FILE

City of Lake Elmo

651/777-5510

3800 Laverne Avenue North / Lake Elmo, MN 55042

City of Lake Elmo
City Council Workshop
3800 Laverne Avenue North
Lake Elmo, MN 55042
October 13, 2009

6:30 p.m.

1. Agenda

2. Fire Chief Malmquist: (verbal)
   a. N1H1 Contingency Plan
   b. (IEMC) Emergency Management Training in 2010

3. Outdoor wood burning furnaces/smoke nuisance

4. Water Supply Plan
   a. Water Conservation Rates (Tom Bouthilet
   b. Water Use Restrictions (Ordinance Update by City Engineer)

5. 2010 Organizational Meeting date change (City Administrator-verbal)

6. Adjourn

City Council Workshop
Date: October 13, 2009
Item: 3

ITEM:	Potential Consideration of an Outdoor Wood Burning Ordinance
SUBMITTED BY:	Sharon Lumby, City Clerk
THROUGH:	Bruce A. Messelt, City Administrator
REVIEWED BY:	Kyle Klatt, Planning Director Greg Malmquist, Fire Chief

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A few inquiries citizen have been made to City Hall regarding the use and regulation of outdoor wood burning furnaces and boilers. Issues emanating from their use include creation of excess smoke and smell, their aesthetic look, and overall safety.

At present, the City of Lake Elmo has no such ordinances or regulations in place. However, neighboring communities and the League of Minnesota Cities have addressed this and related or similar issues (please see attached).

Recommendation: It is recommended that the City Council briefly discuss this issue and determine if it is appropriate for City Staff to look further into the development of a proposed ordinance for Planning Commission and, ultimately, City Council consideration.

Other Considerations: City staff estimate the amount of time and effort required to undertake such research and drafting to be minimal. However, City staff would consider this direction to be of lower priority than other current activities and, as such, no specific timeline is recommended for preparation and presentation to the Planning Commission and City Council.

Attachments: As stated

Regulating Outdoor Furnaces and Boilers

By Rachel Carlson

With the recent rise in the cost of natural gas and oil, the use of outdoor wood burners (also known as boilers, furnaces, and heaters) is becoming more common nationally. As a result, cities may be receiving inquiries from homeowners who wish to install outdoor wood burners (OWBs). In addition, cities may receive complaints from neighbors of newly installed OWBs, particularly concerning the smoke they generate.

Generally, OWBs are more common in rural settings. However, in recent years, the use of OWBs has increased in more densely residential neighborhoods. Typically, an OWB resembles a small shed with a short smokestack. It burns wood in a fire box to heat water in a water jacket that surrounds the box. Used as a water heater and/or a primary heat source for the home (typically when attached to a forced air furnace inside the home), the typical OWB is powered by wood. Some OWBs burn corn, pellets, and biomass, but this article will focus on wood-burning OWBs.

Dangers of OWBs. Due to the rapid increase in OWBs in New York, the state attorney general commissioned a study on OWB use. The report, titled "Smoke Gets in Your Lungs: Outdoor Wood Boilers in New York State," found that neighbors of OWB users reported that the OWB smoke:

- Led to a variety of health symptoms, including upset stomach, headaches, dizziness, respiratory effects, and throat and eye irritation.
- Prevented neighbors from using their yards for normal activities such as gardening, hanging clothes out to dry, and playing with children.
- Left a residue and smoke odors on items inside their homes such as clothing, curtains and upholstery.
- Set off their home carbon monoxide detectors.

Federal Environmental Protection Agency studies indicate that OWBs produce over 1,000 times more smoke than traditional interior gas and oil furnaces. Since OWBs tend to be placed in small shacks with very short smokestacks, this dense smoke is often emitted very close to the ground, near windows and in areas where people circulate. The smoke and emissions problems associated with OWBs can be exacerbated when owners use the burner to dispose of trash, tires, or treated wood, potentially releasing toxic chemicals into the air.

Inhalation of wood smoke is noted to cause many unhealthful side effects. Burning wood adds harmful fine particles and toxins to the air, according to the Minnesota Pollution Control Agency web site. These particles can cause short-term eye, lung, and throat irritation problems and long-term health effects (e.g., chronic obstructive lung disease, chronic bronchitis, increased risks of cancer), and may be especially harmful to young children with developing lungs.

What cities can do. Although no federal or state regulations currently exist, many cities have opted to regulate OWBs on a local level through their nuisance ordinance. A nuisance is generally defined as anything that is injurious to health, indecent or offensive to the senses, or an obstruction to the free use of property so as to interfere with a comfortable enjoyment of life or property.

State statute gives cities the authority to regulate nuisances via a local ordinance. In Minnesota, cities' regulation of smoke as a potential nuisance is longstanding. In 1911, the Minnesota Supreme Court upheld a Minneapolis ordinance defining excessive smoke as a public nuisance, noting that "smoke . . . becomes a nuisance when it permeates that air surrounding people and invades their residences and places of occupation."

The council has authority to explicitly define a particular nuisance, and then to provide for its regulation or abolition. This means that a city can choose to either completely prohibit OWBs as a nuisance in an ordinance, or provide detailed guidelines for their use. In cities that choose to regulate OWBs, the regulations usually:

- Limit the use of OWBs to areas zoned for agricultural use.
- Prohibit the burning of treated wood, garbage, and other potentially harmful materials.
- Impose setback requirements from neighboring properties.
- Require smokestacks that are at least as high as neighboring residences.
- Require an annual permit with inspections.

Cities may also attempt to regulate OWBs through their zoning ordinance. Cities could permit or prohibit the OWBs as an accessory or conditional use and establish setback and lot size requirements. If a city chooses to regulate the OWBs through its zoning regulations, it should consider whether existing OWBs must comply or be considered a lawful non-conformity, pursuant to Minn. Stat. § 462.357, subd. 1c. In contrast, pre-existing uses that are declared a nuisance and regulated as such are not protected as lawful non-conformities.

More information. Sample ordinance provisions related to OWBs are available by contacting the LMC Research Department at (651) 281-1200 or (800) 925-1122.

Rachel Carlson is research attorney with the League of Minnesota Cities. Phone: (651) 281-1226. E-mail: rcarlson@lmc.org.

Example

AN ORDINANCE TO AMEND
THE CODE OF THE CITY OF
WINONA, MINNESOTA
1979

The City of Winona does ordain:

Section 1. That Article IV of Chapter 43 of the City Code of Winona, Minnesota, 1979, which Article is entitled "Performance Standards" be amended by adding thereto the following section:

"**43.33.1 DETACHED HEATING SYSTEM**

(a) **Permit Required**. No person shall allow, maintain or use any detached heating system in the City of Winona without first obtaining a mechanical permit for the installation/operation of said appliance. The permit will be issued to install only new "listed" appliances. All detached heating systems are to meet emission standards currently required by the Environmental Protection Agency (EPA) and the Underwriters Laboratories (UL) listing. This documentation must be provided to the Building Inspector at the time the Permit Application is made.

(b) **Compliance Requirements.** Any existing detached heating system shall immediately comply with all manufacturer's requirements and appropriate fuel requirements. Any person having installed a detached heating system without a mechanical permit must obtain a permit and conform to the requirements of this section within 60 days of adoption. Detached heating systems without a mechanical permit that do not conform to the requirements of this section shall be removed within 60 days of adoption. Detached heating systems installed with a mechanical permit shall comply as closely as possible with the requirements of this section. Legal non-conforming detached heating system shall not be replaced once it is no longer operational.

(c) Location.

(1) No detached heating system shall be located in a front or street yard. The intended location shall be behind the rear building line of the principal structure served by the appliance.

(2) Setbacks shall be as follows: Side and rear yard setbacks shall be not less than 150 feet to the lot line.

(3) Distance to buildings served by the appliance shall be per the manufacturer's installation instructions.

(4) Distance to any structures of adjoining properties not served by the appliance, and related stack heights, will be as follows:

a. 150-250 feet away from adjoining property structure: stack height to meet or exceed the peak line of the residence plus two feet.
b. 250 feet away from adjoining property structure: 20 foot minimum stack height measured from the adjoining grade to the appliance. The minimum chimney height shall be 20 feet unless a greater height is required by the above requirements.
c. Stacks shall be designed, constructed and maintained to withstand horizontal wind pressures of not less than 30 pounds per square feet.

(d) Operation of Detached Heating System

(1) Installation.

a. All detached heating systems shall be installed, operated and maintained in strict conformance with the manufacturer's instructions and the regulations promulgated hereunder. In the event of a conflict, the regulations promulgated hereunder shall apply unless the manufacturer's instructions are stricter than the regulations promulgated hereunder, in which case the manufacturer's instructions shall apply.

b. The heating appliance shall be installed on a concrete slab that extends a minimum of 2 feet past the rear and sides of the appliance and shall provide a minimum 5 foot by 5 foot area at the loading end of the appliance.

(2) Fuel. Fuel shall be only natural untreated dry wood or wood specifically permitted by the manufacturer or other fuels listed by the manufacturer of the unit. Notwithstanding the foregoing following fuels are strictly prohibited:

a. The burning of processed wood products and other non-wood products, including but not limited to pallet lumber.
b. Kerosene
c. Garbage/Trash
d. Painted wood and/or any "treated" wood
e. Any other item not specifically allowed by the manufacturer or this provision.

(3) Fuel Storage. Stacks of fuel for the outdoor wood-burning furnaces shall be arranged in a neat and orderly fashion in the rear yard a minimum of 10 feet from side and rear lot lines, so as to maintain the aesthetic value of the neighboring City properties. Wood shall be stacked on pallets or racks a minimum of 4 inches off the ground to minimize rodent harborage. Other fuels shall be stored in suitable containers to prevent attracting rodents.

(4) Usage. The operation of a detached heating system shall be allowed only from November 1 to March 31 of any calendar year.

(e) Definition. A detached heating system shall include any system for the production of heat for any residential or other structure used for human habitation, whether fueled by the burning of wood or other approved natural or processed materials, which is located outside of the structure for which the heat is generated. Such shall include but not be limited to outdoor wood-burning furnaces, wood-burning boilers and other detached energy systems, whether the same be free-standing or encompassed within a separate building or structure not intended as the primary beneficiary of the heat produced thereby, and regardless of the method of heat exchange.

(f) Enforcement/Penalties. Any person violating any provision of this section, including the operation of a detached heating system without a permit, shall be guilty of a misdemeanor. Every twenty-four (24) hours of continued unauthorized or illegal use after the initial citation may be cited as a separate occurrence. Any enforcement officer with citation powers may issue the citation for the offense."

Section 3. That this ordinance shall take effect upon its publication.

Dated this _____ day of _____, 2009.

_____
Mayor

Attested By:

_____
City Clerk
City/ordinance/Detached Heating Systems.doc

City Council Workshop
Date: October 13, 2009
Item: 4a

ITEM: Proposed Water Conservation Rate Structure

SUBMITTED BY: Tom Bouthilet, Finance Director
Joe Rigdon, Financial Consultant

THROUGH: Bruce A. Messelt, City Administrator BAM

REVIEWED BY: Mike Bouthilet, Public Works Superintendent

SUMMARY AND ACTION REQUESTED: The City Council is being asked to consider a proposed Water Conservation Rate Structure for the municipal water system, in accordance with the required Water Supply Plan (regulated by the Minnesota Department of Natural Resources), and in accordance with best operating practices to minimize the water system well and storage facility requirements. Minnesota Statues 103G.291 requires public water suppliers serving more than 1,000 people to employ water use reduction measures and implement a conservation rate structure. The conservation rate structure must be implemented by January 1, 2010.

For initial Council discussion, a preliminary conservation rate structure for the City's water billing was developed as shown below. No change to the quarterly base charge of $25 or the usage charge for the first 15,000 gallons used per quarter ($2.15 per 1,000 gallons) is proposed. Five tiers of usage levels are proposed, with incrementally increasing usage rates in each tier. The rates have been structured to increase approximately 25% per tier in an effort to encourage the conservation of water.

Based on the City's estimate of an average residential customer using 30,166 gallons of water per quarter, the average residential water bill is estimated to increase 8% from $91.20 to $98.31 per quarter when applying the preliminary conservation rates.

Beginning in 2010, increased annual water revenues of $25,000 are estimated to be generated by the preliminary conservation rate schedule.

Based on current projections, the Water fund is expected to incur annual operating losses of approximately $250,000. Adding back non-cash depreciation expense of approximately $310,000 per year results in positive cash flow from operations. However, net non-operating revenues (water connection fees, tower rent) and expenses (interest on water bonds) as well as principal payments on water bonds are currently projected to reduce the Water fund's cash position each year.

City of Lake Elmo

Current Quarterly Information:	
Base Charge	$25.00
Rate per 1,000 gallons	$2.15
Average Residential Bill	$91.20
Average Residential Quarterly Consumption (gallons)	30,166
Hypothetical Quarterly Conservation Rates:	
Base Charge	$25.00
Rate per 1,000 gallons:	
0 - 15,000 gallons	$2.15
15,000 - 30,000 gallons	$2.70
30,000 - 50,000 gallons	$3.40
50,000 - 80,000 gallons	$4.30
80,000+ gallons	$5.40
Average Residential Bill Using Conservation Rates: (30,166 gallons):	
Base Charge	$25.00
0 - 15,000 gallons	$32.25
15,000 - 30,000 gallons	$40.50
30,000 - 50,000 gallons	$0.56
	$98.31
Increase to Average Residential Bill Using Conservation Rates	8%

Debt service payments on the 2005A $4,600,000 G.O. Water Revenue Bonds have been largely responsible for drawing down the Water fund cash. At the time the bonds were issued, the City projected an average of approximately 170 new housing units each year, each generating a Water Access Charge (WAC). The City is not realizing the originally expected level of housing starts and related WAC fees during the present economic slowdown, and the Water fund cash position has been adversely affected.

For 2010, the Water fund cash position is projected to decrease approximately $125,000. In an effort to begin addressing the declining cash balance, the following measures are being contemplated:

- Increased annual water revenues of $25,000 estimated to be generated by the preliminary conservation rate schedule
- Utilization of currently proposed 2010 capital outlay transfers from the General Fund budget in the amount of $50,000
- Drawdown of Water fund cash reserves of $50,000

In the absence of WAC fees from new development, the Water fund cash will annually decrease unless other sources can be identified. Contingent strategies to combat the cash depletion should be developed through the City's capital improvement planning process.

City Council Workshop
Date: October 13, 2009
Item: 4b

ITEM:	Water Use Restrictions Ordinance Update
SUBMITTED BY:	Ryan Stempski, Assistant City Engineer
THROUGH:	Bruce A. Messelt, City Administrator
REVIEWED BY:	Tom Bouthilet, Finance Director Jack Griffin, City Engineer Kyle Klatt, Planning Director Mike Bouthilet, Public Works Superintendent

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SUMMARY AND ACTION REQUESTED: The City Council is being asked to consider implementing water conservation measures for the municipal water system, in accordance with the required Water Supply Plan (regulated by the Minnesota Department of Natural Resources), and in accordance with best operating practices to minimize the water system well and storage facility requirements. Minnesota Statues 103G.291 requires public water suppliers serving more than 1,000 people to employ water use reduction measures and implement a conservation rate structure. The conservation rate structure must be implemented by January 1, 2010.

Additional conservation measures are being recommended to help alleviate the peak water demands being placed on the municipal water system during the summer dry months, primarily due to lawn irrigation. Water shortages are recorded by the Public Works Department each year. During dry periods, Well No. 2 cannot maintain the operating water level in Water Tower No. 2.

Staff will present the proposed water use restrictions for the municipal water supply, including permanent Odd/Even and Time of Day Sprinkling Bans. The Finance Director will provide an update on the proposed conservation rate structure to be implemented by January 1, 2010.

The proposed rates, in addition to incentivizing water conservation and meeting state mandates, will modestly assist the City in addressing current insolvency in the Water Utility Enterprise Fund.

ATTACHMENTS

1. Draft Water Restrictions Ordinance Update
2. Water Operating Level Graph
3. Winter Months Versus Summer Months Water Flow Data

50.40 WATER USE RESTRICTIONS

EMERGENCY AUTHORITY: To protect the health and safety of the consumers, as well as the general welfare, the Mayor or City Council may impose emergency regulations pertaining to City water use. Whenever the City shall determine that a critical water deficiency prevails, it may limit the times and hours during which water may be used from the City water system for lawn and garden sprinkling, irrigation, car washing, air conditioning, and other non-essential uses. It is unlawful for any water consumer to cause or permit water to be used in violation of such determination after public announcement thereof has been made through publication or by posting in the City Hall and City website specifically indicating the restrictions thereof.

(A) The Mayor or City Council may declare a critical water deficiency to prevail within the City whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the City to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

(B) The Mayor or City Council shall thereupon enact such regulations and restrictions on the delivery of water and the consumption within the City to conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection.

(C) When the Governor of the State of Minnesota declares a critical water deficiency, the Mayor or City Council will enact and enforce water conservation restrictions in accordance with Minnesota Statute 103G.291.

(D) Water use regulations and restrictions may include the right to deny applications for new or additional service connections, and provisions for their enforcement by discontinuing service to customers willfully violating the regulations and restrictions.

PERMANENT WATER USE RESTRICTIONS: To encourage water conservation and allow flexibility in the City's water system in meeting peak demands, and to reduce the required water supply and storage capacity requirements allowing for a lower cost water system, certain limitations must be placed on the City's water supply.

(A) Odd/Even Sprinkling Ban: Property owners having even numbered postal addresses may water, sprinkle, or irrigate their lawns only on even numbered days, and property owners having odd numbered postal addresses may water, sprinkle, or irrigate their lawns only on odd numbered days.

(B) Time of Day Sprinkling Ban: All property owners are prohibited from watering, sprinkling, or irrigating their lawns between the hours of 10 A.M. and 5 P.M. daily.

(C) Exceptions: The permanent water use restrictions do not apply in the following situations:

1. Private wells.

2. Recently established lawns if permission is granted through a Watering Restriction Waiver form, allowing daily watering for up to 30 days after installation. Watering must still adhere to the restricted hours for the Time of Day Sprinkling Ban. New sod or seeded lawns or other landscaping requiring watering, sprinkling, or irrigation, shall not be installed during a water shortage emergency.
3. Attended hand watering of plants, shrubs, trees, and gardens.

LAWN WATERING, SPRINKLING, AND IRRIGATION: All lawn sprinkler systems and irrigation systems connected to the municipal water system, whether such systems are aboveground or underground, shall require a permit for connection and shall be installed in accordance with the Minnesota State plumbing code. To conserve water, all lawn sprinkler systems and irrigation systems which are automatic or are equipped to operate automatically and which are connected to the municipal water system, shall be equipped with a rain-detection device such to prevent the system from operating when it rains (per MN Statute 103G.298). All lawn sprinkler systems and irrigation systems connected to the municipal water system shall be constructed and operated to prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, over spray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures.

ENFORCEMENT: Failure to comply with restrictions or prohibitions imposed under this ordinance shall result in a surcharge for water service for each violation in an amount determined by resolution of the City Council, which shall be added to the water bill for the property on which such violation occurs. Each day of violation shall be deemed a separate violation. Continued violation shall be cause for discontinuing water service.

WINTER AND SUMMER FLOW COMPARISON

WELL #1

	JAN	FEB	MARCH	TOTALS
2008	1,619,100.00	2,287,300.00	2,383,500.00	6,289,900.00
2009	1,475,000.00	1,346,600.00	1,552,000.00	4,373,600.00

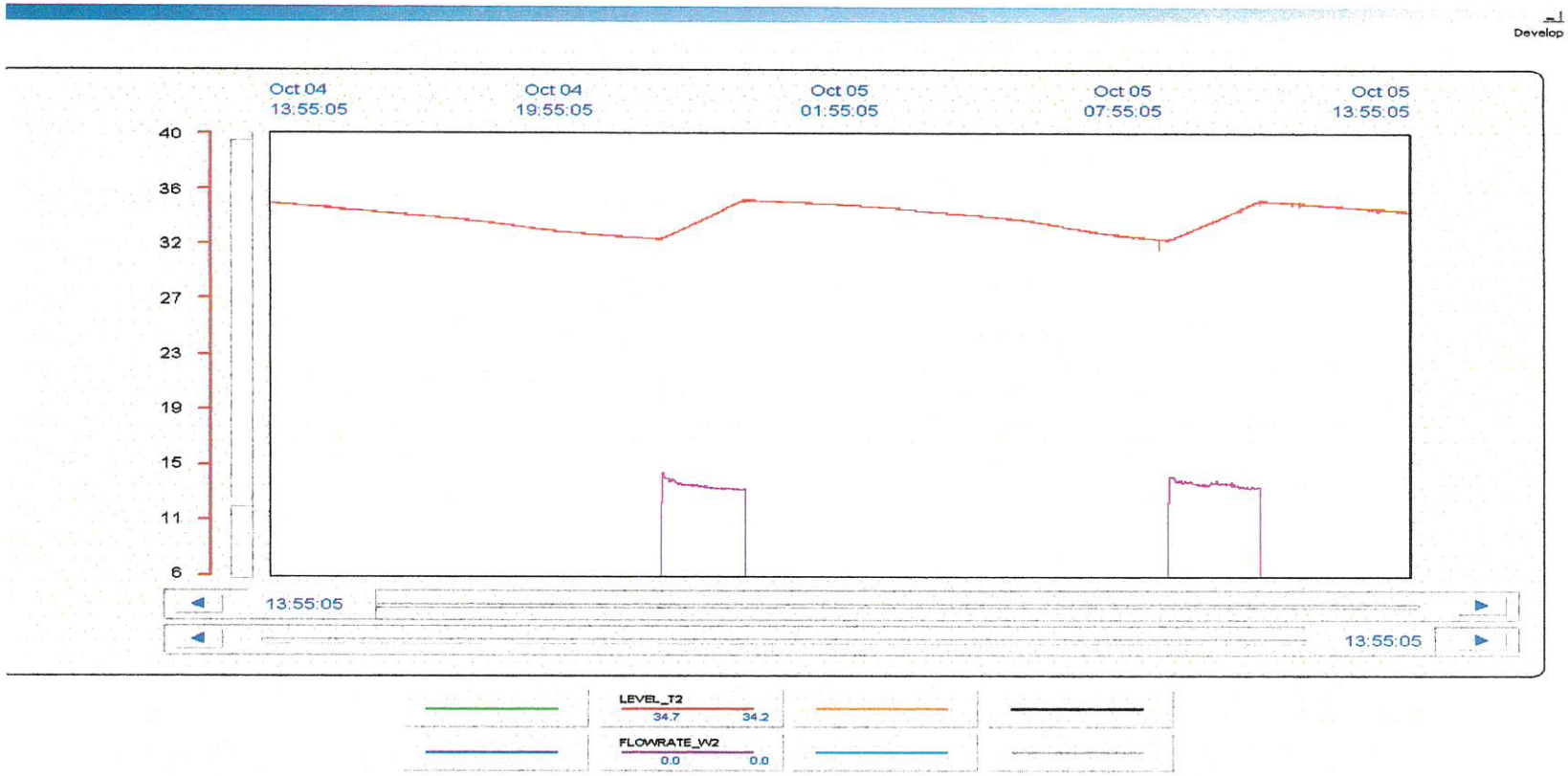
	JUN	JUL	AUG	
2008	2,679,700.00	3,959,200.00	4,066,300.00	10,705,200.00
2009	3,820,100.00	3,823,400.00	2,410,900.00	10,054,400.00
			TWO YEAR DIFFERENCE	**22,675,900.00**

WELL #2

	JAN	FEB	MAR	
2008	3,461,000.00	3,341,000.00	3,507,000.00	6,802,000.00
2009	3,637,000.00	3,365,000.00	4,023,000.00	11,025,000.00

	JUN	JUL	AUG	
2008	12,826,000.00	22,254,000.00	21,040,000.00	56,120,000.00
2009	16,988,000.00	19,243,000.00	10,810,000.00	47,041,000.00
			TWO YEAR DIFFERENCE	**98,938,000.00**

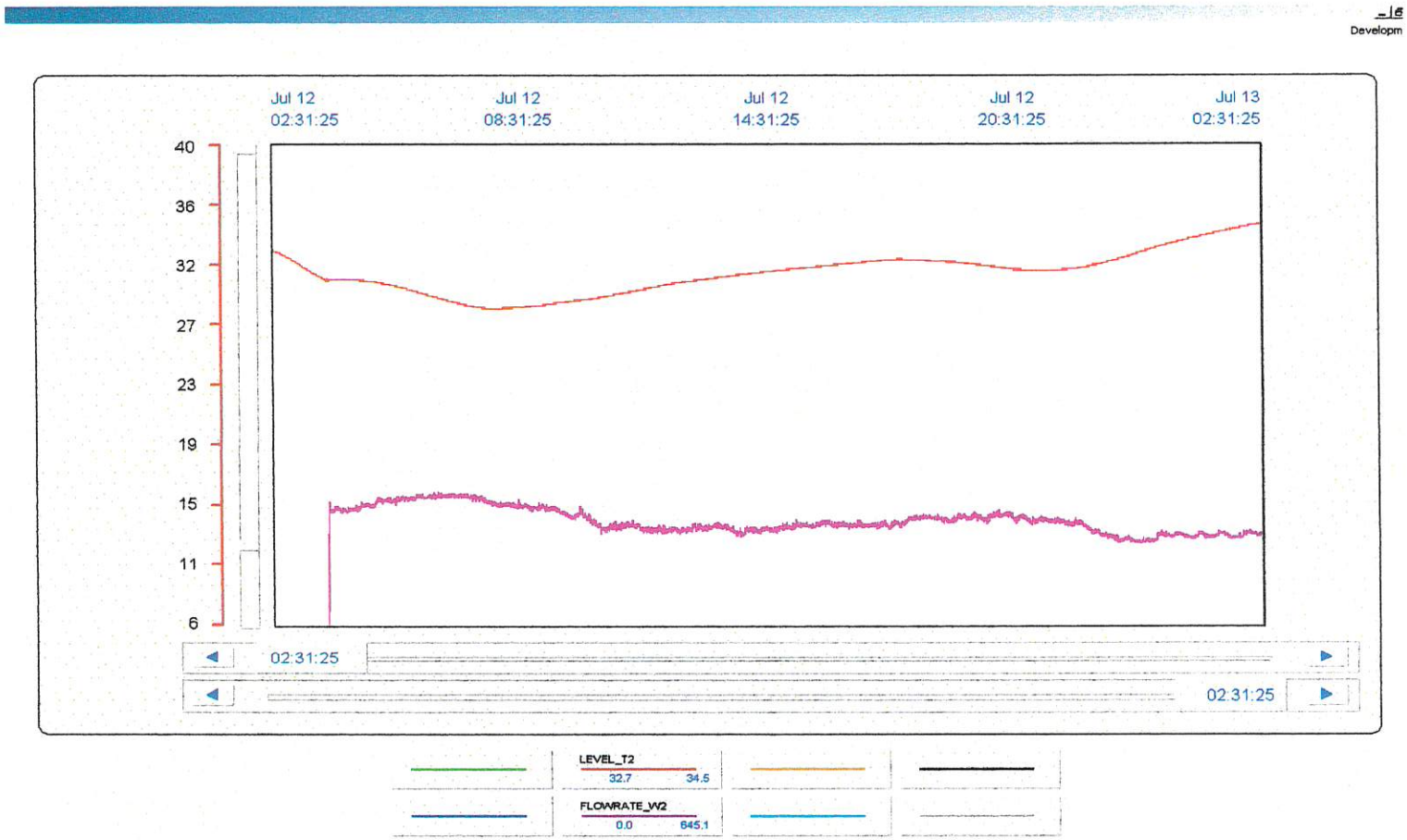
Well 2



TOWER LEVEL GRAPHED IN RED PUMP FLOW GRAPHED IN PURPLE

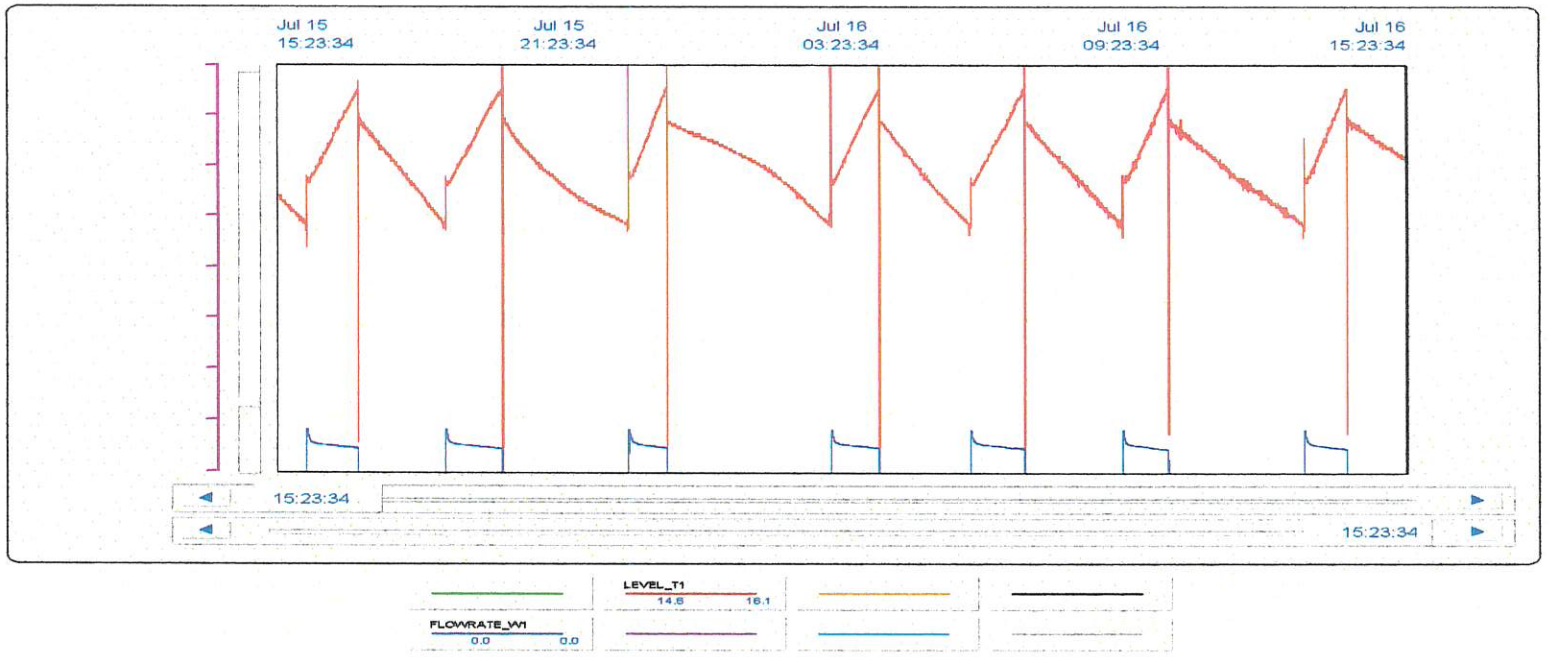
Graph depicts normal operations. When tower level (red) reaches 33 feet pump (purple) starts and the tower level increases to until to the pump stop setting of 35.5 feet. As tower fills the pump flow decreases.

Well 2



TOWER LEVEL GRAPHED IN RED PUMP FLOW GRAPHED IN PURPLE

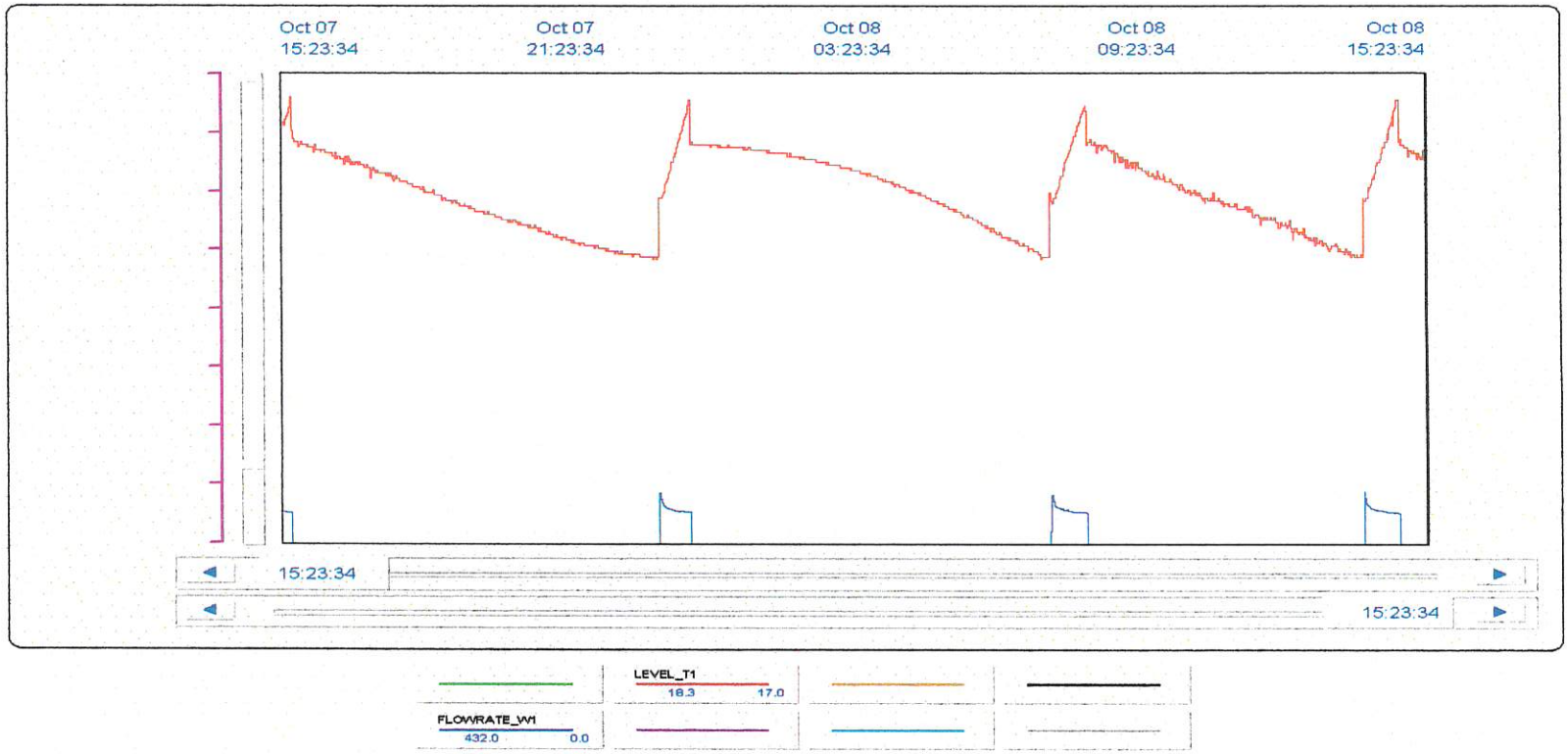
Graph depicts dry weather operations. Pump was started at 30 feet in tower and although the pump was running at over 900 gpm the tower level continued to drop to 28 feet and only started to gain height 6 hours later. The tower level again dropped around 7:00pm for a short period. The pump continued to run for 24 hours before the tower reached the fill set point.



TOWER LEVEL IN RED PUMP FLOW IN BLUE

Dry operating conditions: pump runs 7 times in 24 hours.

Well 1



TOWER LEVEL RED PUMP FLOW BLUE

Normal operating conditions: pump runs 4 times in 24 hours.