

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Site Investigation

GENERAL INFORMATION

OGCC Operator Number: <u>10071</u> Name of Operator: <u>Bill Barrett Corporation (BBC)</u> Address: <u>112 Red Feather Trail</u> City: <u>Silt</u> State: <u>CO</u> Zip: <u>81652</u>		Contact Name and Telephone Name: <u>Scott Ghan</u> No: <u>970-867-1959</u> Fax: <u>970-876-0981</u>	
API/Facility No: <u>Remediation #2059</u> Facility Name: <u>Miller water well</u> Well Name: <u>NA</u>		County: <u>Garfield</u> Facility Number: <u>NA</u> Well Number: <u>NA</u>	
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>NESE Sec 31 T6S R91W 6PM</u> Latitude: <u>39.482041</u> Longitude: <u>-107.589878</u>			

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Thermogenic Methane Gas

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☐ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Residential, irrigated rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Potts loam, 3 to 6 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): NA

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input type="checkbox"/> Soils	<u>Unknown</u>	
<input type="checkbox"/> Vegetation	<u>Unknown</u>	
<input checked="" type="checkbox"/> Groundwater	<u>Unknown</u>	<u>Sampling and Analysis</u>
<input type="checkbox"/> Surface water	<u>Unknown</u>	

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

The Colorado Oil and Gas Conservation Commission (COGCC) staff has requested soil gas surveys to evaluate recently discovered thermogenic methane gas in the Miller water well.

Describe how source is to be removed:

The COGCC verbally approved the proposed soil gas surveys via email from Linda Spry O' Rourke on 7/6/10. BBC will conduct soil gas surveys at the Miller water well, Miller residence and associated structures, and four production well pads in the vicinity of the Miller water well (Barge #1, GGU 11-32, Miller 7, and Miller 1). Additionally, linear soil gas surveys will be conducted in the intermittent drainages of East Gulch, Gibson Gulch, and the branches of Gibson Gulch adjacent to the Miller 1 and Miller 7 production well pads. A sampling grid will be centered on each of the locations except for the Miller residence and associated structures. These sampling grids result in numerous soil gas survey locations. A maximum of 2 soil gas samples will be collected from each location except for the Miller residences and associated structures. The soil gas samples will be submitted for analysis of gas composition; carbon and hydrogen isotopes of methane; and carbon isotopes of ethane and propane (also known as the NG-2 suite of analyses) using Cali-bond® sample bags. Soil gas samples will be collected at survey points with the highest measured gas concentration.

The soil gas survey for the Miller residence and associated structure will include survey points around the perimeter of each structure and measurements of ambient air conditions within the interior portions of each structure. Soil gas samples will be collected from each area where elevated combustible gases have been detected and will be submitted for NG-2 analysis. A Site Map showing the soil gas survey locations is presented as Figure 1.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Once the soil gas surveys have been completed, BBC will submit a finalized report summarizing the analytical data to the COGCC.

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REMEDIAL WORKPLAN (CONT.)

OGCC Employee: _____

Tracking Number: _____

Name of Operator: Bill Barrett Corporation (BBC)

OGCC Operator No: 10071

Received Date: _____

Well Name & No: _____

Facility Name & No.: Miller water well

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Though it is unlikely that surface water will need to be sampled during this investigation, BBC will be prepared to conduct surface water sampling if seep conditions within surface water are observed.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

NA

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☒ Y ☐ N If yes, describe:

Once the soil gas surveys have been completed, BBC will submit a finalized report summarizing the analytical data to the COGCC.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

NA

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 7/12/10

Date Site Investigation Completed: _____

Remediation Plan Submitted: _____

Remediation Start Date: _____

Anticipated Completion Date: _____

Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Scott Ghan

Signed: _____

Title: E H & S Coordinator

Date: 7-12-10

OGCC Approved: _____

Title: _____

Date: _____

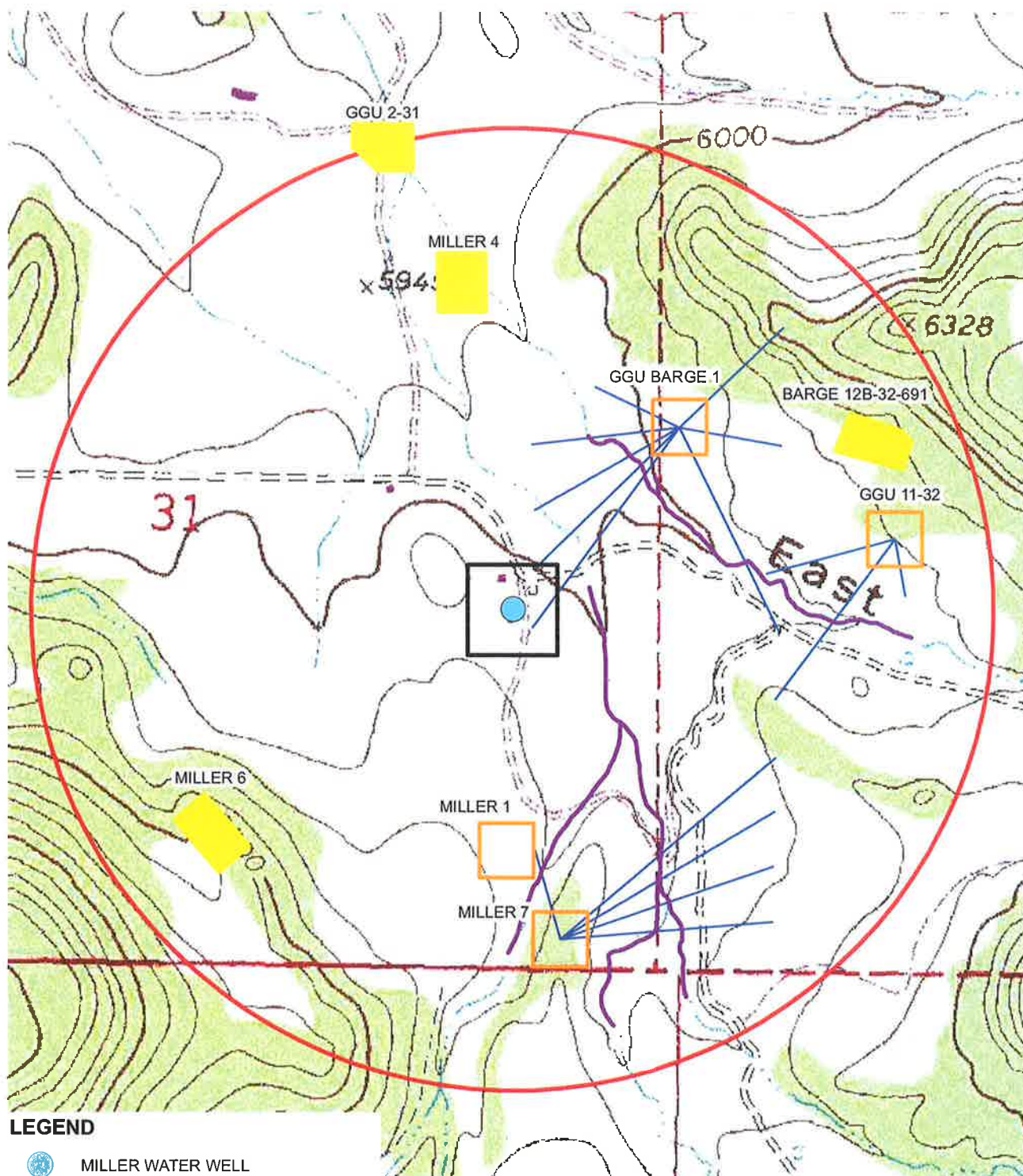


IMAGE COURTESY OF USGS/NRCS, VARIOUS DATES

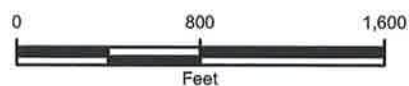


FIGURE 1
MILLER WATER WELL
SOIL GAS SURVEY LOCATIONS
GARFIELD COUNTY, COLORADO

BILL BARRETT CORPORATION

