PEABODY ENERGY COMPANY

INTERIM STATUS REPORT

TROUT CREEK RESERVOIR

Routt County, Colorado

DESIGN TEAM

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McLaughlin Water
ENGINEERS LTD

January 11, 2010

Peabody Energy Company
Attn: Mr. Brian Yansen
201 Market Street
St. Louis, Missouri 63101-1826

RE: Trout Creek Reservoir
Interim Status Report

Dear Mr. Yansen:

Pursuant to your authorization, we have begun preliminary design activities toward developing the proposed Trout Creek Dam and Reservoir. This is a summary of Preliminary Design Phase work as of January 4, 2010.

TASK 1 – STARTUP

An initial work session was held on-site October 28, 2009. In general, we defined project goals and obtained direction as needed to make initial engineering effort applicable and efficient. Progress was somewhat limited by unavailability of area topographic mapping at that time.

It was determined that the optimum project will not likely be similar to that described in the filing. Therefore, the preliminary engineering scope and sequence are to be modified – as compared to that earlier contemplated.

TASK 2 – SURVEYS

We have received site topography from Gordon; this mapping has been used for the attached preliminary designs.

TASK 3 – DAM CLASSIFICATION

We received downstream cross sections from Gordon. It is recommended that analysis with the State Engineer for the dam classification be completed after review of the predesigned alternatives.

At this time it is our opinion that while a detailed dam breach and hazard classification has not been completed for the proposed dam, it has been observed that there are several residences and county roads adjacent to Trout Creek between the proposed dam location and the downstream confluence with Yampa River. As a result, we believe that the dam will be classified as High Hazard based on the State Engineer's Office Dam Safety Rules. A High Hazard rating has been assumed for this preliminary study.

TASK 4 – PRELIMINARY DESIGN

Introduction

Field analysis resulted in two significant points:

1. The precise dam location described in the filing would not likely be the optimum location; and

2. It was not likely that, using the exact filing location, a resulting reservoir volume in the range of 30,000 acre-ft. could be economically constructed.

It was, therefore, determined that alternative sites/designs should be developed and evaluated. Five alternative plans have been preliminarily designed, and are described following.

These alternatives were primarily developed based on the topography and surface features. Other considerations which could govern alternative selection include geotechnical and yield hydrology.

Since the reservoir is to enhance adjacent residential development, it is assumed that operations will maintain a minimum level for aesthetics and fish. For illustration, minimum pool levels at elevations 6,640 and 6,645 are shown; this can be adjusted based on aesthetic considerations.

Electric Transmission Lines

The three parallel power transmission lines have been determined to represent significant design constraints.

The northern line belongs to WAPA. We have made contact with them and will determine their requirements. The middle line is Xcel Energy, but carries two circuits, one for WAPA. The southern line is relatively new, and is also owned by Xcel Energy.

Assuming a design high water level of 6,161, the clearance as measured in October, 2009, would be as shown in the following Table.

Line	Measured Sag. Elevation	Clearance High Water Line 6,661
Northern – WAPA	6,701	40 ft.
Middle – Xcel Energy/WAPA	6,679	18 ft.
Southern – Xcel	6,692	31 ft.

Information from the initial meeting with Xcel Energy Engineers includes:

- Sag will vary by several feet. He will have to determine lowest elevation (July/August). We cannot assume measured elevation for design purposes.

- Clearances are prescribed by National Electric Safety Code. Reservoirs are categorized by size. Trout Creek will likely be in the greater than 300 surface acre category. If sailboats are permitted, the minimum clearance required will be in the range of 47 ft. (this would mean expensive raising of all 3 lines). If we can assure no sailboats, the minimum clearance will probably be about 20 ft. (17 ft. minimum).

- The east bank towers are all high and remote – construction relatively expensive. The WAPA tower on the west bank looks to have a base elevation of about 6,662. We were advised to contact WAPA regarding protection or modifications needed. The two Xcel towers are at about 6,670 – it would be preferable to keep the water level below these.

- Detailed (1" – 100') topography was furnished to Xcel. They will complete a preliminary evaluation from this mapping.

Conclusions: Probable (interim) conclusions regarding power line constraints for a dam located downstream of the crossing are:

1. Almost mandated that sailboats be excluded from this area.

2. The middle Xcel/WAPA line will have to be raised.

3. The northern and southern lines will likely be satisfactory as is.

Alternative 1 – Drawing 1

The "base" plan located the dam at the decreed axis. The design height should be approximately 73 ft. – which maximizes the reservoir without inundating CR 33 and adjacent upstream properties.

Problems:

- Requires raising middle power line power transmission line.
- Spillway location availability not ideal.
- Need to relocate Peabody Lodge Access Road.

Jurisdictional Height	=	67 ft.
Total Storage	=	9,190 acre-ft.
Active Storage	=	5,650 acre-ft.

Alternative 2A – Drawing 2A

This plan locates the dam above the power line crossings. It probably should only be considered if it is determined that raising the middle line is infeasible.

This should be a fairly efficient reservoir. It is probably the lowest cost of all alternatives studied. The dam height – 61 ft. – does not require acquisition of the residence on Trout Creek at CR 33. Topography affords a good spillway location.

Problems:

- Need to relocate Peabody Lodge Access Road.
- Amend filing to change dam location.

Jurisdictional Height	=	55 ft.
Total Storage	=	6,650 acre-ft.
Active Storage	=	3,910 acre-ft.

Alternative 2B – Drawing 2B

Similar to 2A except dam height is increased 7 ft. The result is an increase in storage and another problem, i.e. the need to acquire the residence site where Trout Creek crosses CR 33. Note that this site is probably already in the 100-yr flood plain.

This alternative represents about the maximum storage that can be achieved without reworking CR 33.

Jurisdictional Height	=	62 ft.
Total Storage	=	8,700 acre-ft.
Active Storage	=	5,980 acre-ft.

Alternative 3A – Drawing 3A

Alternative 3A has been developed to result in what is thought to be the maximum reasonable storage to be attained at the Trout Creek location. This plan locates the dam downstream of the recorded dam location.

Problems:

- Need to acquire additional land for both dam and low frequency spillway.
- Need to raise middle power line and, probably, southern power line.
- Need to build foundation for tower supporting northern power line.
- Probably have to amend filing to relocate dam.
- Relocation of Peabody Lodge Access Road.
- Acquisition of residential site where Trout Creek crosses CR 33.

Jurisdictional Height	=	78 ft.
Total Storage	=	13,140 acre-ft.
Active Storage	-	9,020 acre-ft.

Alternative 3B – Drawing 3B

This alternative has been designed to illustrate the difficulties of trying to develop 30,000 acre-ft. (or near) at the site. This dam is in the same location as Alternative 3A, but has been raised 22 ft.

As shown, the maximum storage would be approximately 24,860 acre-ft. Additional, obvious problems include inundation of the existing Peabody Lodge and the need for reconstructive extensive lengths of CR 33.

Jurisdictional Height	=	100 ft.
Total Storage	=	24,860 acre-ft.
Active Storage	-	20, 850 acre-ft.

TASK 5 – GEOTECHNICAL

NWCC will probably not do test holes and geotech report until a design alternative is selected. This report is to be distributed to Brian Len for his review and opinions which could affect preliminary design or alternative selection.

TASK 6 – BASIN HYDROLOGY

We have started the basin hydrology study relative to spillway design. This will be adjusted after a dam alternative is selected – and the conclusions may change after meeting with the State Engineer.

The draft report is included as Attachment A.

TASK 7 – WETLANDS SURVEY

The Natural Resources Assessment has been completed by ERO, dated November 24, 2009. This is included as Attachment B. The estimated wetlands area to be impacted by the reservoir is higher than expected. ERO will use the larger scale mapping now available to re-estimate wetlands area – probably after the alternatives have been evaluated.

TASK 8 – WATER RIGHTS ISSUES

No work has been started on this Task. We are not aware of any hydrology studies that might have been performed when the storage right was filed.

It is recommended that a hydrological reservoir yield analysis be prepared at this time. We need to verify the usability of storage – before committing to a large reservoir.

SUMMARY

The attached bar chart illustrates the capacities resulting from the six developed alternatives, and the attached table summarizes dam heights, volumes and surface areas for each alternative.

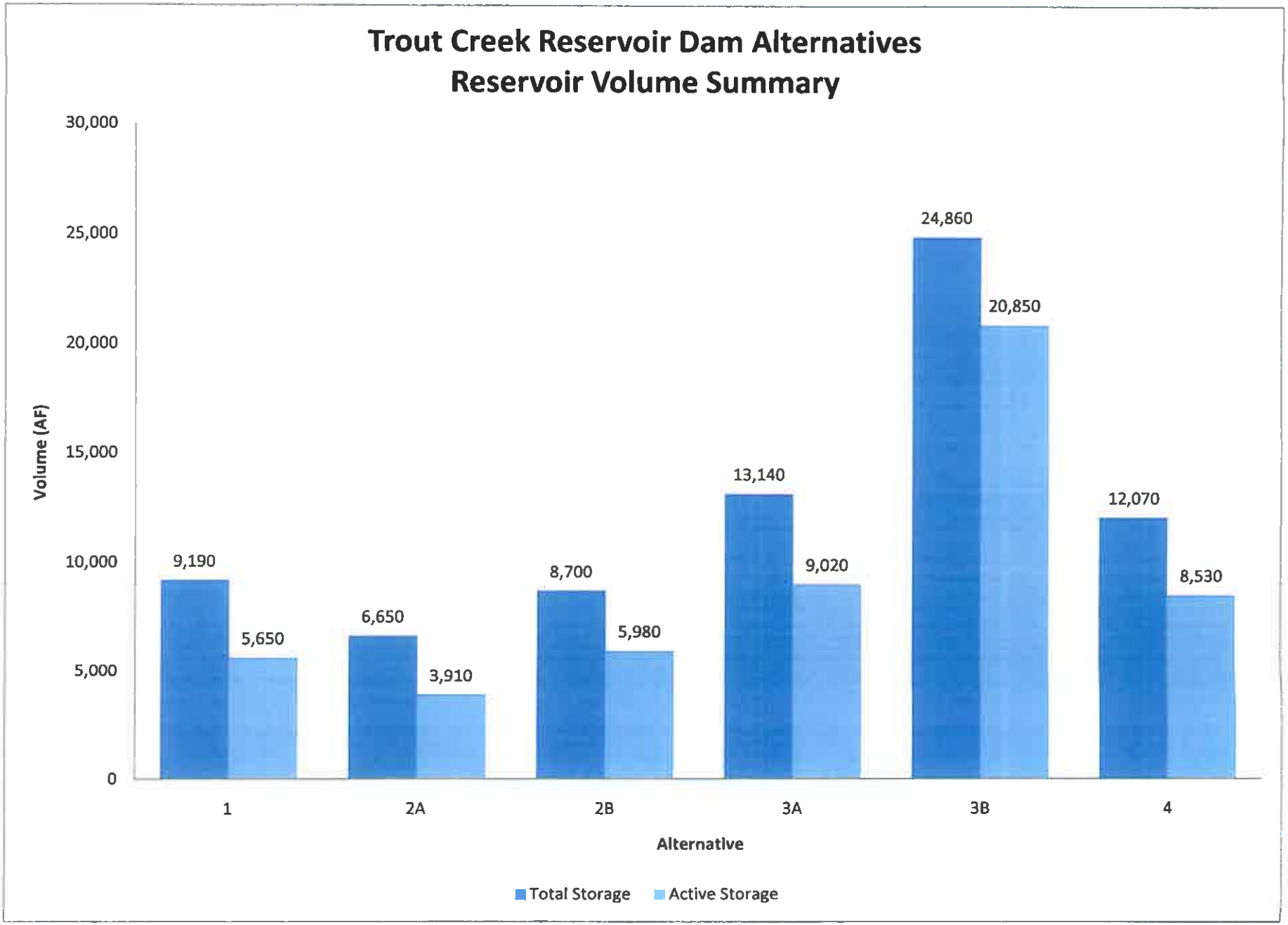
Based on review of the above, Alternative 4 has been developed – see Drawing 4. Alternative 4 probably best approximates the optimum for a location downstream of the power lines. This

assumes that raising/protecting the power lines will involve reasonable cost. The recommended selection, if location is upstream of the power lines is required, would be Alternative 2B.

Respectfully submitted,

Ronald C. McLaughlin, P.E. & L.S.

Aaron K. Asquith, P.E.


Trout Creek Reservoir Dam Alternatives
Reservoir Volume Summary
30,000
25,000
20,000
15,000
10,000
5,000
0
Volume (AF)
9,190
5,650
6,650
3,910
8,700
5,980
13,140
9,020
24,860
20,850
12,070
8,530
1
2A
2B
3A
3B
4
Alternative
Total Storage
Active Storage

Trout Creek Reservoir
Dam Alternatives Summary Table

	Alternative Location 1	Alternative Location 2		Alternative Location 3		Alternative Location 4
	1	2A	2B	3A	3B	4
Description	Recorded Dam Alignment	Upstream of Power Lines		Downstream of Power Lines		Realigned at Recorded Dam Location
Normal High Waterline (ft)	6661	6662	6669	6669	6691	6669
Dam Crest Elevation (ft)	6667	6668	6675	6675	6697	6675
Min. Elevation at Dam Centerline (ft)	6594	6607	6607	6591	6591	6594
Jurisdictional Height (ft)	67	55	62	78	100	75
Crest Width (ft)	23	21	22	25	25	25
Reservoir Surface Areas (Acre)	321	268	300	390	655	369
Reservoir Capacity (AF)	9,190	6,650	8,700	13,140	24,860	12,070
Min. Pool Elevation (ft)	6640	6645	6645	6640	6640	6640
Min. Pool Volume (AF)	3,540	2,740	2,720	4,120	4,010	3,540
Min. Pool Surface Area (Acre)	194	168	168	209	206	193
Active Volume (AF)	5,650	3,910	5,980	9,020	20,850	8,530