

**Audit Information:**

Utility: Cambria Community Services District

PWS ID: CA4010014

System Type: Potable

Audit Period: Calendar 2017

Utility Representation: Melissa Bland (Analyst), Robert Gresens (Engineer), Jason Buhl (System Supervisor), Stephanie Salvi (Billing)

Validation Date: 9/20/2018

Call Time: 13:30

Sufficient Supporting Documents Provided: Yes

**Validation Findings & Confirmation Statement:**

Key Audit Metrics:

Data Validity Score: 57

Data Validity Band (Level): Band III (51-70)

ILI: 1.16

Real Loss: 23.7 (gal/conn/day)

Apparent Loss: 2.87 (gal/conn/day)

Non-revenue water as percent of cost of operating system: 3.3%

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

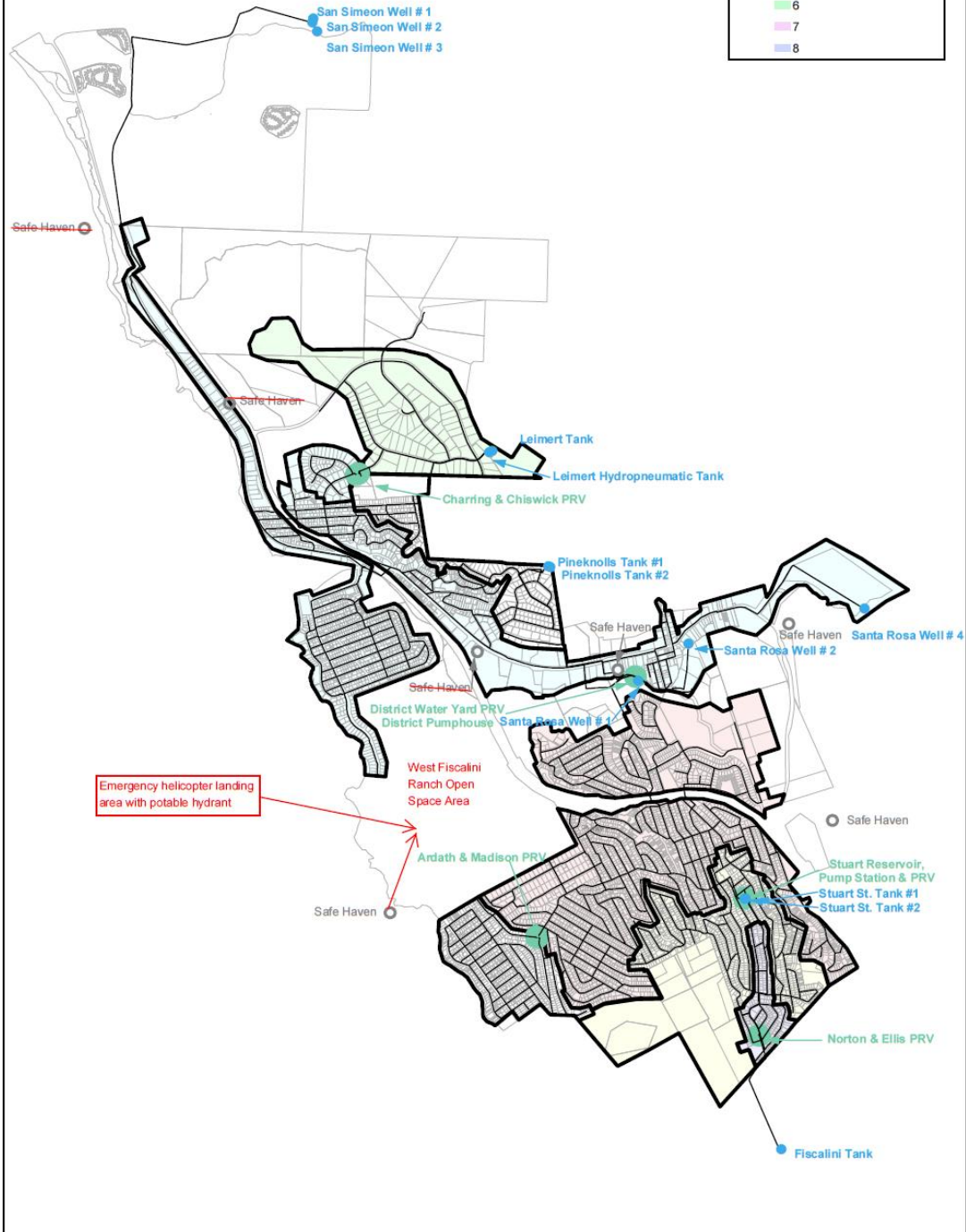
**Validator Information:**

Water Audit Validator: Bryan Chen

Validator Qualifications: AWWA California Water Audit Validator



Legend	
Pressure Zones	Pipes
1	— Existing Pipes
2	
3	
4	
5	
6	
7	
8	



Emergency helicopter landing area with potable hydrant

Revisions by R Gresens for SLO Co.  
 Fire info request, 8-10-2009  
 East-West ranch pipeline not shown  
 across open space from end of  
 Madison to Windsor Blvd.



**Kennedy/Jenks Consultants**  
**Engineers & Scientists**  
 Cambria Community Services District  
 Task 3: Potable Water Distribution System Analysis  
**Existing Potable Water System and Pressure Zones**  
 KJJ 024602.00  
 Figure 4-1

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
1	Volume from Own Sources	VOS	5	<p>Supply meter profile: San Simeon Well (1,2,3), Santa Rosa Well (1,3,4)</p> <p>VOS input derived from: Data is recorded manually daily, monthly hand written data logs.</p> <p>Comments: Testing certificate and manual logs from every well meter supplied in supporting docs. Potable volumes only.</p>	<p>Percent of own supply metered: 100</p> <p>Signal calibration frequency: San Simeon Annual Santa Rosa Annual</p> <p>Volumetric testing frequency: N/A</p> <p>Volumetric testing method: N/A</p> <p>Percent of own supply volumetrically tested: 100</p> <p>Comments: Only 50% of meter testing certificates were submitted.</p>
2	VOS Master Meter & Supply Error Adjustment	VOS MMSEA	2	<p>Input derivation: Left Blank</p> <p>Net storage change included in MMSEA input:</p> <p>Comments: "Detailed records of [MMSEA] are not kept"</p>	<p>Supply meter read frequency: Daily</p> <p>Supply meter read method: Manual, paper log</p> <p>Frequency of data review for trends &amp; anomalies:</p> <p>Storage levels monitoring frequency: SCADA logs exist</p> <p>Comments: Daily log submitted with supplemental docs.</p>
3	Water Imported	WI	n/a	Comments:	
4	WI Master Meter & Supply Error Adjustment	WI MMSEA	n/a	<p>Adjustment Basis:</p> <p>Comments:</p>	
5	Water Exported	WE	n/a	<p>Export meter profile:</p> <p>Comments:</p>	<p>Percent of export supply metered:</p> <p>Signal calibration frequency:</p> <p>Volumetric testing frequency:</p> <p>Volumetric testing method:</p> <p>Percent of export supply volumetrically tested:</p> <p>Comments:</p>

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
6	WE Master Meter & Supply Error Adjustment	WE MMSEA	n/a	Input derivation: Comments:	Export meter read frequency: Export meter read method: Frequency of data review for trends & anomalies: Comments:
7	Billed metered	BMAC	5	Customer meter profile: Age profile: 10-11 years old Reading system: AMR Read frequency: Monthly Comments: All customer meters replaced at same time 10-11 years ago. Individual reading/customer account information exists, not submitted. No testing data.	Percent of customers metered: 100 Small meter testing policy: Upon request or consumption flag Number of small meters tested/year: Large meter testing policy: Upon request or consumption flag Number of large meters tested/year: Meter replacement policy: Upon failure Number of replacements/year: Billing data auditing: Volumes separated by customer type. Annual internal and CPA review Comments: Reactive, sporadic testing
8	Billed unmetered	BUAC	n/a	Profile: All customers metered Comments:	Comments:
9	Unbilled metered	UMAC	7	Profile: The Equestrian Ranch, The Schoolhouse, own facilities Input derivation: Digital monthly log for "The Schoolhouse", Hand written monthly log for "Clyde Warren (Equestrian)", facilities included in monthly reads. Comments: Only partial meter reads submitted, clear policy is explained in "Clyde Warren Diversion Data" doc. Potable volumes only	Policy for billing exemptions: Per 2006 settlement agreement, district provides 20 afy of potable supply to the Equestrian Center, 1.5 afy of potable water to Schoolhouse. Comments:

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
10	Unbilled unmetered	UUAC	5	<p><b>Profile:</b> Fire department and training water usage estimates.</p> <p><b>Comments:</b> CCSD plans to have written procedures for logging usage starting 2019.</p> <p>Default input</p>	<p><b>Comments:</b> Default grade applied</p>
11	Unauthorized consumption	UC	5	<p><b>Comments:</b> Default input</p>	<p><b>Comments:</b> Default grade applied</p>
12	Customer metering inaccuracies	CMI	4	<p><b>Input derivation:</b> Estimated</p> <p><b>Comments:</b> Accuracy test triggered by request and consumption flag, volume is inferred, replacement upon failure.</p> <p>Based on age profile, 2.25% estimated inaccuracy entered</p>	<p><b>Characterization of meter testing:</b> Upon customer request, AMI flag.</p> <p><b>Characterization of meter replacement:</b> Upon failure</p> <p><b>Comments:</b></p>
13	Systematic data handling errors	SDHE	5	<p><b>Comments:</b> Default input</p>	<p><b>Comments:</b> Default grade applied</p>
14	Length of mains	Lm	2	<p><b>Input derivation:</b> Third-party analysis conducted 2004</p> <p><b>Hydrant leads included:</b> Yes, estimated 15 ft per hydrant.</p> <p><b>Comments:</b></p>	<p><b>Mapping format:</b> GIS (Google earth based)</p> <p><b>Asset management database:</b> GIS (Google earth based)</p> <p><b>Map updates &amp; field validation:</b> By work orders.</p> <p><b>Comments:</b></p>
15	Number of service connections	Ns	3	<p><b>Input derivation:</b> Total number of customers reported by utility billing. Not exact match, large development with multiple meters per connection, error is within 3%</p> <p><b>Basis for database query:</b> Number of billed customers</p> <p><b>Comments:</b> 112 customers are on shared service connections</p>	<p><b>CIS updates &amp; field validation:</b> Normal meter reading process</p> <p><b>Estimated error of total count within:</b> 3%</p> <p><b>Comments:</b></p>
16	Ave length of cust. service line	Lp	10	<p><b>Comments:</b> Default input and grade applied, customer meters are typically located at the property boundary.</p>	
17	Average operating pressure	AOP	3	<p><b>Number of zones, general profile:</b> 8 pressure zones according to K-J map legend. 85psi</p> <p><b>Typical pressure range:</b> No range specified</p> <p><b>Input derivation:</b> Average of hydrant pressure</p> <p><b>Comments:</b> No pressure gauging or datalogging equipment</p>	<p><b>Extent of static pressure data collection:</b> Average pressure</p> <p><b>Characterization of real-time pressure data collection:</b> None available</p> <p><b>Hydraulic model:</b> Model exists but is outdated.</p> <p><b>Comments:</b></p>

#	AWWA Water Audit Input	Code	Final DVG	Basis on Input Derivation	Basis on Data Validity Grade
18	Total annual operating cost	TAOC	10	Input derivation: From official financial reports Comments: Cost from water only.	Frequency of internal auditing: Annual (Fiscal Year) Frequency of third-party CPA auditing: Annual (Fiscal Year) Comments:
19	Customer retail unit cost	CRUC	9	Input derivation: Total revenue divided by total billed units, sewer charges included in calculation. Sewer rate based on water use. Comments:	Characterization of calculation: Conservation based pricing as needed. Input calculations have not been reviewed by M36 water loss expert. Comments:
20	Variable production cost	VPC	4	Supply profile: Own sources only Primary costs included: Electric, chemicals Secondary costs included: None currently Comments:	Characterization of calculation: Primary costs only. Input calculations have not been reviewed by M36 water loss expert. Comments:

#### Key Audit Metrics

(~) VALIDITY

Data Validity Score: 57

Data Validity Band (Level): Band III (51-70)

(#) VOLUME

ILI: 1.16      Real Loss: 23.7 (gal/conn/day)

Apparent Loss: 2.87 (gal/conn/day)

(\$) VALUE

Annual Cost of Real Losses: \$44,294

Annual Cost of Apparent Losses: \$77,878

**Water Supplier Name:** Cambria Community Services District    **Water Supplier ID Number:** CA4010014    **Water Audit Period:** Calendar 2017

**Water Audit & Water Loss Improvement Steps:**

Utility to provide steps taken in preceding year to increase data validity, reduce real loss and apparent loss as informed by the annual validated water audit:

The District took steps during 2017, which led to funding a rate study, which was completed during the first half of 2018. To date of this submittal, the District is waiting on the closure of a Proposition 218 rate increase protest period, which will determine whether funds will become available for water loss improvements requiring significant capital investments, such as meter replacements, expansion of its meter testing efforts, as well as associated means to subzone meter to more efficiently locate and respond to leaks (E.g., the major, high-pressure transmission main leak that occurred under a creek during 2017). For this 2017 report, the District opted to use the default unbilled, unmetered percentage provided by the AWWA for California water providers to account for incomplete and inconsistent record keeping in terms of fire training and fire suppression water usage. During 2018, the District plans on implementing more detailed and consistent policies and tracking methods to better account for actual unbilled, unmetered usage. In the meantime, the District's Water Department has also continued to aggressively pursue and repair leaks. Associated with this effort, the Water Department recently obtained a new vacuum excavator, which is significantly improving upon leak repair efficiency.

**Certification Statement by Utility Executive:**

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audit and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

ROBERT C. GRESSENS

Executive Name (Print)

DISTRICT ENGINEER

Executive Position

Robert C. Gressens

Signature

9/25/2018

Date