
TECHNICAL MEMORANDUM

SUBJECT: **Snake/Salt River Basin Plan**
 Basin Water Use Profile - Industrial

PREPARED BY: Sunrise Engineering, Inc.

DATE: May 2, 2002

Introduction:

This memorandum covers the topic of industrial water uses in the Snake/Salt River basin. Compared to other river basins in Wyoming, there is little industrial activity in the Snake/Salt River basin, and the facilities that are present use relatively little water. Some of the industries that are present have origins based in the dairy activity that has been part of the Salt River basin for over a century.

The industries mainly obtain their water from sources covered by surface water rights, however they are actually springs that are considered to be fed by groundwater. Water is supplied to many of the industries through or in conjunction with municipal water systems. The industries and their water sources are:

Food Processing

- a) Star Valley Cheese Corporation – Flat Creek Spring (w/ Town of Thayne)
- b) Northern Foods – Periodic Spring, Swift Creek (from Town of Afton)
- c) Water Star Bottling Company – Periodic Spring, Swift Creek (from Town of Afton)

Mining

- a) Smoky Canyon Mine (located in Idaho)– Groundwater Well, Surface Water Runoff

Appendix A contains summaries of each major industrial use of water in the basin.

Methodology:

Information regarding industrial use of water in the basin was obtained from the individual industrial users. Generally, water use quantities for the various industries were estimates from the

plant managers. Additional data was also obtained from the entities that provide water to these facilities.

Industrial Surface Water Use:

As stated previously, water for these industries is mainly supplied through or in conjunction with municipal water systems. While much of the water use for these municipalities and industries is covered by surface water rights, the water actually comes from springs that are considered groundwater sources. Also, similar to the use of springs for municipal uses discussed in the Municipal Use Technical Memorandum, the quantity of water involved in industrial uses in the basin is quite small when compared to other surface water uses such as irrigation. Due to the negligible impact that industrial water use would have on the surface water modeling, these uses have not been included in the surface water modeling effort.

The Smoky Canyon Mine obtains much of its water from surface water runoff. This water is not diverted from a stream, but the runoff from the mine area is collected in a pond. The water rights associated with this are unknown, as the mining operation and tailings/collection pond is located in Idaho. Were this runoff not collected, it would eventually flow to Tyghee Creek, which is tributary to Stump Creek, which is tributary to Salt River. The surface water that is collected is used in the milling of the phosphate ore, and much is transported out of the Salt River basin in the phosphate ore slurry, which is piped west toward Pocatello, Idaho. While this is not out of the Snake River basin overall, the water used in the slurry does not travel to the Salt River. There are no interstate compacts on the streams that flow past the Idaho border into the Salt River drainage.

Industrial Groundwater Use:

The Northern Foods plant and the Water Star Bottling Company obtain their water directly from the Town of Afton municipal system, which is supplied by springs and wells. The main source for the Town of Afton is the Periodic Spring, which is tributary to Swift Creek. Northern Foods, whose facility was formerly a cheese processing plant, utilizes water as part of their processing of soy into various products. Water Star Bottling sells bottled water, with added flavors and without, under the Geyser Water label. The Star Valley Cheese Corporation obtains their water from the same spring source as the Town of Thayne, utilizing the same pipeline. Through an agreement between the two entities in 1948, the transmission pipeline was sized to accommodate both the Town and the Cheese Factory. The Star Valley Cheese Corporation manufactures cheese products, mainly using milk from area dairy operations.

The Smoky Canyon Mine also uses a deep well to provide water for its operation. This well is located in Idaho, and is used to supplement the surface water that is used in the mining operation. As stated above in the Surface Water Use section, the groundwater from the well is used in the milling operation as well as the slurry.

According to the records of the State Engineer's Office, there are groundwater wells classified as industrial use in the Snake/Salt River basin. These wells are used for purposes such as concrete ready mix plants, and do not represent a significant use of water on an annual basis. Because of this, data on these industrial groundwater wells will not be included as part of this memo.

Conclusions:

The use of water for industrial purposes is very limited in the Snake/Salt River Basin. Typical industries from other parts of Wyoming such as coal mines, trona mines, and natural gas and oil wells are not found in the basin, and the communities in the basin are relatively small and do not have large industrial facilities. The facilities that do exist are generally related to food processing and production, with most of the use having its roots in the dairy industry. A summary of the industrial water use in the basin is presented in **Table 1**, which compares the larger industrial uses. A summary of each of these users is also included in **Appendix A**.

Appendix A

Industrial Water Summaries

**Snake/Salt River Basin Planning Study
Industrial Summary**

Entity: Star Valley Cheese Corporation

Industry: Cheese Production

Operation: The factory is located in Thayne in Lincoln County. The factory produces approximately 16 million pounds of cheese annually, mainly from milk produced at area dairy farms. There is also a restaurant and gift shop located on site.

Water Supply: The Star Valley Cheese factory is served by a spring that is tributary to Flat Creek, in conjunction with the Town of Thayne.

Water Supply System: Water is transmitted approximately one mile through a 10" pipe from the spring to the factory and the Town of Thayne.

Discharge System: The factory has its own treatment plant, and discharges approximately 120,000 gallons per day to the East Side Canal. Also, approximately 35,000 gallons of whey is produced per day, five days per week, for use as cattle feed or fertilizer.

Estimated Annual Water Use: The average daily water use is approximately 140,000 gallons per day. The rate of water use is fairly constant throughout the year. Assuming a five-day work week, this equates to approximately 36,400,000 gallons per year, or nearly 112 acre feet annually.

Principal Water Rights:

Permit No.	Source	Priority	Amount	Comments
20138	Flat Creek	07/29/1947	1.11 cfs	
20255	Beta Spring	01/08/1949	0.27 cfs	Not Used
20256	Alpha Spring	01/08/1949	0.60 cfs	Not Used

References:

Dana, Frank, Plant Manager, Star Valley Cheese Corporation, telephone interview, various dates.

Forsgren Associates, Thayne Water Supply Level II Study, November 1997.

Snake/Salt River Basin Planning Study Industrial Summary

Entity: Northern Foods

Industry: Soybean Processing

Operation: The factory is located in Afton in Lincoln County. The factory processes soy into various products.

Water Supply: The Northern Foods factory is served by the Afton municipal system.

Water Supply System: Water is supplied to the Town of Afton from the Periodic Spring, tributary to Swift Creek, as well as groundwater wells.

Discharge System: Wastewater is discharged through the Town of Afton sewer system.

Estimated Annual Water Use: The average weekly water use is approximately 150,000 gallons per week. The rate of water use varies throughout the year depending upon supply and demand of soy products. The average weekly use equates to approximately 7,800,000 gallons per year, or nearly 24 acre feet annually.

Principal Water Rights: None

References:

Erickson, Jeff, Plant Worker, Northern Foods, interview, March 15, 2002.

Snake/Salt River Basin Planning Study Industrial Summary

Entity: Water Star Bottling Company

Industry: Bottled Water Production

Operation: The plant is located in Afton in Lincoln County. Water is bottled and sold under the Geysler Water label. Natural and various flavored water products are produced.

Water Supply: The Water Star Bottling factory is served by the Afton municipal system.

Water Supply System: Water is supplied to the Town of Afton from the Periodic Spring, tributary to Swift Creek, as well as groundwater wells.

Discharge System: Wastewater is discharged through the Town of Afton sewer system.

Estimated Annual Water Use: Bottled water production ranges from approximately 150,000 to over 400,000 gallons per quarter. Annual production for 2001 was 1,392,659 gallons. The Town of Afton estimates that approximately 2,700,000 gallons were supplied to the facility in 2001, which would include water for all uses such as production, cleaning, bathrooms, etc.

Principal Water Rights: None

References:

Town of Afton, various records, April 2002.

Snake/Salt River Basin Planning Study Industrial Summary

Entity: Smoky Canyon Mine

Industry: Phosphate production

Operation: The Smoky Canyon Mine is located approximately 10 miles west of Afton in Caribou County, Idaho. The mine is owned by J.R. Simplot Company, and produces approximately 2.7 million tons of phosphate ore per year. The ore is transported through a pipe in a slurry to Pocatello, Idaho.

Water Supply: Water is supplied by surface water collected in a tailings pond and a deep well.

Water Supply System: The mine has a deep well that can produce approximately 1,500 gpm. Also, the mine utilizes a tailings pond that can collect considerable runoff, depending upon the year. During a wet year the well is not used very much, utilizing mainly the collected surface water runoff. Water is used in the mill, which separates waste material from the ore. This water is then sent to the tailings pond, and recycled. Approximately 540 gallons per minute of water is needed for the transport slurry, which is in operation approximately 95% of the time.

Discharge System: Other than the slurry, the mine is a zero discharge facility.

Estimated Annual Water Use: The slurry requires 540 gpm and runs 95% of the time, which results in 283.8 MG annually. Other depletions due to domestic use for workers and seepage and evaporation at the tailings pond is unknown.

Principal Water Rights: Water rights for the mine are in Idaho.

References:

Raymond, Larry, Smoky Canyon Mine, Telephone Interview, April 26, 2002.

**Snake/Salt Basin Plan
Industrial Water Users
Ground Water Sources**

FACILITY	PERMIT NUMBER	WATER RIGHT HOLDER	SOURCE	ANNUAL WATER USE MG
Star Valley Cheese Corporation	20138	Star Valley Cheese Corporation	Flat Creek	36.4
Northern Foods	Various	Town of Afton	Various	7.8
Water Star Bottling Company	Various	Town of Afton	Various	2.7
Smoky Canyon Mine	Out of State	Smoky Canyon Mine	Various	283.8