

RECLAMATION

Managing Water in the West

Bighorn River System Issues Group

Lovell, Wyoming
January 15, 2009

Assessment Report Condensed Outline

I. Chapter 1: Introduction

A. Purpose of Assessment, Scope, Study Process, Study Participants, Description of the Yellowtail Unit Area

II. Chapter 2: Yellowtail Unit as Planned and Built

A. Description of the Original Unit (*Senate Document 191*)

B. Description of the Unit as Planned

C. Description of the Unit as Built

III. Yellowtail Unit Operation (1967-Present)

IV. Comparison of Past and Present Operations

V. Problems and Needs

VI. Alternatives

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Alternatives

- I. Operations
- II. Flood Storage Reallocation
- III. Reservoir Sediment Management
- IV. River Channel Controls
- V. River Channel Flow Management
- VI. Continual Improvement in Forecasting Tools

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Operations

- I. **Proposed Interim Reservoir Operating Objectives/Target Elevations**
- II. **Fall/Winter Operations Worksheet (GorQ I.)**
- III. **Spring/Summer Rule Curve Worksheet (GorQ II.)**
- IV. **Sharing of Information/Updates**

The interim operation objectives for Yellowtail Dam and Reservoir are:

- I. Statutory/Contractual Commitments
- II. Flood Control
- III. Power Generation
- IV. Bighorn Reservoir Levels
- V. Bighorn River Flows

The interim operation objectives for Yellowtail Dam and Reservoir are:

Statutory/Contractual Commitments: a) Downstream senior irrigation demands require a release of 400-550 cfs to the Bighorn Canal diverted directly from the Afterbay Dam. b) A river release of 1,400 cfs will satisfy senior water rights located along the Bighorn River downstream of the Afterbay Dam, and provide a minimum river flow of 1,000 cfs below the most downstream diversion; c) one storage contract commitment to PP&L for 6,000 acre-feet per year; d) 30,000 acre-feet of storage in Yellowtail Reservoir is allocated to the Northern Cheyenne Tribe.

The interim operation objectives for Yellowtail Dam and Reservoir are:

Flood Control: a) under the authority of the U.S. Army Corps of Engineers (USACE), maintain exclusive flood control storage space (elevations 3640 to 3657) and adequate joint use storage space (elevations 3614 to 3640) by May 1 to control runoff from snowmelt and rainfall events; b) desired flood control releases vary widely depending on downstream conditions on both the Bighorn and Yellowstone Rivers; c) operations are closely coordinated with the USACE for the overall system management of the Missouri River flood control projects located both upstream and downstream of Yellowtail Dam. Yellowtail may be drawn down lower than elevation 3614 at times, in anticipation of heavy snow pack and spring runoff forecasts.

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Power Generation: a) Limit powerplant discharge to a maximum of 4,500 cfs to retain power peaking capability; b) minimize releases that bypass the turbine capacity of 8,000 cfs; c) schedule releases to meet higher seasonal power demands during the hot summer months and the cold winter months; d) maintain a reservoir water surface at or above elevation 3547 to provide the minimum amount of head required to operate the powerplant.

The interim operation objectives for Yellowtail Dam and Reservoir are:

Bighorn Reservoir Levels: a) The National Park Service (NPS) identifies preferred reservoir levels to support recreation in the Bighorn Canyon National Recreation Area. i) During the summer recreation season (between the start of Memorial Day weekend to the end of the Labor Day weekend) the NPS identified a minimum lake level of 3630 and a preferred level of 3640. ii) For the non-summer season the NPS recommends a minimum lake level of 3620. [GA1] Did the NPS have something more definite for “summer recreation season” and “non-summer season”? What months are they talking about? This is very vague.

The interim operation objectives for Yellowtail Dam and Reservoir are:

- Bighorn Reservoir Levels: b) To support the reservoir fishery, the Wyoming Game and Fish (WG&F) recommends: i) for optimal conditions, water surface levels not less than 3620 during January and February and around 3640 during the summer months of June, July and August; ii) for adequate conditions, water surface levels of not less than 3615 during January and February and around 3635 during the summer months of June, July and August; and iii) for minimum conditions a water surface level not less than 3605 during January and February and above 3630 during the summer months of June, July and August.
- c) To support waterfowl, the WG&F recommends the reservoir be maintained at or above elevation 3635 during September and October to provide suitable waterfowl habitat at upper end of reservoir.

The interim Reservoir Target Elevations are:

October: An end of October reservoir elevation of at least 3638 is necessary to meet most fall and winter operational objectives.

March: An end of March reservoir elevation between 3618 and 3620 to meet most spring and summer operational objectives.

July: An end of July reservoir elevation of 3640 (top of conservation pool) is necessary to meet most summer and fall operational objectives.

NOTE: Drought conditions or high flood runoff events may necessitate deviation from these targets. Reservoir operations for purposes of structural integrity, maintenance activities, dam safety investigations or modifications, rapidly changing hydrologic conditions upstream or downstream of the reservoir, and during other emergencies may also require deviations from the above operating objectives and targets .

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Outlook?

- I. Operations
- II. Flood Storage Reallocation
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QUESTIONS & COMMENTS

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