

ConocoPhillips Groundwater Quality Monitoring Plan Addendum

**Eastern Hills 3AH, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH,
4DH – Eastern Hills South**

Arapahoe County, Colorado

APTIM ● Project 148083

October 24, 2019

Prepared for:



ConocoPhillips Company

Prepared by:



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1.0 PURPOSE

The purpose of this plan is to provide the necessary information for meeting Water Quality requirements as required by the Oil and Gas Operator Agreement between ConocoPhillips Company (COPC), a Delaware corporation, and its subsidiaries, and Burlington Resources Oil & Gas Company LP, a Delaware limited partnership, and the City of Aurora, Colorado, a municipal corporation. This plan addendum is intended to address site specific items. Each location presents unique challenges related to topography, condition of surrounding domestic water wells, orientation of sampling location, aquifer availability and conditions driven by the Operator Agreement.

2.0 SCOPE

Field-wide Groundwater Monitoring Plan addresses requirements in broad terms. Many aspects of the Groundwater Monitoring strategy are common to all locations. This site-specific plan addendum is intended to address only the aspects that are unique to a certain location and will not repeat general terms outlined in the field-wide plan.

3.0 OBJECTIVES

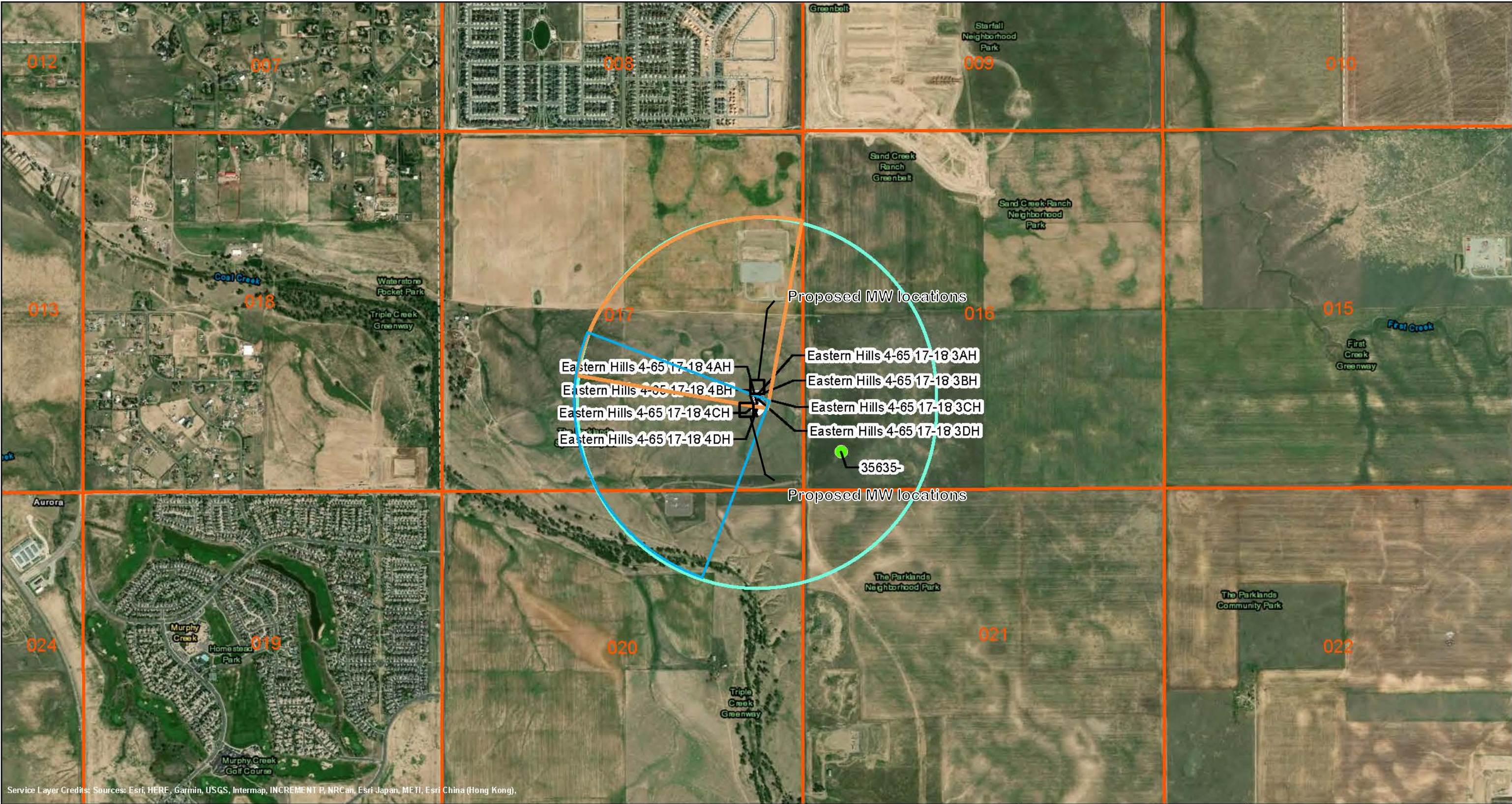
The following objectives are applied to the site-specific addendum.

- Identification of all water wells within ½ mile of the proposed O&G location, as shown in **Figure 1**
- Determination criteria of each water well's sample rank, as show in **Table 1**
- Well construction diagram (to be finalized at a later date), as show in **Figure 2**

4.0 APPENDICES

Appendix A PG Certification Page
Appendix B Variance Request (as needed)
Appendix C Site Specific Schedule

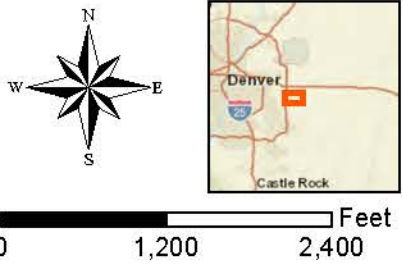
Figures



- ConocoPhillips Eastern Hills Wells
- 1/2 Mile Buffer
- Well Constructed
- Sections

Expected Denver Basin down gradient zone

Expected Alluvial down gradient zone




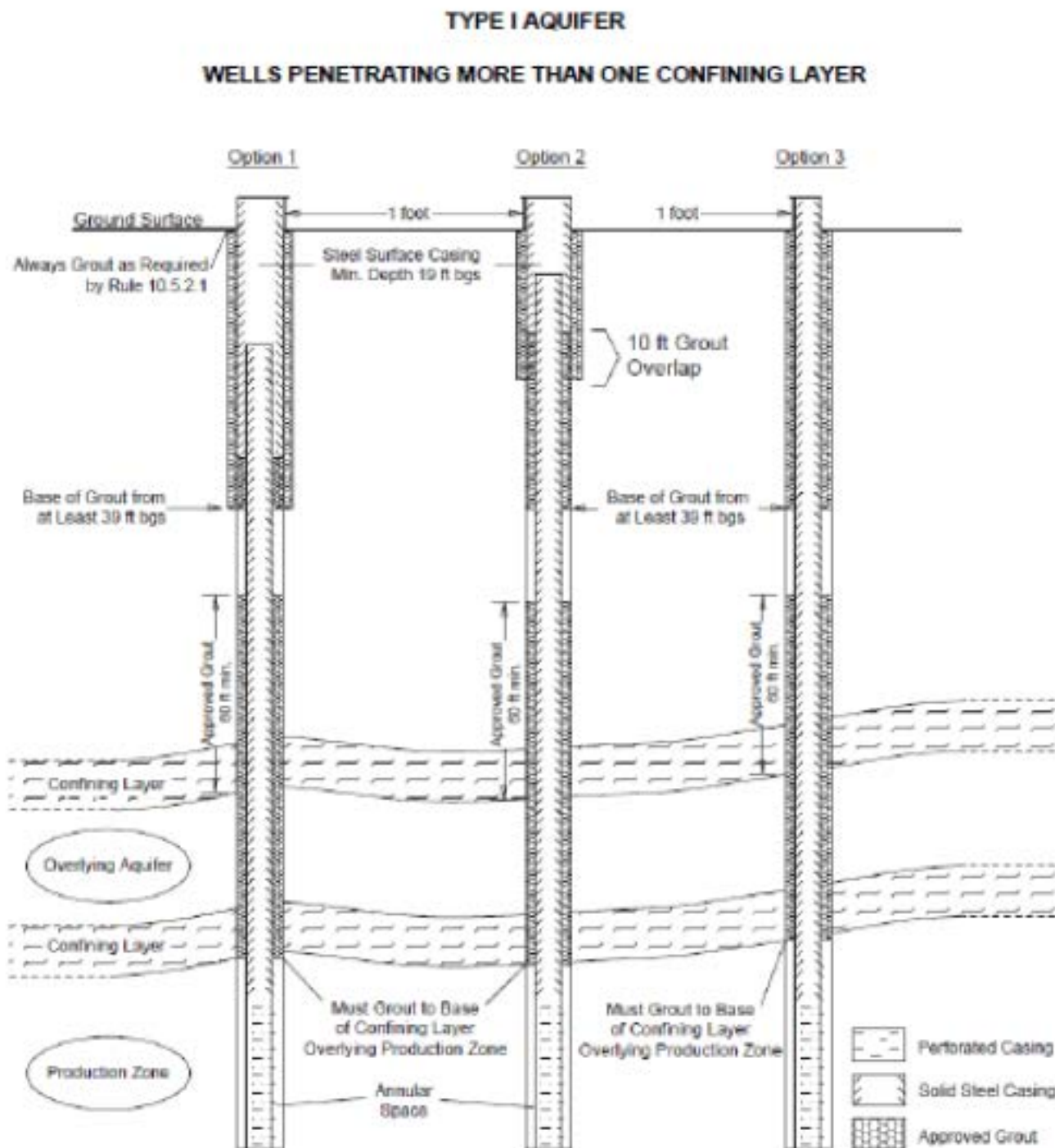
CONOCOPHILLIPS	
EASTERN HILLS 3AH, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH, 4DH (SOUTH)	
FIGURE 1	PERMITTED WELLS WITHIN A 1/2 MILE RADIUS
	
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Figure 2: Typical Well Construction



Note: reproduced from Figure 4b (R2 CCR 402-2)

Table 1

Table 1 - Associated Water Wells

COP Well	Water Well Permit No.	Receipt #	Approximate Distance from COP (Ft)	Well Status (DWR)	Well Completion date	TD'	Aquifer	Sampling Priority	Permitted Use	Well Info Available	Determination of Sample Priority	Parcel ID No.	Property Owner (tax records)	Property Owner Mailing Address (tax records)	Well Owner (well permit)	Well Owner Mailing Address (DWR)	Well Location (well permit, tax records)	UTM_X	UTM_Y	Latitude	Longitude
Eastern Hill South	35635-	9006798	1473	Well Constructed	10/15/1968	688	DENVER	NA	Stock	permit to construct a well and install a pump, map and statement for water well filing, well log	well is upgradient and is a stock well - location not suitable for sampling.	1977-16-3-00-001	SAND CREEK MULTI-FAMILY INVESTOR LLC	4836 E JUANA CT, CAVE CREEK AZ 85331-6397	SMITH, PAUL H	RT 3 BOX 354 AURORA, CO 80010	SW SW 16 65 W S PM 0 0 S PM	527782	4394316	39.698244	-104.675958

**Appendix A –
PG Certification
Page**

Appendix A

Professional Geologist Certification

- In accord with the City of Aurora's request, I hereby certify that:
- I am familiar with the provisions of the Operators Agreement between ConocoPhillips Company, Burlington Resources Oil & Gas Company LP, and the City of Aurora, Colorado.
- I, or my agent, have completed a Due Diligence Phase I review of all available water sources in the vicinity of the subject oil and gas well location to identify potential sample sites.
- The procedures contained herein for water monitoring and testing for baseline and subsequent monitoring events have been established in accord with industry standards or recommended practices; and
- This Groundwater Monitoring Plan is adequate for the subject location.
- Colorado Professional Geologist as defined per C.R.S. 23-41-208.

Well Name: Eastern Hills 3AH, 3BH, 3CH, 3DH, 4AH,
4BH, 4CH, 4DH – Eastern Hills South

Company: APTIM

Name of Professional Geologist (typed): Daisie Young

Signature and Seal: _____



Certification Date: October 24, 2019

**Appendix B –
Variance Request
(as needed)**



August 22, 2019

Liang Yu
Senior Environmental Coordinator
ConocoPhillips Corporation
34501 East Quincy Ave, Building 1
Watkins, Co 80137

Subject: Variance Request and Form 4 Sundry Notice – Eastern Hills 3AH, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH, 4DH – Eastern Hills South

Dear Mrs. Yu:

Below is a brief summary of APTIMs efforts to identify and document potential sampleable domestic water wells located within ½ mile of the Eastern Hills South location.

Initial Phase I Due Diligence efforts were completed, at the direction of ConocoPhillips, in order to identify domestic water wells which could be utilized as sample locations as required by the City of Aurora Operators Agreement (OA). Phase I efforts included a review of all available documentation associated with permitted water wells located within ½ mile of the Eastern Hills South location. The single permitted water well identified within ½ mile is upgradient and a stock well and is unsuitable for sampling as per the OA.

Due to the lack of sampleable wells available within ½ mile of the Location, it is recommended that a Form 4 Sundry Notice be prepared for the Eastern Hills South location and submitted to meet the requirements of COGCC Rule 609. Following that it is also recommended that a Variance Request be submitted to the City of Aurora to meet the requirements of the Operators Agreement.

The water wells which APTIM identified as being located within 1/2 mile of the Eastern Hills South location and their associated sample designations are listed below.

Well Permit No.	Approximate Distance from COP (Ft)	Sampling Priority	Determination of Sampling Priority	Property Owner (tax records)
35635	1473	NA	Well is upgradient and is a stock well - location not suitable for sampling.	SAND CREEK MULTI-FAMILY INVESTOR LLC



If you have any questions regarding this letter, please don't hesitate to contact me at 303-741-7052.

Sincerely,

Daisy Young, G.I.T.
Geologist, APTIM

Please Reply To: Daisy Young

Phone: 303-741-7052

E-Mail Address: daisy.young@APTIM.com

Appendix C – Site Specific Schedule

Appendix C Site Specific Schedule

Eastern Hills 3AH, 3BH, 3CH, 3DH, 4AH, 4BH, 4CH, 4DH – Eastern Hills South

Timelines are dependent upon receipt of COGCC permit approvals. ConocoPhillips (COPC) will make all good faith efforts to ensure monitoring well installation will be completed prior to conducting hydraulic fracturing of the oil and gas well. In the event that circumstances outside of COPC's control affecting the monitoring well installation schedule should occur, e.g. supply chain shortages, contractor availability issues, or permit approval delays (SEO), COPC will notify the City. In this event, COPC and the City of Aurora will agree to negotiate in good faith a resolution acceptable to both parties to insure adequate groundwater monitoring and protection measures are put in place.

Scheduled Commencement of Drilling Activities – November 17, 2021

Conduct Phase I – Due Diligence:	Prior to permit submittal
Contact landowners to obtain sample permission:	As soon as possible - N/A No suitable wells identified for sampling within ½
Contact surface landowners to obtain surface rights to install Requested Well(s):	December 2020
Coordinate Requested Well location, construction, and installation schedule with City:	January 2021, or as soon as practicable
If needed, coordinate Easement Well location, construction and installation schedule with City:	TBD
Submit monitoring well permit application(s) to SEO:	March 2021 pending COGCC permit issuance
Monitoring well(s) installation:	July 2021
Sample monitoring well(s):	As soon as available, Prior to well completion activities
Commence O&G Drilling activities:	November 17, 2021