

Draft Analysis of Brownfields Cleanup Alternatives (ABCA)
Former Thornton Shopping Center Site
8800-8988 Washington Street, Thornton, Colorado 80229
EPA Number COR000212639
gocot.net/thorntonshopctr

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I. Introduction and Background

This *Draft Analysis of Brownfields Cleanup Alternatives (ABCA)* was prepared in conjunction with Thornton Development Authority's pending application for a 2025 EPA Brownfields Cleanup Grant. The requirements of the ABCA that follow this introduction have largely already been met, as a cleanup workplan was approved by the Colorado Department of Public Health and Environment (CDPHE) on July 3, 2024, after carefully evaluating cleanup alternatives and providing opportunity for public comment.

a. Site Location (address)

The 15.86-acre site (Site) is located at 8800-8988 Washington Street, Thornton, Colorado, 80229. The Site is currently vacant and characterized by the presence of asphalt paved parking lots and former building floor slabs and foundations. The primary environmental issue is the release of the dry cleaning chemical Perchloroethylene (PCE) to the subsurface environment, associated with a former drycleaner located at 8866 Washington. Significant soil and groundwater contamination is present under the former building foundation, and a plume of groundwater contamination extends offsite approximately 2,000 feet to the southeast.

TDA has taken the Site through eminent domain proceedings. TDA became an Operator of the site by Adams County District Court Immediate Possession Order (Case Number 22CV31024) on November 22, 2022. TDA was awarded title to the Site by Court order on April 23, 2024 (recorded April 23, 2024, Reception #2024000021123).

a.1 Forecasted Climate Conditions

According to the US Global Change Research Program (USGCRP), the primary climate risk to the site is drought and average high temperatures in the southwest are expected to rise by 3.7 degrees Fahrenheit.

According to the USGS Commerce City topographic quadrangle, the site is near the top of a hill at an elevation of approximately 5,300 feet. The nearest significant waterway is the South Platte River, approximately one mile to the southeast and at an elevation of approximately 5,200 feet. According to the Climate and Economic Justice Screening Tool developed by the Council on Environmental Quality, the flooding risk to the Site is in the 19th percentile (low).

The Site is currently completely covered with pavement and building foundations. Heavy rain events would not be expected to present a significant risk of runoff or erosion.

Based on the nature of the Site and its proposed reuse, changing temperatures, rising sea levels, wildfires, and other climate change indicators are not expected to significantly affect the site.

b. Previous Site Use(s) and any previous cleanup remediation

The site was originally developed as a commercial center in the mid-1950s with numerous retail uses until demolition of the buildings was completed in July of 2024. The following details previous on-site environmental cleanup activities:

- Former Conoco gasoline filling station at 8800 Washington; Colorado Department of Labor and Employment (CDLE) Division of Oil and Public Safety (OPS) regulatory closure in 2008;
- Dry cleaners at 8866 Washington; former owner Thornton, LLC was under a court order (Adams County District Court Order 2020CV31417) to complete activities associated with a Corrective Action Plan. Outside of installing groundwater monitoring wells and conducting periodic testing, the only cleanup activities conducted were injections of BOS 100 (a remediation product used to break down solvents) beneath the building and at five locations near the intersection of 88th Avenue and Corona Street.

c. Site Assessment Findings

On behalf of TDA, ERO Resources completed an All-Appropriate-Inquiry (AAI) compliant Phase I Environmental Site Assessment on November 11, 2022, prior to TDA assuming possession of the Site. On-site recognized environmental conditions that warrant additional investigation and/or cleanup included the following:

- Dry cleaners at 8866 Washington (remedial activities have begun and are the subject of this ABCA).
- Dry cleaners at 8876 Washington requires further investigation.
- Former High Tech Dry cleaners at 8946 Washington; CDPHE requires further investigation.
- Auto repair facility at 8966 Washington; used oil underground storage tank (UST) removed May 4, 2022; soil delineation needed before CDLE/OPS will provide closure.

Numerous assessments and periodic groundwater monitoring events have occurred at the Site. Source removal of PCE in soil beneath the former building foundation needs to occur. PCE-impacted groundwater has migrated some 2,000 feet towards the southeast.

d. Project Goal (site reuse plan)

The primary goal for the project is to conduct cleanup activities at the Site, sufficient to enable redevelopment with commercial mixed uses. Community-based site reuse visioning is currently being shepherded by Kansas State University under EPA's Technical Assistance for Brownfields (TAB) program,

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility

Cleanup oversight responsibility rests with CDPHE Hazardous Materials and Waste Management Division, Hazardous Waste Corrective Action Unit.

b. Cleanup Standards for Major Contaminants

The Site is being addressed pursuant to the Resource Conservation and Recovery Act (RCRA). Cleanup standards for major contaminants are promulgated by the Colorado Hazardous Waste Act, Section 25-15-308(2), Colorado Revised statutes (CRS) , sections 25-15-101 to 515, CRS, and its implementing regulations, 6 CCR 1007-3.

c. Laws & Regulations Applicable to the Cleanup

The following documents have informed cleanup activities:

- 2020: Adams County District Court Order compels former owner Thornton, LLC to complete activities associated with a Corrective Action Plan (CAP).
- 2022: When TDA took possession of the Site, TDA and CDPHE entered into a “Transfer of CHWA Corrective Action Plan (CAP)” letter agreement, whereby TDA agreed to implement the terms of the existing CAP until title transfer, at which time a Compliance Order on Consent (COC) would take effect.
- April 23, 2024: COC takes effect.
- July 3, 2024: Work Plan specified by COC approved by CDPHE

III. Cleanup Alternatives

Cleanup of PCE in the subsurface environment remains difficult, expensive, and only partially effective due to technological and financial limitations. Any cleanup approach is iterative, meaning that what you do tomorrow is largely governed by the effectiveness or results of what you do today. It is therefore difficult to express alternatives analysis in the vacuum of an ABCA, when the actual process is much more dynamic and fluid.

a. Cleanup Alternatives Considered

Initial cleanup alternatives considered included thermal destruction, physical removal of contaminated soil, groundwater treatment by treatment solution injection (such as BOS-100), groundwater capture and treatment by permeable reactive barrier, and E-Redox technology (rapid degradation of contaminants by manipulating and accelerating electron transfer).

b. Evaluation of Cleanup Alternatives

Thermal destruction, while very effective, was estimated in 2019 to cost approximately \$16 million. The sheer cost caused this alternative to be removed from the decision matrix. Because the Site is under a RCRA Compliance Order on Consent, choice regarding alternative cleanup alternatives is extremely limited when compared to most voluntary cleanup programs.

c. Recommended Cleanup Alternative

The following alternatives are deemed likely, but due to the iterative nature of PCE cleanups, the degree to which each component is implemented is currently unknown:

- Source area excavation
- On-site injections
- Off-site injections
- Off-site vapor testing
- Off-site vapor mitigation (if necessary)
- Permeable reactive barrier installation

- Long term groundwater monitoring

The listed cleanup components above are consistent with the cleanup workplan approved by CDPHE on July 3, 2024.

IV. Conclusion

This concludes the *Draft ABCA* for the proposed 2025 EPA Brownfields Cleanup Grant to be used to support cleanup activities at former Thornton Shopping Center Site. Environmental documents cited in this ABCA are available on the Thornton Shopping Center web page, located at gocot.net/thorntonshopctr. Public comments and questions may be submitted in writing to Chad Howell, Redevelopment Administrator, City of Thornton, 9500 Civic Center Drive, Thornton, Colorado 80229 or by email at chad.howell@thorntonco.gov.