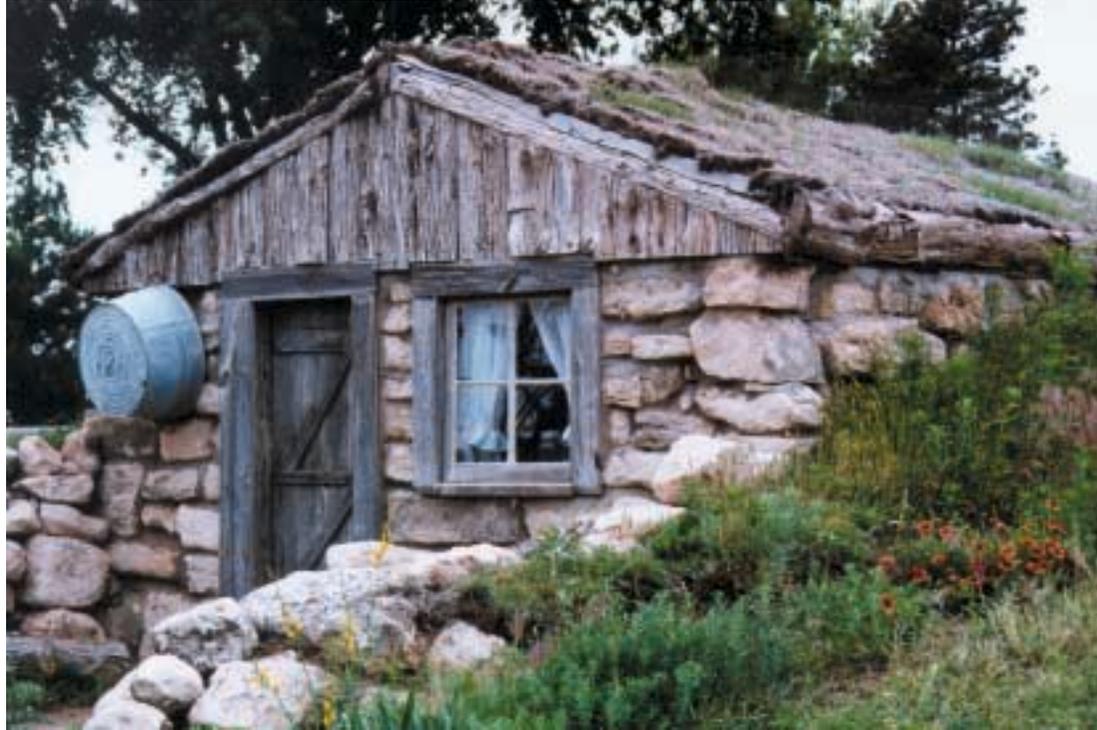


Land Remediation and Waste Management



Photograph of the Sod House taken at
the Shattuck Windmill Museum and Park
by Barry Fogerty

REMEDIAL PROGRAMS

The Waste Management Division oversees the cleanup of a wide variety of contaminated sites, from small chemical spills to large-scale industrial plants. Sites are cleaned up within one of three programs, depending upon the issues present at each. Resource Conservation and Recovery Act (RCRA) sites usually include active industrial locations involved in remediation of releases of hazardous wastes. The Superfund Program addresses abandoned sites which, because of the contamination present at the site, were ranked on the National Priority List (NPL). NPL sites are often complex, large scale sites requiring more extensive investigation and longer term solutions. Abandoned or idled industrial properties which are not ranked on the NPL are often addressed by the Brownfields/Voluntary Cleanup Program. This program is based upon a state law which recognizes that in order to encourage industry to relocate in formerly used industrial areas some incentives must be made to prospective investors and developers.

RCRA Site Cleanup

The Waste Management Division oversees corrective action activities at more than 40 hazardous waste facilities. During the past year, division staff reviewed and approved workplans involving different stages of site cleanup at many RCRA facilities. An example of RCRA site cleanup is the former McDonnell Douglas plant in Tulsa, now operated by the United States Air Force as Plant No. 3. DEQ has developed a strong working relationship with the Air Force at Plant No. 3. The property was slated to be transferred to the City of Tulsa for redevelopment, however large-scale contamination presented a number of obstacles to that transfer. One portion of the facility required installation of an interceptor trench along one edge of the plant in order to extract and treat millions of gallons of contaminated ground water. The Waste Management Division worked closely with the Air Force when they were asked by the Pentagon to hasten site cleanup at Plant No. 3 prior to transferring title of the property to the City of Tulsa.

Through an accelerated effort by both the DEQ and the U.S. Air Force, all hazardous waste requirements were completed one year in advance of the Air Force's original schedule. This included meeting the provisions of the Resource Conservation and Recovery Act, the Hazardous and Solid Waste Amendments to RCRA, the Base Realignment and Closure Act, and the Finding of Suitability for Transfer requirements of the Department of Defense. Specifically, the Waste Management Division handled

review and final approval of a Baseline Environmental Survey, a Baseline Environmental Risk Assessment, and the composition and issuance of a Class 3 RCRA Permit Modification. In addition, with input from the Waste Management Division, DEQ legal staff reviewed and co-authored a Letter of Title Transfer Agreement which was signed by the Executive Director, the Secretary of Environment of the State of Oklahoma, and a U.S. Air Force three-star general.

Because of the work done by DEQ staff, the Air Force was able to transfer property title to the City of Tulsa.

Historic Site/Superfund Cleanup

New Sites:

Two Oklahoma sites were added to the National Priorities List (NPL) this year. One is the Tulsa Fuels and Manufacturing site, a former horizontal retort smelter which processed heavy metals. It is located in Tulsa County near Collinsville. In Payne County a defunct refinery near Cushing known as the Hudson Refinery was also added to the NPL. The addition of these sites brings the total number of NPL sites in Oklahoma to 12.

A major Superfund removal action was taken at the Hudson Refinery this year. Approximately 6,000 gallons of hydrofluoric acid was removed from a potentially unstable tank and safely contained. This event required a planned evacuation of citizens within one-quarter mile of the tank during the transfer of the hydrofluoric acid. The City of Cushing's assistance was instrumental in the safe and effective evacuation. The hydrofluoric acid was shipped out of state for neutralization. In addition to the acid removal, a variety of chemicals from an abandoned on-site laboratory were packaged and shipped off site for

disposal. Asbestos was removed from the entire south side of the refinery. While there were a few usable buildings, the tanks, piping and other structures were salvaged. The remaining work at the Hudson Refinery will take place under the Superfund remedial program. DEQ will be the lead agency and will conduct a remedial investigation and feasibility study (RI/FS) to determine what hazards may remain at the facility and how to best address them. It is anticipated that interim actions will be taken during the RI/FS to remove the asbestos on the north side of the facility and to salvage or dispose of the remaining refinery process structures.

Delisted Sites:

One site was proposed for delisting (removal) from the NPL this year. Notice to delist the Sand Springs Petrochemical Complex site was published in the federal register. Next year three more NPL sites are expected to be proposed for delisting from the NPL.

Progress of Ongoing NPL Sites

Double Eagle and 4th Street:

Cleanup of the surface wastes was completed at the Double Eagle Refinery near the intersection of NE 4th Street and Martin Luther King Avenue in Oklahoma City. This 12-acre facility was formerly a used oil refinery and was covered with oily sludge and acid-filled lagoons. In addition to the hydrocarbons, there were also elevated levels of heavy metals on the site. The surface wastes were treated on-site and shipped off site for disposal. The property is ready for redevelopment. DEQ will continue ground water monitoring at the Double Eagle and the adjacent Fourth Street Refinery NPL sites for five years. Monitoring data will be used to determine whether natural attenuation of the contaminants is occurring and will be used to evaluate whether further action or delisting is warranted.

Superfund

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Waste Management Superfund					
Preliminary Assessments	11	0	0	0	11
Site Inspections	4	0	0	0	4
Management Assistance	7	7	7	7	7
Remedial Design	0	0	0	0	0
Federal Facilities	6	7	7	7	7
Remedial Action	1	1	1	1	4
Removal Actions	0	1	1	1	3
CERCLA Universe Investigations	0	75	0	0	75

Tri State:

Residential yard cleanup continues at the Tri State Superfund site. The Tri State site is a historical lead and zinc mining area and wastes left over from that activity impact approximately 40 square miles in Ottawa County. This site was listed by EPA as the nation's number one priority for cleanup. About 850 residential yards have been completed to date. One thousand additional residential properties are expected to require remediation. Post-remediation blood-lead testing as part of a project between the University of Oklahoma and the Quapaw Tribe conducted in the Tri State area of Ottawa County shows encouraging results. The percentage of children with elevated blood-lead levels has been cut approximately in half due to the removal of contaminated soil and public education efforts. In some parts of the mining area, up to 70 percent of the children had elevated blood-lead levels before the cleanup began. In the next year, DEQ will conduct an RI/FS on the non-residential portion of the site to determine if cleanup of those portions of the site is feasible. DEQ will install additional ground water monitoring wells to evaluate impacts of acid mine water on the deeper drinking water aquifer. DEQ will also locate and identify old wells, mine shafts and extensive bore holes that can be plugged to help improve ground water and surface water in the area.

Oklahoma Refining Company:

The cleanup of the Oklahoma Refining Company site in Cyril is still ongoing. The site was contaminated with numerous pits and impoundments that contained organic sludges and sediments, heavy metals, acidic wastes and caustic wastes. All the waste sources with heavy metals have been stabilized. Neutralization of acidic wastes is complete. Over half of the waste pits containing organic

wastes have been cleaned and backfilled. This organic waste is currently being biotreated on-site. Another two years will be required to biotreat the remaining waste volumes. A subsurface cutoff wall will be installed next year to capture the plume of gasoline floating on the ground water table. Once all treatment is completed, the biotreated waste will be capped and the site will be graded and vegetated. Ground water monitoring will continue for at least five years and will be used to determine the effectiveness of the cutoff wall and whether other remedial actions on the ground water are required.

Progress of Ongoing Deferral Sites

Oklahoma has managed the cleanup of two "NPL deferral sites," so named because these areas would have ordinarily been placed upon the Superfund National Priority List. However, DEQ, in a special arrangement with EPA, offered to oversee the cleanup on an accelerated basis in order to prevent some of the disadvantages which may occur due to NPL listing.

National Zinc:

The residential yard cleanup at the National Zinc site in Bartlesville was completed this year. The National Zinc site is a former metals smelter. The site is deferred from the listing on the NPL for cleanup to be handled by the DEQ. Lead and cadmium were the primary contaminants at the site. Up to 13 percent of the children in the vicinity of the site had elevated blood-lead levels. More than 1,100 residential yards and commercial properties were cleaned up throughout the project. Only a few non-residential properties remain to be addressed. The remaining work is primarily along the railroad right-of-ways on the site. This work will likely be completed within the next year. A follow-up (post-remediation) blood-lead study is planned two years from now.

Blackwell Zinc:

The Blackwell Zinc site, located in Blackwell, is another former metals smelter site that was deferred from listing on the NPL to be addressed by the DEQ. The soil cleanup at that site is nearing completion. By June 30, 1999, approximately 220 residential lots had been cleaned up on the site. Negotiations continue between the DEQ, the City of Blackwell and the potentially responsible party on the appropriate remedy for the groundwater. The groundwater remedy will be selected in the fall of 1999.

Brownfields/Voluntary Cleanup

Brownfields are abandoned, idled, or underused industrial or commercial facilities or other property at which expansion or redevelopment is complicated by real or perceived environmental contamination. In other words, Brownfields are formerly used properties that are difficult to sell or reuse because of the fear of possible environmental contamination and the associated liability. It can be very difficult to attract prospective purchasers or to obtain financing and insurance to redevelop such properties. In 1996, the Oklahoma Brownfields Voluntary Redevelopment Act was signed into law, allowing for limited liability protection from DEQ actions for those who complete the program.

By participating in the program property owners, developers, prospective purchasers and others can receive either a "Certificate of No Action Necessary" or a "Certificate of Completion." These certificates provide assurance that the site meets the cleanup standards set by DEQ and that the participating parties need not fear future enforcement by DEQ for the issues covered by a certificate. Since the inception of the program, three certificates have been issued. These certificates are attached to the deed of the property and protect all future owners, lenders, lessees, etc., from historic contamination.

This year, one of the major events in the Brownfields Voluntary Cleanup Program was the signing of a Brownfields Memorandum of Agreement (MOA) with the United States Environmental Protection Agency. The MOA gives EPA's endorsement of the DEQ Brownfields Voluntary Cleanup Program and ensures that there will not be a separate federal action taken on properties that go through DEQ's program. The signing was commemorated in a ceremony at the Oklahoma State Capitol on April 20, 1999. This agreement has national

Historic Site Cleanup

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Waste Management					
Private Party Oversight					
Ongoing	62	61	66	70	70
Completed	1	3	8	8	20
Water Quality					
Groundwater					
Remedial Oversight	12	9	9	6	36

significance because it includes voluntary cleanups at RCRA sites. It is the first Brownfield MOA to be signed that includes RCRA sites. It took two years to negotiate the agreement. It is now being heralded as a model for other states to guide their MOA development.

In June 1999, legislation was passed that allows Brownfield sites, which meet certain requirements, to qualify for the State Clean Water Revolving Loan Fund. DEQ and the Oklahoma Water Resources Board (OWRB) are working together to implement this new law. Other financial incentives include a provision that qualifies redeveloped Brownfield sites of ten acres or larger for incentive payments under the Quality Jobs Act and a state sales tax exemption for equipment, fuel, and chemicals used in a voluntary cleanup. DEQ works in cooperation with the Oklahoma Department of Commerce and the Oklahoma Tax Commission, respectively, to institute these incentives.

In October 1998, DEQ received an EPA Regional Administrator's Environmental Excellence Award for being a participating partner in the remediation and redevelopment of the Federated Metals Brownfield Site in Sand Springs, Oklahoma. The former zinc smelter site is being cleaned up and redeveloped into a \$20 million retail center. Prior to redevelopment, the property had been vacant for more than 20 years. The project is expected to generate 175 construction jobs and 411 full-time job equivalents. Annual retail sales are expected to top \$55 million. This will add \$1,925,000 annually into the city sales tax revenue and increase the ad valorem tax by \$300,000. The facility will have additional effects on the economy by increasing the value of property around it and generating jobs in support industries in Sand Springs and the surrounding area. DEQ has worked closely with the potentially responsible parties and the developer to clarify environmental issues and has been instrumental in the progress of the redevelopment.

DEQ is a cooperating partner in two new EPA Brownfield Assessment Demonstration Pilots. Oklahoma City received a pilot grant in October, 1998, and the Association of South Central Oklahoma Governments received a grant in June, 1999. These grants are for \$200,000 and cover two years. The purpose of the grant is to help local communities inventory and assess their Brownfields. Past Oklahoma grant recipients include Tulsa and the Comanche Nation.

DEQ, in cooperation with EPA, provides Targeted Brownfield Site Assessments to local communities. Often, Brownfield sites become the property of municipalities through foreclosure or donation. The properties become a burden to the city due to the perception that the site is contaminated. The perception of environmental problems prevents the reuse of the property. Most communities do not have the extra funding needed to characterize the problems at these properties so the property sits dormant. DEQ can provide technical assistance to communities by conducting a Targeted Brownfield Site Assessment at no cost to the community. This year DEQ has assisted the communities of Grandfield, Haskell, Cushing, Woodward, and Keyes. Previously, DEQ has provided this assistance to Quinton, Collinsville, Blackwell, Newkirk, and Headrick.

Decommissioning Facilities

DEQ staff continued to work with the Nuclear Regulatory Commission (NRC) and the facilities involved in cleanup. Fansteel and Sequoyah Fuels are among the first facilities in the country to pursue the process of restricted release under new NRC rules allowing this. Under restricted release, the waste would be disposed of on-site. Legally enforceable permanent restrictions would be placed on use of the site, and somebody, probably a governmental entity, would be designated as custodian of the waste and the site. DEQ has reached an agreement with the NRC that will result in these facilities remaining under NRC jurisdiction after Oklahoma becomes an Agreement State. Agreement State Status allows DEQ to carry out the NRC provisions in lieu of the federal agency.

Tire Reuse

Due to effective recycling of waste tires, the waste tire program continues to be very successful in cleaning up illegally disposed tires from across the state and ensuring that new dumps are not created. During FY99, more than 3.3 million waste tires were processed and recycled. By far, the largest markets for processed tire material were for use in septic systems, to replace rock in lateral fields (1.1 million processed tires) and as tire-derived fuel for cement kilns (1.3 million processed tires). Other uses for processed tire material included use in landfills as leachate

drainage layers, crumb rubber, and manufacturing into rubber mats.

In addition, 58 community-wide cleanup events were held across the state, which resulted in over 33,000 waste tires being properly managed, which may have otherwise been illegally disposed. Finally, a total of 61 illegal tire dumps were cleaned up across the state, resulting in the removal and proper management of nearly 660,000 waste tires.

Recycling

Oklahoma is fortunate to have several major manufacturers in the paper, glass, and steel industries who need recycled materials to make their products. DEQ routinely helps communities, businesses, schools, and institutions develop practical programs to recover the recycled materials that these manufacturers need. DEQ planners helped several communities launch new recycling programs. Through DEQ leadership, a number of schools developed recycling projects that grew into community-wide services. DEQ funding also helped a number of communities expand their abilities to process recyclables.

DEQ continued to demonstrate the value of recovered wastes in the restoration of damaged lands. In cooperation with the Oklahoma Energy Resources Board, organic waste materials were used to reclaim lands damaged by historical mining and oil and gas production, returning lands that had been totally barren to productive pastures.

PERMITTING, INSPECTION AND MONITORING

Permitting

The Waste Management Division issues operating and post closure permits to hazardous waste treatment, storage and disposal facilities; solid waste landfills; transfer stations; and waste processing facilities. Additionally, WMD permits

Permitting

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Waste Management Permitting					
Solid Waste Applications/Permits Issued					
Applications Received	20	33	24	16	93
Permits Issued	5	20	19	18	62
Permit Protest	0	0	0	1	1
Hazardous Waste Applications/Permits Issued					
Applications Received	25	23	37	37	122
Permits Issued	29	25	39	28	121
Permit Protest Hearing	0	0	0	1	1
Haulers Licensed	14	20	205	26	265
UIC Applications/Permits Issued					
Applications Received	0	2	0	1	3
Permits Issued	0	3	0	1	4
Radiation					
Applications Received	48	28	10	14	100
Permits Issued	48	28	10	14	100
Total Permits Issuance > Timelines	0	0	0	0	0

facilities involved in deep well injection disposal of liquid waste, of which there are eight facilities in the state.

Including a variety of permit modifications, the hazardous waste program received 122 applications and issued 121 permits. The solid waste program received 93 permit applications and issued 62 permits, and the UIC program issued 3 permits.

During the past year the EPA passed new rules that require municipal solid waste landfills to install gas gathering systems to minimize emissions to the atmosphere of non-

methane organic compounds and to require that certain landfills obtain Title V air quality permits. The Waste Management Division is working on several permits in this area.

Inspection

The WMD performs routine Compliance Evaluation Inspections (CEI's) of permitted hazardous waste treatment, storage, and disposal facilities, including underground injection (UIC) sites. Additionally, the WMD focuses on

inspecting facilities that generate hazardous waste and investigating related complaints. A CEI includes a very detailed review of all the waste handling practices of a facility. A typical CEI involves records review at DEQ and at the facility, on-site visits to the facility, a written report, checklists, photographs, and occasionally waste samples are taken to determine and document compliance. During FY99, the WMD conducted 119 RCRA compliance inspections. Of these inspections, 84 were of hazardous waste generators/transporters/used oil facilities, of which 45 had never been inspected previously. The remaining inspections included 7 site sampling inspections and 28 treatment, storage, disposal, recycling facility inspections. In addition, the hazardous waste section of the WMD conducted 36 complaint investigations/inspections.

The Solid Waste Program continued to increase its field presence during FY99, performing a total of 532 inspections of permitted solid waste facilities. In addition, the Solid Waste Program began performing periodic visits of tire dealers across the state to evaluate how the waste tire program is functioning from the dealer perspective. A total of 113 tire dealer visits were conducted during FY99. Each visit is documented with a form describing the dealer's requirements under the Waste Tire Act and how well they are meeting those requirements. Tire dealers are generally satisfied with the tire program and appear to be complying with current requirements.

Monitoring

The RCRA Section investigated, sampled, and arranged the cleanup of nine sites of illegally disposed drums/barrels found along roadways, open-fields, and near waterways.

During the FY99, WMD registered 265 hazardous waste transporters.

COMPLIANCE AND ENFORCEMENT

Enforcement Administration

In FY99, the RCRA section of the WMD issued 37 Notice of Violations letters and 11 formal enforcement actions (e.g.

Inspection

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Solid Waste Inspections					
Monitoring Inspections (from ECLS)	48	40	47	51	186
Compliance Evaluation Inspections	168	132	125	107	532
Tire Dealer Inspections	80	31	2	0	113
Hazardous Waste Inspections					
Compliance Evaluation Inspections	4	21	27	32	84
Screening Inspections	2	0	0	0	2
UIC Compliance Inspections	0	9	0	12	21
Radiation					
Compliance Evaluation Inspections	2	27	22	46	97

unilateral orders, consent agreements, etc.). Formal enforcement actions included total penalties assessed of \$215,000, which included a settled penalty of \$85,000.

In the Solid Waste Program 16 Notices of Violation were issued during this fiscal year, along with 20 formal enforcement actions (5 Consent Orders, 2 Administrative Compliance Orders, 3 Administrative Compliance and Penalty Orders, 4 Applications for the Assessment of Administrative Penalties, 1 Assessment Order, and 5 Summary Suspensions). The DEQ assessed one penalty in the amount of \$11,300. The five summary suspensions were issued as a result of landfills not fulfilling their financial assurance obligations required by statute. As a result of the summary suspensions, one landfill met the financial assurance obligations, and the remaining are proceeding through the administrative enforcement process.

Criminal Enforcement

During FY99, the DEQ's Environmental Crime Investigation Team (ECIT) opened seven new criminal investigations, in addition to continuing several investigations from previous years. The ECIT meets monthly to discuss cases and coordinate with other agencies. Also in FY99, felony charges were filed in three criminal cases (one involving water pollution and two involving hazardous waste). Each of these cases resulted in a guilty plea by the defendants involved. For the first time in 1998, the DEQ commissioned two investigators as law enforcement officers. One of these investigators completed the 9-week CLEET academy; the other will follow. The DEQ is an active member of the Oklahoma Environmental Crime Task Force, chaired by the Oklahoma Attorney General's Office.

SPECIAL/SUPPORT ENFORCEMENT PROGRAMS

Radiography Certification

Industrial Radiography Certification was required in all areas under NRC jurisdiction as of June 27, 1999. This led to a boom in applications for Radiography Certification. DEQ is one of only eight states authorized to

Enforcement Administration

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Hazardous Waste					
Notice of Violation	5	8	9	15	37
Formal Actions	3	2	2	4	11
Solid Waste					
Notice of Violation	5	5	5	1	16
Formal Actions	5	5	7	3	20

administer the test, so applicants came from all over the country. From January to June of 1999, DEQ administered more radiography certification exams than in the previous four years of the program combined. It is expected that this demand will lessen somewhat, but will remain greater than the historical demand. The greatest demand for the test continues to be in Tulsa, but DEQ administered other tests in Oklahoma City and a special exam in Henryetta at industry request.

implementation of new NHIW approval processes, the number of requests requiring direct DEQ involvement were reduced by approximately 20 percent. New rules were recently passed which will provide the opportunity for landfills to assume, if they choose, their own NHIW review and approval responsibilities. For those landfills who assume this responsibility, the DEQ will only receive a notification from the generator and will not be involved in reviewing analytical results or approving waste streams. Once landfills have been authorized to assume this responsibility, it is anticipated the number of notifications which require DEQ review and approval will be drastically reduced.

Non Hazardous Waste Management

During FY99, a total of 1,198 non-hazardous industrial waste (NHIW) disposal requests were received. With the

Radiography Certification

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Radiography Certification Exams	21	27	142	78	268

Non Hazardous Waste Management

	QTR 1	QTR 2	QTR 3	QTR 4	TOTAL
Solid Waste					
Non-Hazardous Disposal Applications	221	213	353	411	1,198

