Water System Evaluation

Mitchell, SD

SPN #14433

SPN & Associates

Water Demand

Water Use Records, Summary from 2004-2015

Average Water Pumped Per Year =	686.2 MG
Average Day Usage =	1.9 MG
Average Per Capita Usage =	124 gpcpd
Max Month =	119.5 MG
Min Month =	35.7 MG

		Annual Average Day		Annual Peak Day	
Year	Population	MGD	gpm	MGD	gpm
Current	15,771	1.94	1,350	4.83	3,370
2040	17,449	2.15	1,490	5.37	3,730

***Future Population was adjusted from Report.**

SPN & Associates

Demand vs B-Y Supply Agreement

City Demand

Current (from 2011-2015 records)

Min. Day = 0.99 MG

Avg. Day = 1.94 MG

Peak Day = 4.83 MG

Future

Avg. Day = 2.15 MG

Peak Day = 5.37 MG

B-Y Contract

Current

Min. Day = 0.50 MG

Contract Amount = 2.65 MG

If 10-mile Additional Plant Line is complete

Contract Amount = 4.32 MG

SPN & Associates

Water Storage

- Elevated storage tanks within the City

Burr Street Tank	300,000 gallons
South Tank	1,000,000 gallons
West Tank	1,500,000 gallons
Total elevated storage	**2,800,000 gallons**

- Shared tank near Tripp

  80% share of 2.82 million gallons (2.25 MG).

- Requirement to meet future demand is estimated to be 3.1 MG
- Future deficit with eliminating Burr Street Tower (3.1 MG -2.5 MG) = 0.6 MG

Water Storage

Noted Deficiencies

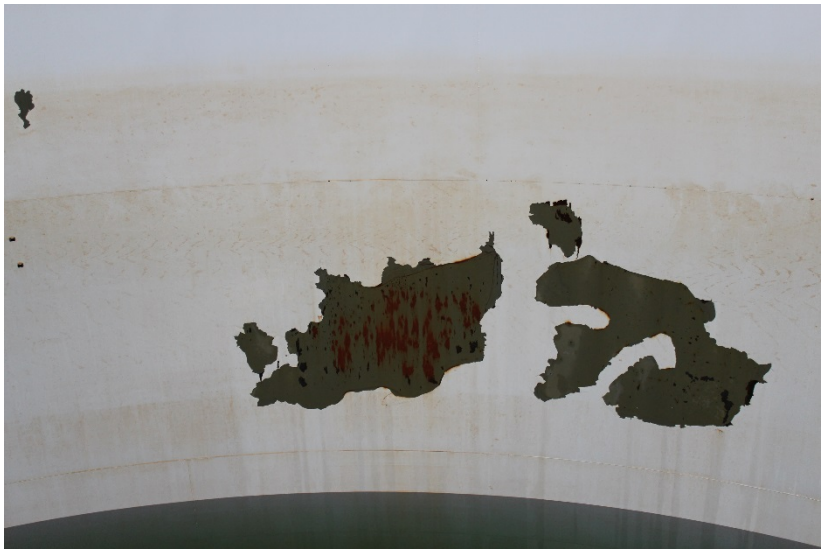
- The 300,000-gallon Burr Street Water Tower is reaching the end of its useful life.
- The exterior on the 1.5 MG West Water Tower should be recoated.
- There is damage to the inside of the South Water Tower.
- The 1.5 MG West Tower currently has no mixing systems.
- Future capacity deficit of 0.6 MG

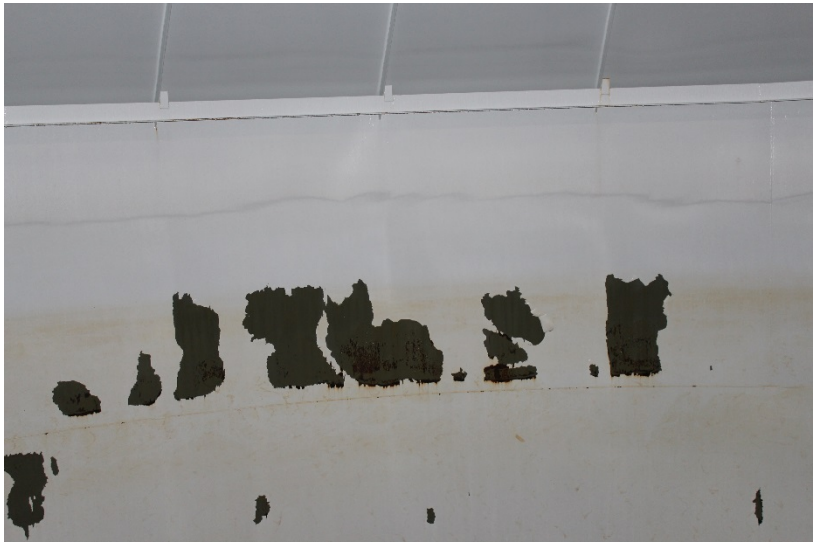
Water Distribution System

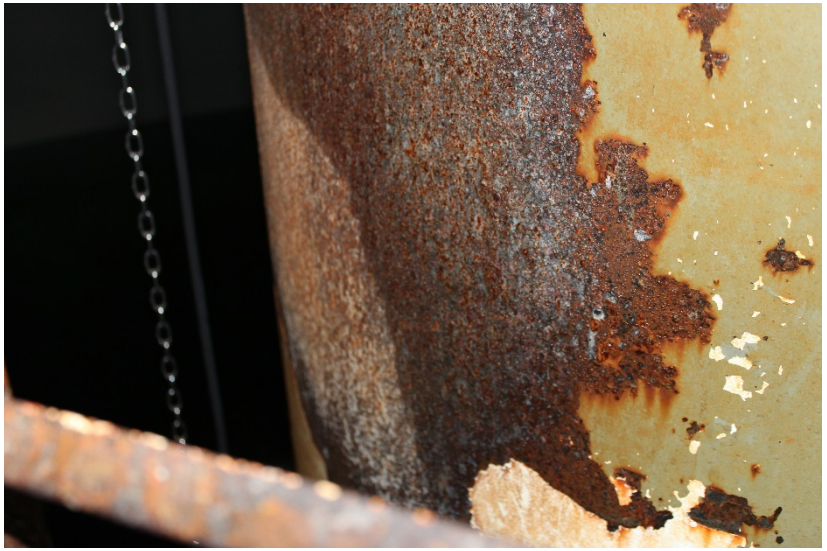
Noted Deficiencies

- Approximately 26 percent of the distribution system piping is composed of CIP or SCP.
- Approximately 10 percent of the distribution system piping is composed of ACP.
- Approximately 166 dead ends.

South Water Tower Damage







Mitchell Water System
Summary of Improvement Options

			Improvement Plan						
	Improvement Options	**Cost**	**2018**	**2019**	**2020**	**2021**	**2022**	**Later**	**No Action**
Water Source Options	Option 2: B-Y Water District Improvements	$6,232,000		$6,232,000					
	Option 3: Abandon WTP	$1,335,500		$1,335,500					
	Option 4: Replacing Existing WTP Equipment	$4,308,600							$4,308,600
	Option 5: Modifications for Membrane Treatment	$5,941,400							$5,941,400
	Option 6: PRV Vault Bypass	$111,450							$111,450
	Option 7: Davison Rural Water Emergency Connection								
Water Storage Options	Option 2: Burr Street Water Tower Removal	$84,540			$84,540				
	Option 3: Burr Street Water Tower Replacement	$1,531,000			$1,531,000				
	Option 4: West Water Tower Recoating	$499,500	$499,500						
	Option 5: West Water Tower Tank Mixers	$122,000	$122,000						
	Option 6: South Water Tower Coating Repair	$50,000	$50,000						
Water Distribution System Options	Option 2: Replacement of CIP and SCP	$37,248,098			$500,000	$500,000	$500,000	$35,748,098	
	Option 3: Replacement of ACP	$16,597,138			$200,000	$200,000	$200,000	$15,997,138	
	Option 4: Looping	$3,135,060						$3,135,060	
	Option 4.1A: West Harmon Drive Looping	$1,096,830						$1,096,830	
	Option 4.2B: Railroad Looping	$1,947,248						$1,947,248	
	Option 5: North Transmission Line	$2,619,766							$2,619,766
	Performance Pets Water Loop	$178,000	$178,000						
	South Sanborn Water Main	$302,932	$302,932						
	North Sanborn Water Main	$802,760		$802,760					
	Walmart to Carl Road Water Main	$372,000			$372,000				
	Mattie Street Phase II	$270,000				$270,000			
	Total Water System Costs		**$1,152,432**	**$8,370,260**	**$2,687,540**	**$970,000**	**$700,000**	**$57,924,374**	**$12,981,216**

Mitchell Water System
Financial Impact from Improvement Options

	Improvement Plan				
	2018	**2019**	**2020**	**2021**	**2022**
Total Cost of Improvements + 3% Inflation	$1,152,432	$8,621,368	$2,851,211	$1,059,945	$787,856
Water Fund Revenue	$2,980,697	$2,994,599	$3,008,500	$3,022,402	$3,036,304
Current O & M Cost - Expenses	$1,731,848	$1,484,773	$1,484,773	$1,484,773	$1,484,773
Short Lived Asset Replacement	$200,000	$200,000	$200,000	$200,000	$200,000
Current Retirement of Debt	$327,858	$388,570	$829,529	$971,114	$1,022,215
Retirement of Debt Incurred with This Project	$60,712.10	$440,959.67	$141,584.22	$51,101.27	$36,877.20
Debt Reserves (10% of Loan Payment)	$32,786	$38,857	$82,953	$97,111	$102,221
Remaining Surplus	$627,494	$441,439	$269,661	$218,303	$190,217
Increase of User Fee					
Number of Accounts	5,800	5,828	5,855	5,882	5,909
Added Revenue	$0	$0	$0	$0	$0
Budget Surplus	$627,494	$441,439	$269,661	$218,303	$190,217
Current Water Fee (5,000 gal user)	$24.00	$24.00	$24.00	$24.00	$24.00
New Water Fee	$24.00	$24.00	$24.00	$24.00	$24.00