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**RE: Corrective Action Response to Field Inspection Forms, COGCC Doc. Nos. 67490239; 674902482**

**February 7, 2019**

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## **Introduction and Background**

Extraction Oil and Gas, Inc. ("Extraction") submits this letter in response to two Colorado Oil and Gas Conservation Commission ("COGCC") Field Inspection Forms, COGCC Doc Nos. 67490239 ("First FIR") & 674902482 ("Second FIR"), that pertain to a permitted COGCC Oil and Gas Location identified by name as the "Interchange A & B Pad" (Location ID #456747).

The First FIR documents a COGCC inspection that occurred on January 2, 2019, and indicates it was submitted on January 24, 2019. The Second FIR, a follow-up inspection to the First FIR, documents a COGCC inspection that occurred on January 4, 2019, and indicates it was submitted on January 25, 2019. Due to a firewall issue the COGCC was experiencing, however, Extraction was not in receipt of either FIR until January 30, 2019.

Page three of the First FIR alleges as follows regarding COGCC Rule 1002.b.: "Based on our site visit and conversations with the operator on site it appears that not all of the topsoil was salvaged." The Second FIR alleges as follows regarding COGCC Rule 1002.b.: "This location is not in compliance with Reclamation Rule 1002.b., soil removal and segregation. Per estimates in the field of 1 foot of topsoil for the mapped disturbance area of 23.5 acres the expected salvaged topsoil volume would be approximately 37,900 cubic yards." Based on that statement, the Second FIR directed Extraction to take the following Corrective Action: "Operator is directed to submit their completed salvaged topsoil volume by 2/1/2019." Because Extraction did not receive the First and Second FIRs until January 30, 2019, Extraction requested a brief extension of time to respond to the Corrective Action, which COGCC Inspector Russell Beam granted by email on January 31, 2019, extending the Corrective Action deadline from February 1, 2019 to February 7, 2019.

Extraction respectfully submits that the comment regarding topsoil salvaging in the First FIR is incorrect and Extraction respectfully disagrees with the statements in the Second FIR alleging that the disturbed area of the Interchange A & B pad has 12" of topsoil and that the disturbed area is 23.5 acres. Extraction also respectfully disagrees that the appropriate volume of salvaged topsoil should be approximately 37,900 cubic yards. As explained in further detail below, Extraction submits the topsoil is approximately 7" thick in the Interchange A&B Pad area and notes that not all of the soil on location was disturbed. Specifically, the attached exhibit demonstrates that only 9.2 acres of the Interchange A Pad area was disturbed and that only 7.1 acres of the Interchange B Pad area were disturbed, for a total of 16.3 acres of disturbed land.

## **Specific Response to First FIR**

The First FIR's comment is incorrect because it portrays Extraction as having agreed with the COGCC Inspector and COGCC trainee on location that not all of the topsoil had been salvaged. This is not accurate. In fact, the referenced conversation, which occurred primarily between the COGCC Inspectors Chris Binschus and Russell Beam on site and Extraction Foreman Matt Bridges, involved COGCC staff opining that the location had 12" of topsoil and asking Extraction whether 12" of topsoil had been salvaged. Mr. Bridges responded that 12" of topsoil had not been salvaged but did not agree that 12" was the appropriate amount of topsoil to be salvaged. Instead, Mr. Bridges stated that Extraction salvaged 6-8" of topsoil from the location's disturbed area, consistent with the NRCS Soils report submitted along with the approved Form 2A for the location and Extraction's assessment of the soil profile.

## Specific Response to Second FIR

The Corrective Action called for in the Second FIR requires Extraction to submit its completed salvaged topsoil volume. The attached exhibit fulfills that Corrective Action. As set forth in the exhibit, Extraction salvaged 10,308 cubic yards of topsoil from a total disturbed area of 16.3 acres. The disturbance area is not 23.5 acres as the Second FIR states and the 10,308 cubic yard sum is consistent with Extraction taking 6-8" of topsoil from the disturbed area, with the exact depth variable depending in turn on the soil's variability throughout the location.

Extraction's assessment that 6-8" of topsoil was the appropriate amount for it to salvage in accordance with Rule 1002.b. has been corroborated by a recent investigation. Specifically, on February 5, 2019, Extraction personnel conducted a soil profile investigation at the Interchange A&B Pad by using a shovel to dig three test holes along the northern boundary of the site to an approximate depth of 12 inches (photos below demonstrating onsite soil depths along with corresponding latitude and longitude for each test hole). Soil horizons were estimated by noting changes in organic content, color, texture, density, and consistency as outlined in Rule 1002.b.

As depicted in the photos below, the physical characteristics were generally consistent between all three test holes):

~0-2": Organic litter layer. Dark Brown. Low density. Clay and organic debris. Dry

~2- 7": Moderate organic content. Brown. Clay with ~10-20% sand content. Root structures prevalent. Moderate density (shovel easily penetrates with minimal effort). Moist.

~7" to total depth. Sparse to no organic content. Brown. Clay and sand mix ~ 50%-50%. Very dense (shovel rejection without heavy effort, not frozen, possible disk pan). Root structures were not observed. Moist but drier than above layer.

Therefore, based on observed changes in organic content, color, texture, density and consistency, topsoil is estimated to be approximately 7" thick in the Interchange A&B Pad area.

## Conclusion

Based on the foregoing, Extraction submits that it is in full compliance with Reclamation Rule 1002.b., having separated and stored the identified topsoil horizon based upon the physical characteristics listed above that were observed during reclamation and confirmed by recent inspection.

## Photos



Test Hole #1: The left photo shows the hole is adjacent to the pad disturbance. The top approx. 2" were organic litter and clay. 2-7" was a brown clay layer with root structures present. The ruler is placed at the depth the density increased and the shovel was rejected without substantial effort.



Test Hole #2: The left photo shows the hole is adjacent to the pad disturbance. The top approx. 2" were organic litter and clay. 2-7" was a brown clay layer with root structures present. The ruler is placed at the depth the density increased and the shovel was rejected without substantial effort.



Test Hole #3: The left photo shows the hole is adjacent to the pad disturbance. The top approx. 2" were organic litter and clay. 2-6.5" was a brown clay layer with root structures present. The ruler is placed at the depth the density increased and the shovel was rejected without substantial effort.



**Interchange A & B Pads  
(Location ID: 456747)  
Topsoil Test Hole  
Locations**



Huron St

Northwest Pkwy

#1

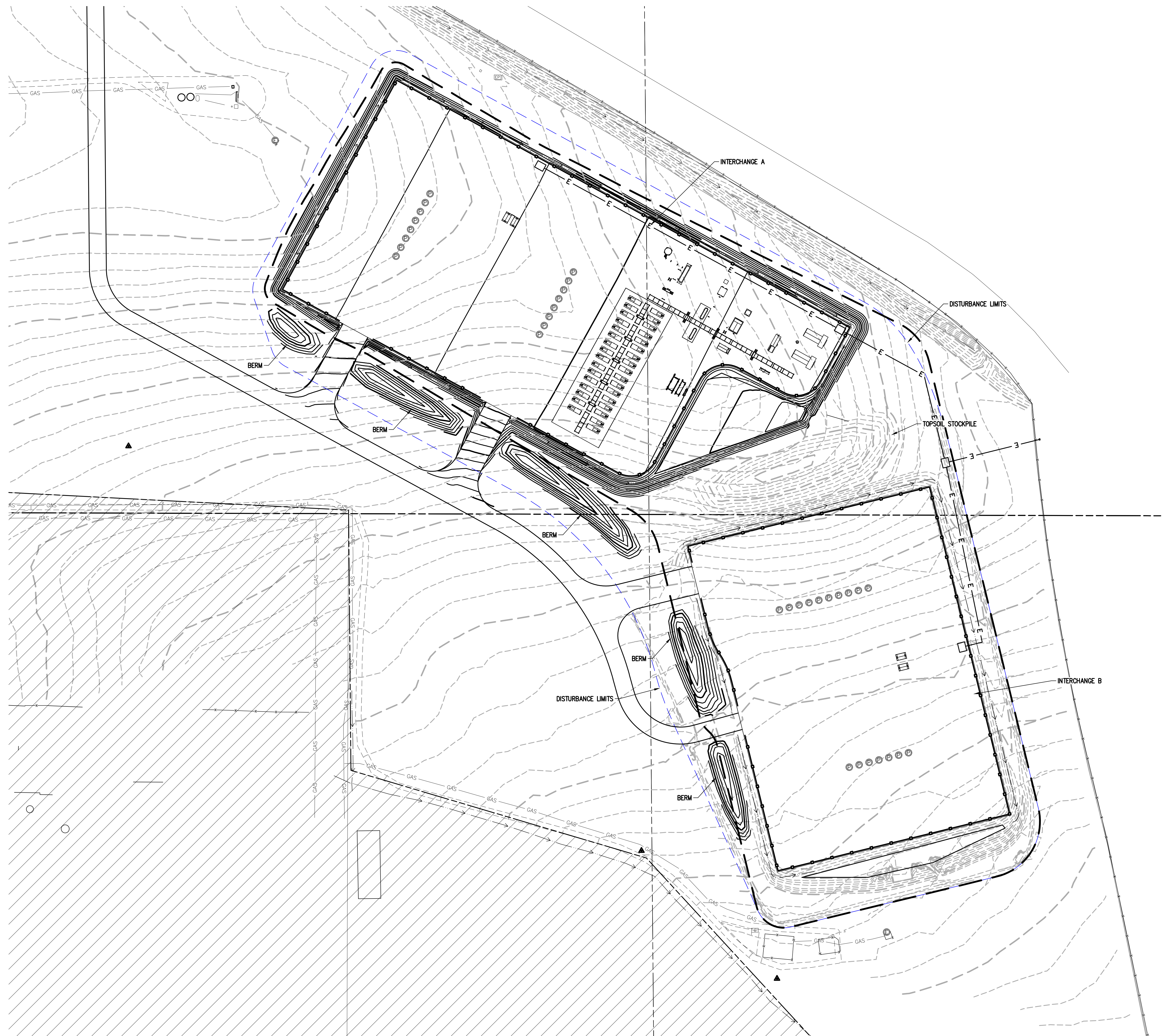
#2

#3

**Legend**

● Topsoil test hole

Google Earth



**INTERCHANGE DESIGN EARTHWORK**  
 CUT - 37,741 C.Y.  
 FILL + 36,165 C.Y.  
 NET EARTHWORK = 1,576 C.Y. (CUT)

**INTERCHANGE AS-BUILT EARTHWORK (NO AS-BUILT SURVEY DATA FOR INTERCHANGE A. DESIGN QUANTITIES USED)**  
 CUT - 37,078 C.Y.  
 FILL + 36,635 C.Y.  
 NET EARTHWORK = 443 C.Y. (CUT)

**BERM QUANTITIES**  
 DESIGN BERMS = 3,657 C.Y.  
 AS-BUILT BERMS = 5,441 C.Y.

**TOPSOIL STOCKPILE**  
 AS-BUILT TOPSOIL STOCKPILE = 4,867 C.Y.  
 DESIGN TOPSOIL STOCKPILE = 6,809 C.Y. (6" DEPTH REMOVED FROM CUT AREAS OF PAD GRADING)

**SITE AREAS**  
 INTERCHANGE A PAD AREA = 9.2 ACRES  
 INTERCHANGE B PAD AREA = 7.1 ACRES

