WATER SYSTEM EVALUATION

VERDE GLEN WATER COMPANY

GILA COUNTY, ARIZONA

PWS ID # AZ04-04040

February 2024

Prepared for Arizona Department of Environmental Quality

By:

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1. INTRODUCTION

1.1 Purpose & Scope

The Arizona Department of Environmental Quality (ADEQ) retained the services of KUV Consultants, LLC (KUV) to conduct an evaluation of the public water system AZ04-04040, Verde Glen Water Company (VGWC). Through its Capacity Development Program, ADEQ's Drinking Water Section provides funding to approved contractors for technical assistance to public water systems. Particulars regarding this water system are summarized below:

Name of System:	Verde Glen Water Company
Location:	Gila County, Arizona
ADEQ PWS Number:	AZ04-04040
Service Connections:	45
Population Served:	90
Operator of Record	Ben Rowe, Hydrowe-Tech Solutions, LLC Operator ID: OP035543
Administrative Contact:	Hunt Winston
Mailing Address:	Verde Glen Property Owners Association 232 S Conifer Drive, Payson, AZ 85541

The primary objective of the assessment is to identify and prioritize specific improvements that the water system should undertake to ensure a reliable supply of drinking water to its customers in the future. The project also developed a comprehensive Asset Management program for the water utility to adopt.

The findings of this report are based on the following efforts undertaken by KUV Consultants, LLC:

- Meeting held with VGWC on September 28, 2023. Meeting attendees included:
  - VGWC Administrator – Hunt Winston
  - Operator of Record – Ben Rowe, Hydrowe-Tech Solutions, LLC
  - KUV - Kal Raman, P.E.
- Information gathered from site visit on September 28, 2023
- Review of additional information provided by VGWC and ADEQ

1.2 Disclaimers

KUV relied on the information provided to it by VGWC and ADEQ. Under the scope of this project, it was able to independently verify only some of this information. Recommendations made in this report to improve the water system may require additional investigations prior to implementation.

2. WATER SYSTEM INFORMATION

2.1 General

The Verde Glen Water Company (VGWC) is a transient, non-community water system, owned and operated by the Verde Glen Property Owners Association. The water system serves the community of Verde Glen which is located north of the City of Payson as shown on Figure 1. The community was mostly developed in the 1960s and 1970s. It currently has 45 houses, with a total of 55 at buildout.

The schematic layout of the water system is shown on Figure 2. The system consists primarily of one well, two above-ground steel storage tanks, booster pumps, pressure surge tanks, chlorination system and distribution pipes. All the properties within the community are on individual septic systems.

2.2 Source of Water

VGWC relies solely on groundwater as its source of supply. It does not purchase water on a regular basis and it has no emergency interconnection with adjacent water systems.

The system has one active well. A second well has been abandoned.

	Well #1 (55-641886)	Well #2 (55-641887)
Well Active:	Yes	Abandoned
Pumping Capacity (gpm):	12	Not available
Casing Depth (feet):	568	60
Casing Diameter (inches):	8	8
Year Drilled:	1962	1982
Water level:	535	55
Pump Motor Type:	Submersible, 220V	None

Source: https://app.azwater.gov/WellRegistry/SearchWellReg.aspx and VGWC

VGWC has a mobile generator that can power the well pump in the event of an electrical power loss.

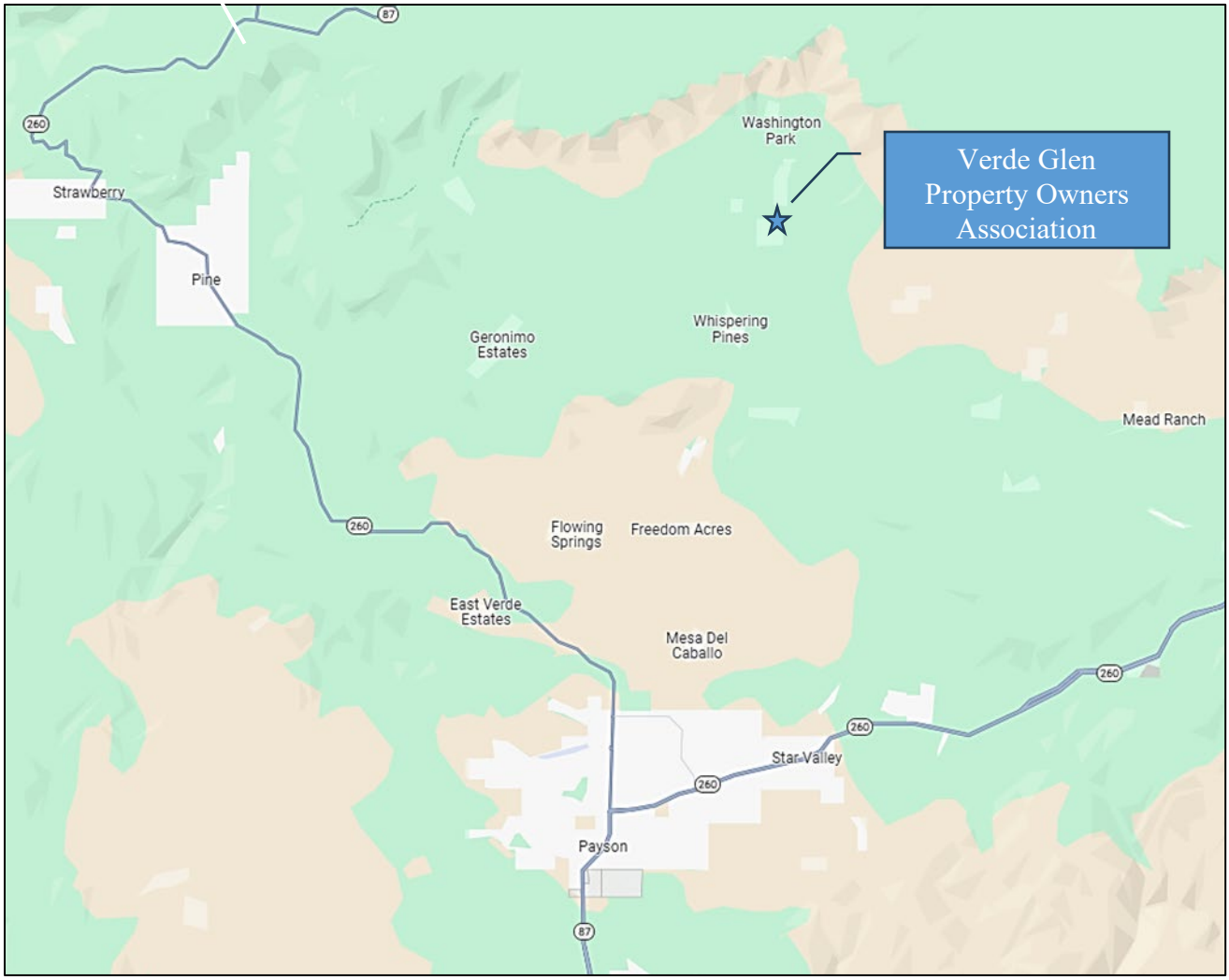

Figure 1
Location of VGWC, Gila County

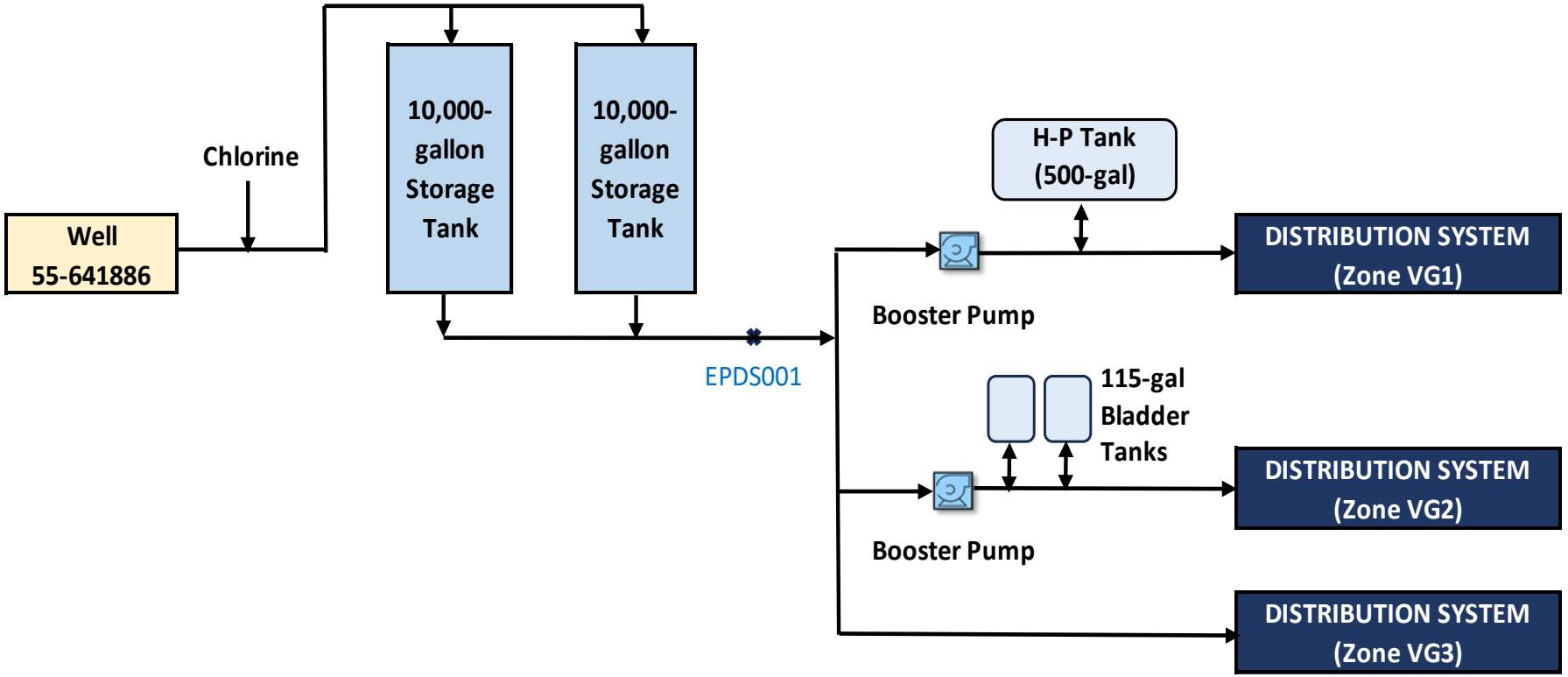

Figure 2
Schematic of VGWC Water System

2.3 Production of Water

There is a flow meter on the well discharge line and three master meters, one for each of the pressure zones. However, all the flow meters appear to be faulty and do not produce reliable data. According to VGWC, a total of 1,164,410 gallons of water was sold between Sept 2022 to August 2023 based on customer meter readings. The average demand, therefore, was approximately 3,200 gallon per day.

2.4 Storage Tank

The system has two above ground steel storage tanks:

Tank	Material	Volume (Gallons)	Year Installed	Receives water from:
Storage Tank #1	Welded Steel	10,000	2002	Well 55-641886
Storage Tank #1	Welded Steel	10,000	2002	Well 55-641886

In addition, VGWC has a 500-gallon hydro-pneumatic tank for the VG1 booster pump and two (2) 115-gallon bladder tanks for the VG2 booster pump.

2.5 Chlorination System

Chlorine is added to the well water before it enters the storage tanks. ANSI/NSF 60 grade sodium hypochlorite (12.5 percent solution) is used for chlorination.

2.6 Booster Pumps

There are two booster pump stations:

Booster Pumps Station	Number of Pumps	Pump Type	Year Installed	Sends water to:
VG1	1	1.5 HP, 1.5-inch galvanized discharge piping, flow meter and pressure Gauge	2007	Pressure Zone VG1
VG2	1	1.5 HP, 1.5-inch galvanized discharge piping, flow meter and pressure Gauge	2014	Pressure Zone VG2

There is a spare pump that is kept in storage that can replace either booster pump.

2.7 Distribution of Water

VGWC maintains basic distribution system maps (shown on Figures 3 to 5). The service area is well defined. The distribution system consists of:

- Three pressure zones
- Pipes that range in sizes from 2-inch to 4-inch ABS plastic, galvanized and schedule 40 PVC
- Three (3) 2-inch isolation valves
- No fire hydrants
- 45 – ¾ inch direct read meters

2.8 Water Quality

The system is currently listed as a transient, non-community water. It reported testing positive for coliform in 2020 and has been chlorinating the water since that time. The water system does not issue an annual Consumer Confidence Report (CCR) to its customers.

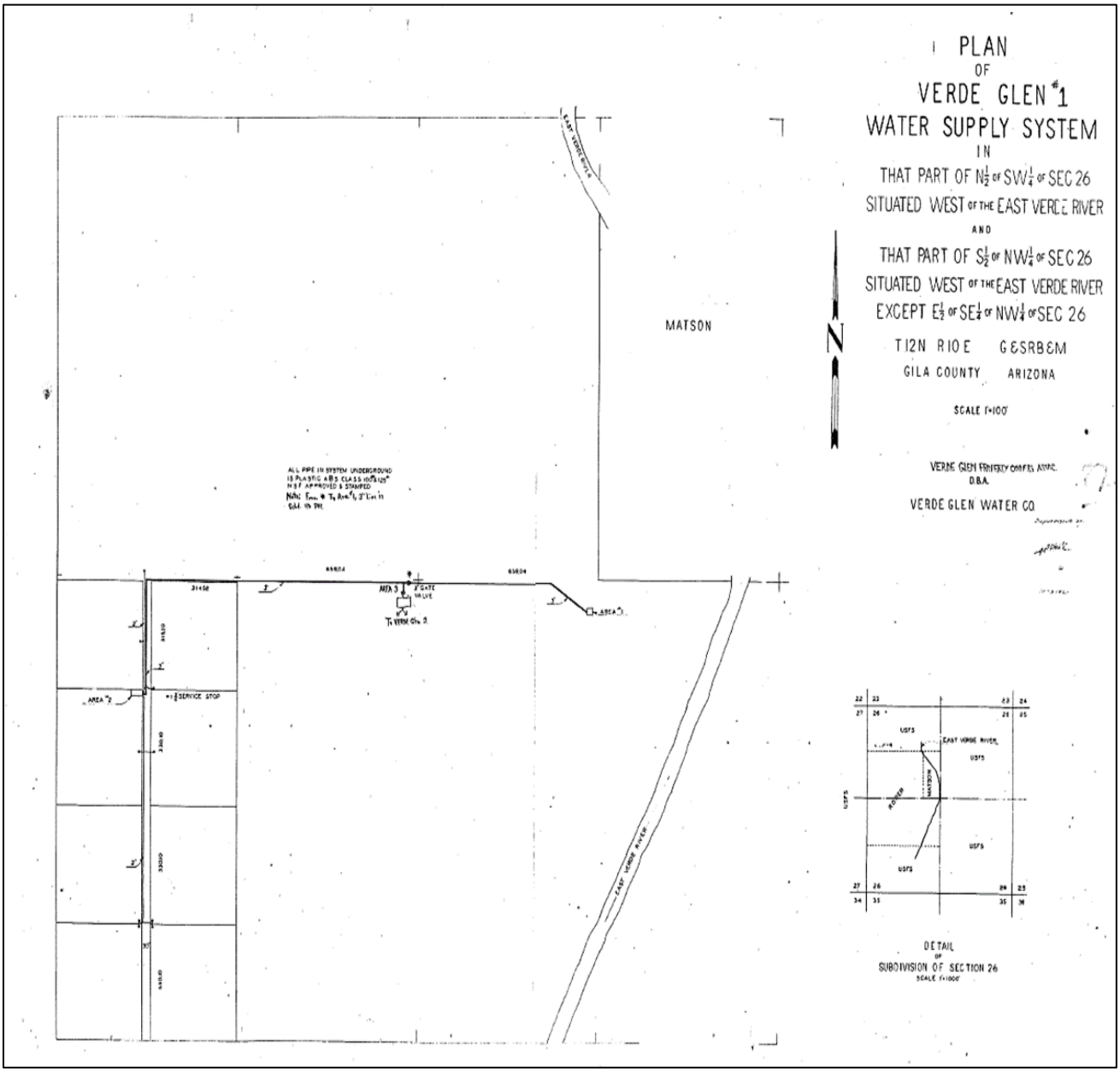

Figure 3
Distribution System Map: Pressure Zone VG1
Source: VGWC

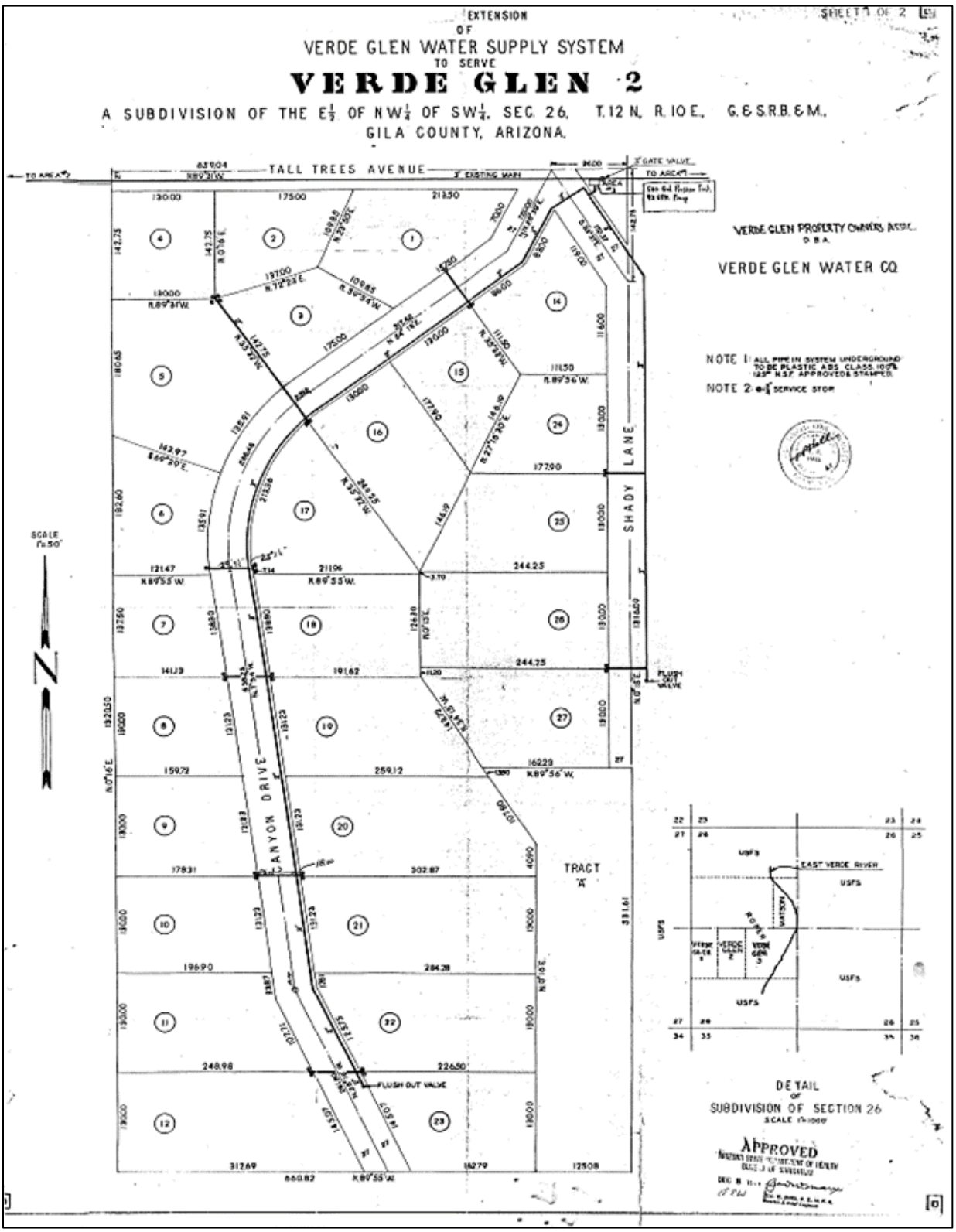

Figure 4
Distribution System Map: Pressure Zone VG2
Source: VGWC

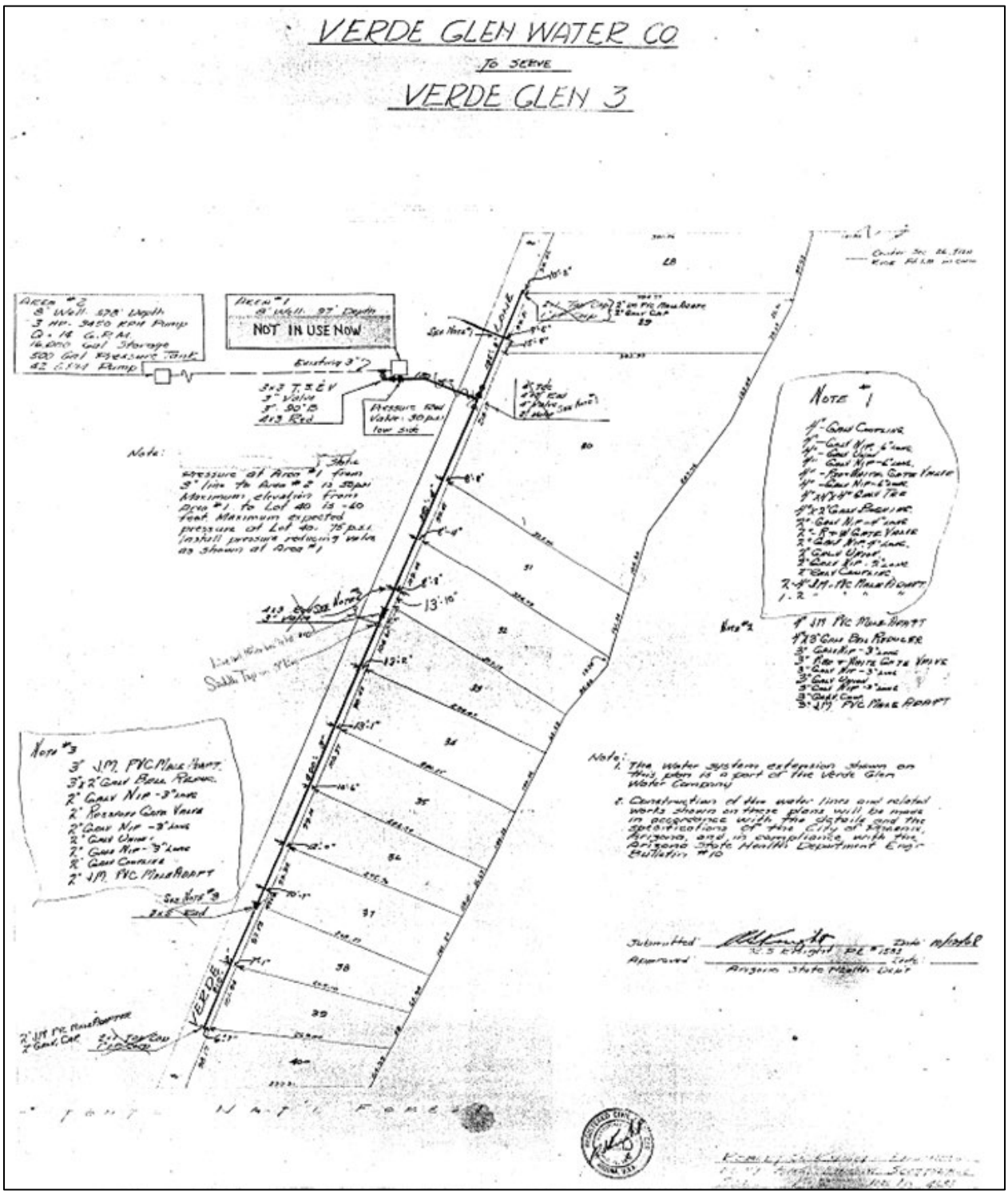

Figure 5
Distribution System Map: Pressure Zone VG3
Source: VGWC

3. ASSESSMENT OF INFRASTRUCTURE

Overall, VGWC's infrastructure appears to be in a condition that does not pose a high risk of imminent failure. However, several improvements are required to ensure the continued reliability and resilience of the water system. The system evaluation questionnaire is presented in **Appendix A**. Photographs taken from the site visit and an assessment of the system are provided below.

3.1 Assessment of Wells



Well #1 (55-641886) - Active


Well #2 (55-641887) - Abandoned

Well #1 (55-641886) is the only active well in production. The water supply from this well is reported to be reliable, both in terms of capacity and quality. The well is not in floodplain.

The well pumps into the two 10,000 gallon storage tanks. In 2015, VGWC inspected the well, replaced seven sections of the well casing pipe, installed a new pump and flowmeter and upgraded the electrical system. The pump and motor were replaced again in 2022 due to equipment failure.

Well #1 works off the water level in the storage tank through telemetry.

Well #2 (55-641887) has been abandoned because it was a poor producer and served only pressure zone VG3. Rehabilitating this well will likely be less beneficial than drilling a new well at the higher elevation (closer to Well#1).

Improvements (or follow-up actions) needed:

- Install Arizona Department of Water Resources (ADWR) well number at Well #1.
- Cap Well #2 to prevent contamination of the aquifer.
- Assess the feasibility of installing a second well to provide redundancy and resilience.

3.2 Assessment of Storage Tank

There are two 10,000-gallon, above-ground steel tanks. The tanks were constructed in 2002 and were refurbished in 2019. They are visually inspected through the roof hatches and are reported to be in good condition with minimal deposits in the bottom. The ladders are fitted with locked security covers. The tanks have operating water level indicators. The required storage capacity for the system is calculated as shown below:

Average demand	3,200 gallons/day	From Section 2.3
Peak summer demand	6,400 gallons/day	Estimated at twice the average demand
Required storage for fire flow	None	
Total storage required for 24 hours	6,400 gallons	
Current storage available	16,000 gallons	Assuming each tank is 80% full. H-P tank is not considered for storage purpose.

There appears to be excess storage capacity in the two tanks, which can adversely impact water quality.

Improvements (or follow-up actions) needed:

- Identify ways to prevent stagnation of water in the tanks. Alternatives may include modifying inlet-outlet piping, installing recirculation pumps inside the tanks, taking one tank off line during low demand months, etc.

3.3 Assessment of Booster Pumps

VG1 Pump & HP Tank


VG1 Pump


VG2 Pump & Bladder Tank


VG2 Pump


VG1 Mastermeter


VG2 Mastermeter

There is one 1.5 HP pump for each of the two pressure zones VG1 and VG2. Each pressure zone has a master meter to measure flow. The pumps work off of pressure switches.

Improvements (or follow-up actions) needed:

- Prepare to replace VG1 pump, which is nearing the end of its useful life.
- Install a second 1.5 HP pump at each pump station to serve as backup.

3.4 Assessment of Pressure Tanks

HP Tank at VG1 Pump House

Bladder Tank at VG2 Pump House

The 500-gallon hydropneumatic (HP) tank was painted and refurbished in 2019. It is equipped with an air compressor and has a sight glass. There appears to be an adequate volume of air in it.

The two 115-gallon bladder tanks were installed in 2019.

Improvements (or follow-up actions) needed:

- Clean the space around the HP tank to allow quick access to the equipment in the event of an emergency.

3.5 Assessment of Chlorination Systems

Chlorination System

The system chlorinates the well water going into the two 10,000-gallon storage tanks with 12.5 percent sodium hypochlorite. The chlorination system consists of a chemical tank, dosing pump and associated piping. The equipment is housed inside VG1 shed. Dosing is flow-paced based on the operation of the well. The facilities are currently inspected once/month and logs of the chlorine residuals are maintained.

Improvements (or follow-up actions) needed:

- None

3.6 Assessment of Electrical & Control Systems

Electrical Controls at VG1

Electrical Controls at VG2

Mobile Emergency Generator stored at VG1

The system has controls in place to allow for automatic startup and shutdown of the well based on the tank level. Pressure switches control the operation of the booster pumps based on the distribution system pressure. There is an audible alarm for low tank level. There is no alarm for loss of booster pumps.

The electrical power supply is reported to be unreliable. The storage tanks have sufficient water to meet about five days of demand. There is a mobile generator that can power the well pump and the booster pumps, one equipment at a time. During power outage, zone VG1 or VG2 will be out of water due to lack of backup generator.

Improvements (or follow-up actions) needed:

- Exercise the generator.
- Install a second generator at VG2 pump station.
- Install alarm for loss of well pump or booster pumps.

3.7 Assessment of Distribution System

Layout of Service Area

Streets are unpaved

ABS plastic pipe likely broken under the weight of vehicle due to inadequate ground cover

The system service area is well defined. There are three pressure zones. The distribution pipes are old, improper material, poorly looped and have inadequate ground cover. Approximately 75 percent of the pipes were installed in the 1970s. Each pressure zone has one isolation valve, which is not routinely exercised. All customers are metered. Meters are read on a quarterly basis. Since the flow meters are not very reliable, it is difficult to estimate the water loss. The water loss is reported to be generally low.

Most piping is ABS plastic or PVC. Some of the pipes at the well, VG1 pumpstation and VG2 pumpstation are made of galvanized iron.

Improvements (or follow-up actions) needed:

- Replace the galvanized, ABS plastic and schedule 40 pipes with approved piping material.
- Provide better looping of the piping network and/or flushing valves on deadends.
- Digitize the distribution system map.
- Exercise the valves.
- Replace customer meters.
- Require customers with private wells to install back-flow prevention devices on their service lines to prevent cross-contamination.

3.8 Assessment of Operation & Maintenance Practices

The contract operator visits facilities twice each month. Some of the pipe repairs and certain specialty services, such as electrical and compliance laboratory analysis, are contracted out. There is no formal maintenance program for the larger assets, such as tanks, well, pumps and distribution pipes.

Improvements (or follow-up action) needed:

- Develop an O&M Manual

3.9 Assessment of Water Quality & Regulatory Compliance

The quality of the water from the well is reported to be relatively stable. The water is chlorinated. VGWC is currently being recategorized as a Community Water System because of the number of year-round residents. The recategorization will require water quality monitoring.

Improvements (or follow-up action) needed:

- Assess the need for additional water quality monitoring as a Community Water System.

4. ASSESSMENT OF SYSTEM MANAGEMENT

4.1 Ownership and Governance

The water system is owned by the Verde Glen Property Owners Association and is operated as a not-for-profit entity. It is managed by a Board of five members elected from property owners within the service area. The Board members meet quarterly and assume overall responsibility for running the water system, including signing contracts, setting water rates and annual budgets, approving payments and negotiating grants and loans.

VGWC is currently pursuing legal measures to convert into a Domestic Water Improvement District (DWID) for better governance of the water system.

4.2 Staffing

VGWC does not have employees. It has contracted Hydrowe-Tech Solutions, LLC for system operation. Their responsibilities include day-to-day facilities operation, compliance sampling, system repairs, meter reading, etc.

4.3 Training and Experience

VGWC is a Grade 1 distribution system. Its Operator of Record is Ben Rowe, Hydrowe-Tech Solutions, LLC. Mr. Rowe has the certification grade required to serve as the Operator of Record for VGWC. His credentials are as follows:

Operator ID	OP035543
City	PAYSON
Name	BENJAMIN ROWE
E-mail	BENJAMINROWE01@GMAIL.COM
Work Phone	(928) 595-0037

Certification	Grade	Effective Date	Expiration Date
Grade 2 Water Distribution	2D	29-DEC-23	30-SEP-26
Grade 1 Water Treatment	1T	29-DEC-23	30-SEP-26

Source: https://legacy.azdeq.gov/databases/opcertsearch_drupal.html

4.4 Customer Relations

Customers are typically kept informed of the water system affairs through mail and telephone calls. Given the small size of the community, communication does not appear to be a challenge.

Customers are given a direct telephone number to contact in the event of an emergency.

4.5 Rules/Policies

VGWC has informal rules and policies to run a water utility. Clear terms and conditions have to be established for receiving water service, customer responsibilities and overall management of the water system.

4.6 Improvements needed:

- Pursue conversion to DWID.
- Establish clear terms and conditions for receiving water service, including shut-off for non-payment of water bill.
- Provide additional training to Board members on issues related to managing a regulated water utility.

5. ASSESSMENT OF FINANCIAL CAPACITY

5.1 Revenue Sufficiency and Credit Worthiness

VGWC reports generating sufficient revenue through the sale of water to meet its financial obligations for day-to-day operation of the system and for carrying out emergency repairs. VGWC does not have any outstanding debt obligation at this time. The revenue, however, is insufficient for building a reserve fund for the long-term repair/replacement of its assets.

The current rates, in effect from 2018, are as follows:

0 - 7500 gallons - $198
7501 - 8500 gallons - $.005 per gallon
8501 - 9500 gallons - $.006 per gallon
above 9500 gallons - $.01 per gallon

Meter reading and billing are done on a quarterly basis. Rates have to be reviewed periodically to keep up with inflation and the true cost of service.

5.2 Fiscal Controls

An annual budget is approved by the Board. The Board also reviews the monthly accounts receivable and payables. It is unclear if the water funds are held in a separate "enterprise" account or co-mingled with other homeowners association funds.

5.3 Improvements needed:

- Establish a "reserve" fund for implementing an Asset Management Plan.
- Conduct a Cost of Service assessment on a regular basis (say, once every three years) to ensure that the rate schedule generates the required revenue. The Rural Community Assistance Corporation (RCAC) can assist small communities with rate studies.
- Ensure that the accounting procedures follow regulatory requirements for a public water system.

6. WATER SYSTEM SECURITY & EMERGENCY PREPAREDNESS

6.1 Assessment of Physical Security

Well #1
(In service)

VG1 Facility
(Booster pump, chlorine system and pressure tank)

VG2 Facility
(Booster pump and bladder tanks)

Well #2
(Abandoned)

The water system has not experienced any security breach at the water sites. The system serves less than 3,300 persons; therefore, it is not required to comply with the requirements of the 2018 America's Water Infrastructure Improvement Act (AWIA).

Well #1 and the two booster pump stations are housed inside sturdy structures. Well #2 is inside an abandoned structure that is in poor condition. None of the facilities have identification signages. The facilities are in densely wooded areas that may be prone to wildfire.

Improvements (or follow-up actions) needed:

- Clear trees and vegetation around the primary facilities to maintain a safe fire zone.
- Ensure the storage tank hatches are securely locked.
- Install signage at all three facilities showing the utility name, address, emergency contact information and the ADWR number of the well.
- Install "No Trespassing" sign on all sides of the structures.
- Tear down the abandoned Well#2 structure.

6.2 Assessment of Cyber Security

The water system does not have SCADA. Its control systems are limited to local hardwired interactions between the well and tank level, and the booster pump and discharge pressure switch. Therefore, cyber-threat is not a concern for the system operation.

The business information, including regulatory filings, customer information, billing information, water quality records, asset maps and drawing, etc., are stored in various individual personal computers belonging to the contractors and Board members. The information should be backed up to a secure location/device.

Improvements (or follow-up actions) needed:

- Ensure all the computers used for storing water system related information have adequate virus protection.
- On a quarterly basis, consolidate all the water system-related information onto a single external hard drive (or to the cloud).
- Store the hard drive in a secure location, such as a bank safe deposit box.

6.3 Assessment of Emergency Preparedness

The system does not have an Emergency Operations Plan (EOP). As a transient, non-community system, VGWC does not require an EOP. If they are reclassed to Community Water System, they will require an EOP.

Improvements (or follow-up actions) needed:

- Develop an EOP.
- Sign on to mutual aid agreements, such as AZWARN (Arizona Water/Wastewater Agency Response Network), to secure external assistance during emergencies.
- Ensure that the legal entity that owns the water system has adequate liability insurance coverage. The coverage should also include the Board members' liability.

7. SYSTEM EVALUATION SUMMARY AND RECOMMENDATIONS

7.1 Assessment Summary

The assessment identified the following improvements that VGWC should consider in order to make its services more dependable.

Item	Improvement
Well	• Install Arizona Department of Water Resources (ADWR) well number at Well #1. • Cap Well #2 to prevent contamination of the aquifer. • Assess the feasibility of installing a second well to provide redundancy and resilience.
Storage Tanks	• Identify ways to prevent stagnation of water in the tanks.
Booster Pump	• Prepare to replace VG1 pump. • Install a second pump at VG1 and VG2.
Hydro-Pneumatic Tank	• Clean the space around the HP tank.
Electrical & Control Systems	• Exercise the emergency generator regularly. • Install alarm for loss of well pump or booster pumps.
Distribution System	• Replace the galvanized, ABS plastic and schedule 40 pipes with approved piping material. • Provide better looping of the piping network and/or flushing valves on deadends. • Digitize the distribution system map. • Exercise the valves. • Replace customer meters. • Require customers with private wells to install back-flow prevention devices on their service lines.

Item	Improvement
System Management	• Develop an O&M Manual. • Assess the need for additional water quality monitoring as a Community Water System. • Pursue conversion to DWID. • Establish clear terms and conditions for receiving water service, including shut-off for non-payment of water bill. • Provide additional training to Board members on issues related to managing a regulated water utility.
Financial Capacity	• Establish a "reserve" fund for implementing an Asset Management Plan. • Conduct Cost of Service assessment on a regular basis. • Ensure that the accounting procedures follow regulatory requirements for a public water system.

Security & Emergency Preparedness	• Site Conditions:
	  ○ Clear trees and vegetation around the primary facilities to maintain a safe fire zone.
	  ○ Ensure the storage tank hatches are securely locked.
	  ○ Install signage at all three facilities showing the utility name and emergency contact information.
	  ○ Install "No Trespassing" sign on all sides of the structures.
	  ○ Tear down the abandoned Well#2 structure.
	• Cyber Security:
	  ○ Ensure all the computers used for storing water system related information have adequate virus protection.
	  ○ On a quarterly basis, consolidate all the water system-related information onto a single external hard drive (or to the cloud).
	  ○ Store the hard drive in a secure location, such as a bank safe deposit box.
	• Emergency Preparedness
	  ○ Develop an EOP.
	  ○ Sign on to mutual aid agreements, such as AZWARN (Arizona Water/Wastewater Agency Response Network), to secure external assistance during emergencies.
	  ○ Ensure that the legal entity that owns the water system has adequate liability insurance coverage. The coverage should also include the Board members' liability.

APPENDIX A
ARIZONA SYSTEM EVALUATION QUESTIONNAIRE

ARIZONA SYSTEM EVALUATION

DATE	9/29/2023	
System PWS Name	Verde Glen Water Company	
System PWS Number	AZ04-04040	
County	Gila	
City Served	Unincorporated community of Verde Glen Property Owners Association	
System Classification	Distribution	Treatment
System Grade	1	N/A
Service Connections	45 (55 at buildout)	
Population Served	90	
Contact Person	Hunt Winston	
Phone Number	928-474-4647	
Fax Number	NA	
Email	hunt@tenwinstons.com	

Mailing Address for Water System
Verde Glen Property Owners Association
232 S Conifer Drive
Payson, AZ 85541

Administration Contact:
Hunt Winston
Verde Glen Property Owners Association
232 S Conifer Drive
Payson, AZ 85541

PART I. WATER SUPPLY

What is your primary source of water? Single well	Ground

PURCHASED WATER

1. Do you purchase water?	NO
2. Do you have a contract to purchase water?	NO
3. Do you keep records on the amount of water that you purchase?	N/A
4. Can you purchase an adequate supply during periods of drought?	N/A
5. Do you have an alternative source of supply?	N/A
6. Do you know the long-term plans of your supplier?	N/A

WATER QUANTITY

1. Are water rights sufficient and secured?	YES
2. Is the quantity of water available from your water source adequate for the next five years? An additional well will provide redundancy and margin of safety	YES
3. Do you know the safe, reliable yield of your source(s)?	NO
4. Do you know how much water you pump on average per day?	YES
4A. Enter the amount:	3,200 gallons/day
5. Do you know your source capacity (including purchased water) in gallons per day (gpd)?	NO
5A. Enter the amount: Well pumps at 12 gallons/min. Safe yield of the well is unknown.	Unknown
6. Is your source capacity greater than your peak daily demand?	YES
7. Were you able to provide adequate volumes of water during any recent droughts?	YES
8. Is there a water conservation plan? If yes, describe in final report. Informal plan	YES
9. Do you have a 10-year growth projection of your service area, customer base, and water demands which is consistent with local land use plans? Informal projections	YES

WATER QUALITY

1. What is the date of your last sanitary survey?	5/3/2021
2. Have you corrected the deficiencies, if any, noted on your last sanitary survey?	YES
3. Has your system had a violation of the National Primary Drinking Water Regulations in the last year?	NO
4. If yes, do you have a plan to ensure compliance?	N/A
5. Do you know who to contact for information on regulatory requirements and drinking water standards?	YES
6. Has a wellhead protection plan been initiated or completed? Wellhead is protected, but there is no formal plan in place.	YES
7. Do you know the provisions for obtaining waivers from monitoring requirements?	YES
8. Do you have a Source Water Assessment and Protection Program (SWAP) plan?	NO

ARIZONA SYSTEM EVALUATION

9. Do you have a SWAP report showing your sources of supply and all existing and potential sources of contamination?	NO
Are the areas that affect your source water free from:	
10. Discharges from human wastewater treatment facilities? The community has no wastewater treatment facility	N/A
11. Agricultural feedlot waste treatment facilities?	YES
12. Golf courses?	YES
13. Corporate or institutional campuses?	YES
14. Industrial, commercial, or agricultural chemicals?	YES
15. Landscaped residential developments?	YES
What distance is the water source from:	
16. A septic tank?	> 100 ft
17. A municipal sewer?	N/A
18. An underground Storage Tank?	N/A
19. A hazardous waste facility?	N/A
Describe in the final report contaminants that may affect the water source.	

PART II. TECHNICAL CAPACITY	
OPERATIONS AND MAINTENANCE	
1. Does the system have an operations and maintenance plan to address site-specific component replacement or repair protocols based on manufacturer's recommendations or engineer's specifications? No formal plan	NO
1A. If yes, when was last update?	
2. Do you have a schedule for maintenance, repair, and rehabilitation of all your facilities? No formal plan	NO
3. Does your system have a certified operator with the correct classification and grade?	YES
3A. Describe in final report, including the operator certification identification number.	
4. Does your operator attend continuing education training sessions?	YES
4A. Describe in final report.	
DISINFECTION	
1. Does the facility disinfect?	YES
1A. If yes, indicate which type.	NaOCL liquid
2. Is the facility chlorinating as required?	YES
3. Is the disinfection compound approved for use?	YES
4. What is the contact time in minutes?	>60 minutes
5. Is there a 'free chlorine residual' daily log? Weekely log	NO
6. Is there adequate chlorine residual? maintained at around 0.5 mg/L	YES
7. Is a chlorine test kit available?	YES
8. Does the facility have a chlorine injection nozzle?	N/A
9. Is the line plugged?	NO
10. Is there a standby chlorinator?	NO
11. Is the required chlorinator installed?	YES
12. Is the chlorine feed tank empty?	NO
13. Is the equipment properly installed?	YES
14. Is the equipment operating properly?	YES

Cl_2 gas	
1. Is the dosing cylinder empty?	N/A
2. Is the room properly vented?	N/A
3. Is the chlorinator subject to freezing?	N/A
4. Is there an inspection window?	N/A
5. Is leak detection available ?	N/A
6. Is a self contained breathing apparatus (SCBA) equipment needed?	N/A
6A. Describe in final report	
STORAGE TANKS / RESERVOIR	
1. Is there a storage tank? Two (2) 10,000-gal above-grade steel tank fed by onsite well	YES
2. Are the storage tanks inspected at least every 3 years? Visually inspected from top of the tank; tanks are reported to be clean with no deposits.	YES
3. Does your storage tank meet all current requirements?	YES
4. Is the storage volume sufficient? Not required to meet fire flow	YES
5. Does the tank need repair?	NO
6. Does the storage tank leak?	NO
7. Has the tank deteriorated beyond repair?	NO
8. Is an overflow pipe installed?	YES
9. Is the overflow pipe properly screened?	YES
10. Is there a splash block below the overflow pipe?	YES
11. Is the hatched sealed? As reported by Operator of Record	YES
12. Is the hatch curb inadequate or missing?	NO
13. Is the hatch secure? As reported by Operator of Record	YES
14. Is the tank vent adequately installed? As reported by Operator of Record	YES
15. Is the vent screened? As reported by Operator of Record	YES
16. Does the tank have a drain valve?	YES
17. Is there a visual water level indicator?	YES
18. Is the water level target operative?	YES
19. Are there openings around the target cable?	NO
20. Is there a tank bedding ring?	YES
21. Is the tank bedding damaged?	NO
22. Are there any holes in the roof?	NO

PRESSURE TANK	
1. Is there a pressure gauge? One (1) 500-gallon hydropneumatic tank; two (2) 115-gal bladder tank	YES
2. Is there a bottom drain valve?	YES
3. Is there a water level sight glass?	YES
4. Do the booster glands leak?	NO
5. Is there a blowoff valve for excess air?	YES
6. Is there excess air?	NO
7. Is there a safety relief valve?	YES
8. Does the system have more than one booster pump? One pump only at each of the two booster pump sites	YES
9. If yes, are the pumps set to operate lead / lag?	NO
10. Are replacement pumps on hand or easily obtainable? One spare pump on hand	YES
11. How often do the pumps cycle on and off during peak demand?	N/A
12. Does the system pressure drop during peak demand?	NO
12A. Describe in final report.	

DISTRIBUTION SYSTEM	
1. Does your system have a cross-connection contol and backflow prevention program?	NO
2. Do cross-connections exist? System has only residential customers; there is one check valve on a private well	Unknown
3. Are there leaks in the system?	YES
4. Do you have a routine leak detection and repair program? Leaks repaired when found	NO
5. Does your system calculate and control water loss? Flow data is not reliable	YES
6. Are the mains at least 3-feet deep? Some sections are only a foot deep and can be damaged by the weight of heavy vehicle	NO
7. Is the system subject to freezing?	YES
8. Is the pipe material approved? 2-inch to 4-inch ABS plastic and schedule 40 PVC	NO
9. Is the water main too close to the sewer main?	N/A
10. Does your system have accurate maps of the distribution system? No digital/GIS map	NO
11. Is your service area clearly defined?	YES
12. Are all customers metered? Meters are read quarterly	YES
13. Are there enough valves to isolate distribution lines to minimize the impact of water outages? Three valves; one for each of the three pressure zones	NO
14. Are mainlines typically looped?	NO
15. If no, are there plans to do so and when? Describe in final report	

FIRE HYDRANTS

ARIZONA SYSTEM EVALUATION

1. Is the system designed to provide fire flow?	NO
1A. If yes, are there sufficient fire hydrants?	N/A
2. How often are fire hydrants flushed?	N/A
3. Are flush valves or hydrants located at the end of branched lines?	N/A
4. Are system mainlines properly sized?	N/A
SPRINGS AND SURFACE WATER SOURCES	
1. Does the spring box or surface water source provide adequate flow during all seasons?	N/A
2. If not, is there an alternate supply available?	N/A
3. Is the spring box properly constructed?	N/A
4. Does the spring box need to be repaired or replaced?	N/A
5. Is the spring box secure?	N/A
6. Is there an overflow pipe?	N/A
7. Is there an overflow pipe screen?	N/A
WELL	
1. Is the well near or in a flood zone?	NO
2. Is the well site properly graded?	YES
3. Is the slab adequate?	YES
4. Is the well casing annulus sealed?	YES
5. Is the well seal / repair adequate?	YES
6. Are there any direct openings into the well?	NO
7. Is the casing at least 12-inches above the slab?	YES
8. Is a well vent installed?	YES
9. Is the well vent installed properly?	YES
10. Is the well vent properly screened?	YES
11. Is the sampling tap properly installed?	YES
PUMPS	
1. Is the vacuum relief valve installed?	N/A
2. Is the vacuum relief valve screened?	N/A
3. Is the vacuum relief valve leaking?	N/A
4. Is the lubricant proper for a lower turbine pump bearing?	N/A
5. Is the required check valve on the pipe properly installed?	N/A

6. Is the check valve defective?	N/A
TREATMENT	
1. Is the water treated?	NO
What type of technology is used for treatment? Describe in final report.	
2. Do you regularly inspect and maintain your treatment facilities such as chemical feed pumps, filters, chlorination equipment, meters and testing equipment?	N/A
3. Are your treatment facilities manned whenever they are operating?	N/A
4. If no, are the plants automated with appropriate alarms and shut-off valves?	N/A
5. Do you keep records of your treatment plant operations including flows, chemicals added, dose rates, time of operation, and water quality performance tests?	N/A
6. Is there a water supply enclosure?	N/A
TURBIDITY	
1. Does the system have continuous turbidity sampling?	N/A
2. Is the required turbidity sampling being performed?	N/A
3. Influent turbidity range:	N/A
4. Effluent turbidity range:	N/A
5. Is the influent turbidity subject to rapid fluctuations?	N/A
6. Is a 4-hour sample taken?	N/A
7. Is there a turbidity log book?	N/A

8. Are turbidity standards kept on-site?	N/A
8A. If no, please explain:	N/A
9. Are the turbidity standards less than 3 years old?	N/A
10. Is the backwash based on reaching 0.5 Nephelometric Turbidity Units (NTU)?	N/A
COAGULATION	
1. Is there coagulant feed equipment?	N/A
2. Is the coagulant feed equipment operable?	N/A
3. Is there polymer feed equipment?	N/A
4. Is the polymer feed equipment operable?	N/A
5. Are the mechanical mixers operable?	N/A
6. Is there adequate coagulant mixing time?	N/A
7. Is the chemical storage and handling adequate?	N/A
8. Is the chemical application safe?	N/A
FLOCCULATION	
1. Are the mechanical mixers adequate?	N/A
2. Are the mechanical mixers operable?	N/A
3. Is the floc visible?	N/A
4. Is a daily jar test performed?	N/A
SEDIMENTATION	
1. Is the sludge removal equipment operable?	N/A
2. Are the weirs short circuiting or not level?	N/A
3. Is there excess sludge on the bottom of the clarifier?	N/A

FILTRATION	
1. Maximum filtration rate (gpsfpm): N/A	
2. Filter on-off cycling/day: N/A	
3. Is filtration by mixed media?	N/A
4. Depth of filter media (inches): N/A	
5. Date since visual check of media (months): N/A	
6. Date since media was exchanged (months): N/A	
FILTER BACKWASH	
1. Is the backwash discharged with the proper National Pollutant Discharge Elimination System (NPDES) permit?	N/A
2. What is the backwash flow rate (gpm or gpsfpm):	N/A
3. Is there capability for filter backwash?	N/A
4. Is the backwash water supply adequate (>200 gal/sf)?	N/A
5. Filter to waste after backwash?	N/A
6. Filter to waste after startup?	N/A
7. Is the backwash based on run time?	N/A
8. Is the backwash based on pressure differential?	N/A
9. Is the filter media depth sufficient?	N/A
LAGOON SYSTEM	
1. Is the lagoon decant properly handled?	N/A
2. Is there excessive vegetation at lagoon water line?	N/A
3. Is the lagoon berm eroding or inadequate?	N/A
4. Is there less than 3 feet of freeboard on the lagoon?	N/A

PART III. MANAGERIAL CAPACITY

MANAGEMENT	
1. Do you have written job descriptions for all positions so that employees know their responsibilities? No employees	N/A
2. Do you have written personnel policies?	N/A
3. Does your system maintain a staffing and organizational chart that indicates reporting relationships of system personnel?	N/A
4. Does your system periodically review its safety programs?	YES
5. Is the individual in charge of the system clearly defined?	YES
6. Does the individual in charge of system operation have other responsibilities unrelated to the water system? Contracted operation	YES
7. If yes, how much time is dedicated to these other responsibilities? Describe in final report.	
8. For systems that contract for system operation or management. Do you have a valid (signed) contract that specifies the contractor's duties and responsibilities related to your system?	YES
9. Are sufficient records keep for compliance and reporting requirements?	YES
10. Is routine maintenance performed? Most maintenance is reactive	NO
11. Is the system frequently out-of-operation?	NO
12. Is the water supply frequently depleted?	NO
13. Are user complaints being received?	YES
14. Did the system begin construction with an Approval to Construct (ATC)?	N/A
15. Is the system operating with an Approval of Construction (AOC)?	NO
16. Does the system have the required 'as-built' drawings?	N/A
17. Does construction conform to the approved plans?	N/A
18. Is the Operations & Maintenance manual available? No formal O&M Manual	NO
19. Does the system have a microbiological site sampling plan?	NO

ARIZONA SYSTEM EVALUATION

OWNERSHIP AND GOVERNANCE		
	Describe in final report your governance structure /ownership (i.e., elected board, council, appointed, sole ownership, other.)	
1.	Is the system a "for profit" or a "not for profit" entity? In the process of converting to a DWID	NOT FOR PROFIT
2.	Does the governing body meet on a regular basis? Quarterly	YES
3.	Is an annual budget prepared and reviewed at board or council meetings?	YES
4.	If applicable, are by-laws, resolutions, and/or ordinances up-to-date?	YES
5.	Do you have a copy of the State documents (charter, Certificate of Public Necessity, license, or permit) that allows you to operate as a public water system?	YES
6.	Are there any special conditions or limitations on your permit to operate as a public water system?	NO
6A.	If yes, describe in final report.	
7.	For systems that use, but do not own, land or facilities that are essential to water system operation: Is there a valid long-term contract (i.e., lease) between your water system and the owner of the land or facilities essential to the operation of your system?	N/A
8.	For systems that have a single owner: Does the system have a contingency plan for continuing operation if the owner becomes incapable of carrying out his/her responsibilities?	N/A
TRAINING AND EXPERIENCE		
1.	Do you know where to obtain ongoing training for system managers?	YES
2.	Does your system manager have experience or training in utility management?	YES
3.	Does your system manager have experience or training in drinking water regulations?	YES
4.	Does your system manager have experience or training in resource management (i.e., personnel, budget, facilities)?	YES
CUSTOMER RELATIONS		
1.	Do you prepare an annual Consumer Confidence Report for your customers on the status of your water system and water quality? Currently "transient" water system	N/A
2.	Does your system strive for quality service and to be responsive to customer needs?	YES
3.	Do you give notice to your customers on proposed policy, rates, and other significant changes?	YES
4.	Do you provide notice to customers of planned water outages or other actions which could disrupt their supply?	YES
5.	Did you submit your consumer confidence report to ALL your customers?	N/A
5A.	If yes, by the due date?	N/A

RULES OR POLICIES	
1. Have you established rules or policies that define the conditions for receiving water service?	YES
2. Have you established rules or policies defining customer responsibilities?	YES
3. Have you established rules or policies defining the management of the system (e.g. setting rates, payments, meters, cross-connection control)?	YES

PART IV. FINANCIAL CAPACITY

REVENUE SUFFICIENCY AND CREDIT WORTHINESS	
1. Do your system's revenues cover expenses?	YES
Does your rate structure produce income to cover:	
1A. Current expenses	YES
1B. Replacement Costs	NO
1C. Reserves	NO
2. Does your system have the ability to repay existing debt? There is no existing debt	N/A
3. Does your system have specific rate and billing procedures for customers?	YES
4. Does your system prepare an annual budget?	YES
5. For this fiscal year, are you on target with budgeted income and expenses?	YES
6. Have you assessed the remaining life of your facility and developed a schedule for its replacement?	NO
7. Does your system prepare a capital budget, or have a reserve account?	NO
8. Does your system have an emergency budget?	NO
FISCAL CONTROLS	
1. Does your system have a long-range financial plan?	NO
2. Do you review your rate structure annually? Not annually, but periodically; last rate change in 2018	NO
Do you use any of the following fiscal controls:	
3. Monthly financial statements	YES
4. Monthly review of financial statements by board, council, or owner	YES
5. Annual audit	YES
6. Written financial policies	NO
7. Rate structure reviewed annually	NO
8. Other fiscal control; _____	NO
9. Are all contractual obligations being met?	YES

PART V. WATER SYSTEM SECURITY

STRUCTURES	
1. Does the system have an **Emergency Operation Plan (EOP)** that has task-specific steps to perform in case of an emergency? No	LAST UPDATE:
1A. Updated and available at water facility?	NO
1B. Complete with current information (name, address, telephone and fax number, and email address of ADEQ and local health department)?	NO
2. Does the documentation include a site-specific **Vulnerability Assessment (VA)**?	Not required
3. Does the site need general clean-up?	NO
4. Is the site properly fenced? There is no fence; most assets are inside buildings	N/A
5. Is the well building damaged?	NO
6. Is the well building secure?	YES
7. Is the security fence damaged?	N/A
8. Is the security fence locked?	N/A
9. Is the state well number posted?	YES
10. Are phone numbers posted?	NO
11. Is each active well and /or surface intake area inspected on an regular schedule?	YES
12. Is watershed adequately patrolled?	YES
13. Are all facilities regularly and thoroughly inspected?	YES
14. Where possible, is every access to water (outside clarifier, clearwell, reservoir, manhole, etc.) locked and/or fenced?	YES
15. Is protection provided to prevent a vehicle from hitting plant or other facilities?	YES
16. Are all stored chemicals protected from vandalism and accidents?	YES
17. Are all existing emergency interconnections to other water supply sources functional and exercised on a regular basis?	N/A
18. Are all treatment plants, storage tanks, pump stations, and other remotely-located facilities connected to a main control station via telemetering, SCADA, or equivalent?	NO
19. Is a backup or exterior connection for electrical power supply provided?	YES
20. Are fire/smoke alarms provided within all structures?	NO
21. Is a finished water chlorine residual low-level alarm provided?	NO
22. Are all buildings (including walls, roof, windows, etc.) constructed to commercial grade standards?	YES

ARIZONA SYSTEM EVALUATION

KEYS	
1. Are distribution and number of keys known and controlled?	YES
2. Are all keys labeled as "DO NOT DUPLICATE"?	NO
3. Are local emergency departments provided with access keys?	NO
4. Are keys always removed from all unattended equipment and locks?	YES
FENCING	
1. Are entire perimeters of treatment plant property, storage tank, and wellhead adequately fenced and gate(s) kept locked?	NO
2. Is all fencing at least 10' high, with inward-facing barbed wire on top, including on entrance gate(s)?	N/A
3. Is all fencing, including gate(s), secure to ground to prevent access under fence?	N/A
4. Is fence at least 6' higher than any structure or landscaping ?	N/A
LIGHTING	
1. Is entire perimeter of the facility illuminated with lighting fixtures?	NO
2. Is entire perimeter of facility illuminated such that all shadows and dark areas are eliminated?	NO
3. Is lighting provided in parking lots, treatment bays, and other areas with limited staffing?	N/A
ENTRANCE DOORS	
Are all:	
1. Built of commercial grade with metal frame construction?	YES
2. Outside hinges hidden/protected from vandalism?	YES
3. Provided with commercial grade, one-sided lock?	YES
4. Provided with push ("panic") bar release on inside of door?	NO
5. Visitor entrances provided with a doorbell?	N/A
6. Doors and locks in good condition?	YES
WINDOWS	
1. Are all the windows (including on doors) covered with metal security mesh?	N/A
2. In case broken or opened, are all windows wired to loud audible alarm and to automatic telephone dialer or central station alarm?	N/A

ARIZONA SYSTEM EVALUATION

FORMS	
1. Are emergency telephone numbers (including County or State, ambulance, police, FBI, spill response) current and prominently displayed at each telephone?	NO
2. Do you have a list of phone numbers of those to call in case of an emergency, plumbers, engineers, health officials?	YES
3. Do you have any emergency contract agreements for your system operates (e.g., emergency water interconnections and alternative sources)?	NO
4. Are Material Safety Data Sheet (MSDS) and chemical response information present for all stored chemicals?	YES
WRITTEN PLANS	
1. Is a chain of command and emergency call list established, updated annually, and prominently displayed? No formal program, but protocols are generally understood	NO
2. Does a written security program plan, which employees are frequently trained in and which is reevaluated periodically, exist?	NO
3. Are all employees trained on how to handle a threat? Written response procedures should be provided and practice drills should be conducted frequently.	N/A
4. Are detection, response, and notification issues discussed with public health officials and a protocol established?	YES
PROCEDURES	
1. Can operational procedure times be varied so as not to reveal working patterns?	YES
2. Is a daily log used and initialed by last person who leaves the plant to verify that all (specific) doors and windows are locked, appliances are off, nightlights are on, and that entrance door is locked and alarm on?	YES
3. Are all employees fully aware of the importance of reporting any unusual entry point or distribution system monitoring result (such as chlorine residual), unusual customer complaint on water quality, or illness among the utilities' customers that may be associated with the water? A log of all such events should be maintained.	YES
4. Is access to computer networks and control systems controlled, and passwords changed frequently?	N/A
5. Is cross training provided between operators ?	N/A
6. Are Memo Of Understanding (MOU's) with other agencies, particularly in regard to emergency response, reviewed and updated periodically?	NO
7. Are security measures discussed with all contractors/subcontractors prior to them working on site?	NO

LAW ENFORCEMENT AGENCIES	
1. Are police departments (daytime and nighttime coverage) familiar with system facilities?	YES
1A. Do police conduct routine patrols of facilities?	YES
1B. Are protocols established for reporting and responding to threats and other emergencies? Protocols should be updated annually.	NO
2. Is staff aware to immediately report any criminal threat, security breach, attack, suspicious behavior, etc. on the water utilities?	YES
3. Are copies of operational procedures and system call list provided to police departments and emergency management personnel?	NO
4. Was a system facilities security survey conducted by the police department?	NO
EMPLOYEES	
1. Does each employee display a personal sealed photo ID at all times?	N/A
2. Are background security checks conducted on employees prior to hiring?	N/A
2A. If yes, are checks conducted periodically on all existing staff?	N/A
3. Upon employee termination, are passcodes changed, and keys, IDs and access cards returned?	N/A
NON-EMPLOYEE ACCESS	
1. Is a policy established for employees to limit/question/scrutinize any visitor, contractor, or stranger in facilities?	YES
2. Are all chemical and other supply deliverers required to show proper identification and to sign-in?	YES
3. Are chemicals inspected prior to allowing on site?	YES
4. Do employees observe delivery personnel during deliveries?	YES
NEIGHBORS	
1. Are important facility telephone numbers given to neighbors of all system facilities?	YES
2. Is an informal "Neighborhood Watch" program established around each system facility?	YES

SIGNATURE BLOCK

Kal Raman — 9/28/2023

Signature of Evaluator — **Date**

KAL RAMAN

Printed Name of Evaluator

[signature] — 9/28/2023

Signature of Owner, Certified Operator or Administration Contact — ***Date***

Hunt Winston

Printed Name of Owner, Certified Operator or Administration Contact