



COLORADO

**Hazardous Materials
& Waste Management Division**

Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

March 5, 2018

Mr. Jay Brown
Thornton, LLC
2503 Crawford Avenue, #102
Evanston, Illinois 60201

Sent via email to jaylon7@gmail.com

RE: *Second Corrective Action Plan Modification; Second Semi-Annual 2017
Groundwater Monitoring Report*
Thornton Shopping Center, Northwest Corner 88th and Corona, Thornton, CO
EPA#COR000212639, M&E 1.4, Thornton, LLC (Thornton Shopping Center)

Dear Mr. Brown:

The Colorado Department of Public Health and Environment's Hazardous Materials & Waste Management Division ("Division") has reviewed the proposed *Second Corrective Action Plan Modification* ("CAP Mod"), submitted November 29, 2017, and the *Second Semi-Annual 2017 Groundwater Monitoring Report* ("Report"), submitted December 29, 2017, provided by LT Environmental, Inc. ("LTE") for the Thornton LLC site, which is located on the northwest corner of 88th Avenue and Corona Street, Thornton, Colorado ("Site").

The CAP Mod outlines Thornton, LLC's plan for on and off-site remediation. The CAP Mod proposes large-scale injections of BOSS-100 (a remediation product containing carbon and iron); no alternative remedial techniques or plans were presented. During a meeting between the Division and Thornton, LLC on January 24, 2018, it was noted that limited source area excavation and removal might be possible at the Site, under the right circumstances. However, at this time, only in-situ treatment with BOSS-100 is proposed.

The Division accepts Thornton, LLC's proposed treatment method. However, BOSS-100 injections must start off-site, in the areas depicted on Figure 12, and then work back towards the Thornton Shopping Center Site. This sequence of injections will help ensure that the community downgradient of the Thornton, LLC facility is protected from releases due to the Site. Because the location and extent of the injections will be phased overtime, monitoring will continue for more than one-year.



That said, the Division rejects several assertions and conditions contained in this CAP Mod:

- First, the Division cannot guarantee alternative concentration limits would be applied to this Site. While this is indeed a potential regulatory tool, at this stage, with high levels of PCE and DNAPL remaining in the Site subsurface, a discussion of alternate standards is premature. Alternate standards are not a substitute for remediation.
- Second, the Division may consider no further action proposals for uncontaminated parcels, under the right circumstances. However, data would need to show such a determination would be appropriate and responsibility for any continuing environmental cleanup and monitoring would need to be assured.
- Third, if another party buys Site property, then that entity or person will be the owner and operator of a RCRA site subject to corrective action and responsible for cleanup as an owner and operator.
- Finally, the Division expressly rejects Thornton, LLC's statement that its "ability to implement this 2d CAP MOD, is contingent upon two conditions precedent: 1) that the purchaser/developer of the Site takes title ownership and control of the Property, and 2) that the City of Thornton agrees to fund the cost..." Here, the Division does not regulate anonymous third parties or the City of Thornton, only Jay Brown and Thornton, LLC. In addition, Thornton, LLC and LTE have enjoyed over a year of additional time to formulate next steps for remediation. Remediation efforts and site progress are not contingent upon what-ifs and potential-but-yet-to-materialize agreements. Thornton, LLC must implement this CAP Mod proposal, as approved and modified by the Division.

Ultimately, Thornton, LLC's remediation must result in eventual compliance with groundwater standards, and/or other requirements of Division policy. While the Division hopes the BOSS-100 treatment proves effective, it is possible treatment and remediation may not be completed in the time frame outlined in the CAP Mod. Accordingly, the Division reserves the right to require additional remediation, as may be necessary.

The Report summarizes Site groundwater monitoring and sampling activities and analytical data. Groundwater data show volatile organic compounds ("VOCs") continue to persist at concentrations above the Colorado Ground Water Standards (5 CCR 1002-41, "CGWS") for PCE, TCE, 1,1-DCE, and cis-1,2-DCE. Notably, PCE increased in monitoring well MW-14 from a concentration of 850 ug/L in April 2017 to 10,600 ug/L in October 2017. While higher concentrations were recorded in 2014 (11,100 ug/L), this is one of the highest detections recorded for this location and well MW-14 is located near the southeast corner of the property.

Based on its review, the Division approves the CAP Mod with the following modifications:

1. As previously noted in the Division's July 25, 2017 letter to Thornton, LLC, "Currently, the extent of the groundwater plume is not defined off-Site.... Yet the extent of this contamination is not bounded by wells with low or non-detected wells to the east or west.... additional groundwater monitoring wells must be installed at several locations off-Site. The Division suggests Thornton, LLC propose these locations in the upcoming Conditional Closure Plan proposal." While Thornton, LLC chose to submit the CAP Mod instead of a Conditional Closure Plan, the need for additional, off-site wells has not changed. Regardless of remedial efforts conducted, the off-site plume must be further



delineated. In addition, these wells will help monitor the effectiveness of off-site CAP Mod remedial efforts, discussed above. Therefore, Thornton, LLC must install at least four additional groundwater monitoring wells off-site, within approximately 100 feet of the locations shown on the attached figure no later than **April 30, 2018**. These wells must be installed prior to Thornton, LLC's April 2018 groundwater monitoring and sampling and sampled during the April event. The CAP Mod is amended to include a new section, Section 5.8 entitled ADDITIONAL WELLS, on page 13: "Four new monitoring wells shall be installed within 200 feet of the locations shown on the figure attached to the Division's CAP Mod approval with modifications by April 30, 2018. These wells will be sampled and groundwater analyzed for chlorinated volatile organic compounds by EPA Method 8260B during the spring groundwater monitoring and sampling event. Monitoring and sampling shall continue at these wells as prescribed by the Division."

2. The Division will likely require a second round of indoor air sampling in 2018, at a few off-site locations selected by the Division, to ensure public health is not affected. The only round of off-site indoor air sampling was conducted in 2012. Because some boundary well concentrations have shown increases in PCE since 2012, and there is a chance large-scale remedial injections might push contamination off-site, data from off-site wells and possibly indoor air will need to be collected. The Division will assess April 2018 groundwater monitoring and sampling data from all off-site wells, including the four new wells required above, and then determine if and where indoor air sampling will be required.
3. Semi-annual groundwater monitoring and sampling must continue as regularly scheduled. Starting in April 2018, all on and off-site wells - including the four new monitoring wells to be installed - must be monitored and sampled semiannually. Performance monitoring of remediation efforts, described in CAP Mod Section 5.7, is not a substitute for this data. Please give the Division **7 calendar days advance written notice** of the next sampling event, via email. The Division may observe sampling activities. Section 8.0 of the CAP Mod is amended to include the following language on page 16, "Regularly scheduled groundwater monitoring and sampling and reporting shall continue and all monitoring wells will be sampled semi-annually until a change in sampling is approved by the Division, in writing. Thornton, LLC shall provide 7 calendar days advance notice of the next groundwater sampling event via email to lindsay.masters@state.co.us." The following language is deleted from the CAP Mod: "While completing the treatment program, LTE may submit periodic performance monitoring and project-status reports to the Division in lieu of semi-annual groundwater monitoring reports." The proposed closure-monitoring in Section 6.0 of the CAP Mod is not modified. Put another way, semi-annual groundwater monitoring and sampling will continue in addition to the performance monitoring of "selected monitoring wells" to ensure site-wide conditions are monitored and documented.
4. Off-site BOSS injections, depicted on Figure 12 locations, must be completed within 12 months of the date of this letter. Section 7.0 of the CAP Mod is amended to include the following language on page 15, at the end of the first paragraph, "The first round of off-site BOSS injections, depicted in Figure 12, will be completed by March 5, 2019."

Please retain a copy of this letter for your files; you will not receive a hard copy of this letter. As always, the Division reserves the right to require additional activities as may be necessary. If you have any questions, you may reach me at (303) 692-3310 or via email at lindsay.masters@state.co.us. Thank you.



Sincerely,

**Lindsay
Masters**

Digitally signed by Lindsay Masters
DN: cn=local, dc=cdphe, ou=Divisions,
ou=HMD, ou=Users, cn=Lindsay
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Date: 2018.03.05 14:04:34 -0700

Lindsay Masters
Environmental Protection Specialist
Corrective Action Unit
Hazardous Waste Program

ec: John P. Brown, LTE
Tom Harp, LTE
Tom Butts, Tri-County Health Department
David Banas, Colorado Attorney General's Office
Robert Beierle, CDPHE



New off-site monitoring well locations are marked by red circles on this figure; wells must be installed within approximately 100' of these locations.



- LEGEND**
- PROPOSED INJECTION LOCATION
 - ⊗ MONITORING WELL
 - - - APPROXIMATE SITE BOUNDARY
 - INFRASTRUCTURE
 - ▨ PROPOSED OFFSITE TREATMENT AREA

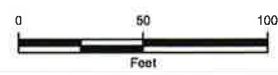


FIGURE 12
 PROPOSED OFFSITE TREATMENT AREAS AND INJECTION LOCATIONS
 THORNTON SHOPPING CENTER
 NORTHEAST CORNER OF 88TH AVENUE AND WASHINGTON STREET
 THORNTON, COLORADO
 JAYLON, INC. - THORNTON, LLC.



File:Thornton_LL081825171032_THORNTON_SHOPPING_CENTER08171032_11x17_FIG 12_PROPOSED OFFSITE TREAT PLAN.dwg

