

November 10, 2023

RE: Former Kilmer Landfill Redevelopment – VCP Public Comments

As part of the Former Kilmer Landfill redevelopment project, Chelton, LLC and Terracon Consultants, Inc. facilitated public comment on the Voluntary Cleanup Program (VCP) application at the request of the Colorado Department of Public Health and Environment (CDPHE). This memorandum summarizes Terracon's review and responses to the public comments submitted during the comment period. Following Terracon's public meeting on July 25th, 2023, addressing the contents of the VCP application and related environmental investigations, a public comment period was established in coordination with CDPHE. A dedicated email address was provided to local residents to submit comments on the presentation and VCP application package. Comments were also compiled by the organizers of a local community organization and submitted to CDPHE and Terracon. This public comment period extended from August 2, 2023, to September 5, 2023. Upon completion of the comment period, Terracon compiled and reviewed the submitted comments, and provided responses as applicable. Following this initial response, Terracon provided the compiled comments and responses to CDPHE for their review and additional comment. All comments and responses were then jointly reviewed by Terracon and CDPHE for completeness and finalized for entry into the public record.

Comment and Response Summary

Comments Forwarded from Friends of Ralston Creek Community Group:

A. In the event CDPHE approved other VCUPs as described for 6800 Kilmer, is CDPHE aware of any shortcomings years after the redevelopment?

The Voluntary Cleanup application is based upon the current environmental conditions at the site. Currently there are no exceedances in the surface waters or groundwater. If environmental conditions change due to an environmental release in the environment, the owner of the property will be responsible for addressing the release and clean it up to regulatory standards

B. Please provide 5 locations where CDPHE had knowledge that the requested VCUP was for a redevelopment for RV storage or other heavy equipment over an existing unregulated, uncompacted landfill with minimal clean-up, minimal capping, and parking surfacing as is being proposed by Chelton LLC.

The purpose of the Voluntary Cleanup program is to determine if there are environmental concerns regarding the redevelopment of this site. With the approved Materials Management Plan, the proposed aggregate surface cover, the storm water detention pond, and lack of environmental releases/concerns, this site is suitable for an RV storage and heavy equipment. There are dozens of storage facilities placed on landfills throughout the state. There are two through VCUP (Sheridan Redevelopment Area and the Colfax Landfill II; 17999 E. Colfax Ave).



C. Terracon in report of 07.24.2007 (item 1. 4) references a prior ESA Phase I report. Terracon has not submitted this report – requested during the public meeting?

The Phase I ESA was prepared using an outdated ASTM standard. The completion of multiple ESAs (compliant with the most current ASTM standard) and investigations since 2007 serve as a more complete and up to date evaluation of site history and conditions.

D. The EPA with email of 12.04.22 stated "Please be assured that the CDPHE, as the lead regulatory agency will continue to provide programmatic oversight for any future VCUP applicant through-out the process of clean-up, in order to assure compliance with environmental laws, appropriate land use, and established environmental standards". (1) Please clarify the scope and extent of the programmatic oversight during construction, following construction and acceptance of the applicant's self-certification? (2) Please clarify how CDPHE will "assure compliance with environmental laws, appropriate land use, and established environmental standards?

The Voluntary Cleanup program is a self-certifying program where the environmental professional certifies the work. This property does not show any environmental contamination (soil, groundwater, surface water), and the Materials Management Plan (MMP) guides how any environmental contamination will be handled. The property will have an environmental covenant placed on the property and the MMP will be mandated for any future excavations in the property. Also as part of the environmental covenant, the owners will have to certify they are following the MMP, along with yearly CDPHE site inspections.

E. Quality Monitoring Program (QMP). (1) What will be the requirements for long-term monitoring of ground water, surface water, air and soil following completion of construction? (2) What is the scope of the QMP? (3) Who will design the QMP?

A CDPHE No Action Determination requires the landowner/operator to provide notice of changed conditions or planned changes in land use or disturbance. Based upon the current site conditions (there is no signs of groundwater or surface water contamination) there is no requirement for a QMP. If there were environmental concerns (groundwater or surface water exceedances), the applicant would be required to remediate any releases.

- F. No Action Determination. (1) Will any conditions for approval of the VCUP such as longterm monitoring be recorded as part of the VCUP or No Action Determination (NAD)? (2) What will be the criteria and conditions for approval of NAD at the 6800 Kilmer site? (3) Since initiation of the VCUP program how many sites with approved VCUPs have developed problems requiring actions or posing risk to the public? (4) How many legacy or unregulated landfill sites with grading and surfacing proposed by Chelton LLC have been issued VCUPs and NADs by CDPHE, or other state environmental/health agencies?
- 1. Due to the lack of evidence of an environmental release, no long-term monitoring is required.
- 2. A No Action Determination is granted when there is no release to the environment and the site is protective of human health and the environment.
- 3. Of the current over 1,600 voluntary cleanup applications, I do not know of any releases to the public from sites issued a No Action Determination. I can't attest to sites which were turned into service stations or sites which deal with hazardous materials as their current operations. For such releases they will be addresses through the appropriate regulatory authority; i.e. Oil and Public Safety, Hazardous Waste Program, Solid Waste Program etc.
- 4. I do not know of any other Chelton LLC sites which may have come through CDPHE or another regulatory agency.



G. The Ogden investigation identified the presence of lead in concentrations above the drinking water standards (54 mg/kg). Ogden reported this to CDH and JeffCo Health Department. Neither CDH (now CDPHE) nor JeffCo Health responded. (1) CDPHE requested testing of additional water sample for lead; sample were below levels of concern. Why were Ralston Creek sediment samples not tested? (2) Why was the 1991 Ogden notification on the presence of lead not further investigated to understand why both CDH and JeffCo Public Health failed to respond?

Comparison of total metals concentrations in groundwater to groundwater standards is not appropriate. The 1991 groundwater sample with elevated lead concentrations was reported as total lead (not dissolved). Groundwater samples collected by Terracon in 2007 and 2022 do not indicate lead impacts to site groundwater. Soil samples were collected immediately from the creek bank immediately adjacent to the water levels in Ralston Creek by Terracon in 2022, and the reported analytical results did not indicate impacts to site soils. When looking at groundwater exceedances CDPHE looks for pathways which could reach the public. In this case, groundwater leaving the site did not exceed regulatory standards, thus eliminating the public consumption pathway.

H. Terracon states that all pathways are closed. As shown in the redevelopment of the Brighton Blvd, Denver, CO landfill, pathways do re-open based on the type of development. Why is CDPHE only concerned with current pathways but ignores how redevelopments if not planned/designed, and executed properly do have a role in re-opening or creating new pathways?

The Voluntary Cleanup program's role in the redevelopment of this property is to determine if the remediation plan for this site will be protective of human health and the environment at the time of construction. With the armoring of the stream embankments, the MMP, the environmental professional's oversight of the project, very limited exposure to the landfill contents during construction, and lack of environmental exposure to the public, we are not currently concerned of opening or creating new pathways. The site will be more protective to the environment after the development has been completed.

I. What obligation rest with the owner, developer, and/or consultant (Terracon) for full clean-up in the event unidentified and/or large quantities of COC's are encountered, and/or a significant hazard or problem is encountered or created during the development work, i.e., who is liable for the entire site if the owner/developer decides to walk away from the site> default based on Terracon's recommendations?

The Materials Management Plan (MMP) included as part of the VCP Application specifies that environmental impacts and/or changed conditions discovered during site development activities are to be documented and addressed based on applicable environmental regulations, and CDPHE will be notified. Unexpected environmental impacts or changed conditions will be summarized the Project Completion Report, which will be a public document. Any hazardous material excavated during the redevelopment of the site will need to be documented and disposed of properly. The site owner is responsible for issues arising from the property. Currently, there are no releases to the environment. If the developer decides to walk away, the landfill material will be placed under sufficient cover to eliminate pathways to the environment.

J. What is the chain of liability for the site should the applicant's project cause development of environmental issues and walk away from the site?

The states Solid Waste program, working in conjunction with the Voluntary Cleanup program, would have limited authority to force the owner to address any environmental issues. If the release were significant, then Federal CERCLA Liability might be an option.



K. The 07.18.2007 geotechnical report prepared by Terracon contains the following statements: ".... the presence of randomly placed and highly compressible landfill material will require complete removal, or considerable site modification, to construct a more stable subgrade for foundations, slabs and pavements....". "Significant additional movement will occur should the landfill materials not be completely removed and/or subsurface soils become elevated in moisture content". In 2023 Terracon proposes to construct roadways over the "highly compressible" land fill material. Provide an explanation of this dramatic change?

The 2007 geotechnical report provides recommendations for the construction of larger structures, utilities, and paved roadways. The currently proposed development is significantly different and less intrusive than that proposed in 2007, so recommendations are substantially changed. Planned roadways and parking areas are to be constructed with aggregate gravel materials. This material is easily regraded and refreshed as necessary, should settling occur.

L. Why is a suitable and functional Landfill Cap System not part of this redevelopment to prevent water infiltration into the old landfill, control gas flow from the waste to the atmosphere, and contain waste material under stresses/loading anticipated based on the development scheme. (1) Please explain how the proposed surfacing (gravel and asphalt millings) can perform as a functional cap system and for what period. (2) Will there be a separate cap system in addition to the proposed surfacing (gravel and asphalt millings)? (3) Please explain how the proposed surfacing will affect water percolation into the landfill and flushing out COCs from the landfill? (3) What are the projected or potential characteristics of the resulting increase in leachate (CECs = contaminants of emerging concern)?

No cap system is required as part of the VCUP, and no cap system is planned as part of site development. The proposed surface materials should slightly reduce infiltration into the landfill materials. Surface runoff will be diverted to the onsite lined stormwater detention basin. No significant changes to groundwater conditions are anticipated. There has been no evidence of COCs leaching from the landfill into Ralston Creek or offsite groundwater.

M. A functional cap system combined with proper drainage design is critical to prevent water infiltration in the landfill and/or prevent ponding. (1) What drainage provision are included to prevent water infiltration or ponding? What is the supplemental water percolation into the waste based on cap design and proposed surfacing?

The site will be graded to drain towards a stormwater detention basin, which will be lined with an impervious liner. This will eliminate ponding and reduce water infiltration into buried landfill debris. An engineered landfill cap is neither warranted or required.

N. What impact has the additional water percolation on leachate formation (water contaminated with various organic and inorganic substances)? What are possible characteristics of the leachate and associated threads to environment, ground water, surface waters, wildlife, and human health?

Site development should slightly reduce percolation into the landfill materials. Terracon notes that precipitation has infiltrated the landfill in its current state since the early 1970s. Contaminants of concern were not detected above applicable regulatory standards in site groundwater or in Ralston Creek during the most recent investigations, and site changes are not anticipated to alter groundwater conditions.



O. Groundwater sampling. Ogden suspected the presence of a "breached" water table and recommend drilling to a depth of 30-50ft BGS. (1) Why did Terracon limit drilling to 29ft BGS? (2) Why did CDPHE approve the limited drilling proposal by Terracon?

Terracon has not observed soil lithology that would indicate significant differences in bedrock or groundwater conditions below 30 feet bgs. Borings across the site are consistent in both type and depth of fill materials and native soils. Based on Terracon's boring logs, a clay confining layer above the bedrock is not apparent. Since there were no lines of evidence suggesting environmental contamination at the level above 30-35', CDPHE could not arbitrarily make the consultants to drill to a deeper level.

P. Groundwater sampling conducted at the site as reported in the various reports seem to have been conducted mostly in periods of where groundwater levels may have been low due to the time of the year of low precipitation periods. May and June 2023 were months of high precipitation following several years of below normal precipitation. (1) Why was ground water monitoring and sampling not conducted during or following this high precipitation period as ground water levels could have risen into the landfill material and mobilized soluble COCs or generated new COCs both in water and as volatile species such as methane?

Groundwater sampling has been conducted at different times of the year and results have been generally consistent during that time. Due to the porous nature of placed waste material, significant or sustained rises in groundwater elevation following precipitation events is not expected. Also during low groundwater levels, any possible contamination would be more likely to present itself due to concentrations in the groundwater being elevated vs high groundwater levels where the concentrations would be more dilute.

Q. The applicant intends to construct a Stormwater Detention Basin to collect and slowly discharge storm water from a precipitation event. The application has not provided details on how much stormwater and quality. The applicant states that the site will be "streetscaped and landscaped areas, with packed gravel of compacted asphalt millings as surfacing materials in in drive and parking areas". The applicant states that the surfacing is expected to reduce infiltration of water into the landfill. (1) How much will water infiltration be reduced? (2) How will potential spills of fluids from RVs such as gasoline, diesel fuel, oil, and antifreeze be disposed of? (3) What will be quantity and quality of storm water reporting to the detention pond? How much of any given fluid spill will infiltrate into the landfill and groundwater?

Infiltration reduction is not a specific remedial action to be quantified. Potential spills will be handled according to state/local regulations and are outside the purview of the VCUP. Standard operation procedures will be in place for any reportable spills of fluids from onsite activities. Stormwater drainage quality from the site is anticipated to be consistent with roadway and parking area drainage in the surrounding area.

- R. The critical components of a landfill cap are the barrier layers that minimize water infiltration and the drainage layer that transmits water across the cover to the detention basin. (1) How will surface water, likely contaminated with various hydrocarbon fluids and other chemicals, reach the Detention Basin? (2) How will subsidence of the cap impact surface water (+contamination) flow to the detention basin?
- 1. A typical landfill cap design is not required for the site due to absence of an environmental release.
- 2. Maintaining the slope of the surface cover is part of maintenance of the site and will be part of ongoing operations at the site.



S. Explain why testing of the Ralston Creek was limited to surface waters? Why was sediment and eDNA testing omitted?

Surface water was sampled to evaluate if water quality was being impacted from onsite sources. Upstream, onsite, and downstream sample results were consistent. Soil sampling was also conducted along Ralston Creek, on the property side of the streambank, and no environmental impacts were observed. Sediments were not sampled based on the streambank and surface water sampling results. Analyzed contaminants of concern included those required by the VCP.

T. How will the Ralston Creek and the RC bank be protected during the development?

Streambank stabilization and armoring will take place as part of development. No significant construction activities are planned near the creek or floodplain.

U. Describe how the RC bank will be stabilized? What will be the goals of the RC bank stabilization? Erosion prevention? Prevention of groundwater seepage (leachate) from the landfill to RC?

Stabilization will occur under a plan approved by the Mile High Flood District. Erosion prevention is the main goal of the plan.

V. What is the extent of the Ralston Creek bank stabilization?

Stabilization details are to be outlined in the approved plan, and will occur on sections of the streambank deemed to be impaired according to field data collected as part of the stabilization plan.

W. Provide support for your claim that that methane will not infiltrate parked RVs with or without cover? Air modelling? Studies?

Soil vapor infiltration into parked RVs is not anticipated to be an issue. Terracon consulted with in-house remediation subject matter experts regarding this concern. The following factors were considered:

- Tarps are not sealed to the ground.
- Vents on tarps appear to be standard to avoid moisture buildup (https://www.nationalrvcovers.com/s/class-a-rv-covers.html).
- The distance between the ground and bottom of most RVs.
- There are few penetration points in the bottom of RVs. •
- Pipes to discharge black and grey water are capped and discharge near the side of RVs. ٠
- The rest of the underside of a RV is fairly secure to avoid water, snow, rodents, and insects to penetrate the bottom while traveling or being stored

X. How will deep-rooted vegetation be integrated so the performance of the cap is not impaired?

An engineered cap is not part of the VCP remedial action plan. (Deep-rooted vegetation will not be part of the surface parking area). Only plants approved as part of the Mile High Flood District erosion control plan will be allowed along Ralston Creek. Additional details on surface vegetation and landscaping are part of the design process handled through the City of Arvada. Annual maintenance of the landscaping will be part of the ongoing maintenance of the site.



Y. The EPA has proposed PFAS national primary drinking water regulation. The EPA expects that if fully implemented the rule will prevent thousands of deaths. Why did testing of groundwater, surface water and soils exclude testing for Per- and Polyfluoroalkyl Substances (PFAS)?

There is currently no enforceable level for PFAS in groundwater, and the onsite groundwater will not be utilized for any purposes.

Z. The IPCC reports that the global warming potential for methane is about 84 higher over a 20-year timeframe than CO₂, that means it traps 84 times more heat per mass unit than carbon dioxide (CO₂) and 105 times the effect when accounting for aerosol interactions. (1) How much methane does the site currently release (per month/per annum)? (2) How much methane is projected to escape the site during redevelopment? (3) What is the methane release projections post redevelopment? (4) Will there be methane monitoring stations for the entire site?

No methane modeling is required or planned for the site and it is outside the purview of the VCP. Ambient air/breathing zone methane monitoring will be conducted during subsurface construction activities for worker protection under applicable OSHA standards. Continued methane monitoring will only take place for the onsite building and associate vapor mitigation system (VMS). Outside of the one building (security/entry shed), methane monitoring is not a promulgated environmental regulation for this property.

AA. The EPA maintains a log of redeveloped superfund sites and brownfield redevelopments. Does CDPHE consider these examples in approving the VCUP for 6800 Kilmer? If so, please provide examples?

This property is not a Superfund site, but it is a Brownfield site. When the Voluntary Cleanup Program approves a redevelopment site, it's based upon the environmental characterization (soil, groundwater, surface water and in this case indoor air) of the site and the possible exposure pathways. In this situation there are no completed exposure pathways, except for methane in buildings. A state approved methane mitigation system will be part of the state's approval process.

BB. In the event there is little documentation of similar redevelopments (ref Questions A, B) is Kilmer Street a "experiment" without scientific or empiric backing?

There are dozens of instances where landfills are being used as open storage of vehicles and heavy equipment throughout the state. This project has been characterized multiple times and there is no sign of an environmental release of concern coming from this property.

- CC. The Colorado Geological Survey (CGS) suggests that "Collapsible soils are a major geologic hazard for land development in many locations across the state. This hazard manifests itself as ground settlement, which can be damaging to overlying structures if the soil problems are not mitigated or if the structure is not engineered properly. (1) Is CGS incorrect in this case? (2) If CGS is correct has CDPHE anticipated soil properties in the event the VCUP is granted?
- 1. Terracon prepared a Geotechnical Engineering Report for the site in August 2023. Settlement of site soils was considered and addressed in the recommendations of the report.
- 2. The recent Terracon Geotechnical Engineering does not suggest that collapsible soils are a land hazard for this project. Based upon the well logs, test pits and condition of the existing surface cover on the property, CDPHE does not view this as an issue.



DD. The RVs proposed to be stored at the site will include a significant amount of fuel (diesel, unleaded, propane, etc.). What is the proposed vehicle evacuation plan in the event of a fire event, either at the RV storage site or moving toward the RV storage site?

This is an operational question not pertinent to the VCP application. There will be a loop road constructed onsite that is capable of supporting firefighting operations should a fire occur onsite.

Comments Received Via Public Email:

A. I am a concerned citizen of Arvada and worried about the proposed use of the land at this address along the Ralston Creek in Northwest Arvada. This area was previously a landfill and there are still many unanswered questions about letting a RV storage lot be placed on the property. Constructing this development so close to the river is of great concern. With three hundred gas guzzling RV's being parked by the river, how will runoff into the river be avoided? In a heavy rain the water washes into the creek. This location seems like a really bad idea. Besides possible water pollution, this seems like "development pollution". If you look at an overhead view of this area, you are approving a nonresidential development being squeezed into an area with houses on three sides. This will impact the property values, as well as what the county collects from property taxes. In the long run a park or open space is a much better use of this land. Do not let a company from Florida come it and rape our land. Listen to the people who live here, work here, and pay taxes here!

Terracon believes this is an operational/City of Arvada question, outside the requirements of the CDPHE VCP program.

B. We were told the liner of the retention basin was impervious. What are the retention basin's liner age/rating specifications?

The detention basin liner will meet specifications required by state and local regulations, specifically the CDPHE Solid Waste division. Final design of the retention basin/liner will be approved by this division.

C. F/U questions: who monitors to identify any failure the retention liner may have? How is mitigation undertaken if any issues arrise with the liner?

Site operator is responsible for evaluating liner condition. If issues arise, they will be responsible for repair or replacement of damaged liner and any other necessary mitigation efforts. Quality assurance (QA) and quality control (QC) protocols will be followed during liner installation.

D. We heard at the meeting that health and safety of people is a primary focus for the area and the VCUP. However, there was no specific mention of protection of the health and safety of wildlife that live in and utilize the area. Why can't that become a part of the focus of the VCUP?

The Voluntary Cleanup Programs mission is to assist landowners in redeveloping their land in an environmentally safe manner, which is protective of human health and the environment. The State Voluntary Cleanup Bill (House Bill 94-1299) does not require an evaluation for safety of wildlife. As with almost all redevelopment plans of this size, I do not know of any other state or federal requirement to evaluate the safety of wildlife.

E. According to Terracon, no industrial/hazardous/medical waste was observed in samples taken. A point to stress may be that no one really knows all that was deposited in that



landfill. Disturbing the area to undertake development is not worth the risk to the health of the environment (people, wildlife and the creek). Samples taken do not represent the true findings of what is potentially buried there. It's like sampling 10 people out of 10,000 to determine if there is an active virus in a certain population. Inconclusive results at best.

Landfill waste has been observed in over 25 soil borings and multiple test pits across the site during prior investigations. The nature of the buried debris has consistently been in line with reported disposal of household/municipal waste. Should waste of unknown characteristics be discovered during site development, additional testing and evaluation is required as part of the Materials Management Plan under the VCP.

F. How will the area be policed regularly to ensure that users of the area are complying with laws and other requirements to safeguard the outlying environment? This was brought up at the meeting and once again brushed aside as an operational issue.

The site will be subject to applicable federal/state/local laws and regulations. Under the VCP and any No Action Determination, changes in environmental conditions are required to be reported to CDPHE.

G. Will water samples be taken regularly to ensure that the creek is not being used as a dumping ground purposely or accidentally? Where and how often?

Ralston Creek is a tributary to Clear Creek and sampled on a quarterly basis. If significant anomalous readings are reported, the state has protocols in place to try to pinpoint the origin of the release and go after the possible entity.

H. The Terracon presentation indicates that in two historical boring samples, arsenic levels are above Colorado background value. What is that value and how is it determined as safe/acceptable? Why can't more boring samplings be undertaken?

CDPHE has published a risk management guidance document relating to naturally occurring arsenic concentrations in Colorado soils. The document utilizes US EPA data to evaluate average naturally occurring arsenic values across the state. This background average for all land uses is 11 mg/kg. The average arsenic in soil samples analyzed for metals across the site is 9.18 mg/kg.

I. The Ralston Creek water sampling seems insufficient. According to Terracon, it's been discovered that there presently is no surface water contamination. However, how is the impact of development at the site considered as a viable consideration of potential creek contamination part of the VCUP approval process?

Sampling was conducted at the request of CDPHE and included the potential contaminants list required by CDPHE. Sampling of Ralston Creek and downstream waterways is conducted quarterly to evaluate water quality and evaluate potential impacts to surface water.

J. What does the vapor mitigation system installation entail? Who determines if this is adequate now and in future years?

The vapor mitigations system will include an impervious liner below the building foundation, with porous gravel and vapor collector pipes attached to a riser. The system will be "active", with a blower to extract air from the collector pipes and safely vent it to the outside. Additionally, there will be sensors designed to measure methane levels within the structure, tied into the fire alarm control panel. Should methane levels reach trigger values at or above 10 percent of the lower explosive limit, alarms will sound and appropriate



response personnel will be notified. The system design is in line with industry standards and is consistent with systems in use at numerous sites across Colorado. The full system design is performed and checked by Terracon's in-house vapor mitigation subject matter expert, and is signed and sealed by a professional engineer registered in the state of Colorado. Additionally, CDPHE has to approve of the methane mitigation system design plans as part of the VCP process.

K. What excavation and soil removal is planned? Once again, disturbing the area will cause increases in methane and other gas/materials emissions which can prove unsafe to the surrounding environment.

The overall site plan is still under development prior to review by the City of Arvada. Currently, limited excavation is planned for the stormwater detention basin, onsite office building, and utility areas as necessary. Excavation will be conducted so as to minimize the disturbance of landfill debris where possible. Excavation operations will be overseen and monitored by an environmental professional, and disturbed landfill debris will be characterized and disposed of in accordance with regulations. During the excavation process, once methane reaches the atmosphere it rapidly dissipates and breaks down.

L. What is the planned streambank stabilization plan? What impact when that is undertaken will this have to the surrounding environment? How will success in stabilization be determined?

The streambank stabilization efforts may include removal of some existing vegetation, regrading of the streambank elevations, placement of appropriate geotextile, natural fiber, or rock armoring erosion control systems, and planting of native plants suitable to revegetate the disturbed areas. The stabilization work is intended to protect Ralston Creek from impacts related to the adjacent buried landfill

