

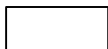


Vaquero #1  
St. Croix Operating, Inc.  
NENW S11 T3S R50W  
Geologic Hazards Map

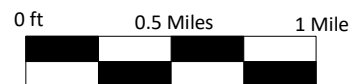
**Legend**



1 Mile Radius



Oil and Gas Location



Prepared By:  
Ardor Environmental LLC

August 30, 2021

St. Croix Operating, Inc.  
Vaquero #1  
NENW Section 11, T3S R50W  
Washington County, Colorado

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GEOLOGIC HAZARDS EVALUATION

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St. Croix Operating, Inc. (St. Croix) has drafted this Geologic Hazard Evaluation in accordance with Rules 304.b.(7) and 304.c.(21).

The COGCC references the Colorado Revised Statute (C.R.S.) § 24-65.1-103(8) definition of Geologic Hazard. C.R.S. 24-65.1-103(8) states: "Geologic Hazard" means a geologic phenomenon which is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health and safety or to property.

Rule 304.b.(7).I Geologic Hazard Map: A map identifying any Geologic Hazards within a 1-mile radius of the proposed Working Pad Surface. For any identified Geologic Hazard that extends beyond the 1-mile radius, a second map scaled to show the extent of that hazard in relation to the proposed Oil and Gas Location.

- St. Croix has prepared one map showing the Oil and Gas Location in relation to any Geologic Hazards within a 1-mile radius.

Rule 304.c.(21) Geologic Hazard Plan: If the Operator identifies any Geologic Hazards pursuant to Rule 304.b.(7).I, the Operator will submit a Geologic Hazard plan describing proposed mitigation measures.

- St. Croix has not identified any risk of Geologic Hazards at this location.

# Professional Geologist Certification

NO SIGNIFICANT HAZARDS IDENTIFIED:

I certify that I am a Professional Geologist, having met the education requirements and professional work experience required by C.R.S. 23-41-208(b). I have reviewed information pertaining to this Oil and Gas Location and the surrounding area, and have identified no Geologic Hazards within a one mile radius.



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Paul Melnychenko

8-31-2021

Date

| <b>Geologic Hazard</b>                  | <b>Sources Reviewed</b> | <b>Findings</b>   |
|---|-------------------------|---|
| Avalanches                              | WASHCO                  | The Oil and Gas Location has a negligible risk due to mild topography. The risk is insignificant enough to not be listed in the County Risk Assessment. |
| Landslides                              | WASHCO & CGS            | Landslides are not a geologic hazard at this site. The risk is insignificant enough to not be listed in the County Risk Assessment.                     |
| Rockfalls                               | WASHCO                  | Rockfall is not a geologic hazard at this site. The risk is insignificant enough to not be listed in the County Risk Assessment.                        |
| Mudflows                                | WASHCO                  | Mudflow and debris fans are not a geologic hazard at this site. The risk is insignificant enough to not be listed in the County Risk Assessment.        |
| Unstable or potentially unstable slopes | NCRS                    | Unstable slopes are not a geologic hazard at this site.   |
| Seismic effects                         | CGS                     | Seismic activity is not expected to impact the design or operations of the Pad.   |
| Radioactivity                           |                         | Radon is not expected to represent a geologic hazard at this pad.   |
| Ground subsidence                       | NCRS                    | Ground subsidence is not a geologic hazard at this site.  |

Sources Reviewed:

CGS: Colorado Geological Society, (2021) Hazards.  
<https://coloradogeologicalsurvey.org/hazards/>

NCRS: National Resources Conservation Service (2021). Web Soil Survey.  
<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

WASHCO: Washington County, Washington County Draft Hazard Mitigation Plan (2020)  
<https://washingtoncounty.colorado.gov/sites/washingtoncounty/files/documents/Washington%20County%20CPE%208-12-20.pdf>