March 31, 2025

Mr. Jim Alford
CHS/Cenex Zip Trip
16124 East Marietta Lane
Spokane, WA 99216

Delivered via email: jim.alford@chsinc.com

SUBJECT: Work Plan to Investigate Petroleum-Contaminated Media
Former Broadwater Cenex
2059 Broadwater Avenue, Billings, Montana
DEQ Facility ID 56-08211 (TID 30223); Release 1564, Work Plan 35010
Tetra Tech Project Number 117-001036-25009

Dear Mr. Alford:

Tetra Tech, Inc. (Tetra Tech) is pleased to submit this work plan to investigate petroleum-contaminated media at the former Broadwater Cenex, 2059 Broadwater Avenue, Billings, Montana (Figures 1 and 2). This work plan has been prepared in response to a request from Rachel Mindt of the Montana Department of Environmental Quality (MDEQ) in correspondence dated February 10, 2025 (MDEQ, 2025).

The following sections summarize Tetra Tech's proposed scope of work and schedule to complete the requested tasks. An estimated budget is presented in Attachment A.

BACKGROUND INFORMATION

The following summary of background information was obtained from the *May 2010 Annual Groundwater Monitoring Report* prepared by Hydro Solutions, Inc. dated July 10, 2010 and from the *Release Closure Plan* prepared by Northwind Portage, Inc. dated July 6, 2020.

According to Billings Polk City Directory, the site operated as a Maverick Self-Service Gas Station as early as 1970. The site operated as a Savway Gas Station prior to being acquired by Cenex in 1985 (HydroSolutions 2010).

In 1989, a surface spill of an unknown quantity of gasoline impacted a storm sewer grate located at the southeast corner of the property. The storm sewer grate reportedly was not connected to the storm or sanitary sewer system (Hydrosolutions 2010).

A suspected release due to failed tightness test and line leak detector malfunction was reported on January 14, 1993. The release was traced to a loose connection at an unleaded gasoline dispenser. The release was confirmed on January 15, 1993 (NorthWind 2020).

On April 19, 1993, Braun Intertec completed one soil boring approximately 14 feet south of the confirmed release from the pump dispenser. Petroleum hydrocarbon impacts to soil were observed based on elevated measurements of greater than 2,000 parts per million (ppm) with a photoionization detector. A soil sample from this boring was not submitted for laboratory analyses (HydroSolutions 2010).

Monitoring wells MW-1 through MW-3 were installed in July 1993 as part of a Phase I Remedial Investigation and monitoring wells MW-4 through MW-8 and one soil boring were installed in December 1993 as part of a Phase II Remedial Investigation. Status reports indicate that two unsuccessful attempts were made to install monitoring well MW-9 and that an air rotary rig be used for the installation of that

well and the remainder of the AS/SVE wells. Monitoring well MW-10 was installed in September 1994 (Northwind 2020).

SVE/AS pilot testing was performed in January 1994 and January 1995. A SVE/AS system was installed and became operational in April 1995 (Northwind 2020).

Monitoring well MW-1 abandoned on October 1, 1996. This well was abandoned due to a damaged casing and because monitoring well MW-8 provided adequate definition of the up-gradient extent of the contaminant plume (HydroSolutions 2010).

A Phase III RI was performed to investigate potential offsite impacts south of the site. Two soil borings were installed south of the site on the south side of Broadwater Avenue. Soil samples were not collected for laboratory analyses but were screened with a PID. Groundwater samples were collected from each boring. No petroleum hydrocarbon impacts were detected in groundwater samples. It was concluded that impacts from this release did not extend off-site to the property south of Broadwater Avenue (HydroSolutions 2010).

In January 1999, the Broadwater Cenex was converted to a tobacco store and ceased selling gasoline. Three 10,000-gallon gasoline USTs and associated piping were removed from the site on July 1, 1999 (Northwind 2020).

The building and asphalt surface was removed in 2002 for redevelopment. By March 19, 2003, the property had been redeveloped with a new office building structure. The SVE/AS equipment was relocated to the back of the office building (Northwind 2020). Shutdown of the SVE/AS system was approved by the MDEQ in a letter dated October 9, 2003 (Northwind 2020).

A groundwater sampling event was performed in May 2010. Monitoring wells MW-3 and MW-8 were located and sampled during the monitoring event. Monitoring well MW-7 was not sampled due to a damaged casing. The remaining wells were not located during the sampling event. Monitoring wells MW-9 and MW-10 appeared to have been removed during the construction of a car wash and commercial building (HydroSolutions 2010).

SCOPE OF WORK

The proposed scope of work for this site includes the following:

Monitoring Well Search and Subsurface Utility Locating

Prior to the initial site visit, Tetra Tech will submit a utility locate request with Montana 811 to locate public utilities at the site. Tetra Tech will also perform a site visit with a private utility locator locate private utilities and to search for monitoring wells, specifically MW-3, MW-4 and MW-5. The private underground utility locator will use ground penetrating radar (GPR) equipment and electromagnetic induction (EM) equipment to scan areas of the site for subsurface utilities. If monitoring wells are located and accessible, an initial assessment of the condition of the monitoring wells will be performed during the site visit.

Project Status Discussion with MDEQ

Following the utility locating and monitoring well search, Tetra Tech will discuss the project status and future scope of work with the MDEQ project manager. Scope of work items such as drinking water sampling, soil boring installation, and monitoring well installation work will be finalized at that time. Maps summarizing the results of utility locating and monitoring well search will be prepared for that discussion.

Monitoring Well Development and Sampling

The following scope of work assumes that monitoring wells MW-3, MW-4, and MW-5 are located on-site during the initial site visit and utility locating.

- Tetra Tech will inspect the condition of the monitoring wells for collecting groundwater samples. Since the most recent groundwater sampling event occurred in 2010, Tetra Tech will redevelop the existing monitoring wells. Each monitoring well will be redeveloped using a surge block and water pumping technique. The wells will be surged and pumped until the pumped water is sediment-free and clear. Development water will be containerized by the *Disposal of Untreated Water from Monitoring Wells Flow Chart* and disposed of appropriately following receipt of laboratory results (MDEQ, 2015).

- Depth to groundwater will be measured for each monitoring well using an electronic oil/water interface meter. The meter will be decontaminated between each well measurement using Liquinox® soap solution and clean potable water rinse.
- Each monitoring well will be purged with low-flow slow-purge pumping method using a submersible bladder pump or a peristaltic pump. Dedicated polyethylene tubing will be used during sampling. During purging, field instruments will analyze the water for pH, temperature, dissolved oxygen, specific conductivity, oxidation-reduction potential, and turbidity. Purge water will be containerized by the *Disposal of Untreated Water from Monitoring Wells Flow Chart* and disposed of appropriately following receipt of laboratory results (MDEQ, 2015). The pump will be decontaminated between wells using a Liquinox solution followed by a triple rinse technique. Additionally, a new bladder will be installed between each well.
- Groundwater samples collected from each monitoring well will be analyzed for VPH by the Montana Method based on the Massachusetts Department of Environmental Protection (MADEP) method. If monitoring well MW-3 is located and redeveloped, a groundwater sample from that monitoring well will also be analyzed for 1,2 Dichloroethane (1,2 DCA) and ethylene dibromide (EDB) by EPA method 8260.

Drinking Water Sample Collection

If the locations of water lines appear to be located within the former pump dispenser and tank basin areas, Tetra Tech will collect up to three drinking water samples from the commercial building on-site. Drinking water samples will be analyzed for volatile organic compounds (VOCs) by EPA method 524.2.

Soil Borings and Monitoring Well Installation

Soil borings and monitoring wells may be installed at the site if any of the monitoring wells MW-3, MW-4, and MW-5 cannot be located during the monitoring well search. The number of soil borings and monitoring wells will be decided during the project status discussion with the MDEQ. The soil boring and monitoring well installation scope of work will consist of the following:

- Drill up to three soil borings using direct push drilling techniques in the areas indicated on Figure 2. Exact locations will be determined after an on-site assessment of site-specific access, underground utility locates, overhead power lines, and safety. The borings will be advanced to a depth approximately 25 feet below ground surface (bgs) to assess petroleum hydrocarbon impacts in soil. The drilling bids are presented in Attachment A.
- Collect soil samples from each borehole continuously and log each sample for soil type, density, moisture content, color, and evidence of petroleum hydrocarbon staining and odor.

- Each sample will be screened for petroleum hydrocarbon impacts using visual observations of staining, odor, and standard headspace screening techniques with a photo-ionization detector (PID).
- Soil samples will be collected from the zone of greatest petroleum impacts (as identified during field screening) and from the top of the saturated zone in each boring. However, if impacts are not observed in the soil column, only the groundwater interface sample will be collected for laboratory analysis. For cost estimation purposes, it is assumed that two soil samples will be collected from each boring. Each soil sample will be placed in clean laboratory-supplied containers and submitted to Energy Laboratories in Billings, Montana. The soil samples will be analyzed for VPH.
- Impacted drill cuttings identified by field screening will be containerized on-site in 55-gallon drums. A soil sample will be collected from the containerized soil and submitted for laboratory analysis of VPH, Resource Conservation and Recovery Act (RCRA) eight Toxicity Characteristic Leaching Procedure (TCLP) metals per landfill disposal requirements, and paint filter test.

MONITORING WELL INSTALLATION

- Each soil boring will be completed as a monitoring well with 2-inch diameter Schedule 40 PVC materials (Figure 2). The well screen piping will be 0.010 slot size prepacked well screen and installed from 10 to approximately 15 feet bgs within the groundwater zones. A threaded cap will be installed on the bottom of the screen piping. Bentonite chips will be placed from above the top of the screen to two feet bgs. The monitoring wells will be completed with an 8-inch diameter flush-mount traffic rated well vault concreted in place. The top of the PVC casings will be fitted with 2-inch diameter water-tight locking plugs.
- Each monitoring well will be developed using a surge block and water pumping technique. The well will be surged and pumped until the pumped water is sediment-free and clear. Development water will be containerized by the *Disposal of Untreated Water from Monitoring Wells Flow Chart* and disposed of appropriately following receipt of laboratory results (MDEQ, 2015).
- The vertical elevation of each new and existing monitoring well PVC casing will be surveyed by and overseen by a licensed engineer or conducted by a licensed surveyor to an accuracy of 0.01 feet and mean sea level datum.

GROUNDWATER MONITORING

- One groundwater monitoring event will be conducted to assess conditions at the site. For cost estimating purposes, it is assumed that groundwater samples will be collected from up to three monitoring wells.
- Depth to groundwater will be measured for each monitoring well using an electronic oil/water interface meter. The meter will be decontaminated between each well measurement using Liquinox® soap solution and clean potable water rinse.
- Each monitoring well will be purged with low-flow slow-purge pumping method using a submersible bladder pump or a peristaltic pump. Dedicated polyethylene tubing will be used during sampling. During purging, field instruments will analyze the water for pH, temperature, dissolved oxygen, specific conductivity, oxidation-reduction potential, and turbidity. Purge water will be containerized by the *Disposal of Untreated Water from Monitoring Wells Flow Chart* and disposed of appropriately following receipt of laboratory results (MDEQ, 2015). The pump will be decontaminated between wells using a Liquinox solution followed by a triple rinse technique. Additionally, a new bladder will be installed between each well.
- Groundwater samples collected from each monitoring well will be analyzed for VPH by the Montana Method based on the MADEP method. The groundwater sample from monitoring well

MW-3 or from a newly-installed monitoring well located closest to that location will also be analyzed for 1,2 Dichloroethane (1,2 DCA) and ethylene dibromide (EDB) by EPA method 8260.

DATA VALIDATION

Each analytical data package will include a summary report that cross-references the sample identification with the laboratory identification and identifies variations from standard operating procedures; laboratory analytical results; quality control data, which may include but is not limited to surrogate recoveries, initial and continuing calibration blanks and spikes, method blanks, laboratory control blanks and spikes, and matrix spike and matrix spike duplicates; FID chromatograms; chain of custody form(s); and a sample receipt checklist. Additionally, data validation will be included with the investigation report and will follow MDEQ's data validation guideline as per https//deq.mt.gov/Portals/112/Land/StateSuperfund/Documents/DataValidationReport.pdf. It is anticipated that up to three separate data validations will need to be completed for this project.

After the groundwater monitoring event, Tetra Tech will prepare a report summarizing soil and groundwater results and present findings and conclusions. The report will include results from field screening activities, figures depicting site features and well locations, well completion details and logs, a summary of soil sampling results, groundwater elevations, groundwater potentiometric surface map, groundwater flow direction and gradient, a summary of groundwater analytical results. Tetra Tech will also prepare a Release Closure Plan, which will be appended to the report to evaluate the potential for release closure.

SCHEDULE AND COSTS

Tetra Tech will initiate this work upon receiving authorization from CHS, approval from the MDEQ. The work described above will be conducted on a unit cost basis per the attached Cost Estimate Breakdown included in Attachment B.

PROPOSAL AUTHORIZATION

The work described in this plan will be conducted according to the terms and conditions in the *Master Services Agreement* between CHS Inc. and Tetra Tech, dated June 1, 2009. Should you find this work plan acceptable, please sign the Work Authorization #30 included in Attachment C and return a signed copy to our Billings, Montana office. If you have questions or comments regarding this work plan, please call us at (406) 248-9161. For your convenience, we have forwarded a copy of this work plan to MDEQ for their review. We appreciate the opportunity to provide you with environmental consulting services.

Sincerely,

Tetra Tech, Inc.

Steven Marie, P.E.
Senior Engineer

Jeff Rice
Environmental Group Manager

SM/JRR

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Cc: Rachel Mindt, MDEQ; rachel.mindt@mt.gov@mt.gov
Figures
Attachment A: Drilling Bids
Attachment B: Cost Estimate
Attachment C: Work Authorization #30

REFERENCES

HydroSolutions, 2010. *May 2010 Annual Groundwater Monitoring Report, Broadwater Cenex, Facility ID No. 56-08211, Release No. 1564, 2059 Broadwater Avenue, Billings, Montana*, HydroSolutions, Inc., July 20.

MDEQ, 2015. Disposal of Untreated Purge Water from Monitoring Well. July 27.

MDEQ, 2018. *Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases*, September.

MDEQ, 2020. Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases. July.

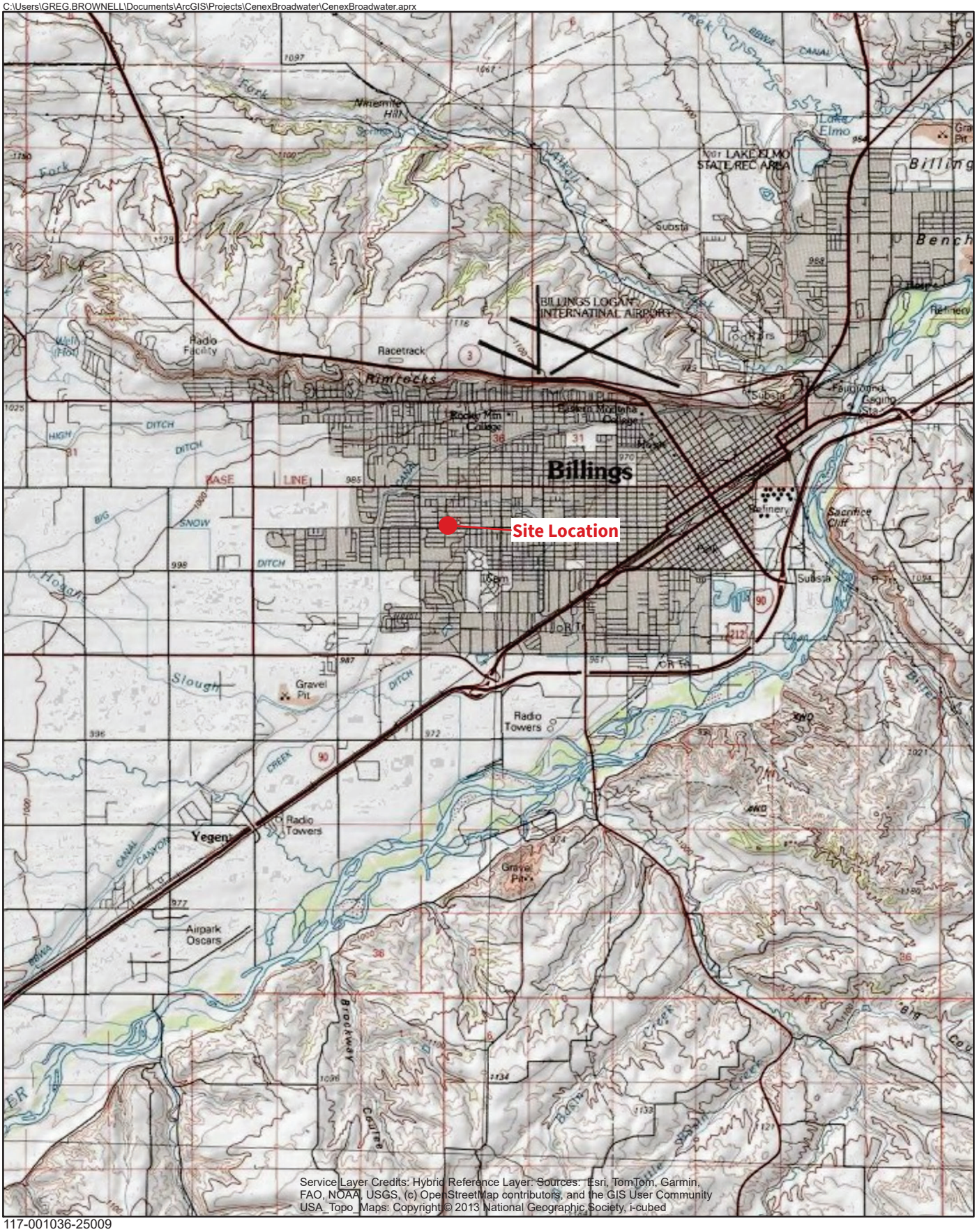
MDEQ, 2025. *Work Plan Requested to Investigate Petroleum-Contaminated Media at the former Broadwater Cenex, 2059, Broadwater Avenue, Billings, Yellowstone County, Montana; Facility ID 56-08211 (TID 30223), Petroleum Release 1564, Work Plan 35010*. February 10.

Northwind 2020. Release Closure Plan Snow, Broadwater Cenex, 2059 Broadwater Avenue, Billings, Montana. July 6.

TETRA TECH

FIGURES

C:\Users\GREG.BROWNELL\Documents\ArcGIS\Projects\CenexBroadwater\CenexBroadwater.aprx



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Feet
100

Site Location Map
Former Cenex Station
2059 Broadwater Avenue
Billings, Montana
Figure 1

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Monitor Well
Proposed Monitor Well

Proposed Monitor Well Locations
Former Cenex Station
2059 Broadwater Avenue
Billings, Montana
Figure 2