TASMAN GEOSCIENCES
6855 W. 119th Ave.
Broomfield, CO 80020
303-487-1228

February 6, 2020

Mr. Chris Canfield
Environmental Protection Specialist
Colorado Oil and Gas Conservation Commission
1120 Lincoln St., Ste 801
Denver CO, 80203

RE: Remediation Workplan – Soil and Groundwater Remediation for the DCP Operating, L.P., CR42 and CR13 Project in Weld, County, CO (COGCC Remediation Project #13272)

Mr. Canfield:

Tasman Geosciences, Inc., (Tasman) on behalf of DCP Operating Company, LP (DCP) is providing this Remediation Workplan to summarize planned remediation activities to mitigate petroleum hydrocarbon impacts to subsurface soil and groundwater resulting from a leak in a raw natural gas gathering pipeline that occurred within the Weld County Right-of-Way (ROW) at the intersection of Weld County road (CR) 13 and CR42 (the Site) in Johnstown, CO (Figure 1).

Background and Timeline – Between April 2, 2019 and January 24, 2020, Site investigation activities were performed to delineate the lateral and vertical extents of petroleum hydrocarbon impacts to soil and groundwater. Summary update reports have been submitted to the Colorado Oil and Gas Conservation Commission (COGCC) throughout investigation activities and include the following documents:

- Initial Form 19 Document #401997249 (Approved April 4, 2019);
- Supplemental Form 19 Document #402004043 (Submitted April 12, 2019; Approved April 26, 2019);
- Initial Form 27 Document #402004215 (Approved April 18, 2019);
- Supplemental Form 19 Document #402049891 (Approved May 29, 2019);
- Supplemental Form 27 Document #402051228 (Approved June 13, 2019);
- Supplemental Form 27 Document #402053546 (Approved July 24, 2019);
- Supplemental Form 27 Document #402125018 (Approved October 2, 2019); and,
- Supplemental Form 27 Document #402279826 (Approved January 28, 2020).

Based on investigation activities that have been completed to date and as presented in the COGCC documents summarized above, petroleum hydrocarbon impacts to soil have been delineated at the Site. Impacted soils were delineated to approximately 165 feet east, 130 feet west, 50 feet south, and 350 feet north of the DCP pipeline release location and between an average depth of 8 and 14 feet below ground surface (bgs). Based on data collected during the third quarter 2019 groundwater monitoring event, impacts to groundwater were delineated north, east, and west of the release location. However, as presented in Form 27 Document #402279826, the fourth quarter 2019 laboratory analytical data indicates that groundwater impacts have migrated beyond the northern most point of compliance (POC) wells

(MW17, MW18, and MW19) located on the east side of CR13. Currently, light non-aqueous phase liquid (LNAPL) has been observed within five groundwater monitoring wells at the Site (MW01, MW02, MW08, MW14, and MW24).

The activities proposed herein will be conducted in accordance with landowner negotiations and license agreements which were finalized in December and January 2020. The approved license agreement work areas are illustrated on Figure 2 and as indicated, license agreements are ongoing with the landowner to the southwest of the intersection of CR42 and CR13. Additionally, DCP will coordinate remediation efforts with the Weld County Public Works Right-of-Way (ROW) department to facilitate the removal and replacement of CR13 and CR42 to access impacted material beneath the roadways. DCP will also coordinate remediation efforts with buried utility owners at the Site including DCP, the Little Thompson Water District (LTWD), Central Weld County Water District, Qwest/Century Link, and overhead powerlines owned an operated by Xcel Energy.

Site preparation activities including Site perimeter fencing, access and egress preparation for trucking activities, planning for re-routing of a 6-inch potable water line owned by the LTWD, and Stormwater Management Plan Best Management Practices preparation activities commenced on January 6, 2019. Impacted soil excavation including tree removal and demolition of the private residence located to the east of the County Road intersection are anticipated to commence in February 2020.

Impacted Soil Remediation and Methodology – Per the approved license agreements between DCP and private landowners at the Site, the preferred remedial method for impacted soil will consist of excavation "dig and haul" methods with subsequent off-Site disposal at an approved landfill and backfilling and compaction with clean fill material. Based on previously reported investigation activities, clean overburden soil has been observed throughout the Site between the surface and a minimum of 8-feet bgs. Prior to accessing impacted soil for dig and haul remediation, the overburden soil will be removed and staged on-Site to be used as backfill material once impacted soil excavation and removal is complete.

During remediation activities, the excavation extents will be guided using a handheld photoionization detector (PID) instrument and standard headspace soil sampling techniques. Discreet confirmation soil samples will be collected at varying depths from the sidewalls and from the base of the excavation at approximate 20-foot intervals, laterally. Soil samples will be submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), and total petroleum hydrocarbons (TPH) gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260B and TPH diesel range organics (DRO) by USEPA Method 8015. In accordance with guidelines set forth in the executed license agreements between DCP and the private landowners at the Site, the soil clean-up standards shall be the COGCC Table 910-1 Standards with the added exception relating to TPH and benzene, which will be one order of magnitude more stringent than the Table 910-1 Standards; specifically, TPH will be no greater than 50 milligrams per kilogram (mg/kg) and benzene will be no greater than 0.017 mg/kg. The anticipated excavation extents for the Site are illustrated on Figure 2.

Due to the phased approach of this project and not having access to the Weld County ROW and beneath the County Roads, some impacted material may be temporarily left in place while DCP receives approval to remove the roadways. In the interim, DCP is evaluating alternatives to prevent contaminate migration into the excavated areas from below the roadways using multiple methods such as clay barrier wall installation and dewatering infrastructure, for example.

Impacted Groundwater Remediation and Methodology – A total of 32 monitoring wells have been installed at the Site (Figure 3). As presented in the Form 27 Document #402279826, on November 19, 2019, groundwater monitoring was performed at monitoring wells MW09, MW17, MW18, MW19, and MW31 to verify those wells as continued POC locations. On December 2 and 3, 2019, DCP performed a Site-wide groundwater monitoring event at all 32 locations. Samples were submitted for analysis of BTEX by Method 8260B. Based on the analytical data collected, the extent of groundwater impacts downgradient and on the east side of CR13 have not been fully delineated. However, these locations exhibited non-detect results during the third quarter 2019 sampling event performed in August 2019. Monitoring well MW31, located on the west side of CR13, continued to be below COGCC standards. Based on this data, additional downgradient monitor wells on the east side of CR13 are required and two proposed downgradient monitoring well locations are illustrated on Figure 3.

In accordance with Site license agreements between DCP and the private landowners, DCP may add amendments to the base of the excavations to assist in achieving groundwater clean-up standards. Remediation amendments may include, but not be limited to the use of hydrogen peroxide, sodium persulfate, and sodium hydroxide. The groundwater clean-up standards shall be the COGCC Table 910-1 Standards for BTEX and groundwater samples will be submitted for laboratory analysis of BTEX using USEPA Method 8260B.

Subsequent to excavation remediation activities and backfilling, groundwater monitoring wells will be installed as applicable for ongoing monitoring of groundwater quality across the Site.

Should you have any questions regarding this letter and the activities discussed herein, please contact me by phone at (303) 487-1228 or by e-mail at bhumphrey@tasman-geo.com.

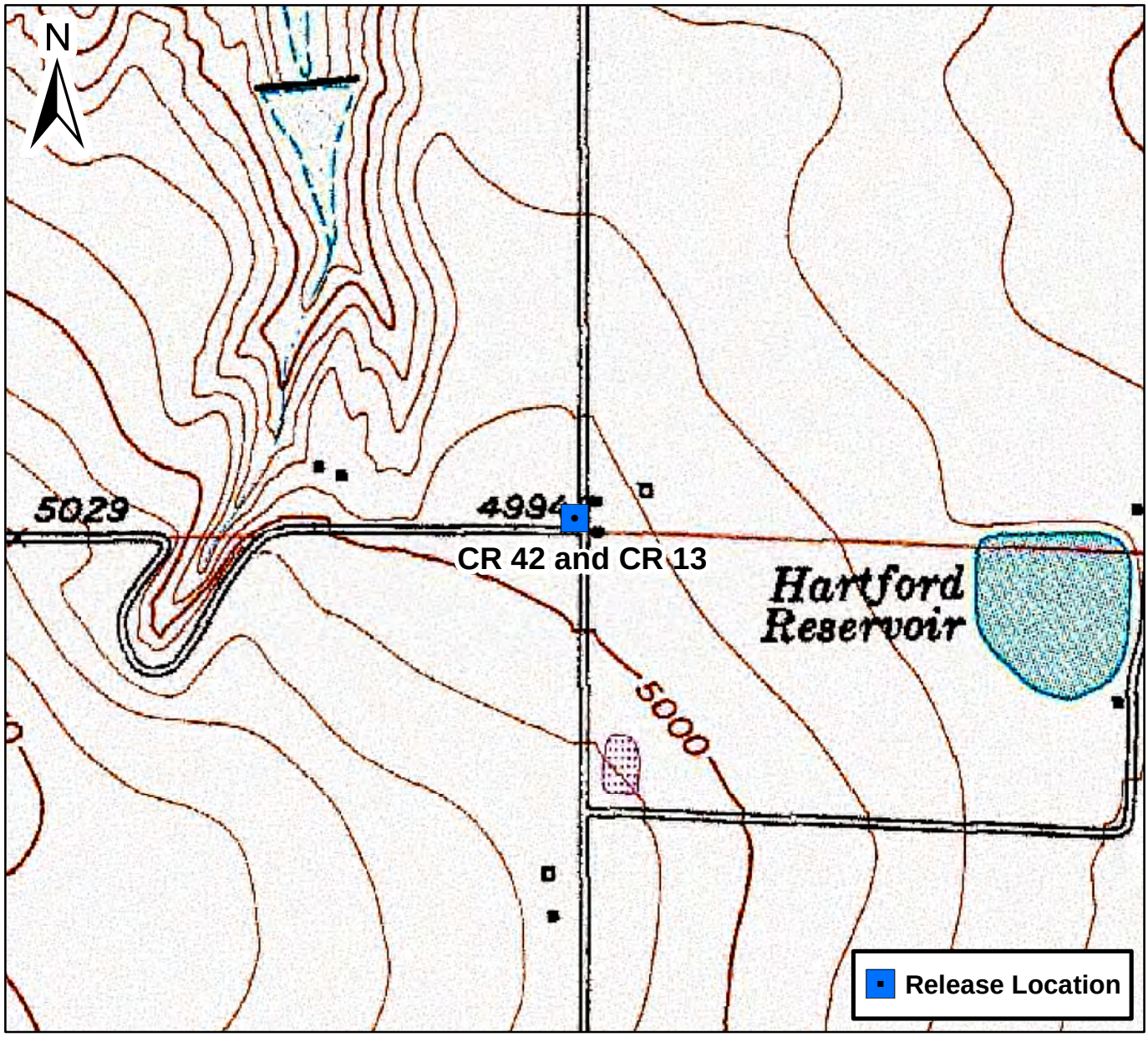
Sincerely,

Brian Humphrey
Program Manager
Tasman Geosciences

Enclosures:

Figure 1 – Site Location Map
Figure 2 – Landowner License Agreement Work Areas and Anticipated Excavation Extents
Figure 3 – Proposed Groundwater Monitoring Well Locations

cc:
Stephen Weathers, P.G. – DCP Operating Company, L.P.
File



0 750 1,500 Feet

Figure 1

Site Location Map
CR 42 and CR 13
SESE S24 T4N R68W
Weld County, Colorado

TASMAN GEOSCIENCES

Drawn By: CO
Date: 4/9/2019

DATE:	1/28/2019
DESIGNED BY:	B. Humphrey
DRAWN BY:	B. Humphrey

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CR 42 and CR 13
SESE, Section 24, Township 4 North, Range 68 West
Weld County, Colorado

FIGURE 2
Landowner License Agreement Work Areas
And
Anticipated Excavation Extents

DATE:	1/28/2019
DESIGNED BY:	B. Humphrey
DRAWN BY:	B. Humphrey

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FIGURE 3
Proposed Monitoring Well Locations