

August 12, 2004

Grant Willis
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RE: Johnson Pass Quadrangle

Grant:

At your request, I have reviewed the mapping work conducted by Mack Croft for the Johnson Pass 7.5-minute quadrangle. The following letter is provided to discuss my findings and present recommendations for the disposition of the map.

Background

Mr. Croft is a contract mapper; a field trip was held on November 5, 1998. A follow-up letter was provided by you to Mr. Croft dated December 14, 1998. In the December 1998 letter, you provided several constructive comments on mapping issues, and also suggested that Mack contact Dr. Lehi Hintze for advice and suggestions on how to improve the map. There is no detailed map review in the file from UGS staff.

My work on this matter has involved: (1) review of the map and associated file materials, (2) research on local stratigraphy and structure, (3) seven days of field work in the northern portion of the quadrangle, and (4) discussions with UGS staff, Mack Croft, and Jim Evans.

Concerns

You expressed concerns about the match of the northwest corner of the quadrangle with the adjacent Deseret Peak East quadrangle (to the north). In addition, you expressed concerns about the overall quality of the map. Concerns about the map quality were also reported by Jon King, Bob Biek, and Jim Evans.

Deficiencies

Several primary deficiencies have been noted and are described as follows.

The far northwestern portion of the quadrangle (Barlow Hollow and Rock Springs area) is incorrectly mapped. Field review shows that the contacts, map units, and faults are incorrect, and the mapping differs significantly from that correctly shown by Copfer and Evans in Deseret Peak East. For example, Mack mapped a thick outcrop of Devonian-undivided against Ordovician Garden City Formation at the quadrangle boundary. In addition, Mack mistook a dolomite unit as Ordovician (Garden City) rather than Cambrian (Cole Canyon), thus confusing the stratigraphy.

The Victory Canyon area in the north-central portion of the quadrangle is incorrectly mapped and lacks sufficient detail. An anticline-syncline pair and other complex structure are present in this area, where block faulting is shown by Mack.

The surficial deposit mapping is inadequate and lacks appropriate detail. In particular, the bedrock-surficial deposit contacts are highly generalized, and many surficial deposits were not mapped or properly differentiated.

There are too few bedding attitudes to properly determine structure.

The map linework lacks sufficient detail, and in places is difficult to decipher.

In general, the geology is far too generalized for the 1:24,000-scale base.

Conclusions and Recommendations

Although Mr. Croft put forth a good effort, the Johnson Pass quadrangle geologic mapping is of substandard quality and detail.

Due to the numerous deficiencies, I cannot recommend that the map be revised or partially remapped for submittal as a UGS Open-File report. I recommend that Mr. Croft's draft mapping data be used to assist in future remapping of the quadrangle under the Statemap Program, or for assistance with compilation of the Rush Valley 30 x 60-minute quadrangle.

Sincerely,

Donald L. Clark, P.G.
Project Geologist