

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER
SANITARY SURVEY REPORT

Purveyor: **Lompico Water District**

System No. **4410015**

Date of Inspection: **July 29, 2014**

Last Inspection Date: **May 22, 2013**

Person(s) Contacted/Position: **Mike Mathiasen, Lompico CWD; Ricardo Villa, Lompico CWD; Aidan Robinson, Lompico CWD; Mike Legg, SLVWD; James Furtado, SLVWD**

Reviewing Engineer: **Jonathan Weininger**

District Engineer: **Jan Sweigert, P.E.**

A. INTRODUCTION

1. Permit Status

Full Permit: **The California Department of Public Health Drinking Water Program (now, the State Water Resources Control Board – Division of Drinking Water) issued a permit to the Lompico CWD on July 22, 1966 to operate the existing water system.**

Are the permit provisions complied with? **Yes**

Is the permit up to date? **No, The modifications to the Mill Creek surface water treatment plant (SWTP), and the addition of Well 7A and the Lewis WTP, are not properly permitted for domestic water supply use. The Division will issue permit amendments for these facilities.**

2. Changes in System

The District has addressed many of the deficiencies listed in the 2013 Sanitary Survey Report. Since the 2013 Sanitary Survey, the District has had the following changes:

- Lewis Tanks 1 and 2 and Madrone Tanks 1 and 2 were cleaned and repaired by AquaTech May – July 2013
- Implemented a cross connection control program and annual testing of all backflow prevention devices (11/19/2013)
- Added a 70 gpm interconnection to San Lorenzo Valley Water District (2014)
- Raw groundwater (Wells 1, 5, and 7A) was re-piped to include a raw water chlorinator inline prior to the inlet of the Lewis Tank #1,
- Completion of the Mill Creek WTP Operations Plan (1/23/2014)
- Adoption of valve exercising and distribution flushing programs (2/4/2014)
- Kaski #2 and Lewis #2 tanks cleaned (March 2014)
- Mill Creek SWTP – New Hach SC200 controller and 1720e turbidimeter (April 2014)
- Well 7A upgrades – new pump, pump saver, and replacing drop pipe (July 2014)
- Constructed the Lewis Water Treatment Plant (WTP), a groundwater filtration plant designed to remove iron and manganese from Wells 1, 5, and 7A. (May – August 2014)

The District is planning to install SCADA and replace the Kaski and Lewis Tanks in the near future.

3. Consumer and Production Data

Approximate population served: **1,600**

Table 1: Service Connection Summary

Connection Type	No. of Connections	No. Metered
Residential	496	496
Total	496	496 (100%)

Table 2: Production Data (gallons) for Past 10 years (2003-2013)

Year	Max Day	Max Month	Year Total
2013	128,134 (calculated)	2,562,690	25,142,718
2012	96,760	2,904,600	29,784,000
2011	137,160(calculated)	2,834,640	28,397,890
2010	102,800	N/A	28,745,920
2009	77,500	2,366,060	27,404,400
2007	130,000	2,500,000	26,200,000
2006	130,000	2,700,000	33,400,000
2004	139,000	3,220,000	30,700,000

Maximum day from past 10 years: **0.139 MG(2004) or 96 gpm**

B. SOURCE DATA

1. List of Sources

The District has three active groundwater sources and one active surface water source. **Table 3** summarizes the District's sources including each source's capacity from available data.

Table 3: List of Sources

Source	Capacity (gpm)	Comments
Mill Creek Raw	17	Flow rate based upon maximum allotted surface water. Currently, source is not available for most of the year.
Lewis Well 01	11	Well is capable of producing 15 gpm, but has reduced production due to holes in column pipe
Lewis Well 05	18	
Well 7A	18	18-24 gpm
SLVWD Interconnection	70	2000' 6" Diameter HDPE Line
ACTIVE SOURCE CAPACITY	64 gpm (0.092 MGD)	
TOTAL CAPACITY (SOURCES + INTERCONNECTION)	134 gpm (0.193 MGD)	

2. Source Capacity Evaluation

California Code of Regulations (CCR), Section 64554 requires maximum day demand (MDD) shall be met with source capacity. Since the District has less than 1,000 service connections, the District shall

also have storage capacity equal to or greater than MDD, unless it can demonstrate that it has additional source of supply or an emergency source connection that can meet the MDD requirement.

MDD is calculated as the highest observed water demand in the past ten years. Using past annual reports and tabulated in Table 2, MDD was found to be 0.139 MG (2004).

CCR, Section 64554 details water system source capacity requirements. As tabulated in Table 3, The District has an estimated source capacity of 0.193 MGD. The District is able to meet MDD (0.139 MG) with source capacity alone (0.193 MGD).

The District has 0.440 MG of storage capacity, which exceeds the MDD of 0.139 MGD, even under assumptions the tanks are not always full.

Table 4 summarizes The District's source capacity requirements.

Table 4: Summary of Source/Storage Capacity Requirements

Parameter	Required by Regs. (MGD)	Current Capacity (MGD)	Adequate Capacity?
Source Capacity	0.139	0.193	Yes
Storage Capacity	0.139	0.44	Yes

3. Discussion and Appraisal

All District wells were inspected during the sanitary survey inspection. District groundwater sources were found to be in good overall condition.

Well 6 is currently listed as standby in the Division's database. According to the District, Well 6 has a high concentration of hydrogen sulfide, which emits a strong rotten egg odor. The well is located next to a creek and could possibly be under the influence of surface water. The well hasn't been used in years. Due to the proximity to surface water and high concentration of hydrogen sulfide, the District shall only use the source in the event of an emergency. If the source is used, the District shall issue a Division approved public notification to its customers.

4. Drinking Water Source Assessment Program (DWSAP)

The District completed DWSAPs for all active sources in 2002/2003. The District's sources were found to be most vulnerable to nearby septic systems. The Division recommends the DWSAPs be updated if the area surrounding the groundwater sources changes.

C. TREATMENT

1. Chlorination

Type of Disinfectant: **12.5% liquid sodium hypochlorite**

Trade name: **HASA Sani-Chlor**

NSF 60 certified? **Yes**

Target Chlorine Residual: **0.7 mg/L/0.2 mg/L in distribution**

Continuous chlorination is provided at the Mill Creek WTP effluent. The District targets a chlorine residual of 0.7 mg/L at the plant effluent. The District targets a detectable chlorine residual in the distribution system, which is also required as part of the Surface Water Treatment Rule.

Raw water from the three wells is currently dosed with chlorine inline prior to entering Lewis Tank #1. After the completion of the Lewis Water Treatment Plant, chlorine will be applied at the inlet of the plant for oxidation of iron and manganese and dosed so that the plant's discharge always has a detectable chlorine residual.

The Mill Creek WTP chlorinator is housed. An adequate supply of chlorine is stored on site.

Please note that the inspection of the Mill Creek Treatment Plant is summarized in the attachment titled *Surface Water Treatment Plant Evaluation (Membranes)*.

D. STORAGE DATA

Table 5: List of Reservoirs and Available Storage Capacity

Reservoir	Material	Capacity (MG)
Lewis Tank 1	Redwood	100,000
Lewis Tank 2 (upper)	Redwood	100,000
Kaski Tank 1	Redwood	60,000
Kaski Tank 2	Redwood	60,000
Madrone Tank 1	Redwood	60,000
Madrone Tank 2	Redwood	60,000
Mill Creek WTP Clearwell	Bolted Steel	48,000
TOTAL STORAGE		440,000

The District has a total storage capacity of 0.44 million gallons. The District has adequate storage capacity. All operations are manual, however, the District is planning to install SCADA when financially viable. Lewis No. 2 (Upper Lewis) and Kaski Tank 1 are profusely leaking and found to be in very poor overall condition. The Lewis tanks need to be replaced. The Madrone Tanks and Lower Lewis Tank are aging and the Division recommends they also be replaced.

All tanks were found to have roof hatches which may not be water/air tight. Please replace or modify roof hatches to include sealing features which ensure they are water and air tight.

The District inspects each tank very frequently due to the lack of SCADA. As indicated in past Division correspondence, please continue to inspect the tanks at least monthly to check for interior water quality, vent screens, roof debris, quality of roof paint, roof hatch, etc.

E. DISTRIBUTION SYSTEM

1. Pressure Zones

Water is delivered to the distribution system by gravity from reservoirs or boosted into the system from booster stations. The system has at least 5 pressure zones. The pressure leaving the Mill Creek booster pump station is approximately 205 psi. The system has high pressure in the water lines and each service connection has a Pressure Reducing Valve (PRV) to reduce pressure to 50 – 60 PSI. No low pressure complaints.

2. Booster or Reducing Stations

Table 6: List of Booster Stations

Station	No. of Pumps	Size	From	To
Mill Creek Clearwell	1	75 gpm	Mill Creek WTP	Lewis #1 & Distribution
Madrone	1	150 gpm	Lewis #1	Madrone Tanks
Lewis WTP	1	100 gpm	Lewis #1	Lewis #2

Booster stations and pressure reducing stations are all in good overall condition.

3. Mains

A majority of the District's distribution system is PVC. The District does not have an active mainline replacement program, however, the majority of the District's distribution system is in adequate condition. **Table 7** below tabulates the District's mainlines.

Table 7: Mainline Summary

Material	Amount	Size	Condition	Comments
Galvanized Iron	30%	4" – 6"	Older	
C900 PVC	70%	2" – 6"	Good	No leaks

4. Interconnections

San Lorenzo Valley Water District installed a pipeline to Lompico CWD in 2014. The 6" diameter HDPE pipe is 2000 feet long and has a capacity of 70gpm. The pipeline is used during emergencies.

5. Transmission Lines

The District does not have any raw water transmission lines.

6. Leak History

The District documents all leak and leak repairs with service orders. All leaks are repaired in-house.

According to the 2013 Annual Report, the District had 26 service connection breaks/leaks and 2 main breaks/leaks. All service connection breaks/leaks were investigated and repaired. The District has an adequate maintenance program.

7. Recycled Water

The District does not have any recycled water mains within the distribution system.

F. WATER QUALITY AND MONITORING

1. Bacteriological Monitoring

Population: **1,600**

Service Connections: **496**

Distribution Samples: **5/Month**

Source Samples: **1/Quarter – GW; 1/Week - SW**

MCL violations in past year? **No**

Date of last Bacteriological Sample Siting Plan: **August 11, 2011**

CCR Section 64423 details regulations regarding distribution bacteriological monitoring. With 496 service connections and the approved bacteriological sample siting plan, the District is required to collect 5 distribution bacteriological samples per month. Additionally, the District is required to collect quarterly groundwater source and weekly raw surface water samples.

The District has not had any violations of the Total Coliform Rule in the past year and has completed all required source and distribution bacteriological monitoring.

2. Chemical Monitoring

Table 8: Last Source Chemical Monitoring Dates

Source	General Mineral/Physical	Inorganic Chemicals	Nitrate	Nitrite	Radio-activity	VOC	Non-Waived SOCs
<i>Surface Water</i>							
Mill Creek WTP Raw	Apr-14	Apr-14	Jun-14	Apr-14	Mar-11	Apr-14	Apr-14
<i>Groundwater</i>							
Lewis Well 01	Apr-14	Apr-14	Apr-14	Apr-14	Sep-11	Apr-11	Apr-14
Lewis Well 05	Apr-14	Apr-14	Apr-14	Apr-14	Mar-11	Apr-11	Apr-14
Well 6 (Standby)	Aug-11	Dec-11	Oct-13	Mar-12	Mar-11	Aug-11	Scattered
Well 7A	Apr-14	Apr-14	Apr-14	Apr-14	Mar-11	Apr-11	Apr-14

Table 9: Minimum Required Source Monitoring Frequency

Source	General Mineral/Physical	Inorganic Chemicals	Nitrate	Nitrite	Radio-activity	VOC	Non-Waived SOCs
<i>Surface Water</i>							
Mill Creek WTP (Lompico Creek)	12	12	3	12	108	36	36
<i>Groundwater</i>							
Lewis Well 01	36	36	12	36	108	72	36
Lewis Well 05	36	36	12	36	108	72	36
Well 6 (Standby)	108	108	108	108	108	108	108
Well 7A	36	36	12	36	108	72	36

Note: Frequency listed in months

Note: Frequencies may be more stringent than listed above if directed by Division

a) Source Inorganic Chemicals

Requirements: Inorganic chemical monitoring shall be completed for all active groundwater sources triennially and once every nine years for the standby source (Well 6). Mill Creek WTP shall be sampled annually for inorganic chemical monitoring.

Detections: There have been no significant inorganic chemical detections in any of the District sources.

Evaluation: The District shall collect initial hexavalent chromium samples for all sources by January 1, 2015.

b) Source Nitrate/Nitrite

Requirements: The District is required to monitor groundwater sources annually for nitrate and triennially for nitrite. Well 6 (Standby) is required to be monitoring at least once every nine years for both nitrate and nitrite. The raw creek source is required to be monitored quarterly for nitrate and annually for nitrite.

Detections: There have been no significant detections of nitrate or nitrite in the sources.

Evaluation: In compliance.

c) Source Synthetic Organic Chemicals (SOC)

Requirements: District sources are required to be monitored every three years for non-waived SOCs: 2,4 D, Atrazine, Diquat, and Simazine. Standby source, Well 6 is required to be monitored once every 9 years.

Detections: None

Evaluation: In compliance.

d) Source Volatile Organic Chemicals (VOC)

Requirements: VOC's shall be monitored once every six years for active groundwater sources, once every three years for the raw creek source, and once every nine years for the standby well.

Detections: None

Evaluation: In compliance.

e) Source General Physical/General Mineral

Requirements: General physical/general minerals shall be monitored once every three years for active groundwater sources, once annually for the raw creek source, and once every nine years for the standby well.

Detections: Iron and Manganese are above the MCL in Wells 1 and 7A and often in Well 5. The Division sent a letter to the District, dated May 31, 2013 which addressed the iron and MCL exceedances and set a timeline for compliance with the iron and manganese MCLs. The District shall continue to monitor Wells 1, 3, and 7A at least quarterly for iron and manganese.

Color is detected in Well 1 at 3 units, Well 5 at 4 units, and at Well 6 at 50 units. Due to exceeding the color MCL of 15 units. Well 7A shall begin quarterly color monitoring.

Turbidity is detected in Well 1 at 2.3 NTU, Well 5 at 1.6 NTU, Well 6 at 6.4 NTU, and Well 7A at 24 NTU. Due to exceeding the turbidity MCL of 5NTU, Well's 6 and 7A shall begin quarterly turbidity monitoring.

Evaluation: Future source iron, manganese, turbidity, and color monitoring will be included in the permit to operate the Lewis Water Treatment Plant.

f) Source Radiological

Requirements: Initial radiological monitoring has been completed for all sources. All sources are on nine year monitoring for gross alpha.

Detections: None above gross alpha MCL.

Evaluation: All sources are up to date with radiological monitoring.

g) Disinfection By-Product Rule (DBPR) Monitoring

Requirements: Paired TTHM and HAA5 sample sets taken quarterly at 10077 Creekwood Dr. and 12255 Lake Blvd.

Detections: The District was under enforcement for violating the Stage 1 DBPR Total Trihalomethane (TTHM) MCL. Due to decreased usage of surface water, current running annual average values at both sites are less than the TTHM MCL (80 ug/L) and HAA5 (60 ug/L). Table 10 tabulates TTHM and HAA5 samples collected during since the implementation of Stage 2 compliance monitoring.

Table 10: Disinfection By-Product Rule Monitoring

Site	10/22/2013		1/17/2014		4/30/2014		7/30/2014		TTHM RAA	HAA5 RAA
	TTHM	HAA5	TTHM	HAA5	TTHM	HAA5	TTHM	HAA5		
10077 Creekwood Dr.	32.2	6.85	37	13	31	7.5	22	3.6	30.6	7.8
12255 Lake Blvd.	11.6	2.63	4.7	0	6.9	4.4	0.79	0	6.0	1.8

All units in ug/L. RAA = running annual average

Evaluation: Currently, both sites are under both the TTHM and HAA5 MCL. Monitoring is due quarterly according to the approved compliance monitoring plan. Quarterly monitoring shall be collected during the end of the first month of each quarter (October, January, April, and July). Fourth Quarter 2014 monitoring shall be collected at the end of October 2014.

h) Lead and Copper Monitoring

Required Frequency: **Twice per year**

No. Samples Required: **20**

Date Next Due: **Between January 1 and March 31, 2015**

The District has exceeded the copper MCL the past six lead and copper monitoring rounds. The District is currently required to monitor lead and copper twice per year. The next round of lead and copper monitoring is due by March 31, 2015. The Division sent a letter to the District, dated May 31, 2013, requiring a corrosion control study and installation of lead and copper treatment.

Table 11: Lead and Copper Monitoring Results

Date of Monitoring	No. of Samples Required	No. of Samples	90th Percentile Lead (mg/L)	90th Percentile Copper (mg/L)
Sep-14	20	20	0.014	1.8
Mar-14	20	22	0.015	1.38
Sep-13	20	20	0.0078	2.0
Mar-13	20	20	0.013	2.1
Sep-12	20	20	0.011	1.7
Sep-11	10	10	0.0052	2.6

3. Monitoring Data Storage

Are chemical/bacteriological laboratory data stored? **Yes**

Duration of Storage: **Several decades**

Method of Storage: **Hard copies**

G. OPERATOR CERTIFICATION

Minimum Chief Distribution Operator: **D2**

Minimum Shift Distribution Operator: **D1**

Minimum Chief Treatment Operator: **T2**

Minimum Shift Treatment Operator: **T1**

Per CCR, Section 64413.3, water systems are designated their distribution classification based upon population size and other distribution system related factors. As of the 2013 Annual Report, the District has a population of 1,300. The District is classified as a Distribution 2 (D2) system.

The Mill Creek WTP is designated a T2 water treatment facility. The Lewis WTP is designated a T1 water treatment plant.

CCR, Sections 64413.5 through 64413.7 states (a) each water supplier shall designate at least one chief operator that meets the requirements for each treatment and/or distribution system utilized by the water system; (b) Each water supplier shall designate at least one shift operator that meets the requirements for each treatment and/or distribution system each operating shift; (c) The chief operator or shift operator shall be on-site or able to be contacted within one hour.

The District employs four certified operators as shown in the table below:

Table 12: Certified Operators

Name	Title	Distribution	Treatment
Mike Mathiasen	Consultant	D2, exp. 12/2016	T3, exp. 2/2016
Ricardo Bojorquez-Villa	Operator	D1, exp. 6/2017	T1, exp. 1/2015
Michael Dresser	Part Time Operator	D2, exp. 5/2017	T2, exp. 1/2017
Aidan Robinson	Part Time Operator	D1, exp. 5/2017	

The District has adequately certified operators.

H. OPERATION AND MAINTENANCE

Does the utility have up-to-date distribution system maps? **Yes**
Up-to-date copy of system schematic on file? **Yes**

1. Cross-Connection Control Program

No. of Backflow Prevention Devices: **16**

No. Tested in 2013: **0**

No. Failed/No. Replaced: **unknown**

Name of Cross-connection control coordinator(s): **Ricardo Villa**

Does the utility have a Cross- Connection Control Ordinance on file? **Yes, dated 11/19/2013**

Per Title 17, Section §7605 of the California Code of Regulations, all backflow preventers shall be tested at least annually. The District established a backflow testing and cross connection program last year and will have all backflow devices tested in 2014.

2. Customer Complaints

Are all complaints recorded? **Yes**

Are all complaints responded to? **Yes**

Digital/Hard Copy? **Hard Copy**

Table 13 summarizes The District's past five years of customer complaints. All complaints are recorded and are responded to by the District staff.

Table 13: Customer Complaints (2009-2013)

Year	Taste / Odor	Color	Turbidity	Waterborne Illnesses	Pressure (High or Low)	Outages	Total
2013	3	2	0	0	16	0	21
2012	10	2	1	0	24	0	37
2011	1	4	0	0	68	40	113
2010	0	3	0	1	30	0	34
2009	0	9	0	0	34	0	43

The majority of the District's customer complaints are pressure and odor from chlorine off-gassing. The District shall continue to track all customer complaints and report yearly results to the District within the Annual Report. All health related complaints shall be immediately reported to the Division.

3. Auxiliary Power Supply

Auxiliary Power for:

Sources? **No**

Pumping Stations? **No**

Water Treatment Plants? **No**

How frequently is backup power tested? **N/A**

Can system pressure be maintained either by backup power or by storage during power outages of two hours or less? **Yes, by storage**
Backup power automatic or manual start: **N/A**

The District has the capability to rent a backup generator from a local store. The Division recommends the District purchase a generator for the Mill Creek WTP, as funds allow.

4. Valve Maintenance Program

No. of Valves/size: **246**

No. Exercised in 2013: **N/A**

Valve exercising frequency: **N/A**

Have all valves been mapped **N/A**

Is number and location of valves satisfactory (mainline, ARVR, blowoff valves, etc.)? **N/A**

The District sent a valve exercising plan to the Division on February 4, 2014. Per AWWA Standard G200-04, Section 4.2.5.1 on Valve Maintenance, "Critical valves in the distribution system shall be identified for exercising on a regular basis. Potential quality and isolation concerns shall be recognized. The program shall track the annual results and set goals to reduce the percent of inoperable valves."

5. Dead End Flushing

No. of dead ends: **23**

Percent with flushing valves: **?**

No. flushed in 2012: **N/A**

Frequency of flushing: **Annual per dead end flushing plan.**

CCR Section 64600 (c) requires a water system to develop a schedule and procedure for flushing dead end mains. The District sent a dead end flushing plan to the Division on February 4, 2014. The plan includes quarterly dead end flushing. Dead end flushing is currently on hold until drought conditions improve.

6. Operation Controls

All District facilities are controlled manually. The Division recommends the District add SCADA to monitor tank levels, as funds allow.

7. System Security

The District's facilities are all locked and fenced. The District has a good overall system security program.

I. WATER SYSTEM MANAGEMENT

1. Management Structure

Who owns the water system? **Special District**

Current organizational chart on file? **Yes**

Are administrations familiar with the Safe Drinking Water Act? **Yes**

Is information adequately managed? **Yes**

The District is governed by five elected board members. The Board is very active and meets periodically. Mike Mathiasen and Ricardo Villa oversee day-to-day operations.

The District has one full time operator and two part time operators. District consultant, Mike Mathiasen, serves as the chief operator and has filled in as a liaison between the Board of Directors and field staff.

2. Water System Finance

Are adequate reserve funds available to support maintenance and staffing requirements? **No**
Is there a Capital Improvement Plan (CIP)? **Yes**

The District has a capital improvement plan which includes upgrades to the Mill Creek WTP, well upgrades, upgrades to the distribution system, installation of SCADA, and general upgrades.

The District currently exceeds the Copper AL. Additionally, the District needs to replace the leaking and aged redwood tanks. The District does not currently have the financial capacity to complete all the needed upgrades to the system.

3. Reporting

Date of last Annual Report? **May 1, 2014**
Date of last Consumer Confidence Report? **2014**
CCR online? **No**

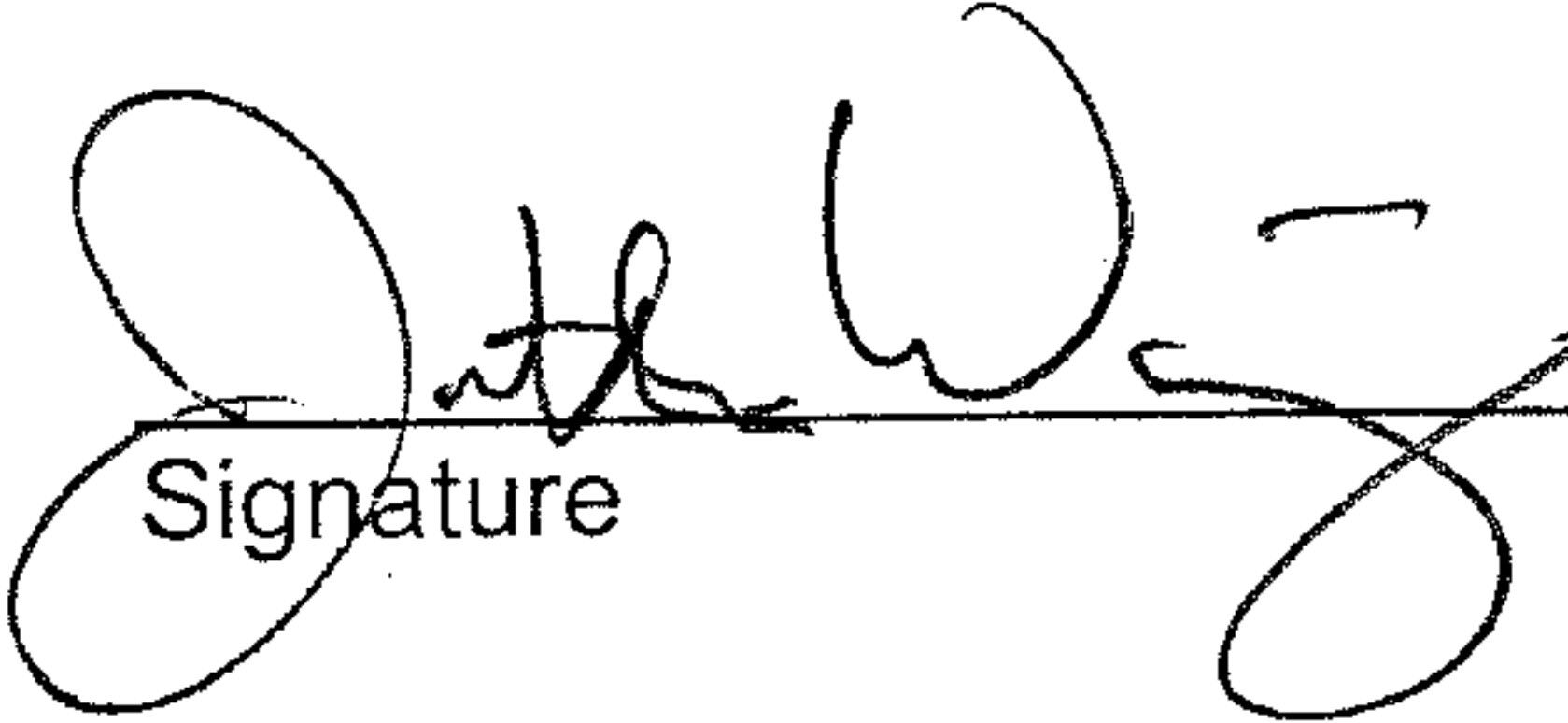
The District has submitted Annual Reports to the Division and CCR certification on time.

4. Emergency Response

Date of most recent Emergency Notification Plan: **2013**
Date of Emergency Response Plan: **N/A**
Tabletop Exercises: **April 2013**

The District has an adequate emergency response plan. The Division recommends the District to conduct periodic tabletop exercises with the emergency response plan.

Report prepared by: Jonathan Weinger


Signature _____ Date **10/20/2014**