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FAX MESSAGE

DATE: April 24, 2003

TO: Dave Darby-UDOGM

FAX: 801-359-3940

FROM: Tom Paluso

SUBJECT: Deep Regional Aquifers

NUMBER OF PAGES INCLUDING COVER SHEET: Four

This is the question that I am trying to answer: "The current discussion is restricted to alluvial and water table aquifers. Are there any deeper regional type aquifers?" Attached is the material that this question came from.

I have enclosed Figure 3-1 that the Groundwater section 3.2.2.1.1 refers to. Your help in this matter would be greatly appreciated. I need your response ASAP.

Thanks!

Tom

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3.2.1.2.3 *No Action Alternative*

Implementation of the No Action Alternative within the Project Area would result in impacts to geologic conditions and resources that are consistent with present levels of activity within the Project Area. Anticipated activities associated with continued livestock, wildlife, and wild horse grazing; recreational use by hunters and others; and oil and gas exploration activities would include some additional disturbance of geologic materials and possible slope instability.

The effects of these continued activities development is anticipated to be short-term and minimized with application of required mitigation measures. Additional oil and gas wells would not preclude access to the tar sands resource or prevent production, should a tar sands development be implemented.

3.2.2 Water Resources

3.2.2.1 Affected Environment

3.2.2.1.1 Groundwater

Groundwater resources in the Project Area are present in non-regional, Quarternary alluvial aquifers within the canyons that dissect the West Tavaputs Plateau and mostly small, isolated, and perched aquifers in the upper member of the Green River Formation that caps the upland surface of the plateau. Although the Upper and Middle members of the Green River Formation are aquitards, some groundwater accumulations in the upper and middle members are evident in the presence of several springs and stock wells in the Project Area (Figure 3-1). Based on available data, as many as 22 springs and stock water wells are located in the Project Area. Four years of drought conditions have reduced flows of springs and many seeps in the Project Area based on observations of both the archaeological and biological field survey crews that were active in the Project Area the past spring, summer, and fall. Groundwater flow is down stream/channel gradient within the alluvial canyon bottoms and down dip, mostly north, where flow is possible within the mostly consolidated upper Green River member. The occurrence of springs in the Project Area coincides with exposure of a more porous sandstone lense that overlies a tighter, less permeable silt stone or claystone/mudstone lithology or a coalescence of a network of subsurface cracks in the tighter rocks where water has entered the crack system that has inlets on the surface to receive runoff from precipitation (Figure 3-1). Reported spring and well yield data for eight of the 22 wells located on the map present a range between 0 cubic feet per second and 0.0220 cubic feet per second. Five of the eight wells were identified as being used for stock water. No information on quality was available; however, the designation of use for stock water provides an indication that the quality is at least suitable for that purpose.

Water quality in the alluvial aquifers is likely consistent with the corresponding surface water flows in the overlying stream channels (Price, 1984). USGS water quality information for a sampling point on Nine Mile Creek just above Gate Canyon indicates Nine Mile Creek's total dissolved solid content ranges from 250 to 1000 milligrams per liter. This range falls within the range deemed suitable for stock watering.

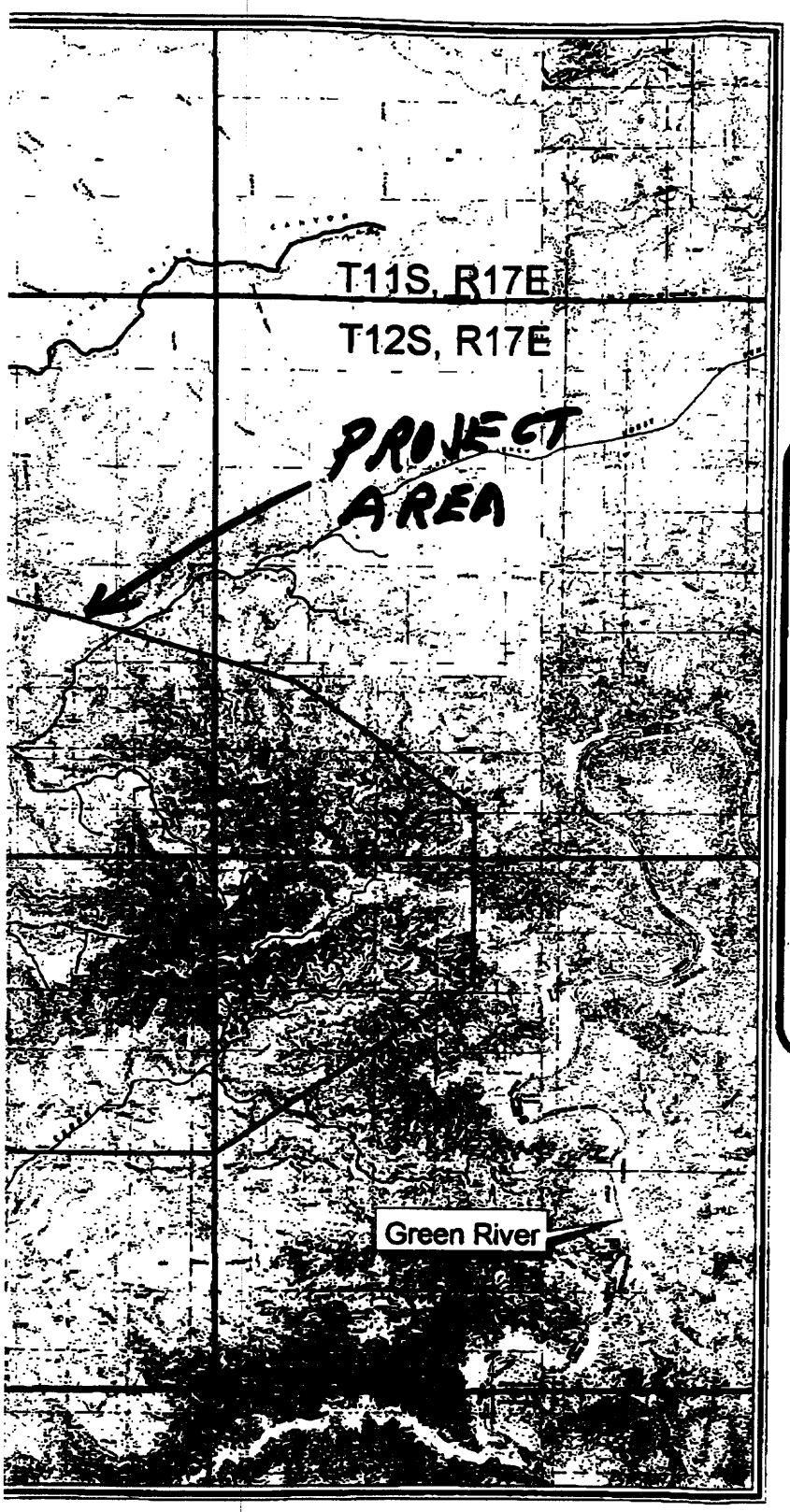

Figure 3-1 Springs and Water Wells

Legend

- Townships
- Water Rights Div. Springs Data
- Utah GIS Springs Data
- U.S.G.S. Wells Data
- Water Rights Div. Wells Data
- Project Boundary

Roads and Trails (Existing)

- 9 Mile Canyon Road
- Main Access Roads
- Roads

N W E S

12 Miles

Data Sources:

Road Data: BLM & Carbon County
Township Data:
Project Boundary Data:
Water Data: State of Utah GIS
Water Rights Division
Utah Geological Survey
U.S. Geological Survey

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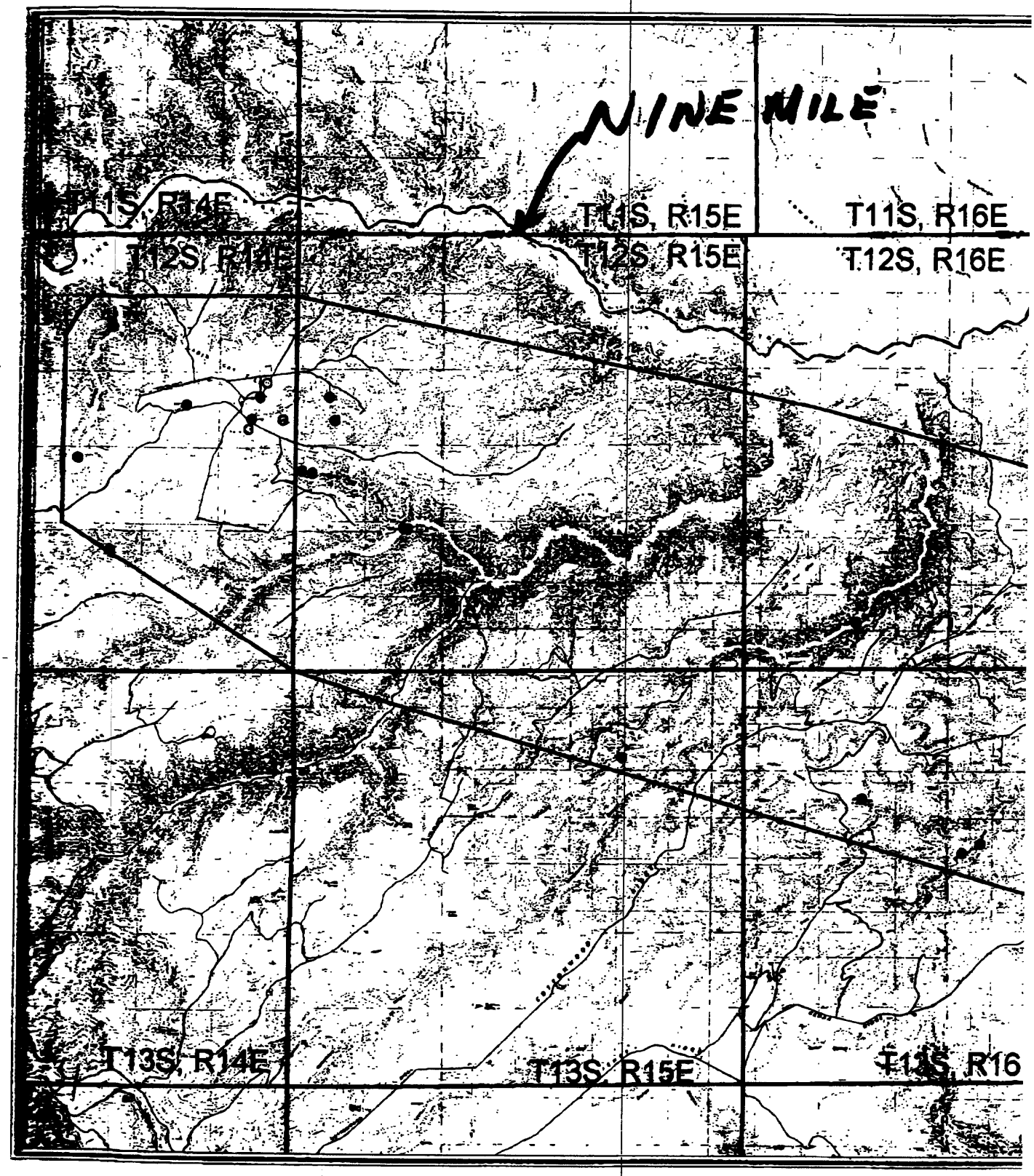
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