Table of Contents

Page

LIST OF FIGURES

REPORTS

MINE DRAINAGE ALONG THE SOUTHERN EDGE OF THE MINE WORKINGS IN THE VICINITY OF THE TAR CREEK AND LYTLE CREEK CONFLUENCE

SUMMARY INFORMATION

Acid mine drainage (AMD) is an active ongoing process in the Tar Creek and Lower Spring River watersheds. The primary sources of AMD include the following:

- Sources that emanate from the surface waste and tailings materials due to shallow groundwater and surface water runoff
- Sources that contribute seepage from the flooded underground mine workings.

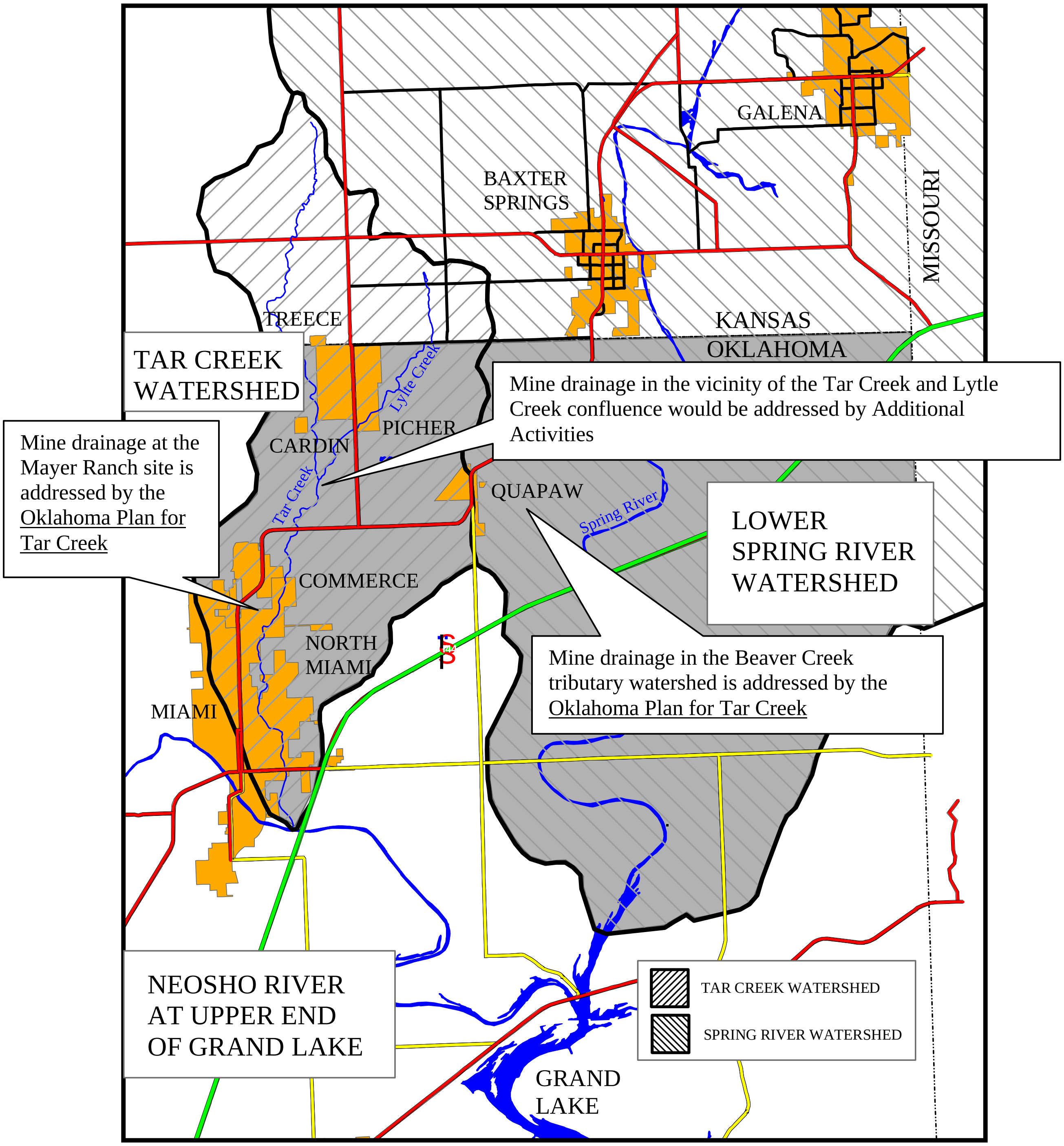
There are three primary components, from a hydrologic perspective, that control flow at major mine seeps coming from the underground mine workings. They include:

- Surface water recharge infiltrating from shafts, boreholes, collapse and subsidence features; surface drainage flow into these features; and surface drainage through the base of chat piles or tailings over these features and back into the underground mine workings.
- Drainage of stored mine water to the land surface from the flooded underground workings once they reach the “full” spill point elevation which varies from below 792 feet to 798 feet (generally below the 800-foot elevation contour). Major seep locations include the Mayer Ranch near Commerce, the Tar-Lytle creeks in the Tar Creek Watershed confluence, and Beaver Creek in the Spring River Watershed. The known seeps located at the Mayer Ranch and Beaver Creek are being addressed by the Oklahoma Plan for Tar Creek (Figure 1).
- Surface discharge near the major seep locations associated with Tar, Lytle, and Beaver creeks plus other locations not yet identified, such as from buried shafts and well bores, collapse and subsidence features, and shallow perched groundwater base, flow from mining waste and milling piles.

All three source components that control flow must be addressed to remedy the discharge at the Tar Creek–Lytle Creek confluence. The use of reactive barriers and passive treatment features is a potential alternative to address mine drainage.

A combination of technologies consisting of flow reduction features and treatment options would also be considered to address the AMD. The estimated cost for this alternative will vary depending on the final combination of flow control and treatment features. The evaluation of this alternative would involve a balancing consideration between flow reducing cost plus any treatment cost (which reduces if flow reduces). The design of flow reduction features will be directly influenced by decisions made by the EPA regarding chat, chat bases, millponds, and transition areas.

Figure 1. Known Mine Drainage Locations in the Tar Creek and Lower Spring River Watersheds



COST ESTIMATE

The preliminary cost estimate (Table 1) to address the AMD in the vicinity of the Tar Creek and Lytle Creek confluence is $70.14 million over a period of 6 years.

Table 1. Mine Drainage Treatment Costs in $1,000,000

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Total
Planning, Engineering and Design	1.53	1.53	1.19	0.32	0.42	0.39	5.38
Real Estate							
Administrative			0.08				0.08
Land			0.28				0.28
Construction			8.00	16.00	21.00	19.40	64.40
Total Mine Drainage	1.53	1.53	9.55	16.32	21.42	19.79	70.14

The following reports provide additional information on mine drainage control, treatment technologies and details on preliminary cost estimates.