COGCC OIL AND GAS FIELD SCOUT CARD

Date	04/18/2016
Document No.	2056075

FIELD NAME	**ALKALI CREEK**
FIELD NUMBER	**1950**

LOCATION

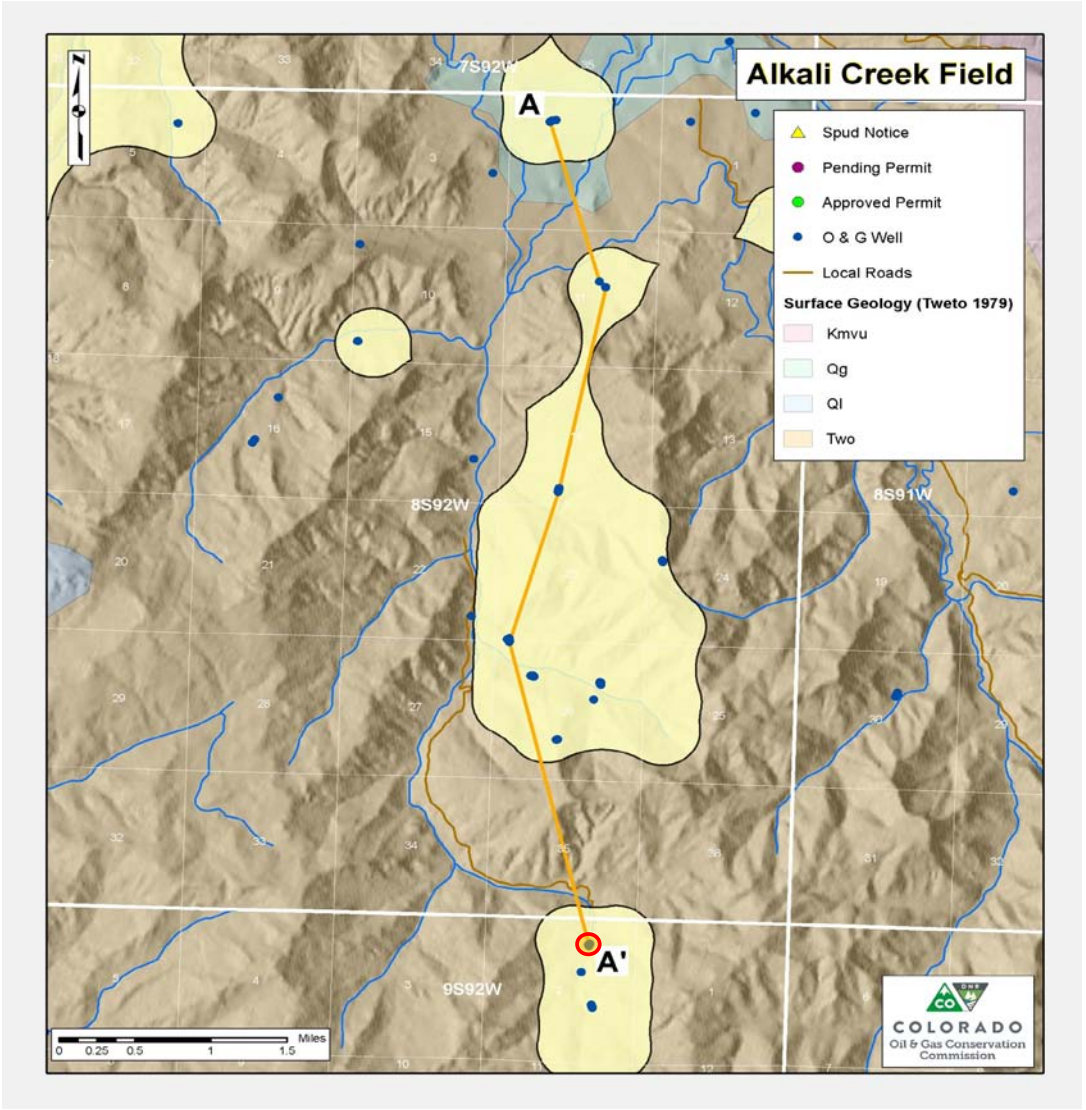
Basin	Piceance
Township(s)	7S to 9S
Range(s)	92W

SURFACE GEOLOGY

Surface Geology consists of alluvium at the north end of the field, underlain by the Wasatch Formation. The Wasatch Formation outcrops at surface throughout most of the field.

GEOLOGIC STRUCTURE

A northwest-southeast trending, northeasterly-sloping monocline is present on COGCC's 250K GIS Geology layer. The monocline extends to the southeast, generally following West Divide Creek, beginning near the northern end of this field. The northern three wells on the following stratigrapic cross section are on the down-slope portion of the monocline, and the southern three wells are on the up-slope portion of the monocline. The monocline may explain differences in ground surface elevation. However, shallower depths to formation tops in the northern portion of the field likely results from the more prominent structure of the Divide Creek Anticline to the east of this field.



Type Log Well

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ALKALI CREEK #1950

				A - North					A' - South
STRATIGRAPHY			**API Number =>**	**045-09008**	**045-06840**	**045-09359**	**077-09262**	**077-09656**	**077-05111**
			Surface Elevation =>	**6,606**	**6,766**	**6,789**	**7,315**	**7,304**	**7,717**
All depths are measured depths			**Well Type =>**	**Drifted**	**Vertical**	**Directional**	**Directional**	**Directional**	**Vertical**
Group	**Formation**	**Interval/Member**	**Isolation Concern**	**Log Top**	**Log Top**	**Log Top**	**Log Top**	**Log Top**	**Log Top**
	Alluvium		Water	0					
	Wasatch	Upper	Shallow Water		0	0	0	0	0
	Wasatch	G-Sand*	None					1,574/1,676*	1,777/1,954*
	Wasatch	Fort Union*	None					2,058*	2,280*
	Wasatch	Middle	None						
	Wasatch	Lower*	Water	1,313*	Log N/A**	1,740*	3,100*	3,254*	3,434*
Mesaverde	Williams Fork	Ohio Creek	Water	1,674*	2,152	2,112*	3,730*	3,794*	3,960*
Mesaverde	Williams Fork	U. Mesaverde	Water	1,868*	2,250	2,367*	4,055	4,000*	4,290*
Mesaverde	Williams Fork	Top of Gas	Gas	2,287		2,773	5,635	5,599	
Mesaverde	Williams Fork	Cameo	Gas	4,584	4,992		6,705	6,646	6,607*
Mesaverde	Iles	Rollins	Gas	5,554	5,682		7,485	7,400	7,450*
Mesaverde	Iles	Cozzette	Gas						8,010
Mesaverde	Iles	Corcoran	Gas						8,208
	Mancos		Possible Gas						
	Niobrara		Possible Gas						

Annotated Type Log for 077-05111: COGCC Document Number 2056076

Stippled cells indicate that the respective log top was not apparent on logs or the top may be covered by a shallower casing string above the logged interval. "Middle Wasatch" is an interval that may include multiple formation members, and therefore, log tops are not presented for the Middle Wasatch.

** COGCC log picks (Wasatch G-Sand [top of upper and lower intervals] and Fort Union are not commonly recognized by operators in this field; "Lower" Wasatch, as shown herein for water isolation, is not recognized in geologic literature)*

*** No log available to verify depth to top of L. Wasatch or reported opertor tops for underlying formation top picks*

WATER RESOURCE ISOLATION

Alluvium, Upper Wasatch (weathered portion in which water supply wells are screened), Lower Wasatch, Ohio Creek, and Upper Mesaverde
The deepest water well within the vicinity of the field is 355' (likely Wasatch)

PRODUCING ZONE ISOLATION

Primary Objectives: Mesaverde Group (Williams Fork, Cameo, Rollins, Cozzette, and Corcoran)

UNDERGROUND INJECTION CONTROL

None in this field.

COMMISSION ORDER SUMMARY (Significant Engineering and Spacing Issues)

1-107 (9/20/2004)	Establishes a Bradenhead Monitoring Area, including the Alkali Creek Field.

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ALKALI CREEK #1950

HISTORIC WELL CONSTRUCTION

Except for older wells that may have shallow surface casing (e.g., 300' to 400'), surface casing setting depths generally range from 900' to 1,900'. Production casing generally terminates in the Iles Formation. Production casing cement may be limited to coverage of the producing intervals, and coverage may be lacking across parts of the Mesaverde Group and Wasatch Formation.

NEW WELL CONSTRUCTION (effective 4/18/2016)

Minimum surface casing of 5% TVD required for well control in Mesa County (10% TVD recommended) and to cover water resources in the upper interval of the Wasatch Formation. Check offset logs for shallow Wasatch groundwater, which should be covered by typical setting depths of 900' or more. Full cement coverage of the Mesaverde Group and Ohio Creek is required in the Piceance Basin through 2015. New Standards require cementing intermediate (if used) or production casing at least 200' above Lower Wasatch sands in Township 9S-92W or at least 500' above Lower Wasatch sands in Townships 7S-92W and 8S-92W, as shown on the annotated type log for this field.

PLUGGING OBJECTIVES

Plug(s) above Mancos and other deeper formations (if penetrated) to address potential future horizontal wells; plug above Mesaverde Group completions; plug above Ohio Creek and across Lower Wasatch (squeeze to 200'/500' above Lower Wasatch if no annular cement coverage); stray gas isolation squeezes (if no annular cement) or in-casing stabilization plugs (if annular cement present) at 3,000-foot intervals if plugs are not already planned in those intervals as described above; surface casing shoe plug and surface plug. Larger surface casing shoe plugs should be considered for wells with less than 900' of surface casing.

NOTES

Portions of this field are located within the Mamm Creek Field Cementing Notice to Operators Area. Special requirements and Form 2 Conditions of Approval apply.

This field is located within the Bradenhead Monitoring Area. Special requirements and Form 2 Conditions of Approval apply.