1.0 INTRODUCTION

The Powder River Basin (PRB) of Wyoming and Montana is a major energy development area with diverse environmental values. The PRB is the largest coal-producing region in the United States (U.S.); PRB coal is used to generate electricity both within and outside the region. The PRB also has and continues to produce large quantities of oil and natural gas resources. Within the last decade, this region has experienced nationally significant development of natural gas from coal seams.

This PRB Coal Review is a regional technical study to assess cumulative impacts associated with past, present, and reasonably foreseeable development (RFD) in the PRB. For purposes of this study, the Wyoming portion of the PRB study area (**Figure 1-1**) comprises all of Campbell County, all of Sheridan and Johnson counties less the Bighorn National Forest lands to the west of the PRB, and the northern portion of Converse County. It includes all of the area administered by the Bureau of Land Management (BLM) Buffalo Field Office, a portion of the area administered by the BLM Casper Field Office, and a portion of the Thunder Basin National Grasslands (TBNG), which is administered by the U.S. Department of Agriculture, Forest Service (FS) (**Figure 1-2**). The Montana portion of the PRB study area (**Figure 1-1**) comprises the area of relevant coal mines and the air quality study area and includes the lands administered by the BLM Miles City Field Office (**Figure 1-2**).

The Task 3B component of the PRB Coal Review provides an assessment of the water resources cumulative impact associated with future levels of coal mining, coal mine dewatering, coal bed natural gas (CBNG) groundwater withdrawal and subsequent surface disposal of groundwater, surface disposal of groundwater by coal mines and conventional oil and gas wells. This report focuses on the cumulative impacts to surface water resources from surface discharge of groundwater by CBNG development and coal mine dewatering. Specifically, impacts related to water quality and channel stability are addressed. The study area and subwatersheds included in the surface water impact assessment are presented in **Figure 1-3**. It should be noted that the database developed in support of this work was structured using 4th level sub-basins as a common denominator. However, the 4th level sub-basins are referred to as subwatersheds in this study for consistency with the PRB Oil and Gas Environmental Impact Statement (EIS) (BLM 2003a).

Completion of the work associated with Task 3B relied on information and data provided in the PRB Coal Review Task 1 and Task 2 reports. The Task 1 report provides the basis for the resource-specific descriptions of current conditions within the study area. Past and present activities identified in the Task 1 report are based on the most recent data available at the end of

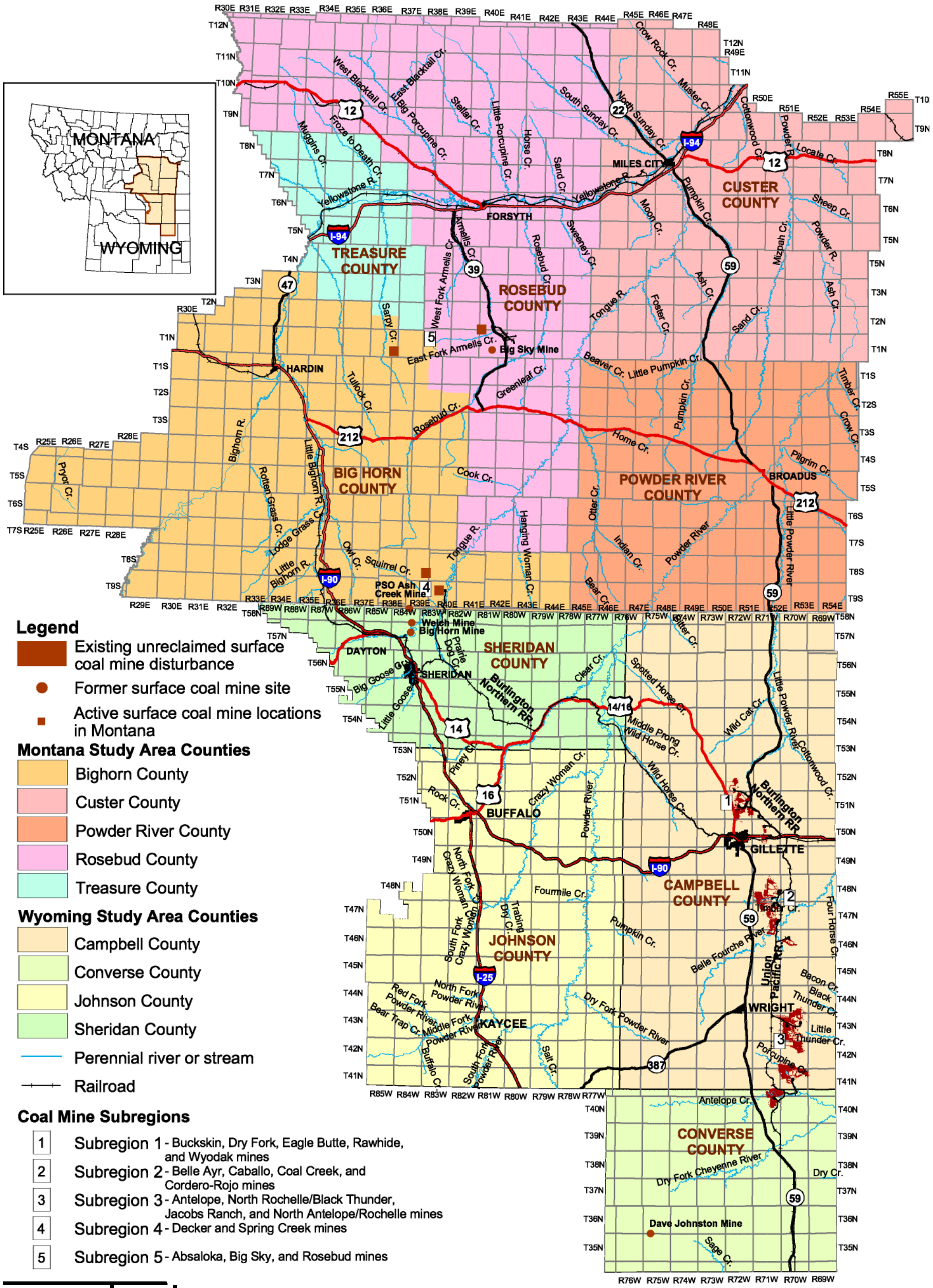

Figure 1-1
Montana and Wyoming Study Area

Powder River Basin Coal Review

Note: Existing unreclaimed coal mine disturbance footprints were not available for the Montana mine sites.

Source: BLM 2003, 2004; Thunder Basin Coal Company, 2003; http://nris.state.mt.us/gis/gisdatalib.

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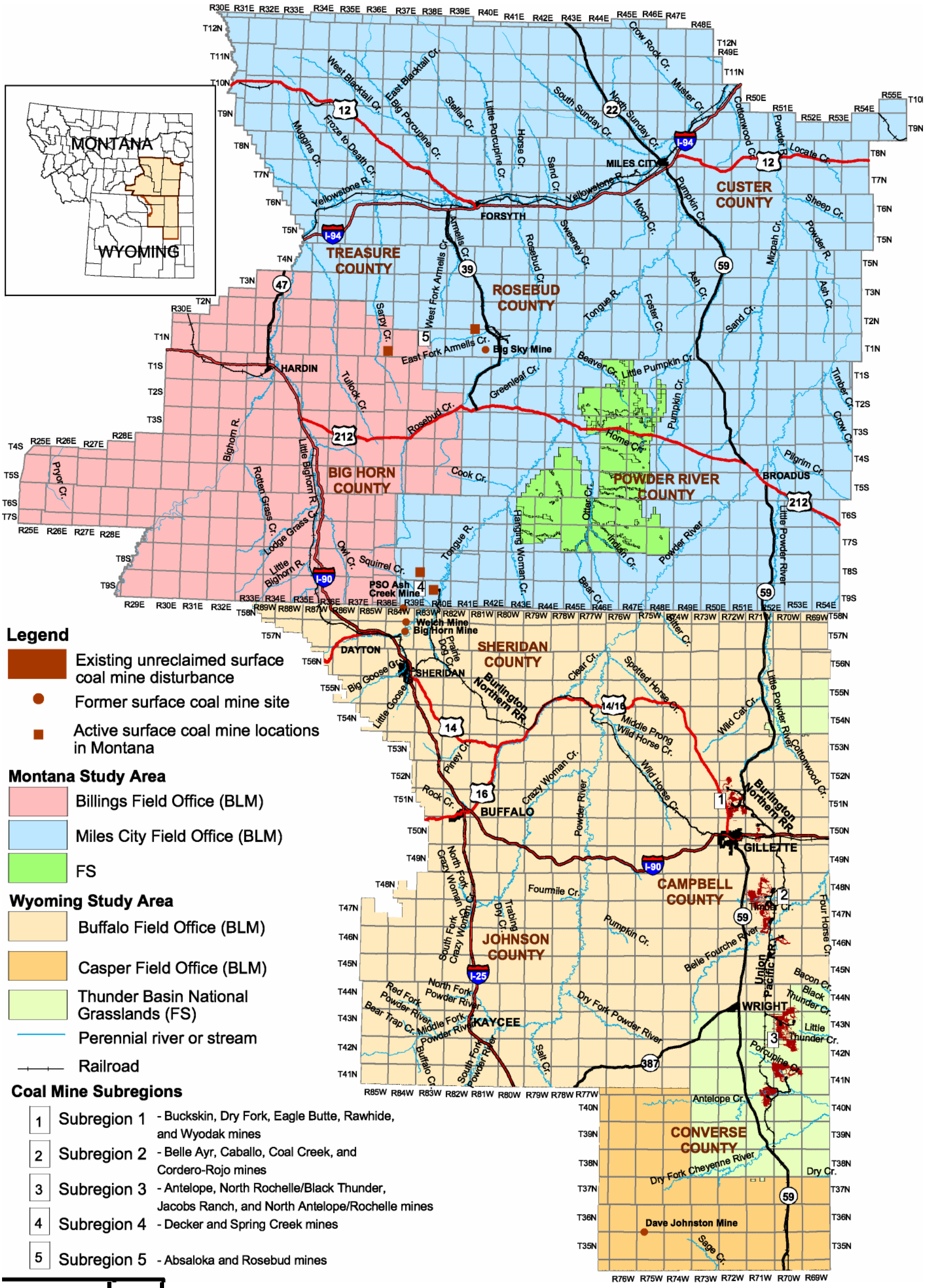

Note: Existing unreclaimed coal mine disturbance footprints were not available for the Montana mine sites.

Source: BLM 2003, 2004; Thunder Basin Coal Company, 2003; http://nris.state.mt.us/gis/gisdatalib.

Powder River Basin Coal Review

Figure 1-2

Federal Land Management

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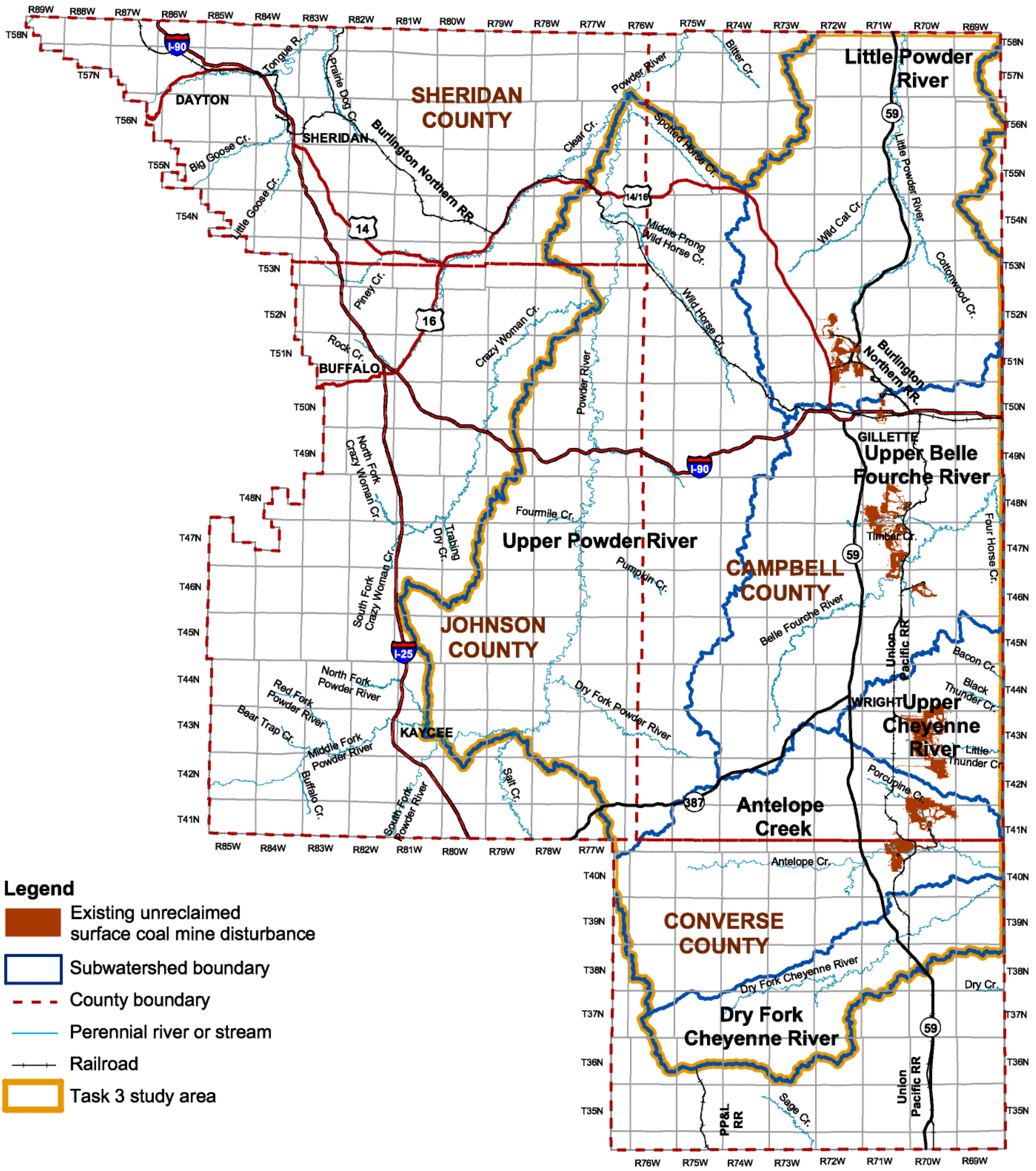

Powder River Basin Coal Review

Figure 1-3
Task 3D Study Area and Subwatersheds

Source: BLM 2003a, 2004; Thunder Basin Coal Company 2003.

2003. The Task 2 report defines the past and present development actions within the study that have contributed to the current environmental and socioeconomic conditions in the PRB study area. The Task 2 report also defines the RFD scenarios in the Wyoming and Montana PRB for years 2010, 2015, and 2020. The RFD scenarios presented in the Task 2 report provide the basis for the analysis of potential cumulative impacts to surface water resources in the Task 3 component of the PRB Coal Review.

The methodology used to assess the cumulative impact of current conditions and the RFD scenarios is summarized in Chapter 2.0. The projected impacts on water quality associated with future levels of coal mining, coal mine dewatering, coal bed natural gas groundwater withdrawal, and surface disposal of groundwater by coal mines is presented in Chapter 3.0. Chapter 4.0 presents projected impacts on channel stability. Documentation pertinent to the cumulative impact assessment is provided in technical appendices attached to the report.