

Ouray City Council Work Session  
Monday, November 7, 2022 3:00 PM

Massard Auditorium  
320 6th Ave  
Ouray, CO 81427

## **Agenda**

1. CALL TO ORDER
2. DISCUSSION ITEMS
  - 2.a. 3pm-3:30pm  
Presentation and Discussion on Family and Medical Leave Insurance (FAMLI)
  - 2.b. 3:30pm-5:30pm  
Ouray Hot Springs Geothermal Project Options to Increase Water Temperature and/or Flows

# City of Ouray – OX2 and OX6 Hot Springs Wells

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**WWE**

Wright Water Engineers, Inc.  
November 2022

# History of OX2 and OX6 Wells

## • Construction

- Constructed 34 years ago in 1988.
- Wells completed in a fractured bedrock formation with loose sands and boulders.
- Recent video survey indicates a potential for void spaces, loose sands, and open cavities.
- Historical construction reports indicate both wells encountered a sandy layer during drilling that stopped advancement of the well drilling due to excessive caving.
- Drilling with mud rotary and lost circulation during drilling.

## OX2 Well Construction Report

DATE COMPLETED January 24, 1988

### WELL LOG

From	To	Type and Color of Material	Water Loc.
0	2	Fill	
2	12	Sand, Gravel, and clays	3'
12	20	Clays	
20	60	Boulders, Sand, and Gravel	33'
60	95	Coarse, medium, and fine sands	87'

### HOLE DIAMETER

15.25 in. from 0 to 23 ft.

12.25 in. from 23 to 43 ft.

6.75 in. from 43 to 95 ft.

DRILLING METHOD Rotary - Mud

CASING RECORD: Plain Casing

Size 14" & kind Steel from 0 to 23 ft.

Size 8 5/8 & kind Steel from 0 to 43 ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Perforated Casing - NONE

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

# Historical Trends in OX2 Temperature and Production

- Temperature and water production from OX-2 are trending downward since 2020.
- Hot Springs Pool is having difficulty maintaining pool temperatures.
- Closed Wellhead Pressure
  - Historical Range (2013 to 2015): 3.5 to 9.5 psi
  - 2016: 7 psi
  - 2017: 7 psi
  - 2018: 6 psi
  - 2019: 5.5 psi
  - 2022: 3.5 psi



# Approaches to Address the Issue



- **Rehabilitate or Replace OX2 to Increase Production.**
- **Proposal from Layne – Rehabilitate OX2**
  - Received a proposal and estimate from Layne to rehabilitate OX2 well.
  - Layne is proposing to advance an 8-inch mud rotary boring to a depth of 150 feet.
  - Estimated construction cost – approximately \$315,000.
- **WWE Concerns with Layne’s Current Proposal**
  - Potential for Layne to lose circulation during drilling. Historical reports indicate both wells encountered a sandy layer that stopped advancement of the well drilling due to excessive caving.
  - Proposing to contain drill cuttings/fluids in above ground steel pits for transportation / disposal to City property by Layne. Disposal of this discharge maybe difficult and if discharged to the stream requires a discharge permit.
  - Drilling with mud requires more emphasis on proper development to avoid residual mud from entering the pool or equipment.

# Approaches to Address the Issue



- **WWE Recommendation – Design and Replace OX2 Well**

- Develop a well design that utilizes an ODEX air rotary drilling method which advances casing.
- Air rotary drilling method may be a better approach to maintain the open borehole.
- Allows for completion of a well with stainless steel screen to promote well longevity.
- Given the high cost of rehabilitating the OX-2 well, there does not appear to be any cost benefit of rehabilitating over drilling a new well.

- **Advantages**

- Solicit competitive bids from contractors can help minimize construction costs.
- Contract documents can provide the City with protection in the event the well is defective.
- The size of the new well is not limited by the existing casing at OX-2.
- Drill cuttings from the well are more easily disposed of and reduces the amount of fluids that will need to be disposed of during drilling and well development.
- Observation of the drill cuttings without mud can provide better insight regarding the lithology encountered and field modify the proposed well design to increase probability of a productive well.

# Proposed OX2 and OX6 Heat Exchange System



- **OX2 and OX6 Stepped Injection Testing – September 2021**

- Tested the structural integrity of well OX6 when water injected under pressure to assess the viability of a potential closed-loop heat exchange system.
- Pressure injected water from a hydrant into OX6 at 100, 200, 300, and 400 gpm.
- Monitored pressure and integrity of OX6 and changes in production rate and temperature at OX2.

- **Findings**

- OX6 appears to have the transmitting capacity of the specified flow rates between 100 to 400 gpm with a max pressure increase to approximately 12.75 psi (@ 400 gpm).
- No observed leaks or casing movement at the OX6 well head. Structural integrity appears intact.
- Average OX2 well temperature decreased by 1.23°F from 121.97°F during the test.
- OX2 well production increased from 134 gpm to 230 gpm (@400 gpm) during the test.
- No measurable impact to flow and temperature to Wiesbaden Hot Springs water during or after the stepped injection test performed on OX6.
- Results suggest a closed-loop heat exchange system is feasible.

# Overall Summary and Additional Considerations



- **Summary**

- Temperature and water production from OX2 are trending downward since 2020.
- Current proposal to rehabilitate OX2 uses mud and does not have a history of success.
- WWE can develop well design and construction documents that specifies drilling method to give project a higher chance of success and gives the City contractual protections.
- Heat exchange system between OX2 and OX6 appears feasible.

- **Additional Considerations**

- Hot springs water production from OX wells is limited but heat is available from OX wells through heat exchange.
- If OX wells are used for heat exchange, discharge from the pool is only naturally occurring water from Box Canyon Line. May help pool discharge permit (CDPHE).
- OX6, while stable during the testing, may need rehabilitation or replacement in the future if used as an injection well long term. Ongoing monitoring of OX6 is recommended.

# Questions?



**Thank You!**

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**WWWE**

Wright Water Engineers, Inc.

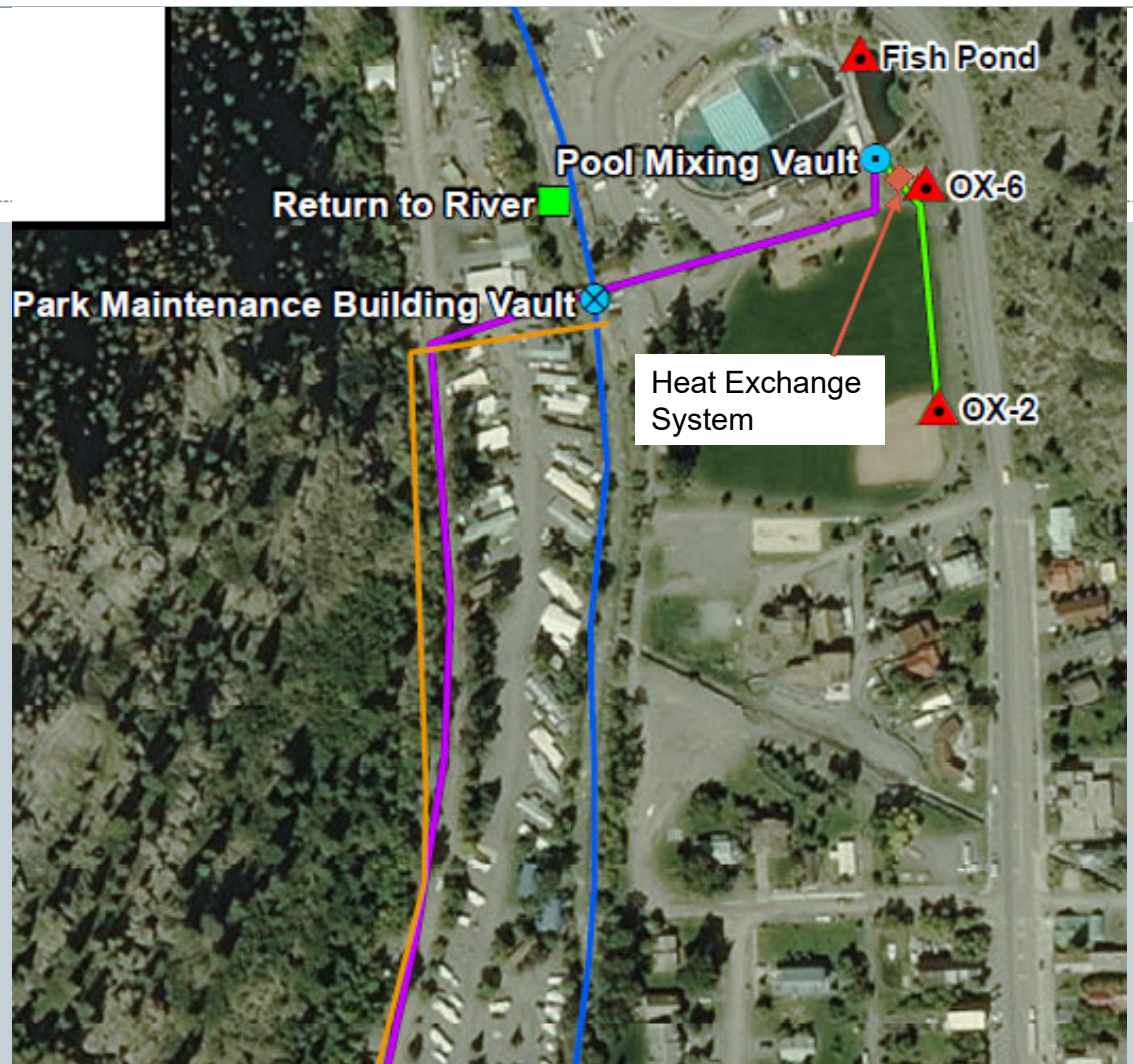
# Ouray Hot Springs

## Legend

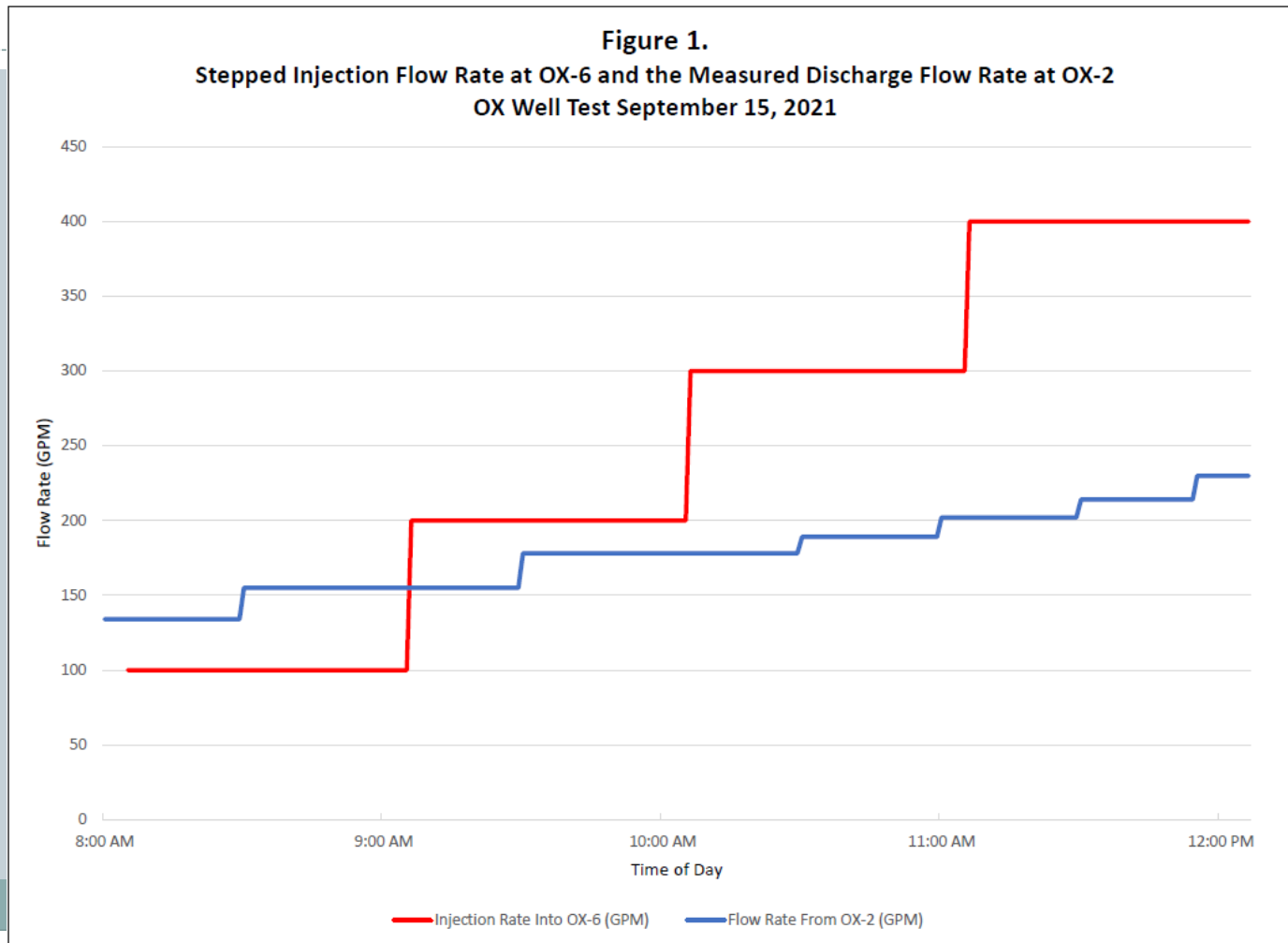
- Box Canyon Line - Notable Features
- ▲ Hot Springs Locations (from WWE 7-30-2015 Site Visit)

### Box Canyon Line Sampling Locations

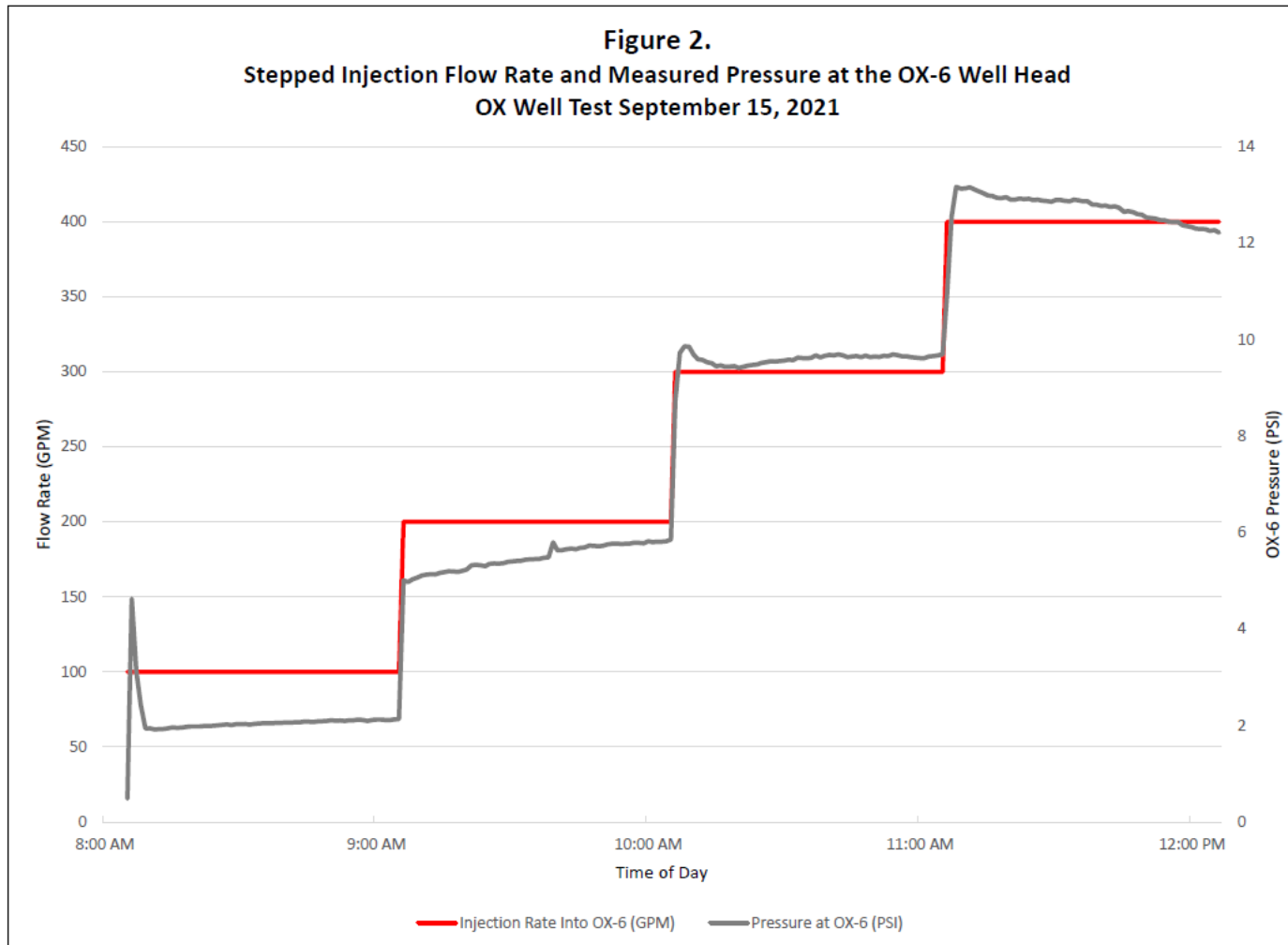
- ⊗ Historically Monitored
- Currently Monitored
- Estimated Biota Line Alignment
- Box Canyon Line - Approximate Length 5,200 ft
- OX-2 Line to Pool
- ~ Streams and Rivers



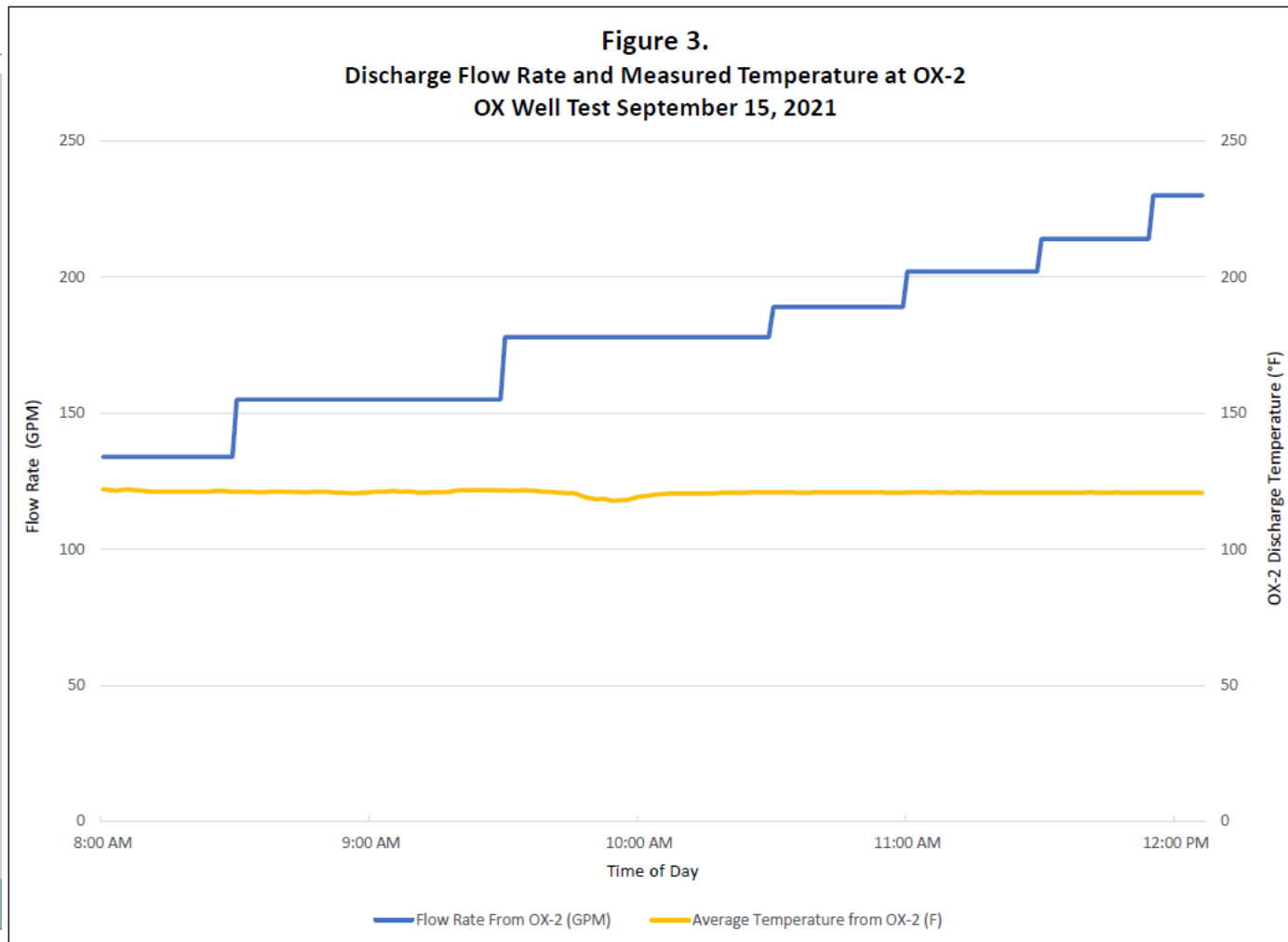
# OX2 and OX6 Stepped Injection Testing

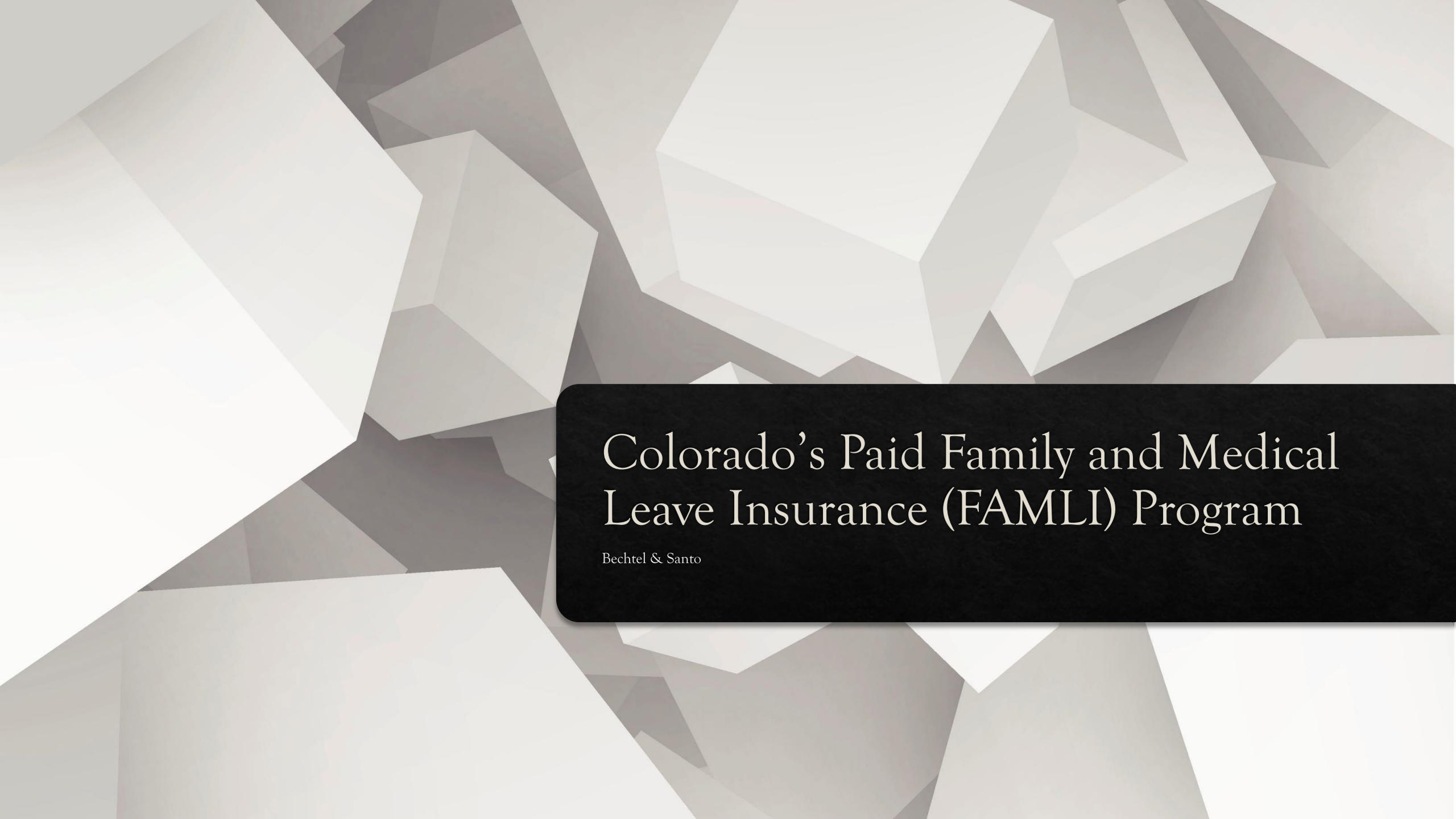


# OX2 and OX6 Stepped Injection Testing



# OX2 and OX6 Stepped Injection Testing





# Colorado's Paid Family and Medical Leave Insurance (FAMLI) Program

Bechtel & Santo

# What is FAMLI?

FAMLI will provide Colorado workers 12-16 weeks of paid leave...

- To manage their own serious health condition
- To care for a family member with a serious health condition
- To care for a new child (within the 1<sup>st</sup> year of birth, foster placement, or adoption)
- To make arrangements for military deployments
- To address immediate safety needs and impact of domestic violence/sexual assault

Premiums are set to 0.9% of the employee's wage, with 0.45% paid by the employer and 0.45% paid by the employee

# FAMLI Timeline

**January 1, 2022**

Initial FAMLI rules adopted



**January 1, 2023**

Employers begin payroll deductions for FAMLI premiums and remitting premium payments to the FAMLI Division



**July 2022**

Public education campaign begins



**April 30, 2023**

First quarterly premium payments due (30-day grace period)

**January 1, 2024**

Covered workers can begin submitting requests for FAMLI leave



# How will FAMLI be funded?

## Premium Responsibilities Under Proposition 118

Employer Type	Employer Premium	Employee Premium	No Premium
9 or fewer employees		✓	
10+ employees	✓	✓	
Participating self-employed		✓	
Participating local government employee		✓	
Nonparticipating local government			✓
Nonparticipating self-employed			✓
Employer with private plan			✓

Table originally published in Colorado Blue Book 2020. Legislative Council of the Colorado General Assembly Research Publication No. 748-1

# Will FAMLI premiums increase?

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Possibly. The initial 0.9% FAMLI premium rate is fixed through 2024

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For 2025 and beyond, the director of the FAMLI Division sets the premium rate according to a formula based on monetary value of fund each year.

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The FAMLI premium rate is capped by statute at 1.20%

## FAMILY Wages Subject to Premiums

- ◇ Payments defined as wages under the Federal Unemployment Tax Act (FUTA)
- ◇ Tips
- ◇ Employee contribution to 401(k) or IRC 408 simplified Retirement Plans
- ◇ Contributions to a Medical Savings Account
- ◇ Employee-matching contributions into IRC 219 simplified employee pension plan
- ◇ Payments for personal services, including anything other than cash that has cash value
- ◇ Employee contributions to a Salary Reduction Simplified Employee Pension Plan (SARSEP)
- ◇ 125 Cafeteria Plan if cash is chosen

# Amounts not included in “wages.”

- ◇ Per-diem or mileage reimbursements
- ◇ Payments made by the employer on behalf of the employee into other insurance or annuity accounts that are not associated with FAMLII, including:
  - ◇ Short term or long-term disability
  - ◇ Medical or hospitalization expenses in connection with sickness or accident disability
  - ◇ Death
  - ◇ Earnings from investment-interest payments, dividend payments, or rent receipts from rental property, except if the income is earned through a business owned or operated by the claimant.
  - ◇ Severance pay, with the exception of payments pursuant to 8-73-110 C.R.S.

# Employer Deductions from Employee Wages

- ❖ Employers carry the burden of correctly calculating an employee's premium
- ❖ That is, if an employer makes a mistake and deducts less than an employee owes, the employer must then cover the remainder of employee's premium for that pay period
- ❖ Employers cannot go back later and deduct more from an employee's subsequent paycheck



# Counting Employees Under FMLI

- ◆ Employer count will be calculated **once a year**
- ◆ Total # of employees = # of employees on the payroll during each of 20 or more calendar workweeks in the preceding calendar year
- ◆ If an employer has 10 or more employees who worked 20 or more weeks in all of 2022, the employer is required to pay the employer share of the premium for all four quarters in 2023
- ◆ Employees on leave must be counted if they are expected to return to active employment



# How much will employees receive when using FAMLI benefits?

Weekly wage	Weekly deduction	Weekly benefit	Maximum annual benefit	Percent of weekly wage
\$500	-\$2.25	\$450	\$5,400	90%
\$1,500	-\$6.75	\$976.60	\$12,216	65%
\$2,000	-\$9.00	\$1,100	\$13,200	55%
\$2,500	-\$11.25	\$1,100	\$13,200	44%
\$3,000	-\$13.50	\$1,100	\$13,200	37%

Table originally published in Colorado Blue Book 2020. Legislative Council of the Colorado General Assembly Research Publication No. 748-1

Last Name, First

EMPLOYEE ID

POSITION TITLE

KAA 990000000

<b>Payment Period</b> 04/01/2023 - 05/01/3023	<b>Payment Date</b> 05/04/2023
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Earnings	PAY PERIOD HOURS	PAY PERIOD GROSS	YTD
	168.00	5,000.00	20,000.00

Deductions	INFO	PAY PERIOD	YTD
NOT subject to FAMILI premiums	Kaiser Cafe 125 Medical	55.00	220.00
NOT subject to FAMILI premiums	EyeMed Cafe 125 Medical	5.00	20.00
NOT subject to FAMILI premiums	FSA Cafe 125 Medical	20.00	80.00
NOT subject to FAMILI premiums	Group Term Life Cafe 125	20.00	80.00
	401k Retirement Contribution	700.00	2,800.00
	Medicare	65.00	260.00
	Federal Tax	600.00	2,400.00
	State Tax	225.00	900.00
	Local Tax	5.00	20.00
	Social Security Tax	310.00	930.00
	FAMILI Premium	22.05	88.20

Example of FAMILI deduction  
0.45% of wages (Gross wages - deductions  
not subject to FAMILI premiums)


<b>Total Deductions:</b>	2,027.05	7,798.20
<b>Net Pay:</b>	2,972.95	12,201.80

# How does the program work?


Employers: must collect 50% of the employee's premium, and, for employers with 10 or more employees, contribute 50% of the employee's premium and remit those premiums to the Division.



Employees: apply for benefits to the FAML I Division when a qualifying event occurs.

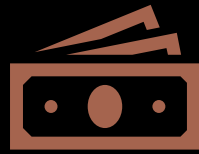


Division: evaluate claims, request documentation as needed, and approve or deny benefits.

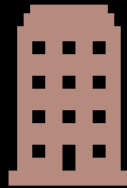


Unlike FMLA or HFWA, the employer is not required to determine whether employees qualify for benefits. The state will make this determination.

# Which Employees Are Eligible?



Any Colorado worker who makes more than \$2,500 in yearly wages within the state.



This includes employees who work for exempt organizations.



Sole-proprietors may elect to participate in FAMLI if they so choose.

## Job Protection

- ◆ Employees who have served at their current job for 180 days or more may not be penalized, harassed, or terminated for:
  - ◆ Requesting FAMLII leave
  - ◆ Using FAMLII leave
  - ◆ Informing any person of their rights under FAMLII
  - ◆ Informing any person of an employer's violation of FAMLII
  - ◆ Attending a hearing or other proceeding with the Division or the private insurer regarding an application for benefits or an appeal

# Job Protection

Qualifying employees who use  
FAMLI leave must be restored  
to the same or equivalent  
protection upon return to work

Employees must retain any and  
all accrued/seniority benefits

Employer must maintain  
healthcare benefits for  
employees who are on leave  
Employees may be required to  
continue paying their share of  
premiums

Employers may not count  
FAMLI leave as an absence

Employers who violate these job  
protection rules are liable for  
penalties and money damages

## Exemptions

- ◆ There are only three categories of exemptions from the FAMLII Program
  - ◆ Local government entities
  - ◆ Self-employed individuals
  - ◆ Privately insured organizations
- ◆ In order to be exempted from FAMLII, employers in these categories need to undertake proactive steps

# Local Government Entity

## Full participation

- Employer and employee pay premiums; all employees must participate

## Decline all participation

- Employer pays no premiums; employees are responsible for their own premiums if they choose to participate

## Decline employer participation

- Employer pays no premium; employees may opt-in and employer still covers administrative burden of employees' share of premiums

# What is a local government entity?

Any county, city,  
town, or other  
municipal entity

School districts

Special districts  
created pursuant to  
the “Special  
District Act”

Any other political  
subdivision of the  
state

# Local Governments

# Full Participation

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No vote is required, but employer must participate for a minimum of 3 years

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Employer must register with FAMLI system and create an account in Fall 2022

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All employees must participate and receive job protection when applicable

# Local Governments – No Participation

## Vote

The governing body must vote to decline all participation

- This process must include a public notice and comment period
- Such a vote must be re-evaluated every 8 years

## Notify

Notify the FAMLI Division prior to January 1, 2023

- Notification must be on letterhead, indicate the day the vote was taken, and the result of the vote

## Notice

Notice of governing body's vote must be given to employees, in writing, within 30 days

Local  
Governments

No  
Participation

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Employers who do not participate are not required to take any steps to remit employee premiums to the Division for those employees who opt-in

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Employees who opt-in to FAMLI will register with the FAMLI Division, calculate their premium rate, and remit their portion of premiums independently

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Employees are not entitled to job protection or benefit retention while on leave – unless required by insurance policy to do so

Local  
Governments

No Employer  
Participation

- ◆ Middle of the road option
  - ◆ Employers do not contribute their share of employees' premiums
  - ◆ Employees may opt-in or opt-out
  - ◆ Employer takes administrative burden of calculating and remitting premiums to the Division

Local  
Governments

No Employer  
Participation

Employer must register with the  
FAMLI Division and set up an  
account

Voting and procedure is the same as  
for the No Participation route

Employees not entitled to job  
protection

## First Vote

Anytime before  
January 1, 2023

## 180 Days Prior to Change in Benefits

Notify employees of any forthcoming changes.  
This will not apply in 2022 as benefits won't be  
until 2024

## 8 Years

A vote to opt out of the program  
must be held at least every 8 years.

# Voting Timelines

## Within 30 Days

Notify employees of decision

## 3 Years

Required length of participation if a  
local government chooses to opt in  
after previously opting out.

# Private Plans and Self Insurance

Private Plans are allowed; however, they must include:

- The same number of weeks of benefits
- Same level of wage replacement
- Include no additional requirements or conditions
- Deduct no more than the same amount from employee paychecks
- Cover all employees through the duration of their employment

The FAMLII Division is still writing detailed regulations on this issue – more to come

Self insurance will require a surety bond

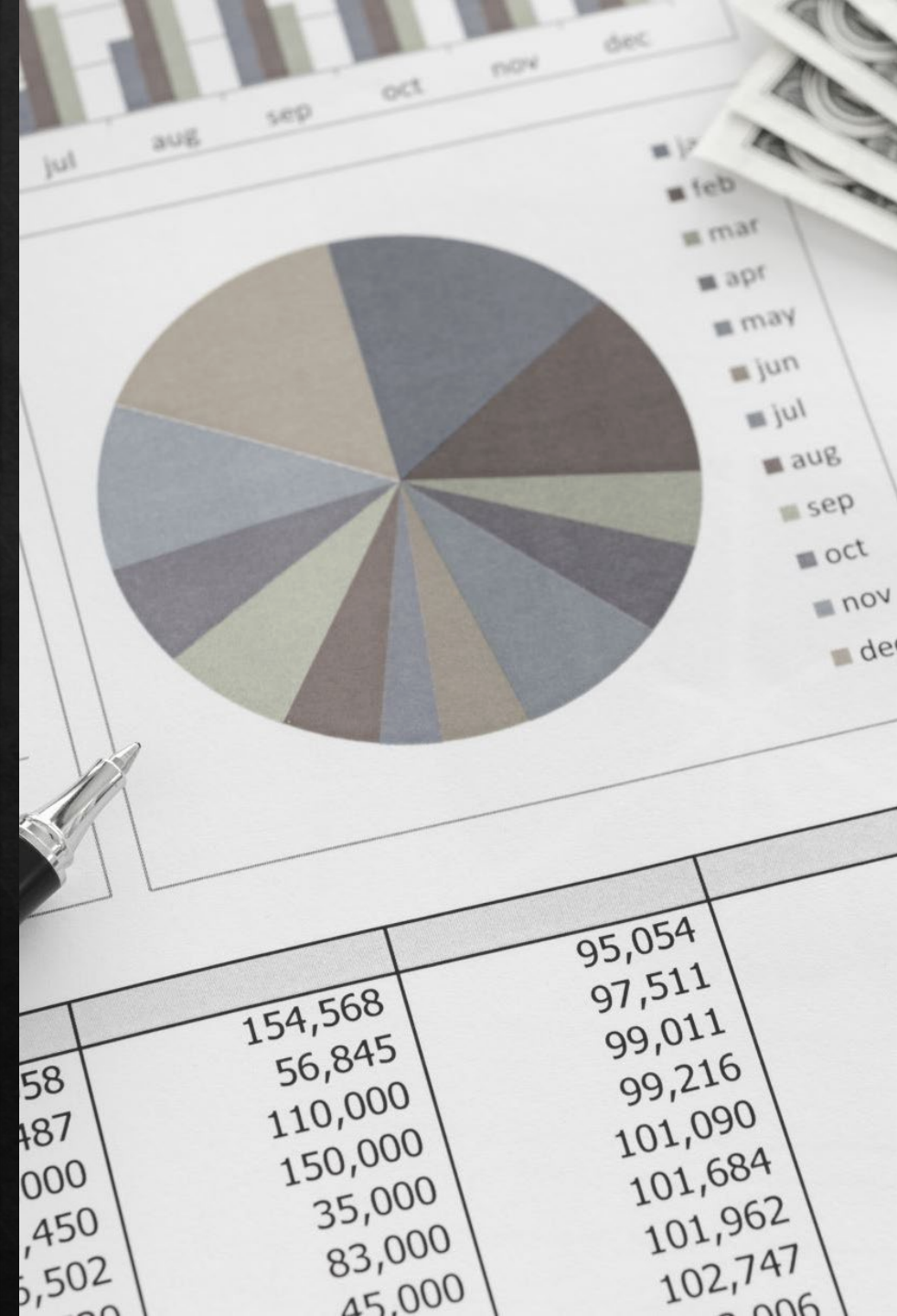
# Self Employed Persons

- ◆ People who are self-employed are not required to participate in the FAMLII program
- ◆ They may enroll in FAMLII and pay premium rates if they choose to participate
  - ◆ They are only responsible for the employee's share of premiums (0.45% of wages)
- ◆ Once enrolled, individuals cannot withdraw from coverage for the first 3 years. After the first "coverage period," individuals may withdraw at the end of each year.



# Self Employed Persons

- ◇ In order to calculate premiums and benefit amounts, self employed persons may choose between reporting net earnings or gross earnings to the Division
  - ◇ Net earnings cause lower premium payments, and lower wage replacement benefits
  - ◇ Gross earnings cause higher premium payments, and higher wage replacement benefits
  - ◇ Individuals may switch one time between the two in a 3-year period
- ◇ Must update the Division quarterly



# FAMLI and FMLA

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For FMLA-covered entities, employees who apply for FAMLI leave benefits may also qualify for FMLA

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FMLA and FAMLI may run concurrently, meaning that an employee who receives FAMLI leave is also protected by FMLA during their leave period

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In essence: if an employee takes FAMLI leave, they are not also entitled to 12 weeks of FMLA

# Intermittent Leave



Employees may receive Division-approved leave in increments as small as one hour



Employees will not be paid by the Division for these increments until an employee has used eight hours of paid leave

# FAMLI and HFWA



- ◇ HFWA and FAMLI are two separate leave programs
- ◇ If an employee uses 12 weeks of FAMLI leave, and otherwise does not use HFWA that year, the that employee is still entitled to HFWA
- ◇ HFWA is paid for, and administered by, employers whereas FAMLI is paid for through a payroll tax and is administered by the state
- ◇ HFWA is short-term sick leave, FAMLI is long-term family and medical leave
- ◇ FAMLI leave cannot be used to cover an employer's obligation under PHEW

# What information do employers receive when employees request benefits?



Notice that an employee applied for benefits, including an opportunity to submit information to the Division



The determination made by the Division



Procedures for employer appeal process



Anticipated leave duration and return date

# Mult-state Employers and FAMLI

Employees who work or live in Colorado for out-of-state entities may be covered by FAMLI



Multi-State organizations must count all employees in all states for premium purposes



Employers who mistakenly remit premium payments to other state family leave programs on behalf of a Colorado resident will not be delinquent if paid within 30 days of the determination that premiums are due in Colorado

# Multi-State Employee Wage Analysis

The employee's entire service is performed within Colorado;

The employee's service is performed both within and outside of Colorado, but the service performed outside the state is incidental to the employee's work within Colorado; or

Services are not localized in any state, but some of the services are performed in Colorado, and

- The base of operations is in Colorado, or if there is no base of operations, then the place from which such services are directed or controlled is in Colorado; or
- Employee's residence is in Colorado

# FAMLI and PTO

May an employer require an employee to exhaust accrued PTO before taking FAMLI leave? No.

Employers may, at their discretion, allow employees to utilize PTO benefits to cover the “gap” between what the FAMLI Division pays per week and the employee’s usual wage.

Are  
employers  
responsible  
for paying  
employees  
who are on  
FAMLI leave?

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No. The Division will pay the employee a portion of their wage during their leave.

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Employers must, however, continue to provide any health insurance or other benefits during leave (unless they are a local government entity that has opted-out via the vote and notice process).

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Employees are still responsible for paying their share of premiums while on FAMLI leave for any insurance benefits they receive.

# How often can employees take FAMLI leave?

Employees can take up to 12 weeks (16 for pregnancy complications) for qualifying events

Employees must provide documentation to substantiate the need for leave

Employees can only use up to 12 weeks (or 16) once in a rolling calendar year. So, if an employee takes 12 weeks of paternity leave starting March 1, 2024, they cannot be eligible until March 1, 2025 for additional benefits.

Employees may use intermittent FAMLI leave, just like FMLA

# Disqualifying Events



Any covered individual who is found to have willfully made a false statement or misrepresentation regarding a material fact, or willingly failed to report a material fact, to obtain benefits will be disqualified from receiving FAML I benefits for one year



Any benefits paid erroneously to an employee may be recovered by the Division

# Regulatory Update – August 2022

- ◆ In August, after receiving nearly 300 written and oral comments on FAMLI’s benefits rules, the Department revised and adopted its Benefits and Employer Participation Requirements. Notable changes from the proposed version of the rules include but are not limited to:
  - Deadlines for submitting an application for FAMLI benefits when the need for leave is unforeseeable have been extended to **30 days after the leave has begun** (previously listed as seven days.)
  - While formal appeal rights have been limited to the claimant applying for benefits, additional provisions were added to allow employers to file a grievance with the Division if it has a good-faith belief, supported by evidence, that the Division has granted FAMLI benefits to a claimant in an amount, duration or frequency beyond what the claimant is entitled or in a way that unduly disrupts the employer’s operations.
  - Employers will now have an opportunity to request limited information regarding the amount and reason for leave where such information is strictly necessary for benefits coordination.
- ◆ With the benefits rules adopted, the Department then began working on private plan rules. See 7 CCR 1107-5.

# CDLE Questions & Answers

- ◆ What do I do when an employee is on leave?
  - ◆ While an employee is on leave, employers are not responsible for paying wages at that time. Because of this, you may have access to vacancy savings to spend as needed. Optionally, as an employer you may, but are not required to, contract with a temporary worker to supplement your staffing needs.
  - ◆ Your employee will only be receiving a portion of their paycheck dependent on their average weekly wage and not the full amount. The benefit is capped at \$1,100.00 a week. Employees are not required to use earned paid time off (PTO) before taking leave under the FAMLI program, but employers may allow employees to use their accrued PTO to “top off” or cover the remaining balance of their typical weekly wage in order to “make whole” their take-home pay while on leave.

# CDLE Questions & Answers

- ◆ I have highly-skilled workers, and a temporary worker would not be a solution for our company?
- ◆ Even a single employee vacancy can be a strain for a businesses' daily operations. Businesses may have other employees share the workload from the employee taking leave. While an employee is on leave, employers have access to vacancy savings. Employers may use vacancy savings from an employee on leave to provide a bonus or hazard pay for other employees who take on additional work.

# CDLE Questions & Answers

## ◆ How do I count nationwide employees?

◆ Your total nationwide employee count will be what determines whether or not you pay the employer share of the premium. You will only need to pay premiums for the employees who are localized in Colorado. For example, if you have 100 employees nationwide, and nine working completely in Colorado, the employer would be required to pay the 0.45% employer's share and collect and remit the 0.45% of the employee's share for each of those nine employees because the employer has more than ten total employees.

# CDLE Questions & Answers

- ◆ Are these employees subject to FAMLI? (1) an employee works outside of Colorado, but the company is a Colorado company? (2) an employee works in Colorado, but lives in another state?
  - ◆ Under the FAMLI Act, most private sector employers must provide paid family and medical leave to their Colorado employees, whether through the state-run plan or through a private plan with equal or greater benefits and protections. An employee's wages will be subject to FAMLI premiums if:
    - ◆ The employee's work is performed entirely within Colorado;
    - ◆ The employee performs work both within and outside of Colorado, but the work performed outside of Colorado is incidental to the employee's work within Colorado, or is temporary or transitory and consists of isolated transactions; or

# CDLE Questions & Answers

- ◆ The employee's work is not primarily localized in any state, but some work is performed in Colorado, and one of the following is true:
  - ◆ The employer's base of operations is in Colorado, or if there is no base of operations, the place from which the employee's work is directed or controlled is in Colorado; or
  - ◆ Neither the base of operations nor the place from which some part of the work is directed or controlled is not in any state in which part of the employee's work is performed, but the employee's individual residence is in Colorado.
  - ◆ More information regarding localization can be found in the FAMLI Division's Premium Rules at 7 CCR 1107-1, Section 1.5.6.C.

## Deductions from Employee Wages start January 1, 2023

- The employee share of FAMLI premiums is set at 0.45% of employee wages through 2024. For 2025 and beyond, the director of the FAMLI Division sets the premium rate according to a formula based on the monetary value of the fund each year. Employers with ten or more employees must also contribute an additional 0.45% of wages for a total of 0.9%, but employers with nine or fewer employees are only responsible for the 0.45% employee share.
- Employers are not required to deduct FAMLI contributions from employees' wages. However, **starting in 2023, employers are allowed to deduct up to 0.45% from employees' wages for FAMLI contributions.** For every \$100.00 an employee makes, an employer may deduct up to \$0.45.

## Benefits start January 1, 2024

- Starting in 2024, paid family and medical leave benefits are available to most Colorado employees who have a qualifying condition and who earned \$2,500 over the previous year for work performed in Colorado.
- The qualifying conditions for paid family and medical leave are:
  - Caring for a new child during the first year after the birth, adoption, or foster care placement of that child.
  - Caring for a family member with a serious health condition.
  - Caring for your own serious health condition.
  - Making arrangements for a family member's military deployment.
  - Obtaining safe housing, care, and/or legal assistance in response to domestic violence, stalking, sexual assault, or sexual abuse.
- Covered employees are entitled to up to 12 weeks of paid family and medical leave per year. Individuals with serious health conditions caused by pregnancy complications or childbirth complications are entitled to up to 4 more weeks of paid family and medical leave per year for a total of 16 weeks.
- Leave may be taken continuously, intermittently, or in the form of a reduced schedule.
- Leave will be paid at a rate of up to 90% of the employee's average weekly wage, based on a sliding scale. Employees may estimate their benefits by using the benefits calculator available at [famli.colorado.gov](https://famli.colorado.gov).
- You don't have to work for your employer a minimum amount of time in order to qualify for paid family and medical leave benefits.
- If FAMLI leave is used for a reason that also qualifies as leave under the federal FMLA, then the leave will also count as FMLA leave used.
- Employees may choose to use sick leave or other paid time off before using FAMLI benefits, but they are not required to do so.
- Employers and employees may mutually agree to supplement FAMLI benefits with sick leave or other paid time off in order to provide full wage replacement.

## Filing Claims

- Employees will not be able to file for benefits until the last quarter of 2023. Benefits will be available starting January 2024. Instructions on how to apply for benefits will be available on [famli.colorado.gov](https://famli.colorado.gov) in the last quarter of 2023.
- Employees or their designated representatives apply for FAMLI benefits by submitting an application, along with required documentation, directly to the FAMLI Division. Employers cannot make employees apply for FAMLI benefits.
- Applications may be submitted in advance of the absence from work, and in some circumstances, they may be submitted after the absence has begun.
- Approved applications will be paid by the FAMLI Division within two weeks after the claim is properly filed, and every two weeks thereafter for the duration of the approved leave.
- Employees can appeal claim determinations to the FAMLI Division.
- Individuals who attempt to defraud the FAMLI program may be disqualified from receiving benefits.

## Job protection and continued benefits

- Employers must maintain health care benefits for employees while they are on FAMLI leave, and both the employer and the employee remain responsible for paying for those benefits in the same amounts as before the leave began.
- An employee who has worked for the employer for at least 180 days is entitled to return to the same position, or an equivalent position, upon their return from FAMLI leave.

## Retaliation, Discrimination, and Interference Prohibited

- Employers may not interfere with employees' rights under FAMLI, and may not discriminate or retaliate against them for exercising those rights.
- Employees who suffer retaliation, discrimination, or interference may file suit in court, or may file a complaint with the FAMLI Division.

## Other Important Information

- An employer may offer a private plan that provides the same benefits as the state FAMLI plan, and imposes no additional costs or restrictions. Private plans must be approved by the FAMLI Division.
- Employees and employers are encouraged to report FAMLI violations to the FAMLI Division.



# Your FAMLI Contributions Start in January.



Starting January 1, 2023, most Colorado workers (full-time, part-time and seasonal) will see a new deduction on their paychecks of 0.45% of their wages.

This small deduction covers your contribution to Colorado's new, voter-approved Paid Family and Medical Leave Insurance Program (FAMLI). For someone making \$45,000/year that's a deduction of less than \$8 per biweekly paycheck. To see what your estimated deduction will be, visit [famli.colorado.gov](http://famli.colorado.gov).

You will be able to apply for FAMLI benefits—like paid leave for up to 12 weeks when you or a family member experiences a qualifying health issue—starting in January 2024.

## Frequently Asked Questions

***Why am I paying now for a benefit I cannot use for a year?***

The FAMLI program is funded by premiums made by both employers and employees. Contributions made in 2023 will establish the fund that will eventually pay out benefits to Colorado workers in 2024. The gap year is needed to build the funds before benefits can be paid.

***I did not vote for this, why must I contribute part of my paycheck?***

When Colorado voters passed Prop 118 in 2020, that established the FAMLI Act for all of Colorado. With the law now in effect, most businesses and most workers across the state are required to comply.

***Can I opt out?***

No. The FAMLI Act does not allow employees to opt out of the program.

***I don't plan on ever using this benefit, do I still need to contribute?***

Yes. The FAMLI program is a social insurance program, and does not operate like a personal health savings account. Your individual contributions are not tied to when you apply for benefits. Contributions made by both employees and employers will fund the social insurance pool that will eventually pay out benefits in 2024.

***Can I file a claim now?***

No. FAMLI benefits will not be available until 2024. We are in the process of building the technology and corresponding processes to accept claims. Expect to see more guidance from the FAMLI Division on how to apply for benefits in the second half of 2023.

[famli.colorado.gov](http://famli.colorado.gov)



We're @ColoradoFAMLI on Social!



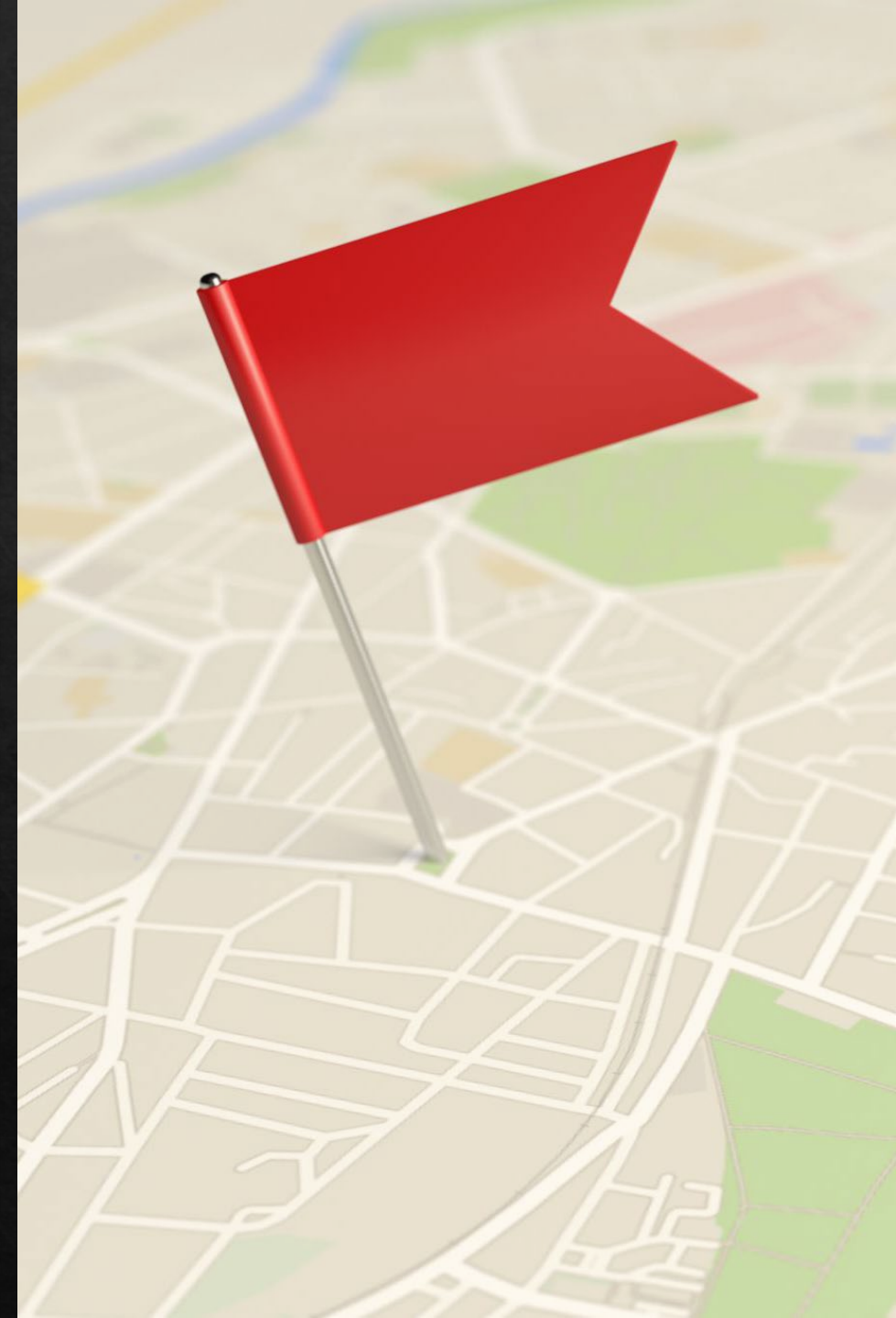
**COLORADO**  
Family and Medical Leave  
Insurance Program (FAMLI)  
Department of Labor and Employment



Questions?

# Resources

- ◇ <https://famli.colorado.gov/>
- ◇ <https://famli.colorado.gov/proposed/adopted-rules>
- ◇ <https://famli.colorado.gov/employers/famli-newsletters>
- ◇ <https://famli.colorado.gov/employers/employer-faqs>
- ◇ <https://famli.colorado.gov/employers/employer-webinars>



# City of Ouray – OX2 and OX6 Hot Springs Wells

1



**WWE**

Wright Water Engineers, Inc.  
November 2022

# History of OX2 and OX6 Wells

## • Construction

- Constructed 34 years ago in 1988.
- Wells completed in a fractured bedrock formation with loose sands and boulders.
- Recent video survey indicates a potential for void spaces, loose sands, and open cavities.
- Historical construction reports indicate both wells encountered a sandy layer during drilling that stopped advancement of the well drilling due to excessive caving.
- Drilling with mud rotary and lost circulation during drilling.

## OX2 Well Construction Report

DATE COMPLETED January 24, 1988

### WELL LOG

From	To	Type and Color of Material	Water Loc.
0	2	Fill	
2	12	Sand, Gravel, and clays	3'
12	20	Clays	
20	60	Boulders, Sand, and Gravel	33'
60	95	Coarse, medium, and fine sands	87'

### HOLE DIAMETER

15.25 in. from 0 to 23 ft.

12.25 in. from 23 to 43 ft.

6.75 in. from 43 to 95 ft.

DRILLING METHOD Rotary - Mud

CASING RECORD: Plain Casing

Size 14" & kind Steel from 0 to 23 ft.

Size 8 5/8 & kind Steel from 0 to 43 ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Perforated Casing - NONE

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

Size \_\_\_\_\_ & kind \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft.

# Historical Trends in OX2 Temperature and Production

- Temperature and water production from OX-2 are trending downward since 2020.
- Hot Springs Pool is having difficulty maintaining pool temperatures.
- Closed Wellhead Pressure
  - Historical Range (2013 to 2015): 3.5 to 9.5 psi
  - 2016: 7 psi
  - 2017: 7 psi
  - 2018: 6 psi
  - 2019: 5.5 psi
  - 2022: 3.5 psi



# Approaches to Address the Issue



- **Rehabilitate or Replace OX2 to Increase Production.**
- **Proposal from Layne – Rehabilitate OX2**
  - Received a proposal and estimate from Layne to rehabilitate OX2 well.
  - Layne is proposing to advance an 8-inch mud rotary boring to a depth of 150 feet.
  - Estimated construction cost – approximately \$315,000.
- **WWE Concerns with Layne’s Current Proposal**
  - Potential for Layne to lose circulation during drilling. Historical reports indicate both wells encountered a sandy layer that stopped advancement of the well drilling due to excessive caving.
  - Proposing to contain drill cuttings/fluids in above ground steel pits for transportation / disposal to City property by Layne. Disposal of this discharge maybe difficult and if discharged to the stream requires a discharge permit.
  - Drilling with mud requires more emphasis on proper development to avoid residual mud from entering the pool or equipment.

# Approaches to Address the Issue



- **WWE Recommendation – Design and Replace OX2 Well**

- Develop a well design that utilizes an ODEX air rotary drilling method which advances casing.
- Air rotary drilling method may be a better approach to maintain the open borehole.
- Allows for completion of a well with stainless steel screen to promote well longevity.
- Given the high cost of rehabilitating the OX-2 well, there does not appear to be any cost benefit of rehabilitating over drilling a new well.

- **Advantages**

- Solicit competitive bids from contractors can help minimize construction costs.
- Contract documents can provide the City with protection in the event the well is defective.
- The size of the new well is not limited by the existing casing at OX-2.
- Drill cuttings from the well are more easily disposed of and reduces the amount of fluids that will need to be disposed of during drilling and well development.
- Observation of the drill cuttings without mud can provide better insight regarding the lithology encountered and field modify the proposed well design to increase probability of a productive well.

# Proposed OX2 and OX6 Heat Exchange System



- **OX2 and OX6 Stepped Injection Testing – September 2021**

- Tested the structural integrity of well OX6 when water injected under pressure to assess the viability of a potential closed-loop heat exchange system.
- Pressure injected water from a hydrant into OX6 at 100, 200, 300, and 400 gpm.
- Monitored pressure and integrity of OX6 and changes in production rate and temperature at OX2.

- **Findings**

- OX6 appears to have the transmitting capacity of the specified flow rates between 100 to 400 gpm with a max pressure increase to approximately 12.75 psi (@ 400 gpm).
- No observed leaks or casing movement at the OX6 well head. Structural integrity appears intact.
- Average OX2 well temperature decreased by 1.23°F from 121.97°F during the test.
- OX2 well production increased from 134 gpm to 230 gpm (@400 gpm) during the test.
- No measurable impact to flow and temperature to Wiesbaden Hot Springs water during or after the stepped injection test performed on OX6.
- Results suggest a closed-loop heat exchange system is feasible.

# Overall Summary and Additional Considerations



- **Summary**

- Temperature and water production from OX2 are trending downward since 2020.
- Current proposal to rehabilitate OX2 uses mud and does not have a history of success.
- WWE can develop well design and construction documents that specifies drilling method to give project a higher chance of success and gives the City contractual protections.
- Heat exchange system between OX2 and OX6 appears feasible.

- **Additional Considerations**

- Hot springs water production from OX wells is limited but heat is available from OX wells through heat exchange.
- If OX wells are used for heat exchange, discharge from the pool is only naturally occurring water from Box Canyon Line. May help pool discharge permit (CDPHE).
- OX6, while stable during the testing, may need rehabilitation or replacement in the future if used as an injection well long term. Ongoing monitoring of OX6 is recommended.

# Questions?



**Thank You!**

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[hlenhart@wrightwater.com](mailto:hlenhart@wrightwater.com)

**WWE**

Wright Water Engineers, Inc.

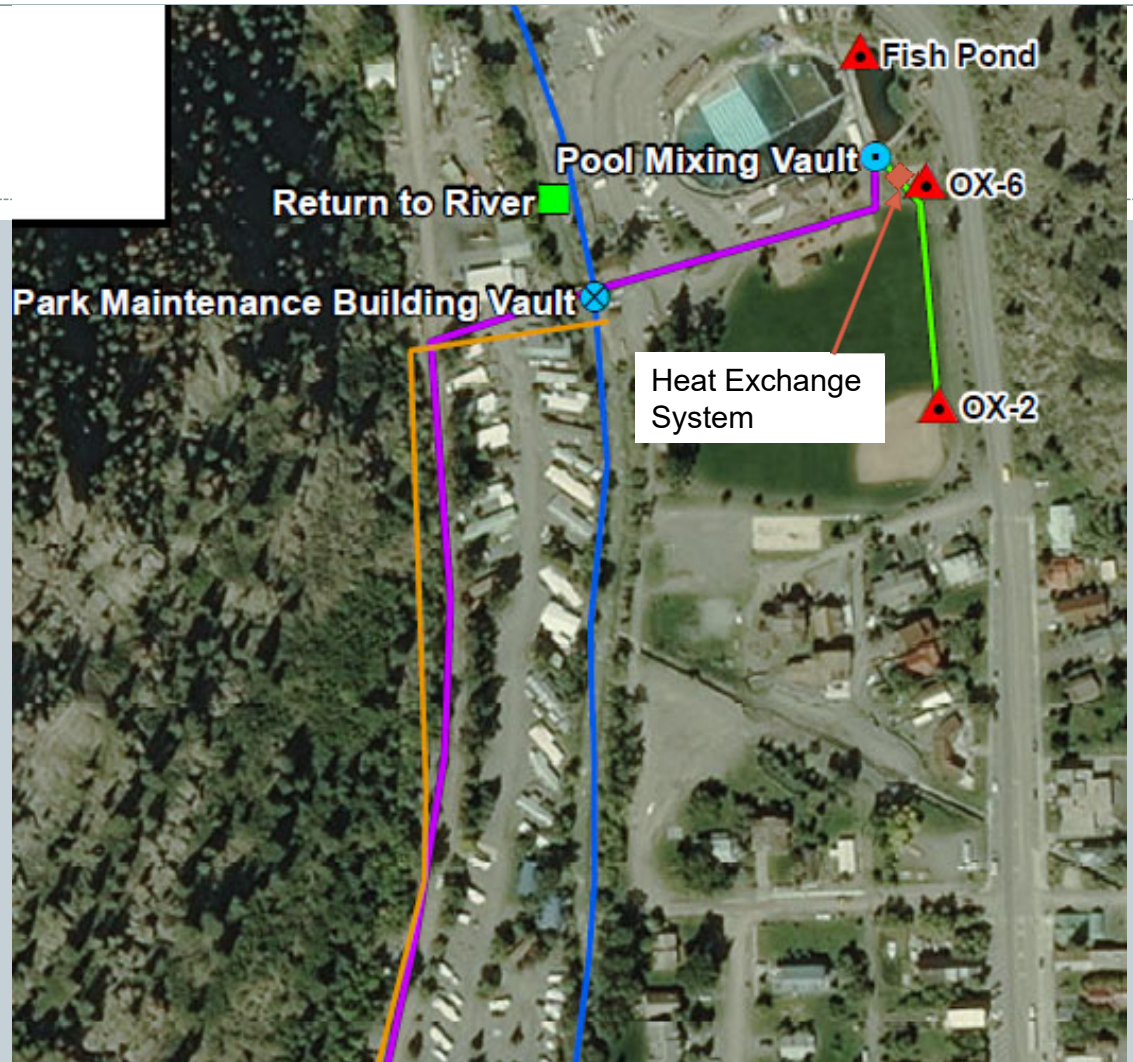
# Ouray Hot Springs

## Legend

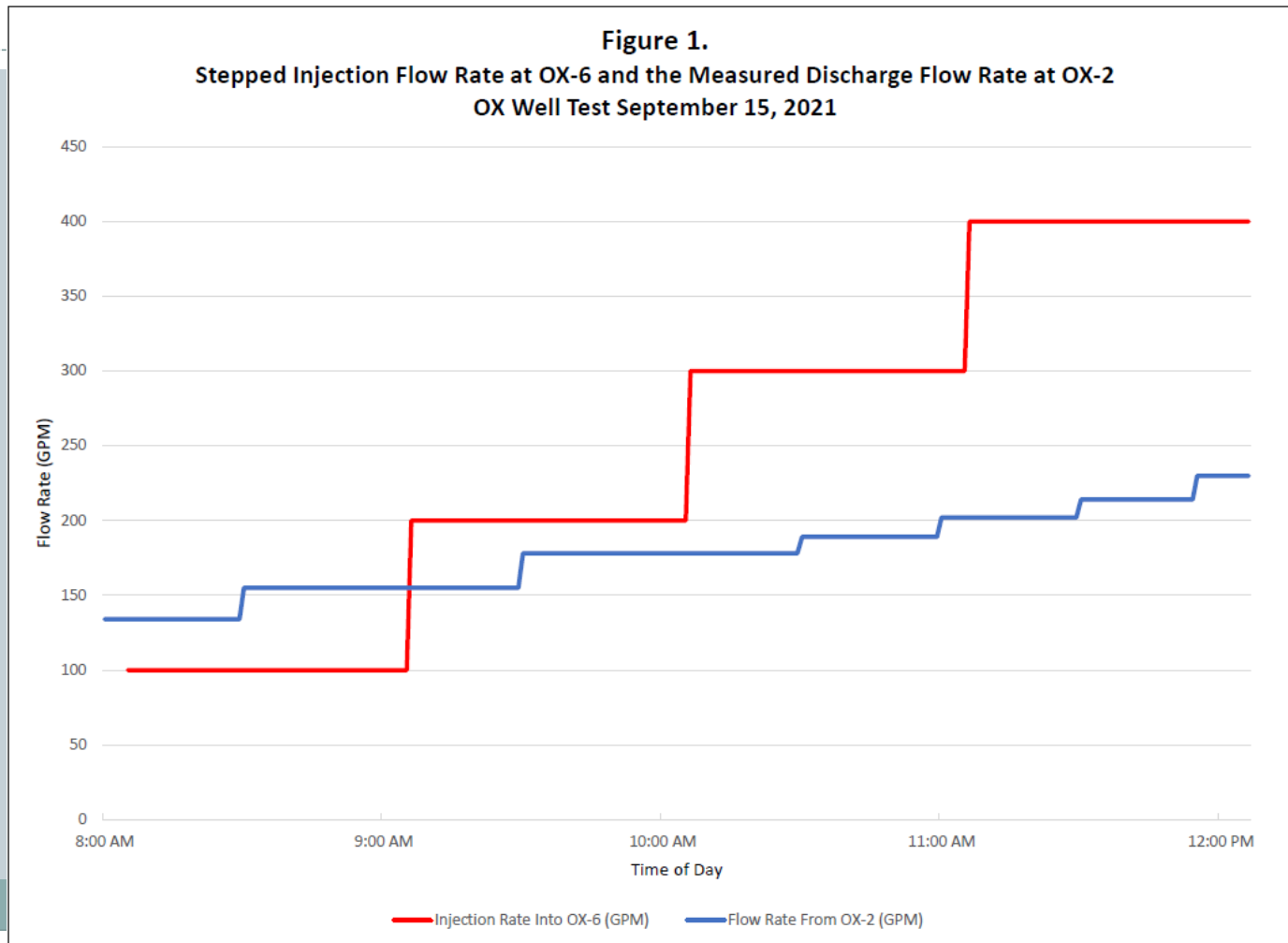
- Box Canyon Line - Notable Features
- ▲ Hot Springs Locations (from WWE 7-30-2015 Site Visit)

### Box Canyon Line Sampling Locations

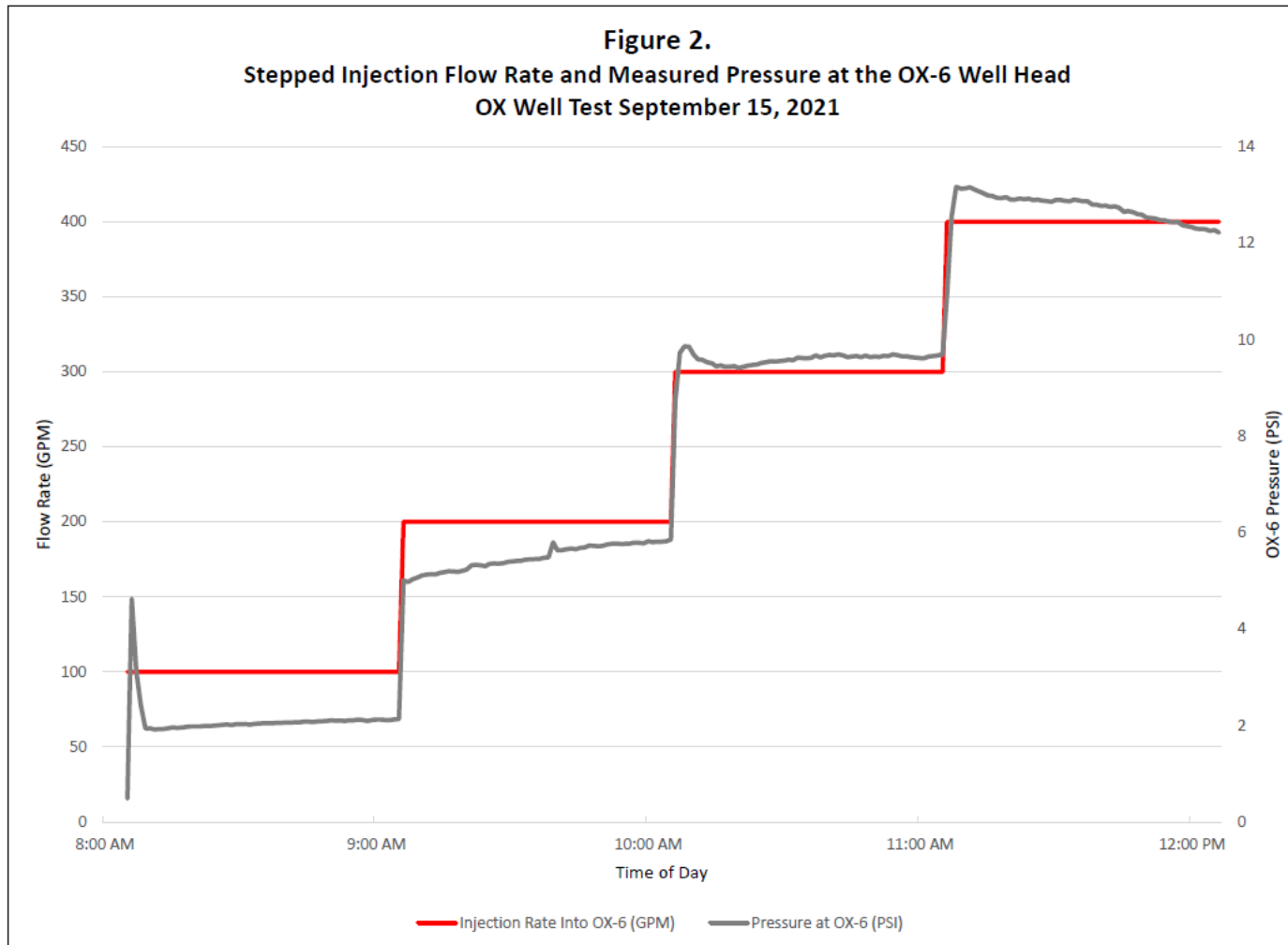
- ⊗ Historically Monitored
- Currently Monitored
- Estimated Biota Line Alignment
- Box Canyon Line - Approximate Length 5,200 ft
- OX-2 Line to Pool
- ~ Streams and Rivers



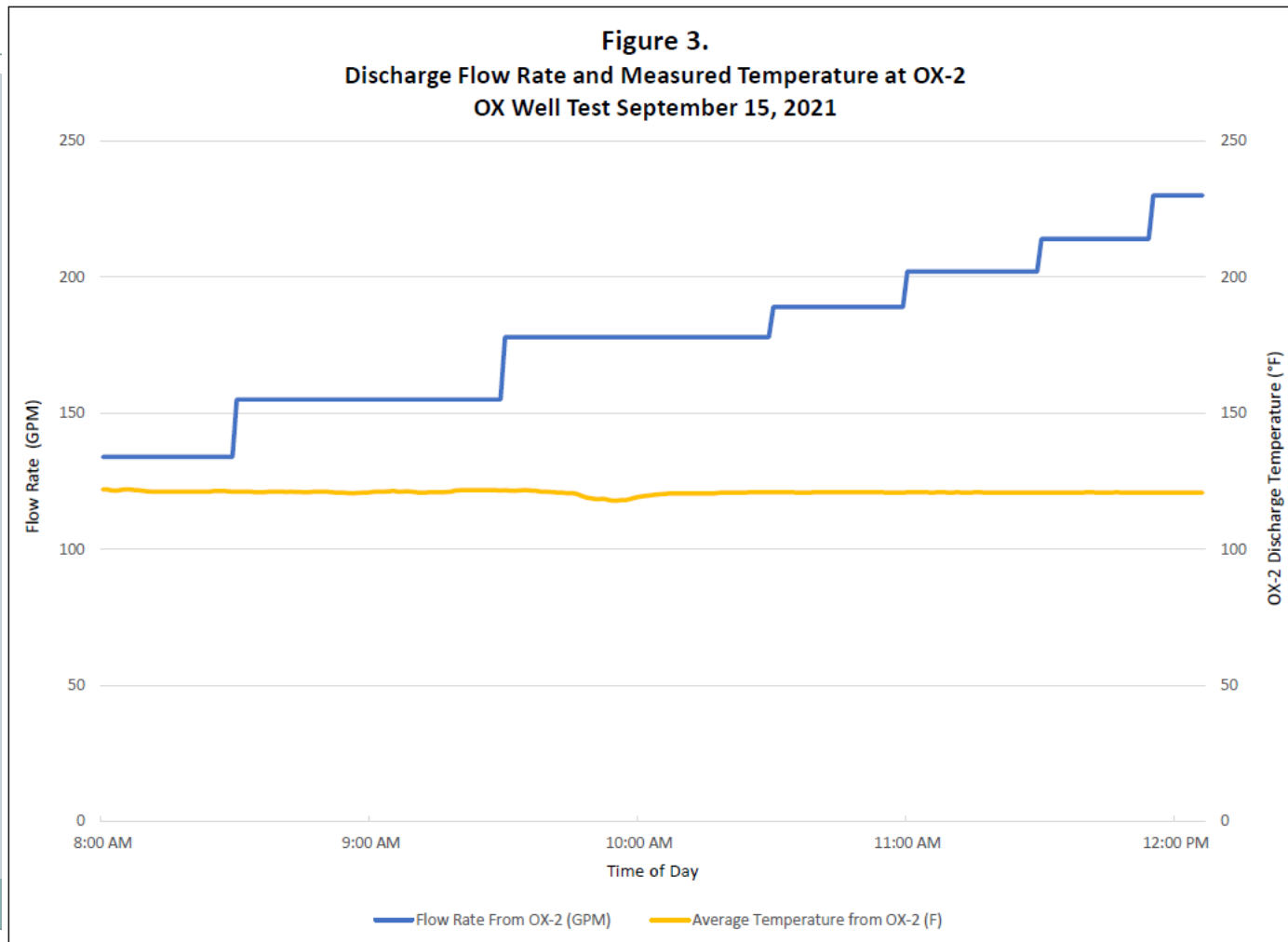
# OX2 and OX6 Stepped Injection Testing



# OX2 and OX6 Stepped Injection Testing



# OX2 and OX6 Stepped Injection Testing



# ME&E ENGINEERING

572 E 3rd Ave, Suite A  
Durango CO 81301

970-385-1570

## **Ouray Hot Springs Pool Assessment** Prepared for the City of Ouray

Date: July 20, 2022

Prepared by  
ME&E Engineering  
572 E. 3<sup>rd</sup> Avenue, Suite A  
Durango, CO 81301

## **INTRODUCTION**

In late February 2022, Joe Coleman reached out to ME&E Engineering for help finding mechanical options for heating the Ouray Hot Spring Pool. On March 18, 2022, ME&E representatives, Mechanical Engineer and Principal Dustin Sullivan and Technical Writer Nana Naisbitt met with the following city representatives at the Ouray Pool: Public Works Director Joe Coleman, Pool Manager Carmen Brashier, City Manager Silas Clarke, and Filtration Manager Director Joe Cruz. Sullivan and Naisbitt toured the Ouray Hot Spring Pool facility with these city representatives to collect information about current conditions and determine which test results and documents would be needed from the city. All documents requested by ME&E were subsequently provided by the city staff. On June 6, 2022, Sullivan spoke with Trevor Downing and Hayes Lenhart of Wright Water Engineers to better understand existing conditions.

## **ISSUES, AS STATED BY CITY STAFF**

- ME&E learned that there are three sources of hot springs water that feed the pools. Collectively they currently provide an average of 210 gallons per minute, according to Joe Cruz and Silas Clarke. The three sources are: 1) Box Canyon Line; 2) OX2 Artisan Well; and 3) The Ball Park Line. The current combined flow rate of 210 gpm is well below the historic flow rate of about 300 gpm, which in the past provided enough flow to heat the pools with no additional mechanical heating
- During the Step Test conducted by Wright Water Engineers, the natural pressure was measured at 3psi, which is related to flow rate
- The city must shut down the OX2 line one day per week to be in compliance with an agreement with the Wiesbaden Spa. Currently that closure day is Tuesday. The city and residents would prefer that the pool be open seven days a week
- Under current natural conditions, ideal temperatures in the pool are difficult to maintain in the winter months
- Historically, the primary source of water for the pools came from the OX2 Artisan Well, however the output of that well has decreased from about 200 gallons per minute to about 110 gallons per minute, and sometimes less. The heat loss of the pools is greater than the heat gain due to the reduced flow, causing uncomfortably cool pool conditions. OX6 seems intact according to the Wright Water Engineers and videos. No one is certain what is causing the reduced flow
- The lap pool is ideally maintained at 80°F. However, under current natural conditions in the winter, the temperature does not get above 76°F, and if the lap pool temperature drops to 72°F, then the pool is closed
- In the winter months, the shallow pool is shut down with the exception of about a 20% section, which is kept open so children can cool down, even if the temperatures drop to 70°

## **GOALS AND PRIORITIES, AS STATED BY CITY STAFF**

- A hot springs flow rate of 300 gallons per minute or more is ideal
- Get the Overlook Pool up to 106°F, but no cooler than 104°F in the winter months
- Get the Hot Pool up to 106°F, but no cooler than 100°F in the winter months

- Get the Shallow Pool up to 98°F, but no cooler than 92°F in the winter months
- Get the Lap Pool up to 80°-82°F, but no cooler than 78°F in the winter months
- Open all pools every day all year round at full water levels (except the Activities Pool, which is open seasonally from Memorial Day to Labor Day)
- Heat the pools even on the day of the week when the city shuts off the feed from the OX2 well; in other words, remain open seven days a week
- Prevent the need to lower water levels in the pools because that causes tiles and plaster to crack
- Ideally, the OX2 Well would return to its historic output of 200 gallons per minute, however this is unpredictable

## **POSSIBLE SOLUTIONS**

Below, ME&E outlines four possible mechanical solutions, but our assumption is that the primary heat source will remain the earth's aquifer and flowing natural water for all these systems. However, because of the issues experienced at the Ouray Pools as outlined above, the Ouray staff members have asked ME&E Engineering to suggest mechanical solutions. All the mechanical systems below will serve as a back-up to the natural system.

### **Option #1 Heat Exchanger Only**

In addition to the existing open loop hot springs heating system, provide a new closed loop system that uses hot springs water and a heat exchanger to provide heat. This option would require a new stainless-steel plate-and-frame heat exchanger and two new pumps. Natural hot springs water would be pumped at 300gpm off the OX2 Well through the hot side of the heat exchanger and back into the OX6 Well. Pool water would be pumped from the coldest pool at 78°F through the cold side of the heat exchanger; it would be heated up via the heat exchanger, and then pumped into the hottest pool at 110°F. None of the natural hot springs water would leave the aquifer. All current chlorination and filtration systems would remain. All the equipment would be housed in a new insulated pump house.

If the natural hot springs water temperatures drop while using this system, pumps would be slowed or turned off to maintain the average aquifer temperature of 121°. But, if the incoming natural water temperatures dropped, the only recourse would be to go back to the natural flow and uncomfortably cold pools. The City of Ouray might want to be "boiler ready" if it chooses this option because this system is the least capable of solving the issues described above.

This system could be web-based controlled and transparent to any authorized user. Credentials could be assigned to be "read-only."

(See Option #1 Diagram for more details.)

### **Advantages:**

- Least costly to install
- Least costly to run

- The only energy cost is running the pumps

**Disadvantages:**

- May disrupt the flows and temperatures of the natural hot springs, if not controlled properly
- Must continue to close one day per week, as per agreement with Wiesbaden
- If the aquifer fails to provide heat, and/or the flow rates continue to decrease over time, this system will fail to provide the desired pool temperatures
- There may be a risk in choosing the heat exchanger system: It is unknown how this system might affect the long-term temperature of the aquifer
- This risk could be mitigated by building in controls that stop the hot springs pump, if natural water temperatures drop below 121°

**Option #2 Boiler Plant**

Provide a new boiler plant with an input of 6,000,000 Btu/hr to the property to directly heat the pool water. None of the natural hot springs water would run through the new boiler system, only chlorinated pool water. All current chlorination and filtration systems would remain. All the equipment would be housed in a new insulated pump house.

(See Option #2 Diagram for more details.)

**Advantages:**

- Highly dependable heat source
- Open 24/7/365 with hot pools
- Will not disrupt the natural hot springs aquifer

**Disadvantages:**

- Highest energy costs
- Fossil fuel dependent
- High upfront costs

**Option #3 Heat Exchanger and Back-up Boiler Plant**

This option is a combination of Option #1 and Option #2. The heat exchanger would be the primary mechanical heat source. The boiler system would only kick on when the heat exchanger is unable to meet desired temperatures. All current chlorination and filtration systems would remain. All the equipment would be housed in a new insulated pump house.

This system could be web-based controlled and transparent to any authorized user. Credentials could be assigned to be “read-only.”

(See Option #3 Diagram for more details.)

**Advantages:**

- Highly dependable heat source
- Open 24/7/365 with hot pools
- Not totally reliant on fossil fuel; the fossil-fuel-dependent system is the secondary back-up
- Less costly to run than total reliance on boiler system
- More energy efficient than total reliance on boiler system
- If the aquifer fails to provide heat, and/or the flow rates continue to decrease over time, this system would still provide the desired pool temperatures

**Disadvantages:**

- May disrupt the flows and temperatures of the natural hot springs aquifer, if not controlled properly
- High upfront costs

**Option #4 Solar Thermal with Back-up Boiler**

As the primary back-up system, pool water would be heated through the solar thermal panels. This system would require approximately 60 solar panels 8' x 4' each, or about 2,000 square feet. When the flow rate of the natural water is not sufficient and/or when the natural water temperatures are too low, pool water would be pumped off the pool into the panels; then heated pool water from the panels would be pumped back into the pools. The boiler would only kick on when the solar thermal is unable to meet desired temperatures, such as on a cloudy day (see Option #2 for description of the boiler system). All current chlorination and filtration systems would remain.

(See Option #4 Diagram for more details.)

**Advantages:**

- Highly dependable heat source
- Open 24/7/365 with hot pools
- Will not disrupt the natural hot springs aquifer
- Not totally reliant on fossil fuel; the fossil-fuel dependent system is the secondary back-up
- Less costly to run than total reliance on boiler system
- More energy efficient than total reliance on boiler system
- If the aquifer fails to provide heat, and/or the flow rates continue to decrease over time, this system would still provide the desired pool temperatures
- Heating only chlorinated pool water

**Disadvantages:**

- Need sunshine to run the solar system
- Highest upfront costs of all four systems
- Shorter days in the winter means less efficiency when needed most

- This system requires approximately 2,000 square feet for a solar thermal panel array

### METHOD FOR ESTIMATION OF INSTALLATION COSTS

Construction estimates are helpful when making decisions about which system to choose. RS Means cost estimating guides are nationally recognized standards for construction cost estimating. The publisher produces a number of specific estimating guides, including *2022 Mechanical Cost Data*, *2022 Electrical Cost Data*, and *2022 Plumbing Cost Data*. Construction costs herein are based on 2022 RS Means cost estimating guides. However, it should be highlighted that we are in a high inflationary period, with many uncertainties.

### COST ESTIMATE TABLE

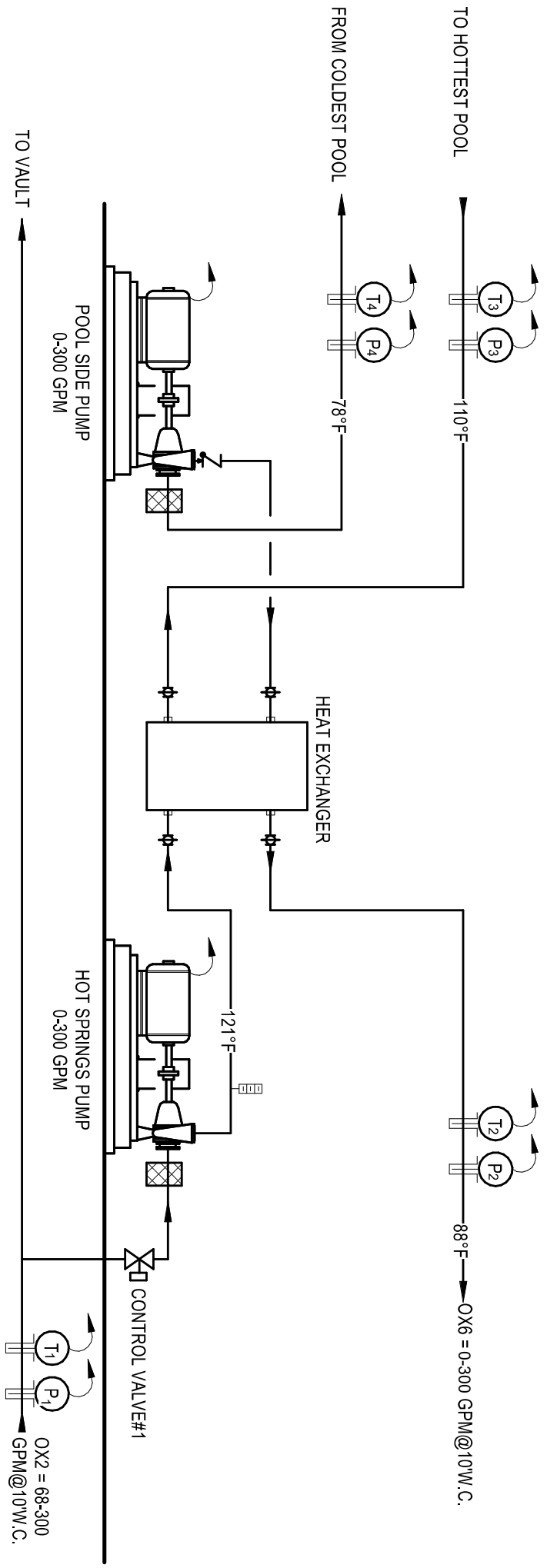
ITEM	HEAT EXCHANGER		BOILER	HX/BOILER HYBRID	SOLAR THERMAL
	OPTION#1	OPTION#2	OPTION#3	OPTION#4	OPTION#4
Architectural	\$96,000	\$96,000	\$96,000	\$96,000	\$96,000
Mechanical	\$97,441	\$283,741	\$357,159	\$387,319	\$387,319
Electrical	\$29,355	\$29,433	\$30,515	\$29,433	\$29,433
Controls	\$44,126	\$41,085	\$44,607	\$41,085	\$41,085
TAB contractor	\$1,300	\$1,300	\$1,950	\$1,300	\$1,300
Plumbing	\$33,765	\$43,449	\$43,449	\$43,449	\$43,449
Sub-total	\$301,987	\$384,508	\$463,179	\$488,086	\$488,086
GC Markup	10%	\$30,199	\$38,451	\$46,318	\$48,809
Contingency	10%	\$30,199	\$38,451	\$46,318	\$48,809
<b>Total</b>		<b>\$362,385</b>	<b>\$594,011</b>	<b>\$688,417</b>	<b>\$718,305</b>

### ATTACHMENTS

- Option #1 Diagram
- Option #2 Diagram
- Option #3 Diagram
- Option #4 Diagram

NOTE: ALL TEMPERATURES AND PRESSURES REPORT TO THE FACILITY MANAGEMENT SYSTEM. ALL TEMPERATURE AND PRESSURE SETPOINTS SHALL BE ADJUSTABLE.

- (T1) IF TEMPERATURE DROPS BELOW 120°F REDUCE HOT SPRINGS PUMP SPEED.
- (P1) IF PRESSURE DROPS BELOW 10W.C. ENABLE HOT SPRINGS PUMP AND OPEN CONTROL VALVE#1. IF ACTIVE AND THE PRESSURE DROPS BELOW 10W.C. INCREASE HOT SPRINGS PUMP SPEED.
- (T3) IF TEMPERATURE DROPS BELOW 80°F ACTIVATE POOL PUMP AND HOT SPRINGS PUMP. POOL PUMP SPEED TO MAINTAIN A CONSTANT 80°F TEMPERATURE. POOL PUMP AND HOT SPRINGS PUMP DEACTIVATE WHEN TEMPERATURE RISES ABOVE 84°F.
- (T2) (P2) (T3) (P3) (T4) (P4) TEMPERATURES AND PRESSURES RECORDED FOR DIAGNOSTICS ONLY

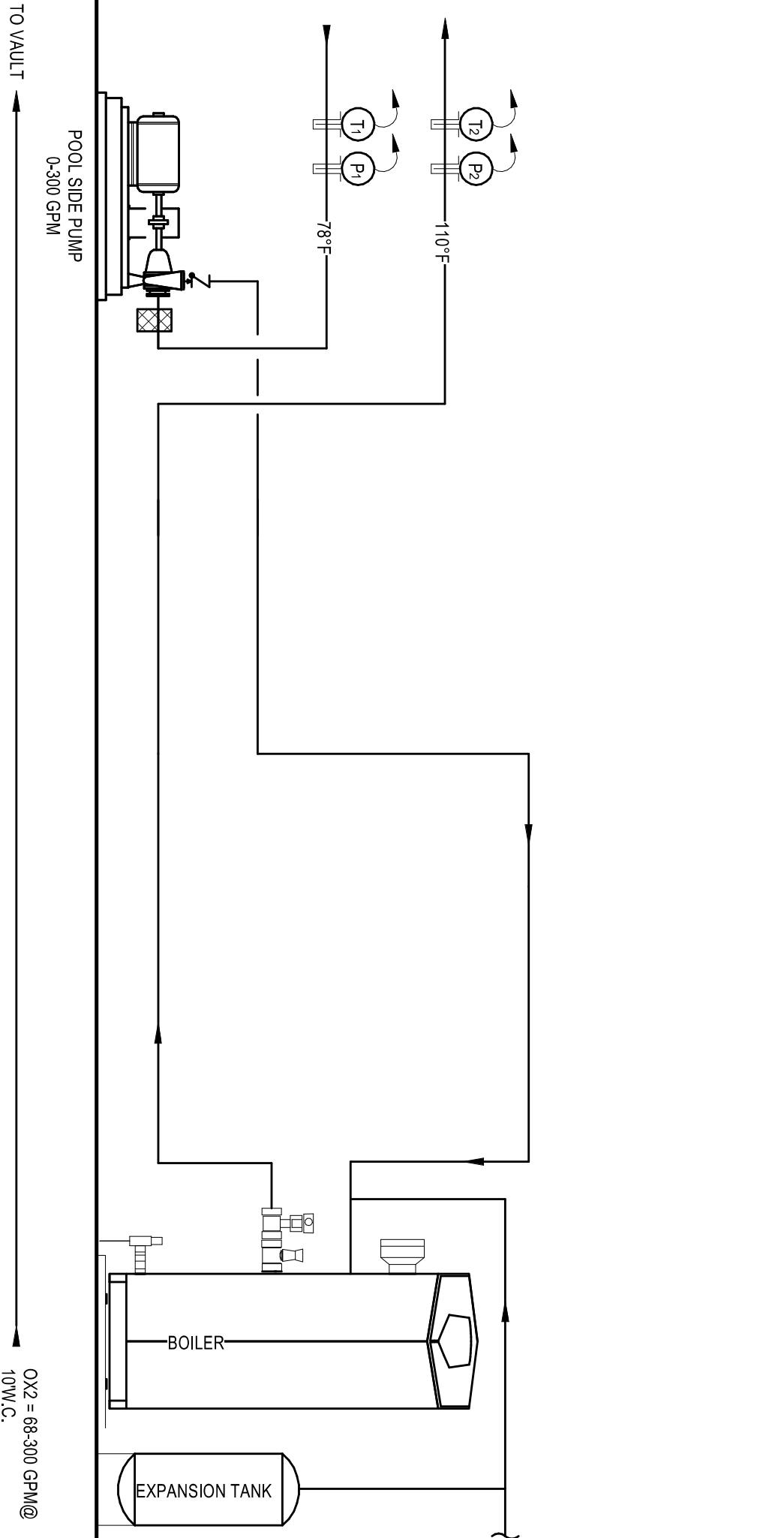


# HX PIPING DIAGRAM

1

NOTE: ALL TEMPERATURES AND PRESSURES REPORT TO THE FACILITY MANAGEMENT SYSTEM. ALL TEMPERATURE AND PRESSURE SETPOINTS SHALL BE ADJUSTABLE.

T1 IF THE COLDEST POOL TEMPERATURE DROPS BELOW 78°F ACTIVATE THE PUMP AND BOILER TO MAINTAIN 78°F .

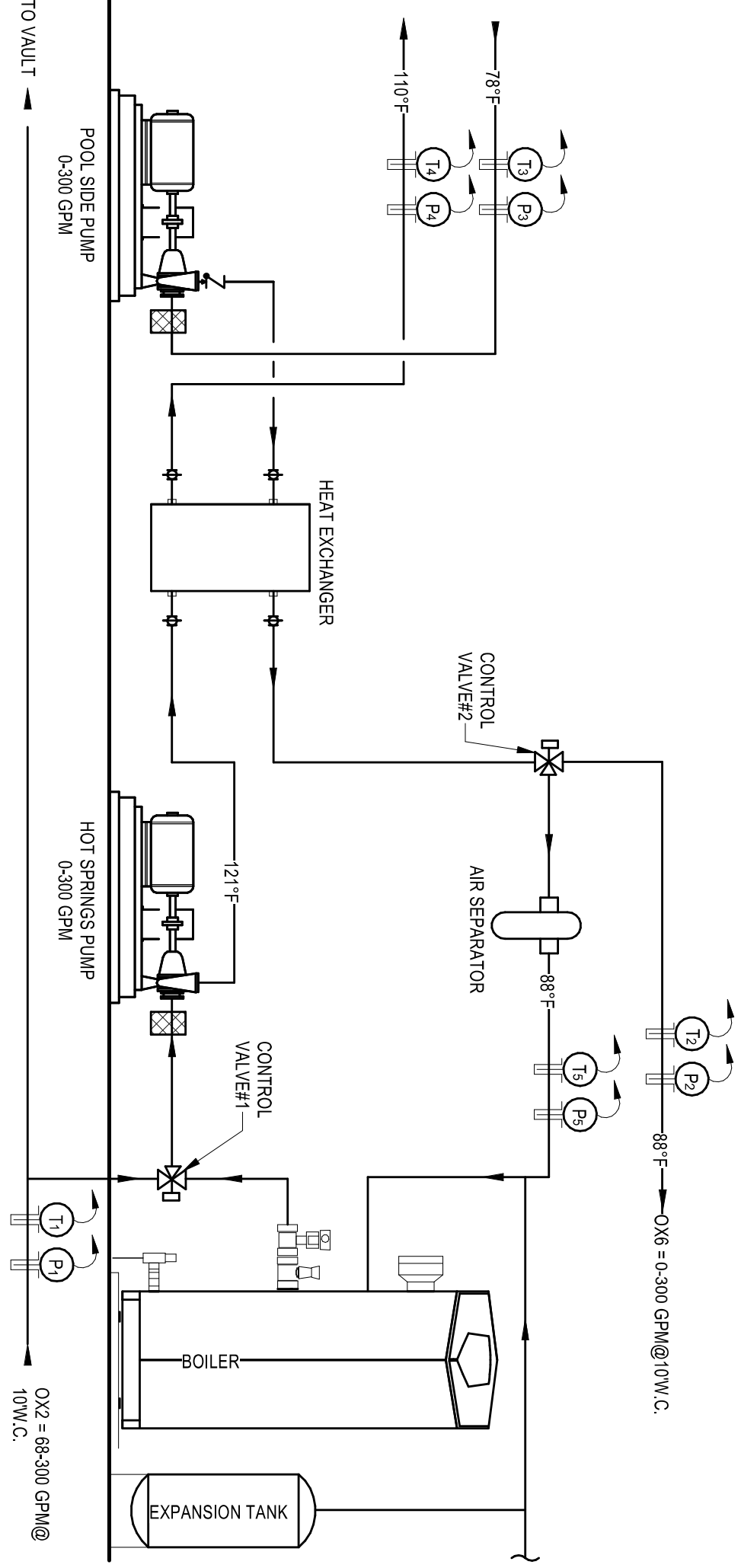


2

# BOILER PIPING DIAGRAM

NOTE: ALL TEMPERATURES AND PRESSURES REPORT TO THE FACILITY MANAGEMENT SYSTEM. ALL TEMPERATURE AND PRESSURE SETPOINTS SHALL BE ADJUSTABLE.

- (T1) IF TEMPERATURE DROPS BELOW 120°F REDUCE HOT SPRINGS PUMP SPEED. IF TEMPERATURE DROPS BELOW 115°F CLOSE CONTROL VALVE#1 AND #2 TO THE HOT SPRINGS AND OPEN TO THE BOILER SYSTEM. ACTIVATE BOILER TO MAINTAIN TEMPERATURES.
- (P1) IF PRESSURE DROPS BELOW 10W.C. ENABLE HOT SPRINGS PUMP AND OPEN CONTROL VALVE#1. IF ACTIVE AND THE PRESSURE DROPS BELOW 10W.C. INCREASE HOT SPRINGS PUMP SPEED.
- (T3) IF TEMPERATURE DROPS BELOW 80°F ACTIVATE POOL PUMP AND HOT SPRINGS PUMP. POOL PUMP SPEED TO MAINTAIN A CONSTANT 80°F TEMPERATURE.
- (T3) IF TEMPERATURE DROPS BELOW 80°F ACTIVATE POOL PUMP AND HOT SPRINGS PUMP. POOL PUMP SPEED TO MAINTAIN A CONSTANT 80°F TEMPERATURE.

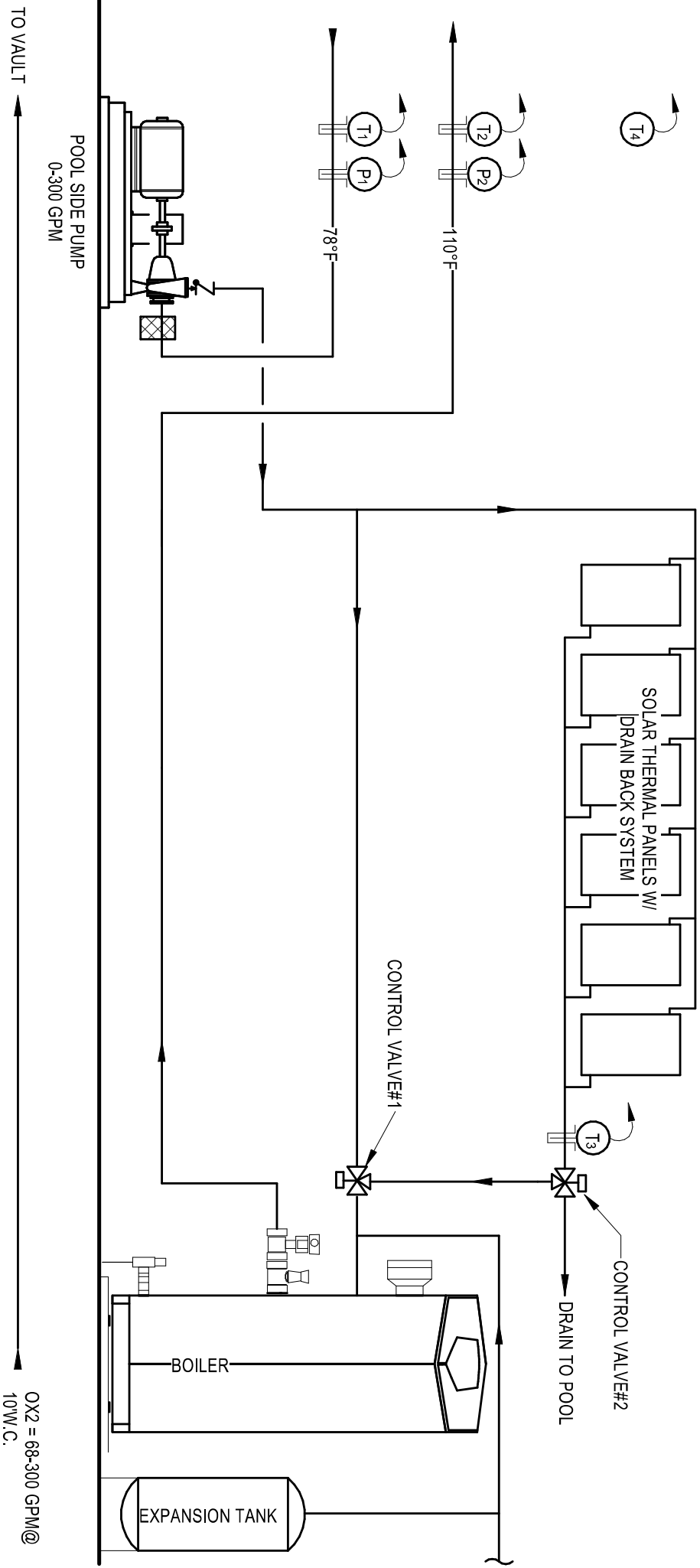


# HX/BOILER PIPING DIAGRAM

NOTE: ALL TEMPERATURES AND PRESSURES REPORT TO THE FACILITY MANAGEMENT SYSTEM. ALL TEMPERATURE AND PRESSURE SETPOINTS SHALL BE ADJUSTABLE.

T1 IF THE COLDEST POOL TEMPERATURE DROPS BELOW 78°F ACTIVATE THE PUMP TO MAINTAIN 78°F .

T3 IF THE WATER TEMPERATURE DROPS BELOW 110°F CONTROL VALVE#1 SHALL DIVERT FLOW TO BOILER LOOP AND CONTROL VALVE#2 DRAINS TO THE POOL. IF THE WATER TEMPERATURES RISE ABOVE 120°F CONTROL VALVE#1 SHALL DIVERT WATER TO THE BOILER LOOP AND CONTROL VALVE #2 SHALL DIVERT WATER TO A POOL.



OX2 = 68-300 GPM@  
10W.C.

4

# SOLAR THERMAL DIAGRAM