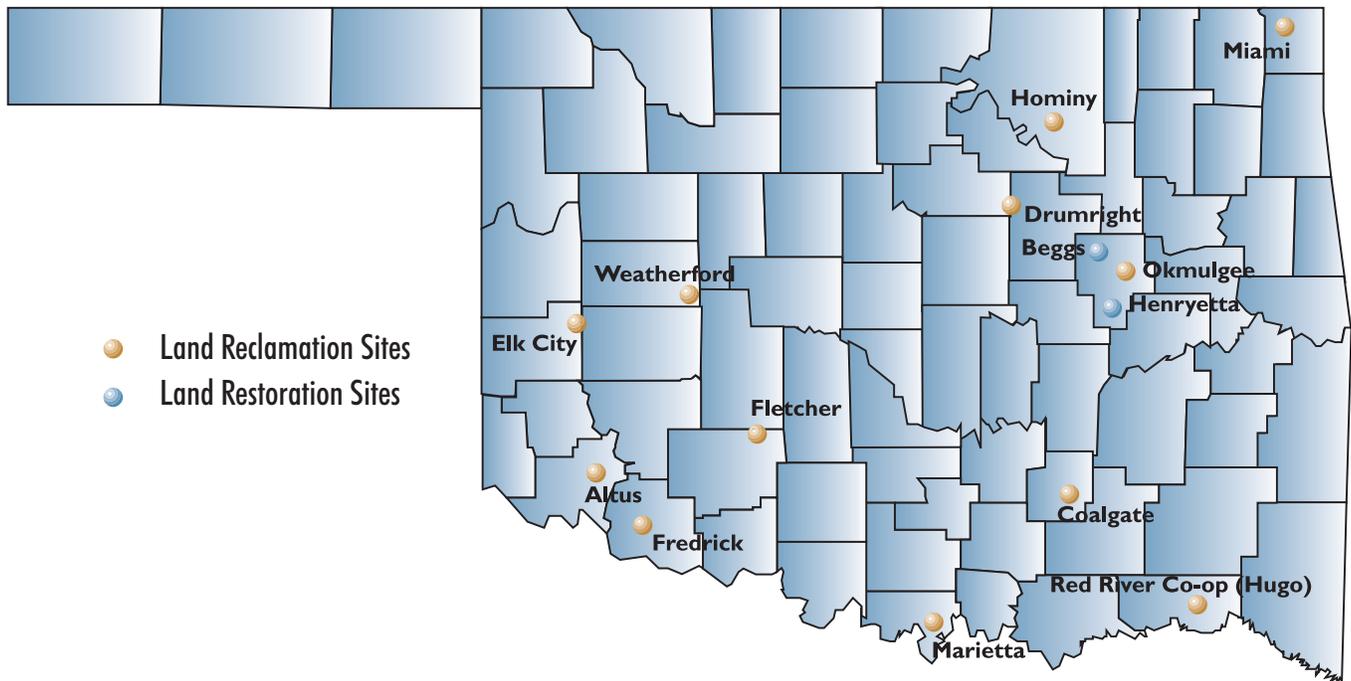
People have long been intrigued with the recycling potential of organic materials such as yard waste and paper. These wastes comprise over fifty percent of the material that is discarded every day. Organic

materials can be diverted from disposal and processed into useful soil amendments. Historically there has been little demand for such soil conditioners. In agriculture, this has been due to a focus on primary plant nutrients rather than soil structure. In conservation, this has been due to a focus on mechanical techniques for controlling erosion. In the emerging field of land restoration, this is due to a lack of

understanding about the dynamics of healthy soil.

In 1995, the state legislature directed the DEQ to work with the Conservation Commission, the Corporation Commission and the Oklahoma Energy Resources Board to use materials recovered from solid waste in projects to restore lands damaged by oil production and mining activities.

## Restoration and Reclamation Sites



# Eliminating Small Community Blight

## List of Upcoming Projects for Land Reclamation 2006

Hugo	Dustin	Weatherford
Haskell	Altus	Hollis
Elk City	Clinton	Maysville
Weleetka	Gage	Red River Co-op
Nowata	Muskogee	Locust Grove
Apache	Henryetta	Broken Bow
El Reno	Hominy	Mustang School
Stigler	Watonga	
Coalgate	Frederick	

Small communities throughout Oklahoma are struggling with the problem of dilapidated structures. Many local governments have been unable to remove this blight due to the high cost of disposal.

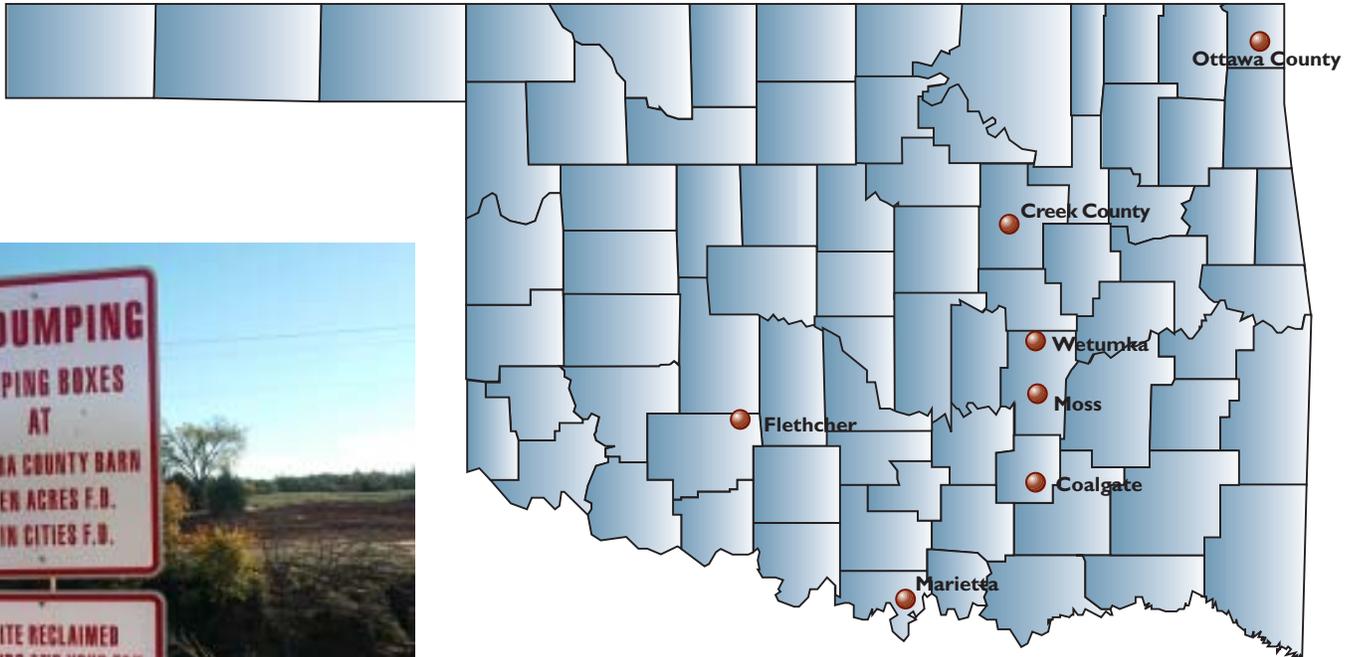
The Solid Waste Management Act provides relief by eliminating the need for solid waste permits on projects approved by both the DEQ and the appropriate local conservation district. The projects use suitable portions of the structures to restore and reclaim Oklahoma lands.

The DEQ works with local communities and conservation districts to identify dilapidated buildings, ensure that they are free of toxic hazards and develop a plan for using the demolition material to restore scarred land. For many localities this has sufficiently reduced their costs, making blight removal an affordable enterprise.



Large roadside dump south of Binger

## Community Assistance Sites



*Sign at site of cleaned up roadside dump*

### Completed Community Assistance Sites for 2005

COALGATE	OTTAWA COUNTY
CREEK COUNTY	WETUMKA
FLETCHER	MOSS
MARIETTA	



*Large roadside dump south of Binger*



*Roadside dump after cleanup*

# Waste Tires

DEQ Contacts: Christina Coffel (405) 702-5221 and Clifton Hoyle (405) 702-5215



*Tires being moved to cement kiln*

The Oklahoma Waste Tire Recycling Act was the subject of much public discussion over the past year. Companies in the waste tire collection and recycling business were frustrated that revenues from waste tire recycling fees were not sufficient to reimburse them the full amount envisioned by the statute. Some people proposed curing the problem by raising the waste tire recycling fee.

Instead, the Legislature changed the reimbursement process. The Oklahoma Waste Tire Recycling Act was amended to direct reimbursements to end-users as they

actually consumed the waste tires, and the recycling fee remained unchanged.

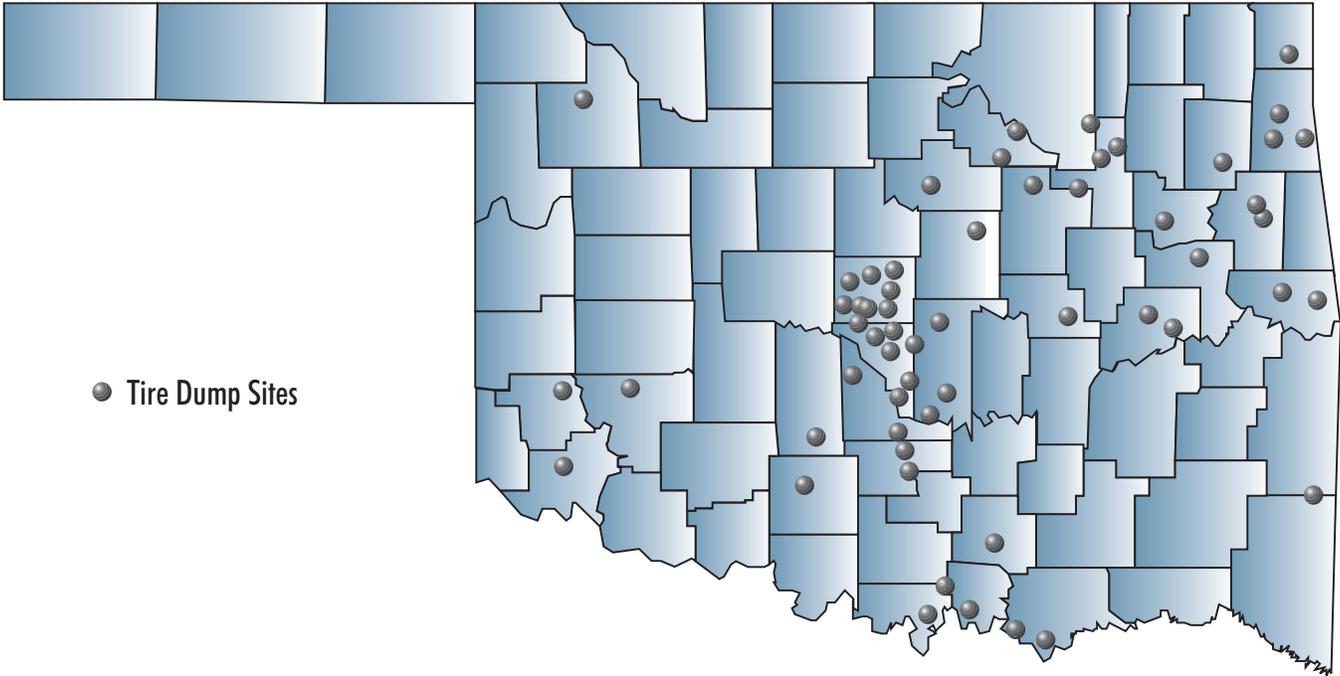
Since its inception, an objective of this law has been to clean up illegal tire dumps. Progress continued, as 43 dumps were cleaned up this past year. Dump clean up remains an integral element of the amended statute.

The Oklahoma Waste tire Recycling Act also helps Oklahoma communities. 63 cities and towns cleaned up waste tires in community collection events. The amended statute continues to support community clean up efforts.



*Tire going into cement kiln.*

# Tire Dump Sites



*Crumb rubber created by shredding tires can be use on playgrounds*



**Oklahoma Department of  
Environmental Quality  
Land Protection Division**  
P.O. Box 1677

Oklahoma City, Oklahoma 73101-1677

Main Number: 405-702-1000

Land Protection: 405-702-5100

Land Protection Fax: 405-702-5101

Main Fax: 405-702-1001

Web Site: [www.deq.state.ok.us](http://www.deq.state.ok.us)

Photos to the left are of the Duncan  
Refinery.

