Brownfields Bulletin
Breaking Down Barriers to Using Brownfields
1st Quarter 2004, Issue 23

Indiana Development Finance Authority Announces Guideline Changes for Two Important Brownfield Incentives

The Indiana Development Finance Authority (IDFA) has recently revised guidelines for two important brownfield funding incentives offered to communities across Indiana. Effective August 19, 2003, the Site Assessment Grant Incentive (SAGI) and the Petroleum Remediation Grant Incentive (PRGI) guideline modifications will significantly impact future funding rounds for both incentives.

Based on feedback from IDEM, past grant applicants, environmental consultants, and others from the Indiana Brownfields Advisory Group, IDFA has made the following changes to the SAGI guidelines that will help meet the needs of communities across the state:

■ Two extra funding rounds have been added, for a total of four funding rounds per calendar year. The two additional rounds will be exclusively for Phase I projects, while the traditional semi-annual rounds will now fund Phase II projects only.

■ Total calendar year funding amounts have been increased from $500,000 to $1,000,000. Of this total, $150,000 will be allocated for the two Phase I project rounds, and the remaining $850,000 will be allocated between both Phase II project rounds.

■ Selection criteria have been modified based on a number of factors, using past successful projects as a model. Changes include: increased scoring emphasis on the leverage of funds and local support, scoring recognition of specific community development activities as worthwhile redevelopment goals, and the addition of a Historic Redevelopment Performance section to increase accountability of all project applicants.

■ A new on-line application process has been implemented. Go to *https://idfa.bravelo.com* to log in.

■ Since Phase I assistance is now available every other quarter, "Just In Time" (JIT) funding has been altered to specify that only Phase II assessment activities are eligible for JIT funding. JIT funding is for project sites with very short redevelopment timeframes.

PRGI, a relatively new brownfields grant funding incentive, is available to communities across the state for petroleum remediation activities at brownfield

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SAGI Grant Rounds

March 1st	Phase II activities
May 1st	Phase I activities
Aug. 1st	Phase II activities
Nov. 1st	Phase I activities

Brownfield Site Assessment Grants

- Grant amounts up to $7,500 for Phase I activities and up to $50,000 for Phase II activities per applicant, per funding round
- Available to cities, towns, and counties
- Private parties can be co-applicants
- Pays for the costs of environmental investigation at identified brownfield sites
- Eligible activities include: Phase II assessments, asbestos and lead-based paint surveys

Brownfield Petroleum Remediation Grants

- Grant amounts up to $250,000 per applicant, per funding round
- Available to cities, towns, and counties
- Private parties can be third-party beneficiaries of a grant
- Pays for the costs of petroleum remediation at identified brownfield sites
- Eligible activities include: under ground storage tank removal, Corrective Action Plan preparation, remediation, and monitoring

Guideline Changes

(continued from cover page)

sites. Changes the PRGI guidelines were based on feedback received from applicants, environmental consultants, and IDEM during the first PRGI grant round. The changes more closely align the grant scoring criteria of both SAGI and PRGI, thereby making the goals of both assistance types more similar to each other. Changes include:

- Two extra funding rounds per year have been added, for a total of four funding rounds per calendar year. These new rounds increase the opportunity for funding and coincide with the two new SAGI funding rounds. Funding distribution and amounts of awards remain unchanged, however.

- Selection criteria have been updated to more closely mirror the new SAGI criteria. These updates include: recognition of specific community development activities as worthwhile redevelopment goals and the addition of a Historic Redevelopment Performance section to increase accountability of applicants for prior projects that have used IDFA brownfields assistance.

For full copies of the revised guidelines, as well as information on other state brownfields funding assistance, visit *www.idfabrownfields.com* or contact Sara Westrick of IDFA at (317) 234-1688.

Mark your calendars!

Next PRGI Grant Round Deadline is February 1st

In Brief

Developer's Perspective on Redeveloping Brownfields for Residential Use

The National Center for Housing and the Environment (NCHE)–formerly the National Foundation for Environmental Education (NFEE)–is an independent non-profit organization dedicated to providing balanced research on natural resource issues that affect, and are affected by, the country's challenge to "grow smart." In September 2000, NCHE hosted a one-day conference that brought together a diverse group of stakeholders in the brownfields arena, including homebuilders, lenders, lawyers, citizens groups, and government officials.

The white paper, "Redeveloping Brownfields for Residential Use: A Resource for Builders and Developers," incorporates themes from the 2000 conference, provides examples of various approaches to successful brownfields redevelopment, explores the incentives that have been critical to successful redevelopments, identifies the unique challenges for developers, and addresses barriers to residential brownfields redevelopment. The paper also features four case studies and describes trends that make brownfield sites attractive investment opportunities for developers. This resource will be of interest to brownfield developers and those who are looking to learn more about the developer's perspective on brownfields-to-housing projects.

To view the white paper, or for more information on NCHE, visit *www.housingandenvironment.org/*.

Get News from LGEAN

The Local Government Environmental Assistance Network (LGEAN) Web site keeps local officials informed of funding opportunities (e.g., air quality, brownfields, pollution prevention, smart growth, water quality, etc.), regulatory updates, and other news of interest to local governments. Sign up at *www.lgean.org/html/updateservice.cfm* for LGEAN's free, bi-weekly e-mail update service.

August 2003 SAGI Grant Round Awards

In October 2003, the following ten communities were awarded Indiana Brownfields Site Assessment Grant Incentive (SAGI) Grants available through the Environmental Remediation Revolving Loan Fund. The decision to award funding for this highly competitive round was a cooperative effort by the Indiana Development Finance Authority (IDFA) and IDEM.

Small Communities

•City of Dunkirk	$20,650
•City of Logansport	$18,018
•Martin County	$17,400
•City of Peru	$48,471
•Town of Shirley	$15,000
•Town of Summitville	$7,528
•City of Wabash	$16,219
TOTAL	$143,286

Large Communities

•City of Indianapolis	$14,415
(two sites)	$29,950
•City of Muncie	$15,423
•City of West Lafayette	$44,358
TOTAL	$104,146

Keystone Enterprise Park Redevelopment

The city of Indianapolis has been in the process of redeveloping and developing an area of the city that has been partially developed for the past 50-80 years. The Martindale-Brightwood area is located on the east side of Indianapolis at the intersection of Keystone Avenue and Interstate 70. It is approximately 62 acres in size and when completed will provide commercial/industrial development of approximately 19 parcels and some greenspace.

The neighborhood was initially developed for residential purposes in the 1900s. All infrastructure, including utilities and roads, was in place for homes to be built. However, in the 1950s when construction for the adjacent interstate highway began, the residential development project stopped. Since that time, the area has been in decline. Approximately 150 parcels remain undeveloped, resulting in nuisance dumping of trash and tires. The city of Indianapolis has purchased over 100 houses and commercial facilities to prepare this 62-acre area for an industrial park.

Three phases of environmental investigation and redevelopment were funded from a variety of sources, including city funds and state brownfields grant and loan funds. The first phase determined that a limited area of surface and subsurface soil was impacted by metals. This area was capped to prevent any harmful exposure. The second phase revealed soil and ground water contamination of chlorinated solvents. The impacted source soil was removed, and ground water monitoring will be conducted to determine the stability of the contaminant plume. The chlorinated solvent contamination is shallow in the ground water, and a phytoremediation* pilot test with the U.S. Environmental Protection Agency is being considered. The city plans to use this area as greenspace with picnic tables. The third phase of environmental investigation is on going.

The city of Indianapolis is currently marketing the Martindale-Brightwood area for redevelopment. An anchor tenant is expanding operations, and several businesses are negotiating with the city to relocate to the area. Announcements for the new businesses are pending.

*Phytoremediation is remediation using plants.

BROWNFIELDS Score Card PROGRAM

38 Assessments completed or referred

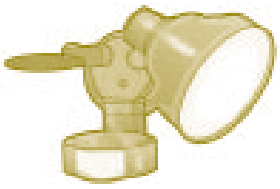
143 Grants awarded

20 Loans approved

72 Comfort and Site Status Letters issued*

These figures represent the number of services provided upon request since the inception of the Brownfields Program.

*Site Status Letters have been developed to replace No Further Action Letters formerly issued by IDEM's Brownfields Program.



What are institutional controls and

They are in use at 53 of Indiana's 63 closed voluntary cleanup sites. They open the door for redevelopment of industrial properties. They offer protection to purchasers of residential and non residential properties. They give hope and worry to regulators, business owners and lending institutions. They are both the headache and the aspirin. What are they? They are institutional controls, otherwise known as ICs.

The U.S. Environmental Protection Agency defines ICs as non-engineered instruments, such as administrative and/or legal controls, that minimize the potential for human exposure to contamination and/or protect the integrity of the environmental remedy by limiting land or resource use. ICs are often chosen as reasonable, inexpensive options to address potential exposure to site contaminants. They can limit access to a property or provide for long-term protection or maintenance of engineering controls that were constructed to prevent migration or contact with contaminants that remain on-site.

Prestolite Manufacturing in Vincennes was a Superfund site with high levels of lead contamination. The site was remediated to industrial/commercial levels, and a new Lowe's Home Improvement Center took its place.

ICs may be chosen where they will provide safe and cost effective protection of public health. ICs are considered as a remedy component when they are deemed to be feasible, effective in the long term, enforceable, and inexpensive.

The most commonly used institutional controls are restrictive covenants and other recorded instruments, although ordinances banning drinking water wells and other ICs like special building permit requirements may be proposed. ICs restricting activities or requiring the maintenance of engineering controls (like caps or fences) are increasingly being relied upon as part of facility permits and site cleanup remedies. ICs may be used in all of Indiana's brownfields and hazardous site cleanup programs, particularly under the state's risk-based cleanup policy. The specific requirements of an IC vary, but they generally must be legally valid, provide constructive notice of the restriction to prospective property purchasers, and be permanent.

Restrictive Covenants

The 53 voluntary cleanup sites previously mentioned used restrictive covenants to limit future use of the site to non-residential uses. That makes the cleanup more affordable, since the contaminant cleanup levels for non-residential are higher than those for residential use. The ability to make cleanups more affordable benefits the environment as well as the economy because it allows for commercial/industrial re-use of commercial/industrial land, instead of having companies search for pristine property. Brownfields that may have remained as abandoned eyesores can be safely and productively used, and more greenfields can then be preserved.

Generally, IDEM has the authority to enforce restrictive covenants that are created in connection with any remediation, closure, cleanup, or corrective action approved by IDEM.[1]

1 Ind. Code § 13-14-2-6(5).

Some of the information in this article was obtained from "Indiana's Use of Institutional Controls," by Thomas W. Baker in *Implementing Institutional Controls at Brownfields and Other Contaminated Sites*, Ed. Amy L. Edwards, American Bar Association (2003).

how do they affect you?

For IDEM to be able to exercise its enforcement authority, such convenants must meet the following criteria:

- recognize an engineering control or land use restriction
- be recorded
- be designed to obligate future property owners
- illustrate how to modify or terminate the covenant.[2]

IDEM can also require ICs for sites that are regulated and maintained under state and federal hazardous waste laws. Should additional remedial steps be taken or site conditions permit, IDEM may approve modified terms of the restrictive convenant.

Other Institutional Controls

Local ordinances can be effective ICs. For example, ground water contamination migrated off-site from the Galen Myers Superfund site in Mishawaka. After the affected homes were hooked up to municipal water through a U.S. EPA removal action, the local government passed an ordinance restricting the installation of drinking water wells. The ordinance provides protection of public health without the need to place individual restrictive covenants on each parcel of property.

Educational programs and advisories (such as fish consumption advisories and warning signs) are ICs, however they are not enforceable. They can be used in combination with other types of remedies but do not work effectively by themselves, since people can choose to ignore them. Zoning is an option, but is not considered to be a good long-term solution since it can be easily changed and is not permanent.

Keeping Track of ICs

The greatest challenge presented by ICs nationwide seems to be finding effective and efficient ways to keep track of them and to ensure future property owners will be aware of and abide by them. Good methods are available, but they are costly. Databases must be maintained, people must know how to access them, and restrictive covenants must be properly filed.

The IDEM Web site contains maps and lists of cleanup sites, as well as lists of sites with ICs in place. In addition, IDEM keeps information about cleanup actions on its "ULCERS" database. That database is accessible to the public by using computer terminals in the IDEM central file room (Indiana Government Center North 12th Floor, Indianapolis). IDEM's project managers and inspectors can check sites to see first hand if ICs are being abided by.

Restrictive covenants are attached to property deeds and should be identified whenever a title search is performed. The burden of filing restrictive covenants with the county recorders falls to the property owner or recipient of the restrictive covenant.

New and better ways to share information about ICs are being explored. For instance, the state of Wisconsin maintains a Geographic Information System (GIS) Registry of Closed Remediation Sites that is available to the public on its Web site. Wisconsin also operates a "diggers hotline" similar to those operated by utility companies, which drillers must contact.

For more information about institutional controls, please contact Pat Likins of IDEM at (317) 234-0357 or Tom Baker of IDEM at (317) 233-1207.

Engineering Research, Inc. in Indianapolis was a manufacturing plant that performed abrasive blasting, plating, and painting. After investigation, contaminated soils were removed and treated, and the land use was restricted to non-residential. The manufacturing equipment was removed,and the property was sold. It is being reused as a new manufacturing facility now, Precision Machine Shop.

2 Ind. Code § 13-11-2-193.5.

Estimating Background Concentrations

For brownfield sites, as well as other contaminated or potentially contaminated properties, it is often important to determine the background concentration of contaminants in the environment. Two types of background levels may exist for chemical substances, naturally occurring levels and anthropogenic levels. Naturally occurring levels are ambient concentrations of substances present in the environment, without human influence, and anthropogenic levels are concentrations of substances present in the environment due to human-made, non-site sources (e.g., automobiles, industries).

For example, background metal concentrations can vary widely depending on the geology of an area and other factors, such as lead deposition along roadways. The metal most commonly found at concentrations exceeding IDEM's Risk Integrated System of Closure (RISC) closure levels is arsenic. Naturally occurring arsenic concentrations in Indiana soils vary from less than 2 milligrams per kilogram (mg/kg) to as much as 13 mg/kg. Naturally occurring sources of arsenic include bedrock containing arsenopyrite (FeAsS, iron arsenide sulfide), pyrite, and iron oxides. Common sulfide minerals and iron oxides can contain 1% or more arsenic as an impurity. Examples include metals-rich shales (New Albany Shale) and coals, and soils derived from arsenic-bearing parent materials.

For metals, as well as other contaminants, when concentrations exceed closure levels, and background levels are suspected to be the cause, an investigation of background contaminant concentrations is warranted. There are a number of factors to consider when performing this evaluation. The most important of these are:

1. Where should background samples be taken?

Background samples should be taken in an area that is unlikely to have been historically impacted by activities that may have increased the naturally occurring contaminant concentrations. The samples should also be taken in soil strata matching those found in the area of suspected contamination. In some cases, it is difficult to find such areas. It may be impossible to find suitable sample locations in fill areas. In these cases, IDEM staff should be consulted. It may be possible to find an alternative approach.

2. How many samples should be taken?

An IDEM project manager should be consulted to determine an adequate number of samples. However, a minimum of four samples from each relevant soil horizon is generally required to appropriately evaluate background concentrations. Each relevant soil horizon should be evaluated individually. The concentrations of metals, for example, can vary dramatically between soil layers.

3. How is the representative soil background value calculated?

The values in a stratum are averaged, and one standard deviation is added. The variation is calculated to determine whether there is excessive variability in the data. If the variability is too high, then it may be necessary to collect more samples to ensure the reliability of the calculated background value.

4. How is the background value for ground water calculated?

For ground water evaluations, the upper confidence level becomes the higher of the RISC closure level or the calculated background concentration. It is very helpful to work with an IDEM project manager during this process. The project manager should approve sample locations, sampling methods, and procedures and be on-site during the sampling event.

The key to success is understanding IDEM expectations prior to performing any work. With a cooperative effort, it is possible to develop appropriate investigation methodology, sampling techniques, and site closure levels, while moving sites though to completion in a timely fashion.

For more information, visit IDEM's RISC Web site at *www.in.gov/idem/land/risc/index.html*.

Chemical of Concern
ARSENIC

This article attempts to give only basic information due to limited space. Please consult the appropriate agencies and Web sites or a qualified specialist for more specific/comprehensive information.

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. In animals and plants, arsenic combines with carbon and hydrogen to form organic arsenic compounds.

Arsenic is produced primarily as a by-product from the operation of copper and lead smelters, which often become brownfields. The major uses of arsenic in the United States are as wood preservatives (approximately 75-90%), agricultural products, glass, and nonferrous alloys. Until the 1940s, inorganic arsenic solutions were widely used in the treatment of various diseases, such as syphilis and psoriasis. Inorganic arsenic is still used as an antiparasitic agent in veterinary medicine and in homeopathic and folk remedies in the United States and other countries.

Arsenic cannot be destroyed in the environment; it can only change its form. In air, arsenic will settle to the ground or will be washed out of the air by rain. Many arsenic compounds can dissolve in water. Arsenic is introduced into water through dissolution of minerals and ores, and concentrations in ground water in some areas are a result of erosion from local rocks. Fish and shellfish can accumulate arsenic, but the arsenic in fish is mostly in a form that is not harmful.

The most common inorganic arsenic in air is arsenic trioxide (As_2O_3), while a variety of inorganic arsenates (AsO_4^{-3}) or arsenites (AsO_2^-) occurs in water, soil, or food. Although organic arsenic is usually viewed as being less toxic than the inorganic, several methyl and phenyl derivatives of arsenic that are widely used in agriculture are of possible human health concern. Chief among these are monomethyl arsenic acid (MMA) and its salts (monosodium methane arsonate [MSMA]).

The concentration of arsenic in soil varies widely across the country, generally ranging from about 1 to 40 parts of arsenic to a million parts of soil (ppm) with an average level of 5 ppm. However, soils in the vicinity of arsenic-rich geological deposits, some mining and smelting sites, or agricultural areas where arsenic pesticides had been applied in the past, may contain much higher levels of arsenic than the average. The concentration of arsenic in natural surface water and ground water is generally about 1 part in a billion parts of water (ppb), but may exceed 1,000 ppb in mining areas or where arsenic levels in soil are high. See page 6 of this issue for more information about background level determination.

Products/Wastes Containing Arsenic

-pressure-treated wood (preservative is chromated copper arsenate [CCA])
-alloying agents
- combustion of fossil fuels
- pesticides
-semiconductors and light-emitting diodes
-drinking water

Possible Means of Exposure to Arsenic

Ingestion: The most common means of exposure to arsenic is through ingestion of arsenic-contaminated drinking water. Children can also be exposed by ingesting soil contaminated with arsenic.

Inhalation: Breathing in or swallowing airborne dust and dirt containing arsenic can be a route of exposure, especially for workers in mining or other industries where arsenic is used.

Skin Absorption: Over time, skin contact with soil or water contaminated with arsenic can be a means of exposure. However, hand-washing, bathing, laundry, etc. with water containing arsenic do not generally pose a human health risk.

Regulatory Levels/ Requirements

U.S. EPA Maximum Contaminant Level (MCL): The U. S. EPA MCL is 0.05 part per million (ppm); however, it has been reevaluated and changed to 0.01 ppm. Everyone must comply with the new level of 0.01 ppm by January 2006.

The Occupational Safety and Health Administration (OSHA): 10 micrograms per cubic meter ($\mu g/m^3$) of arsenic for 8-hour shifts and 40-hour work week.

IDEM Risk Integrated System of Closure (RISC) Guidance Levels: The RISC Residential Default Soil Closure Level is 3.9 milligrams per kilogram (mg/kg). The RISC Industrial Default Soil Closure Level is 20 mg/kg. The RISC Residential Default Ground Water and RISC Industrial Default Ground Water Closure Level is 0.050 ppm.

Health Effects

Short-term health effects from arsenic poisoning typically include vomiting, esophageal and abdominal pain, and bloody diarrhea. Long-term health effects from drinking water with arsenic include cancer to the skin, lungs, bladder, and kidneys, as well as other skin changes such as pigmentation changes and thickening (hyperkeratosis). Cancer usually takes more than ten years to develop. An increased risk of lung and bladder cancer, and arsenic-associated skin cancer lesions have been observed at drinking water arsenic concentrations of less than 0.05 milligrams per liter (mg/L) or 0.05 ppm. Birth defects have been observed in animals exposed to inorganic arsenic. It is unknown if arsenic will result in birth defects or developmental effects in people.

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Brownfields Bulletin

Brownfields Bulletin is published quarterly by the Indiana Department of Environmental Management to inform local government officials, business representatives, and interest groups about brownfields redevelopment initiatives and success stories from within and beyond the state. A brownfield site is an industrial or commercial property that is abandoned, inactive or underutilized due to actual or perceived environmental contamination. IDEM's overall mission is to make Indiana a cleaner, healthier place to live. IDEM's brownfields initiative helps communities remove barriers for sustainable growth.

Please contact Dan Chesterson of the IDEM Brownfields Program to inform IDEM of address changes, to be added or deleted from the mailing list or e-mail list serve, or to share your comments and ideas about this publication.

Brownfields Program Staff

Gabriele Hauer *Section Chief*	ghauer@dem.state.in.us (317) 233-2773
Michele Oertel *Senior Environmental Manager*	moertel@dem.state.in.us (317) 234-0235
Dan Chesterson *Environmental Manager*	dchester@dem.state.in.us (317) 232-4402
Tracy Concannon *Environmental Manager*	tconcann@dem.state.in.us (317) 233-2801
Andrea Robertson *Environmental Manager*	aroberts@dem.state.in.us (317) 234-0968
Susan Tynes *Environmental Scientist*	stynes@dem.state.in.us (317) 233-1504
Trevor Fuller *Environmental Scientist*	tfuller@dem.state.in.us (317) 233-8409
Sandy Bardes *Secretary*	sbardes@dem.state.in.us (317) 233-2570
Thomas W. Baker *Attorney*	twbaker@dem.state.in.us (317) 233-1207

IDEM's toll-free number: (800) 451-6027, press 0 and ask for a person by name or number, or dial direct.

Who Can Help

Technical and educational assistance

Indiana Department of Environmental Management
Brownfields Program Staff (listed top right)
100 N. Senate Ave., Suite 1101
P.O. Box 6015
Indianapolis, IN 46206-6015
www.IN.gov/idem/land/brownfields

Financial assistance

Indiana Development Finance Authority
Calvin Kelly, Deputy Director
One North Capitol, Suite 900
Indianapolis, IN 46204
(317) 233-4332
e-mail: *ckelly@idfa.state.in.us*
www.idfabrownfields.com

Indiana Department of Commerce
Deanna J. Oware, Deputy Director
One North Capitol, Suite 600
Indianapolis, IN 46204
(317) 232-8917
e-mail: *doware@commerce.state.in.us*
www.indbiz.com

IDEM Indiana Department of Environmental Management
Office of Land Quality
Brownfields Program
P.O. Box 6015
Indianapolis, IN 46206-6015

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