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TECHNICAL MEMORANDUM

TO: Water Development Commission **DATE:** November 19, 2012

FROM: Philip R. Ogle **REFERENCE:** Snake/Salt River Basin Plan Update, 2012

SUBJECT: Industrial Water Use – *Tab III (2012)*

Contents

1.0 Introduction

This memorandum discusses the historic, current and future industrial water use within the Snake/Salt River Basin. Data and discussions from the 2003 Plan (Sunrise Engineering, Inc. 2003) and the associated technical memorandum Basin Water Use Profile – Industrial (Sunrise Engineering, Inc. 2002) were used to describe the historic industrial water use conditions. Current conditions were developed from information obtained through interviews with knowledgeable individuals working and living within the basin and from government documents. The discussion is divided into two sections: Historic and Current Industrial Water Use and Future Industrial Water Use.

2.0 Historic and Current Industrial Water Use

There was little industrial water use reported for the Snake/Salt River Basin in the 2003 Plan (Sunrise Engineering, Inc. 2003). The three industries listed as using water within the basin were Star Valley Cheese Corporation, Northern Foods and Water Star Bottling Company, which were all located in the Salt River Sub-basin. They diverted a combined total of approximately 144 acre-feet of water annually and consumptively used about 48 acre-feet annually. All three of the industries used groundwater supplied through municipal systems. Water use by the Smokey Canyon Mine was also addressed in the 2003 Plan but was not counted as part of the industrial water use in Wyoming since the mine is located in Idaho on tributaries to the Salt River.

Currently, there are no industrial water uses in the basin. The three industries that were listed in the 2003 Plan have closed (Woodward 2012). Smokey Canyon Mine is operating, but this water use is not evaluated as part of this update since the mine is located in Idaho.

Hydropower generation was discussed in the 2003 Plan but was not included as a water consuming industry. There were three hydropower plants listed in the 2003 Plan, including the Swift Creek Plant, Strawberry Creek Plant and the Salt River Plant. At that time, only the

Strawberry Creek Plant was operating with a capacity of 1500 Kilowatts. Currently, the Strawberry Creek Plant is operating as well as two new plants and a refurbished plant, all on Swift Creek. Operation of the new and refurbished facilities on Swift Creek began in 2008, 2009 and 2010. The three generation facilities on Swift Creek produce a combined 1800 Kilowatts. All of these generation plants are operated by Lower Valley Power and Light. The Salt River generating plant is not operating and is not currently operable (Kennington 2012).

Hydropower generation is generally considered a non-consumptive water use, although it may require water storage or diversion from a stream. The two new generation facilities on Swift Creek have bypass flows of five cubic feet per second (cfs) that must remain in the stream. The reactivated plant on Swift Creek does not have a bypass flow requirement because it operates in conjunction with the Town of Afton's water supply system.

3.0 Future Industrial Water Use

Industrial water use is very limited in the Snake/Salt Basin. As reported in the 2003 Plan, there were approximately 48 acre-feet consumed annually in the Basin by three industries (Sunrise Engineering, Inc. 2003). These industries, which were located in the Salt River Sub-basin, have all since closed and industrial water use is currently zero. One hydropower plant was operating in 2003 and there are now four plants running, producing about 3,300 Kilowatts. Hydropower plants do not consume water and return the diverted water to the stream.

There is potential for industrial development to increase in the Basin. Dairies in the Salt River Sub-basin provide milk resources that could supply associated industries. Additionally, potential oil and gas resource development could occur in the Hoback River Drainage of the Greys Hoback River Sub-basin (U.S. Forest Service 2010). However, the Trust for Public Land along with other groups purchased leases from Plains Exploration and Production, which were in the Bridger-Teton National Forest near Bondurant eliminating the potential for oil and gas development in the area (Voge 2013).

Three scenarios for industrial water use have been developed including Low-growth, Mid-growth and High-growth. Assumptions for each of these scenarios are presented below. Results are shown in Figure 1 and presented in Table1. Hydropower production is assumed to remain stable in all three scenarios.

Assumptions for the Low-growth scenario include:

1.) No dairy related industries develop. Industrial water use in Snake/Salt River Basin remains at zero through the planning period.

Assumptions for the Mid-growth scenario include:

1.) Assume one dairy related industry is established in the Salt River Sub-basin in 2014 consuming 24 acre-feet of groundwater per year (24 acre-feet of water was consumptively used annually by Star Valley Cheese in the 2003 Plan).

Assumptions for the High-growth scenario include:

1.) Assume one dairy related industry is established in the Salt River Sub-basin in 2014 consuming 24 acre-feet of groundwater per year.

2.) Also assume a second industry becomes established in the Salt River Sub-basin consuming 16 acre-feet annually (16 acre-feet of water was consumptively used annually by Water Star Bottling in the 2003 Plan). Total industrial groundwater consumption in the Salt River Sub-basin would be 40 acre-feet annually.

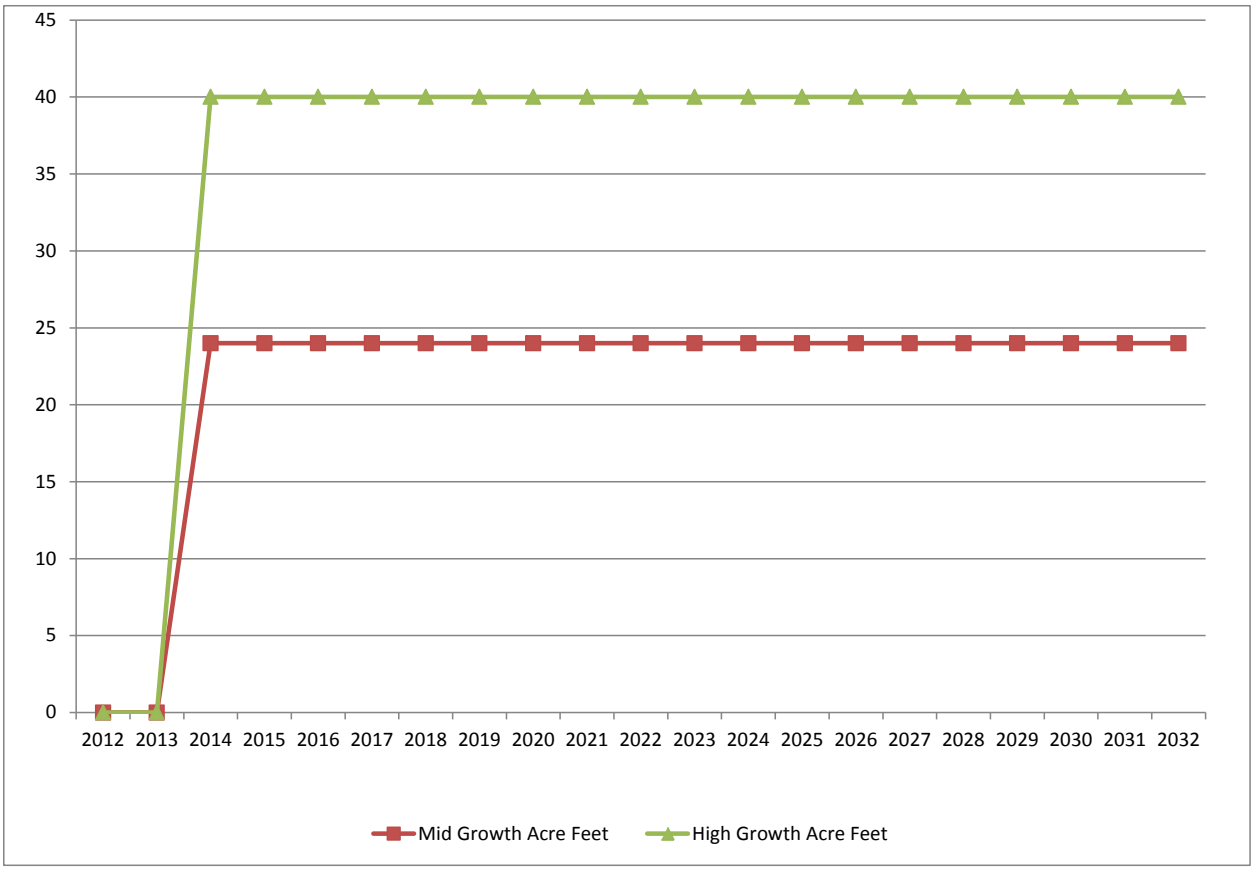

Figure 1. Industrial Groundwater Use Under Mid- and High-Growth Scenarios

Table 1. Industrial Consumptive Water Use by Growth Scenario (Acre-Feet per Year)

Growth Scenario	Years		
	2012	2014	2032
Low-Growth Scenario			
Groundwater			
Industry Development	0	0	0
Surface Water			
Industry Development	0	0	0
Total	**0**	**0**	**0**
Mid-Growth Scenario			
Groundwater			
Industry Development	0	24	24
Surface Water			
Industry Development	0	0	0
Total	**0**	**24**	**24**
High-Growth Scenario			
Groundwater			
Industry Development	0	40	40
Surface Water			
Industry Development	0	0	0
Total	**0**	**40**	**40**

References

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