

Redfield Site Community News

Update

Indoor-Air Testing Update

For more than a decade, Brown Group Retail, Inc. (Brown Retail) has worked closely and cooperatively with the Colorado Department of Public Health and Environmental (CDPHE) to evaluate and address groundwater and indoor air impacted by past operations at the Redfield site and surrounding facilities. • After CDPHE raised its indoor-air action level in 2004 for 1,1 dichloroethene (1,1-DCE) from 0.49 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) to 5.0 $\mu\text{g}/\text{m}^3$ (a level ten times higher than the previous standard), and employed a more stringent action level for trichloroethene (TCE) of 0.8 $\mu\text{g}/\text{m}^3$ from the former level of 14.0 $\mu\text{g}/\text{m}^3$, Brown Retail's environmental consultant, EnviroGroup, began evaluating the need to continue operating the indoor-air ventilation systems. • EnviroGroup continues to implement a state-approved, three-phased plan for re-testing homes to determine if they meet CDPHE's action levels for 1,1-DCE and TCE from groundwater. • Now in Phase III, EnviroGroup has tested the indoor air of 13 additional homes that initially had initial indoor-air test results above the state's new standards for 1,1-DCE or groundwater-derived TCE, *(continued on page 2)*

Update on Groundwater Cleanup Activities

Brown Retail continues to evaluate and address both on- and off-site groundwater impacted by past operations at the Redfield site and nearby facilities.

Groundwater monitoring data shows significant reductions in groundwater contaminant concentrations in the vast majority of areas north of the facility since a groundwater containment system was installed at the Redfield site in 2000. The system operates continuously to capture and

treat solvent contaminated groundwater before it flows beyond the facility boundaries. The system also captures and cleans groundwater a short distance beyond the fence line. The existing plume is being diluted and flushed by the clean water reinjected by this system. To date, the onsite groundwater containment system has treated more than 48 million gallons of groundwater.

New System Addresses Groundwater Cleanup

While the groundwater containment

system continues to operate effectively, recent investigations have identified a relatively small area of bedrock beyond the containment system, in the vicinity of S. Kearney Street and E. Jewell Avenue, where low, residual concentrations of solvents in the low part per million ranges remain. In order to reduce the level of these constituents, EnviroGroup is implementing a work plan this summer known as the Weathered Bedrock Remedy, which was approved by CDPHE in June 2009.

Work related to the bedrock remedy is outlined below and involves the drilling of four offsite injection/monitoring wells along the west side of S. Kearney Street just north of E. Jewell *(continued on page 2)*

(continued from cover) or that had no pre-ventilation system samples collected. Based upon the test results, CDPHE has determined that all 13 homes no longer require indoor-air ventilation for 1,1-DCE and groundwater-attributed TCE.

To date, CDPHE has determined that 145 homes no longer require indoor-air ventilation systems. Of the 381 homes originally equipped with a ventilation system, 233 systems continue to operate. Three homeowners voluntarily removed their ventilation systems.

To determine if concentrations of 1,1-DCE and TCE in the indoor air of the remaining Phase III homes meet the states action levels,

it is necessary for homeowners to turn off their ventilation systems for two weeks. After two weeks, EnviroGroup re-tests the indoor air of the home and then conducts another indoor air test in a different season (after the system is again turned off for two weeks) to gather data when home conditions change between spring/summer and fall/winter months.

For homes that meet the state's indoor air standards for 1,1-DCE and groundwater-derived TCE, Brown Retail mails a letter to homeowners notifying them that ongoing testing, operation and maintenance of the system is no longer required.

Until their homes are evaluated, Phase III homeowners should continue to operate their ventilation systems while indoor-air monitoring continues.

Because the systems also eliminate radon, both CDPHE and the City and County of Denver's Department of Environmental Health are recommending that homeowners conduct radon tests to determine if they should continue operating the system to safeguard against radon.

The following chart outlines how Brown Retail defined each phase and the status of homes in each.

Phase I - Completed in 2006	Phase II - Completed in 2007	Phase III - Testing Ongoing
Number of houses identified for evaluation: 88	Number of houses identified for evaluation: 49	Number of houses identified for evaluation: 248
Number of houses that met state indoor-air standards without a ventilation system: 86	Number of houses that met state indoor-air standards without a ventilation system: 46	Number of houses that meet state indoor-air standards without a ventilation system: 13 to date
Had an initial test result of less than 2.5 µg/m ³ for 1,1-DCE and below 0.8 µg/m ³ for groundwater-derived TCE	Had an initial test result of between 2.5 µg/m ³ to 5.0 µg/m ³ for 1,1-DCE and below 0.8 µg/m ³ for groundwater-derived TCE	Had an initial test result that exceeded 5.0 µg/m ³ for 1,1-DCE or 0.8 µg/m ³ for groundwater-derived TCE or had no premitigation data

Due to the ongoing groundwater cleanup resulting in decreasing indoor-air vapor levels, CDPHE has also approved the discontinuation of indoor air testing at 118 Phase III homes with indoor air ventilation systems. In place of indoor

air testing, these homes will receive an annual system operation inspection to ensure their ventilation systems are operating properly.

The annual system operation inspections will be conducted by EnviroGroup in the

same quarter as the former air testing and take about 10 to 15 minutes to conduct.

Indoor-air concentrations of 1,1-DCE and TCE will continue to decrease over time as the cleanup of the underlying groundwater progresses.

Update on Groundwater Cleanup Activities *(continued from cover)*

Avenue. The bedrock around the injection wells will then be fractured. EnviroGroup will then sample these wells to establish baseline groundwater conditions and then inject a molasses solution and vegetable oil/water mixture to increase populations of microorganisms that break down solvents naturally. Fracturing the underlying bedrock makes it easier to introduce the molasses solution and vegetable oil/water mixture into the area where these organisms reside and thus speeds up the rate of groundwater cleanup.

The bedrock surrounding these wells will be fractured by another contractor, FRx over a period of approximately 5 to 6 working days - from July 20 to 31.

FRx will fracture the bedrock at these wells by injecting a mixture of water, sand, and a natural thickening agent under just enough pressure to fracture the rock. Bedrock fracturing will have no effect or negative impact on surrounding homes, their foundations or sewer systems and the small movements in the bedrock will not be detectable by residents. Monitoring devices will be used to detect minor

ground movements, if any.

EnviroGroup will sample the wells to establish baseline groundwater conditions. The vegetable oil/water mixture will then be injected into these wells, under an EPA general permit in late August or early September.

Minimal Impact to Traffic

During drilling and fracturing activities, impact to traffic will be minimal with no closure or blockage of streets. EnviroGroup is placing parking signs and traffic cones around active work zones, and they will work directly with neighbors to minimize parking impacts. Work is scheduled to occur between approximately 8:30 a.m. and 4:30 p.m. each weekday.

Support vehicles that may be seen on S. Kearney Street include drill rigs, support trucks, a trailer, a fracturing rig, a water truck, a forklift and several personal vehicles. Efforts will be made to minimize the amount of equipment on the street at any one time.

Noise Control

The drill rig used to install the injection wells, the high pressure water blaster used

for rock fracturing, and the fracturing rig used to fracture the bedrock will generate noise similar to road construction work. To minimize inconvenience to neighbors, the work will occur during routine daytime business hours. Efforts will be made to minimize the duration of noise.

Monitoring

Following injection, EnviroGroup will sample each injection well to assess groundwater conditions through the underlying bedrock. EnviroGroup will also collect groundwater samples and periodically monitor other nearby groundwater wells to evaluate treatment progress at each location.

In order to track the effect the bedrock remedy is having on groundwater, operation of the bioremediation system located at S. Jasmine Street was discontinued in April 2009. Wells along S. Jasmine Street will be monitored as part of the bedrock remedy evaluation.

Initial results describing the effect of the bedrock remedy on solvent concentrations in groundwater are anticipated to be reported to CDHPE in April 2010.

Real Estate Tracking Update

Brown Retail continues to monitor real estate transactions in an area near the former Redfield site facility as shown on the map below. From January 1998 through June 2009, there were more than 170 sales inside the area. For more information, contact Lisa Sigler, Brown Retail Community Relations Representative at (303) 778-8355.



January 1998 – June 2009 Real Estate Activity

- Indoor air testing area.
- Real estate tracking boundary.
- Homes for sale.
- Homes sold/date sold.

Source: Kelley and Associates Real Estate Evaluation
Homes sales are tracked through MLS and may not include all sales

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DENVER, CO

For More Information

We will continue to update neighbors as new information about the site becomes available. Please feel free to contact the following representatives for more information, visit our Web site at www.redfieldsite.org, or call the Redfield information line at **303-637-2503**.

Current information and key reports relating to the site are available at the Virginia Village Library, located at 1500 S. Dahlia St.

A complete collection of all documents relating to the Redfield site is available at the Colorado Department of Public Health and Environment, 4300 Cherry Creek Dr. S. We welcome your questions or comments.

Contacts

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Statistics

248

Number of houses identified for Phase III evaluation

145

Homes that Meet New Action Levels and do not Require Continued Operation of Ventilation Systems

48,000,000

Gallons of Groundwater Cleaned before Leaving Redfield Site