

Redfield Site

Questions & Answers Proposed Phase I On-Site Cleanup Plan

September 2003

Why is Brown Retail conducting on-site cleanup measures?

Brown Retail is performing on-site cleanup measures under a Compliance Order on Consent that Brown Retail entered into with the Colorado Department of Public Health and Environment. In the Phase I *On-Site Corrective Measures Work Plan*, Brown Retail's environmental consultant has evaluated a number of alternatives for remediation of soils and groundwater beneath the former Redfield facility that contain solvents and solvent-like compounds. The objectives of the proposed on-site cleanup plan are to:

- remove or minimize onsite sources of solvents and solvent breakdown products that would cause an exceedance of State groundwater standards.
- prevent the possibility of human exposure to groundwater and soil vapors at the Redfield Site; and,
- continue preventing groundwater containing elevated levels of solvents from moving offsite.

When will remediation activities begin?

Many of the proposed corrective measures for on-site groundwater already have been implemented as interim measures, including the groundwater containment and treatment system and indoor air mitigation

systems in the former Redfield building. Following the approval of the Colorado Department of Public Health and Environment (CDPHE), test equipment for a "Multi-Phase Extraction System" will be installed this fall, and construction and operation of the recommended system will begin in the winter of 2004.

What does Phase I involve? How will it work?

The proposed Phase I on-site remediation activities includes the following three components:

1. Continue operating the existing clean-up measures already in place.

- Continue using the enhanced groundwater containment and treatment system, which stops groundwater containing solvents before the site fence line, and removes and treats the water. This system has been highly effective as a hydraulic barrier to contain and treat contaminated groundwater and is incorporated into the final corrective measures.
- Continue operating the two sub-slab ventilation systems installed in the former Redfield building, which prevent migration of vapors into the building.

2. Implement a Multi-Phase Extraction system.

- Following evaluation of a number of remedial cleanup alternatives, Brown Retail has proposed a Phase I on-site remediation method called Multi-Phase Extraction (MPE) as the most appropriate on-site technology for the Redfield site. MPE systems remove contaminants by lowering the groundwater table to allow removal of solvents by a process known as soil vapor extraction. Phase I will involve installing an MPE system to test its effectiveness and feasibility. The MPE system would work in conjunction with the existing groundwater containment and treatment system. The present pump-and-treat containment system has cleaned more than 15.5 million gallons of groundwater and has prevented groundwater containing solvents from flowing into the neighborhoods north and east of the site for more than three years. Groundwater removed by the proposed MPE system would be treated by the existing treatment system. The clean water would then be re-injected back into the ground or discharged in accordance with the appropriate permits.

- Pilot testing will be done to evaluate the effectiveness of the MPE system. If, as expected, the MPE Phase I pilot test shows that MPE is effective, then a full-size system will be designed. Pending CDPHE approval, the MPE pilot test is anticipated to be installed and operational in 2004.

What other cleanup alternatives were considered for Phase I?

Based on evaluation of a number of factors such as protectiveness, ability to achieve cleanup objectives and address contaminants of concern, hydrogeology, implementability, cost-effectiveness and treatment duration, MPE was identified as the most appropriate technology for this site. This recommended cleanup alternative also has the benefit of taking advantage of many components of the existing groundwater containment and treatment system.

A number of other alternatives were considered and evaluated. Some of these included no further action, injection of chemical oxidants to destroy the solvents, pump-and-treat using wells to inject air into the groundwater to “strip” the solvents from the water, and creating an environment in which naturally occurring biological organisms can break down the solvents in the groundwater. Considering such factors as overall protection of health and the environment, ability to achieve regulatory requirements, short-term and long-term effectiveness, permanence, reduction of toxicity, mobility and volume, implementability and cost, the proposed cleanup remedy outlined above was deemed most appropriate given the site’s environmental conditions.

Does the plan include ongoing groundwater monitoring?

Yes. The plan includes long-term groundwater monitoring that will monitor the progress of groundwater cleanup. Brown Retail also will continue to monitor the effectiveness of the Colorado Department of Transportation’s bioremediation project, and the effectiveness of the soil vapor extraction pilot test.

How can the public comment on the plan?

CPDHE is seeking public comment on the proposed cleanup measures presented in the report, *Phase I Onsite Corrective Measures Work Plan*. Once the Work Plan is approved, Brown Retail will proceed with final design of the remedy. If you would like a copy of the plan, it can be obtained from Marion Galant at CDPHE for the cost of copying. It also is available for review at the following information repositories:

Virginia Village Library

1500 S. Dahlia St.
Denver, CO 80222-3509
(303) 757-6662

Glendale Public Library

999 S. Clermont St.
Glendale, CO 80246
(303) 691-0331

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