

Water Conservation Tips & Solutions

City of Fresno, Department of Public Utilities - Water Division: Conservation
559-621-5480

"Providing Life's Essential Services"

Tips & Solutions

Think about water every time you use it! We should not wait until a drought to begin conserving water. Conservation measures ensure that we have enough water to grow food, manufacture goods or to drink! Small changes save water. You can make a difference!

Use Common Sense!

Most people recognize water waste when they see it. Flooded gutters or a 30 minute shower means more water is being used than needed. Saving water can save on your power bill and that of the City's. Call Water Conservation offices when you see water being wasted.



OUTDOOR CONSERVATION

OUTDOOR WATERING



Are you using too much water in your yard?

On average, 50 to 70% of home water is used outdoors for watering lawns and gardens. This is where we can save the most water. Water that flows onto the sidewalks and into the gutters and streets is water wasted. Don't water concrete!

Follow the Outdoor Water Schedule!

Remember to follow the City of Fresno Outdoor Water Schedule. Set your system to follow the City of Fresno Water Schedule. Remember to water only on your watering day! Call Conservation to request a free water schedule refrigerator magnet.

Landscape & Irrigation

Most water is wasted in your landscape by watering when your plants do not need water or by not maintaining the irrigation system. About 85% of all landscape problems are directly related to over-watering. By combining water conservation practices with creative landscape design, you can create an attractive haven that's relatively hassle-free. A properly designed and operated irrigation system can reduce water. By using shade, rethinking traditional

grass lawns, taking advantage of natural runoff, planting in low irrigation areas, and using mulch, your landscape can be transformed into a beautiful design that conserves water.

- **Proper landscape design & irrigation** - Select plants that are appropriate for our local climate conditions. Having a yard with 100% lawn turf area in our dry climate uses significant amounts of water. Consider Valley friendly water efficient plants and grasses. Xeriscape is an increasing trend in landscape design. Adjust your watering to take advantage of the less-thirsty plants. Avoid planting turf in areas that are difficult to irrigate properly such as steep inclines and isolated strips along sidewalks and driveways.
- **Group plants** -Grouping plants according to their watering needs saves a substantial amount of water.
- **Water only what landscape needs** - Much water is wasted in your yard by watering when plants and grass are not thirsty.
- **Mulch!** Put a layer of mulch around trees, bushes and plants. Chunks of bark, peat moss or gravel slow evaporation, help the soil retain moisture, discourage the growth of weeds, and provide essential nutrients. Using mulch to a depth of 2 to 3 inches reduces evaporation and saves 750-1,500 gallons a month.
- **Porous materials prevent runoff** - Use porous materials for walkways and patios to keep water on your property and prevent wasteful runoff.
- **Don't over fertilize landscape** - The application of fertilizers increases the need for water and is a source of water pollution. Use fertilizers according to direction.
- **Soil Improvements** - Soils improved with organic matter allow for better water absorption and water-holding capacity. Properly enrich your soils with compost or peat moss. Aerate clay soils at least once a year to help the soil retain moisture. Then stand back to watch your plants thrive and grow!

Turf

You can achieve a healthy lawn without a lot of effort - - it starts by being water smart. When watering your lawn, learn to use less water. You will save time, money, and water.

- **Practical Turf Areas** - Grass should be grown only in areas where it provides functional benefit. Substitute less water-demanding materials, such as ground covers, water efficiency plants or mulches. Porous materials, rock, wood or concrete pathways and patio areas can be added to decrease water use while enhancing your yard, creating interest in the landscape.
- **Mow Higher and Develop Deep Roots** - Mowing higher helps develop deep roots. If you mow the grass too short, root shock cause grass to turn yellow despite your watering! Set mower blades about 2-3 inches high. Never remove more than 1/3 of the leaf blade in one mowing. Grass needs leaf surface to take in sunlight. This will allow it to grow thicker and develop a deeper root system. A lawn with deep roots requires less water and is more resistant to drought and disease. Taller blades of grass actually hold up better in the heat, because that little bit of extra cover shades the root zone keeping more moisture in the soil. Longer, thicker grass also makes it difficult for weeds to germinate and grow.

- **Keep blades sharp** - For best results, keep the blade sharp and mow when the grass is dry. Sharp blades reduce water loss from your lawn. A sharp blade does not leave a ragged edge on the blade of the leaf like a dull blade does. Those ragged edges can soak up a lot of water, and when you consider the total surface area of cut grass blades it adds up.
- **Grass cycle** - Want a simple, natural approach to lawn care? Consider grass cycling--leaving the grass clippings on the lawn. Because grass clippings are 75 to 85 percent water, they quickly decompose and release nutrients back into the lawn. Grass cycling, or mulch-mowing, provides greater shade to the ground and assists in reducing the rate of evaporation of soil moisture and surface watering. You save time by reducing bagging, raking and watering. Landfill space is also saved by reducing the amount of grass clippings being thrown away.
- **Let It breathe** - Once a year, aerate your lawn by removing small plugs of earth. This allows air and water to reach the grass roots. You can have this done professionally, or rent tools to do the job yourself. Remove the weeds, which compete for water with the lawn.
- **Be Water Smarter** - Water your lawn only when it needs it. A good way to test this is to step on the grass. If it springs back up when you move it doesn't need watering and if it stays flat it needs watering. Water early or late in the day. As much as 30% of water can be lost to evaporation by watering when it is hot. By breaking up your watering time, you allow the water to soak into the ground before adding any additional water, eliminating runoff. If you have an irrigation controller and water is running off and not soaking in, set your controller to water in two shorter periods for the same total length of time.

Garden Hoses & Faucets

Your garden hose and sprinklers can pour out hundreds of gallons of water in a few hours. Never “forget” that you left them running.



- **Hose nozzles** - Attach an automatic shut off spray nozzle to your hose, so that you can better control the water use, and so that the water doesn't run freely when you set the hose down.
- **Leaky hoses** - A standard garden hose can use 10 gallons per minute or more. This means you can easily use 100 gallons of water with only a 10 minute car or pavement wash. Check all hoses, hose bib connector and spigots regularly. Replace your hose if it leaks or is split. Look for little sprays of water along the hose. A hose washer will usually take care of hose bib leaks.
- **Repair dripping and leaky faucets** - Small drips add up to 100-300 gallons a day. Consider the additional waste if you have more than one dripping faucet in your yard. Repair dripping and leaking faucets immediately.

Sprinklers, Drip and Other Irrigation Systems

Homes with the average in-ground sprinkler systems can use up to 35% more water outdoors than those who do not have an in-ground system. One reason may be that system controllers are not adjusted according to seasonal irrigation needs.

- **Determine the point of run off** - Start your system through its automatic cycle. As each station comes on make a note of the time it starts. Watch each station and note how many minutes it takes to start running over the curb, onto the sidewalk or driveway, or to start forming puddles. This is the “run off point.” Using the shortest length of time noted, reset each station on your timer so the individual stations will shut off at this “run off point”. If you have clay or compacted soil that is slow to absorb water, set your timer to run a second cycle (again to the “point of runoff”) that begins AFTER the first cycle has soaked in.
- **Set Irrigation Timers appropriately!** - Remember to set irrigation system timers to correspond with the appropriate City watering schedule. Be attentive if you are manually watering by setting your oven timer or some other reminder to move the water promptly. If you have an automatic irrigation controller, make sure it has a rain shutoff device. Adjust or deactivate automatic sprinklers in cooler weather. The City offers free assistance to customers who need their controllers adjusted.
- **Avoid Controller Power Outage Problems** - Replace battery in controller with recommended type. A good battery maintains the controller’s memory during power outages.
- **Teach family to use timers** - Teach your family or others how to shut off automatic systems so they can turn them off if they get stuck or there is an emergency situation. While you are at it, teach them how to set the timers also.
- **Repair system leaks** - Tune up your irrigation system for efficiency. Inspect sprinkler systems regularly for breaks, leaks and correct timers. When was the last time you actually watched all the sprinklers in action? Are you sure there aren't any geysers coming out of your front yard? Check for water in the gutters or mud puddles. More than 50% of your water can be lost to leaks with older, out-of-repair systems. Manually turn on each sprinkler station valve and check to make sure there are no broken sprinkler heads or pipes in each area. Make all repairs and clean the filters in pop-up sprayers. Flush out drip and micro system filters and tubing. Check each station for leaks every two weeks.
- **Correct over spray** - While checking each station for leaks adjust any sprinkler heads that are spraying onto driveways, sidewalks or the street by rotating the head, correct spray pattern, adjusting the amount of flow from the heads, and/or using the correct spray pattern.



- **Water early or late in the day** - To prevent water loss from evaporation, don't water your lawn during the hottest part of the day or when it is windy. As much as 30% of water can be lost to evaporation by watering the lawn during midday. Avoid sprinklers that spray a fine mist, which increases evaporation.
- **Water in cycles** - For the healthiest and most water-efficient lawn, try to water in several short watering cycles rather than one long one. Three 5 to 10 minute sessions spaced 30 minutes to an hour apart will allow your lawn to better absorb moisture than one straight longer session, and there is less water run off. This method also allows your grass to develop deeper roots.
- **Check the soil moisture** - Although your grass may feel dry on the surface, the underlying soil may be sufficiently moist. When in doubt, stick a soil probe, screw driver or moisture meter into the grass to determine if additional watering is necessary.
- **Drip Irrigation** - Install a drip irrigation system for watering gardens, trees and shrubs. Drip irrigation provides a slow, steady trickle of water to plants at their roots through a network of hidden pipes and hoses. The systems are regulated by a controller that can be adjusted for different levels of watering according to the needs of the plants. Drip irrigation systems reduce overwatering, inefficient watering, weed growth, and the time and labor involved in hand watering.

Recreation: Pools, Ponds & Fountains

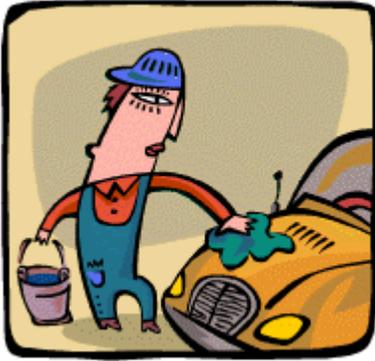
- **Good pool management practices** - Pools are great for cooling off on a hot summer day, but don't let your pool become a tool for wasting water! Properly managing your pool to avoid unnecessary draining and refilling can save thousands of gallons of water a year.



- **Pool covers help avoid evaporation** - Consider a pool cover when not in use to avoid evaporation. You'll cut the loss of water by evaporation up to 90 percent. Covering your pool reduces water loss from evaporation and keeps the water level low, minimizing splashing and saves up to 1,000 gallons a month. It also will keep your pool or spa cleaner and reduce the need to add chemicals.
- **Recirculating pumps** - Swimming pools, fountains and ponds should be equipped with recirculating pumps. These water features should also be checked annually for hidden leaks or other problems. Avoid installation of ornamental water features (such as fountains) unless the water is recycled. Locate where there are minimal losses due to evaporation and wind drift.
- **Use Kiddie pool to water plants** - If you have a shallow kiddie pool, make sure you use the water to feed plants and gardens when you're done with it!
- **Water recreation for children** - Create an awareness of the need for water conservation among your children. Avoid purchasing recreational water toys that require a constant stream of water. If you do allow children to play in the sprinklers to cool off, make sure it's only during your water days and time so they can have fun and water the yard at the same time.

Vehicles & Driveways

A standard garden hose can use 10 gallons per minute or more. This means you can easily use 100 gallons of water with only a 10 minute car or pavement wash.



- **Washing your car** - When you wash your car, use buckets and sponges instead of a hose. Use the hose only to rinse the soap off. Make sure you have an automatic shut off nozzle attached to the hose. Park the car on or near the lawn so that any water that runs off goes into your landscape, not the gutter.
- **Use a commercial car wash** - Use commercial car washes because they capture the used water and recycle it and send it to the water treatment facility.
- **Sweep to clean driveway** - Save water by sweeping instead of hosing. Use a broom to clean your driveway and pavement. It is wasteful to hose your pavement to clean it off. Wash down paved surfaces only to alleviate immediate fire or sanitation hazards. Direct any water runoff to water your landscape. Businesses which must spray paved areas for sanitary reasons should use a Water Broom which uses 2.0 gallons per minute versus a hose and nozzle combination that uses 8-18 gallons per minute.

Evaporative Coolers

Evaporative coolers require a seasonal maintenance checkup. For more water efficient cooling, check your evaporative coolers annually. Maintenance is the best way to keep the cooler working efficiently without wasting water. Replacement parts are fairly inexpensive. Following are good maintenance tips:

- The float can usually be adjusted to make it work properly or it can be replaced. They are fairly inexpensive if replacement is needed.
- Open hose is prohibited; however, we suggest to the customer that they may want to wet the pads down occasionally and also to replace pads often. Pads are inexpensive.
- Rusted out pans usually cannot be repaired unless small enough to use a sealant.
- Bleed-off valve water which prevent mineral buildup on pads, can be directed toward landscape. Bleed-off clamps can reduce water use.

INDOOR CONSERVATION

BATHROOM

A lot of the water gets used in the bathroom. Learn more about the water you use and how to save water in the bathroom.

Toilets

The highest water consuming device inside homes are toilets using about 26.7% of water used in your home.

- **Ultra Low-Flush Toilets** -Replace older toilets using over 1.6 gallons per flush (gpf). The new Ultra Low Flush Toilets (ULFT) or High Efficiency Toilets (HET) use 1.6 gpf or less. The City of Fresno offers a rebate for replace your old water-guzzling toilets. Replacing just one older model toilet with a 1.6 gpf ULFT can save a household up to 50 gallons of water each day. An HET toilet, which uses 20% less water per flush than an ULFT, can save even more!
- **Toilet leaks** -Toilets are notorious for their silent leaks and can steal thousands of gallons of water. Put a few drops of food coloring to the tank. Do not flush. If the toilet is leaking, color will appear in the bowl within about 10-15 minutes. Check the toilet for worn out, corroded, or bent parts, especially the “flapper” valve. Most replacement parts are inexpensive, readily available and easily installed. (Flush immediately after completing test, since food coloring may stain the tank.)
- **Improve efficiency of older Toilets** - If your toilet was made before 1993, you can make it more water efficient. Fill a plastic quart bottle with water and a few pebbles and place in toilet tank. Keep it away from moving parts. Displacement of water does not affect the efficiency of most toilets and can save water. (Don't use bricks because they can leave debris in the tank.)
- **Unnecessary flushing** -Flush toilets only when needed. Dispose of tissues, insects and other such waste in the trash rather than the toilet.



Showers, Baths, Sinks & Faucets

Shower or Bath? It depends on how long you stay in the shower and how high you fill the tub. A tub filled about 1/3 or less full uses far less water than a long shower. On the other hand, a shorter shower uses less than a full tub.

- **Replace showerhead** - Switching from a high-flow showerhead to a high-efficiency one can save thousands of gallons of water a year. All showerheads manufactured in the U.S. after 1992 must restrict flow to 2.5 gallons per minute (gpm) or less. Some models use even less water.

Example of water savings:

Traditional showerhead = 5 gallons/minute x 10 minute shower = 50 gallons water used

Low flow showerhead = 2.5 gallons/minute x 10 minute shower = 12.5 gallons water used.

- **Shorter showers** - Five minutes or less is best. Create a *Shortest Shower Contest* for your family. Make a game of out it to save water. Time each family member about how long it takes for their routine shower. You might be surprised at the number. Now that everyone is conscious of their time, see if they can shave some time off.

- **Minimum amount of bath water** - Only fill the bathtub about 1/3 full for an adult and much less for bathing babies, small children and pets. Close the drain before running water. The initial burst of cold water will be warmed by adding hot water later. Check for and repair leaks in the tub diverter valve.
- **Sink water use** - Save water when you turn off the faucet while brushing your teeth or shaving and washing. Don't run the water without plugging the sink drain. Water running down the drain is wasted water. Turn faucets off when not in use.
- **Faucets, Aerators, Water Pipes, Instant Hot Water - See Kitchen Section**

KITCHEN



- **Replace your dishwasher** - New dishwashers use about 4 to 9 gallons per load. Energy Star appliances use less than 6.5 gallons per load.
- **Run dishwasher when it's full** - Don't waste water using the dishwasher for small loads. Load the dishwasher fully before operating. Many newer dishwashers require little or no advance rinsing of dishes. Read the instruction manual for your machine to determine if you can minimize rinse water usage.
- **Washing dishes by hand** - When washing dishes by hand, fill one sink or basin with soapy water. Fill another sink or basin for rinsing. Use the least amount of detergent possible. This minimizes rinse water needed. Also soak pots and pans before washing.
- **Use Garbage Disposals Less** - Kitchen sink disposals require a high level of water (as much as four gallons per minute), to operate properly. Whenever possible, compost food scraps or put them in the garbage rather than using the disposal.
- **Repair faucets** - Small drips can add up to 100-300 or more gallons a day. Consider the additional waste if you have more than one dripping faucet in your house. Repair dripping and leaking faucets immediately.
- **Aerators save water** - The most effective and inexpensive way to reduce your faucet use is by retrofitting a low-flow faucet aerator on all your household faucets. Aerators save water just by adding air to the water and reducing splashing. They don't take away the water pressure and increase the spray velocity, but they use a lot less water. For maximum water efficiency, purchase aerators that have flow rates of no more than 1.0 to 1.5 gpm.
- **Insulate water heater and pipes** - You will get hot water faster and use less water if your water heater and pipes are insulated plus avoid wasting water while it heats up.
- **Water softening systems** - Because of the negative affects of salinity to the land and groundwater, traditional salt based water softeners have been banned in some water districts. Various communities have



endorsed legislation to regulate use and availability of self-regenerative water softening appliances that discharge to the community sewer system. Water-softening systems are usually unnecessary, but if you do have one, save water and salt by running the minimum amount of regeneration necessary to maintain water softness. Turn softeners off while on vacation.

- **Instant Water Heater** - Install an instant water heater for the kitchen since so water isn't wasted while waiting for hot water.
- **Refrigerate drinking water** - Keep a pitcher of water in the refrigerator rather than letting the tap run every time you want a cool glass of water. Water running in the sink until it is cold is wasteful.
- **Use less in the kettle** - If you only need hot water for two cups of tea, why fill the tea kettle to the top? Save water and energy by using only what you need.
- **Food thawing and cleaning methods** - Defrost frozen food in the refrigerator or in the microwave instead of running water over it. Don't let the faucet run while you clean vegetables. Rinse them in a filled sink or pan.
- **Cooking food** - Steam vegetables instead of boiling. Besides using less water, you will retain more vitamins in food. If you must boil foods, use a timer to avoid too much evaporation.

LAUNDRY

Washing Machines

Your clothes washer is the second largest water user in your home.

- **High-efficiency washing machine** - Standard washing machines use an average of about 40 gallons of water per load. Energy Star rated washers also have a Water Factor at or lower than 9.5, use 35-50% less water and 50% less energy per load. Switch to a high-efficiency washing machine and save money on both your water and energy bills. **Call the Water Conservation Program to check on \$Rebate availability!**
- **Wash full loads** - Only wash full loads of laundry to save both water and energy. Washing full loads can save up to 300 - 800 gallons of water a month
- **Adjust water level** - Adjust water level setting if your washer has one. Some loads take less water than others.
- **Hand washing** - Save hand washing items and do them all together. If possible, use the same sudsy water for several items.
- **Faucets, Water Pipes, Instant Hot Water** - See Kitchen Section



MORE IMPORTANT TIPS



- **Family awareness** - Make sure your children and other family members are aware of the need to conserve water.
- **Conservation for students** - Encourage your school system and local government to promote a water conservation ethic among school children and adults.
- **Conservation on your job** - Encourage your employer to promote water conservation at the workplace. Participate in recycling programs. Paper manufacturing is one of the top five water consuming industries.
- **Water reuse** - Never put water down the drain when there may be another use for it such as watering a plant or garden, or cleaning. Reuse fish tank water on your household plants -- it makes nice fertilizer, too.
- **Ask for it!** Restaurants are still encouraged to serve water to customers only upon request, simply because of the large amount of water saved by avoiding washing glasses unnecessarily.
- **Hazardous material disposal** - Dispose of hazardous materials properly! One quart of oil can contaminate 250,000 gallons of water, effectively eliminating that much water from our water supply.
- **Report water waste or losses** - Report all significant water waste or losses (broken pipes, open hydrants, misdirected sprinklers, abandoned or free-flowing wells, etc.) to the City's Water Conservation Program.

Some Web sources for more information:

<http://www.awwa.org/waterwiser/>

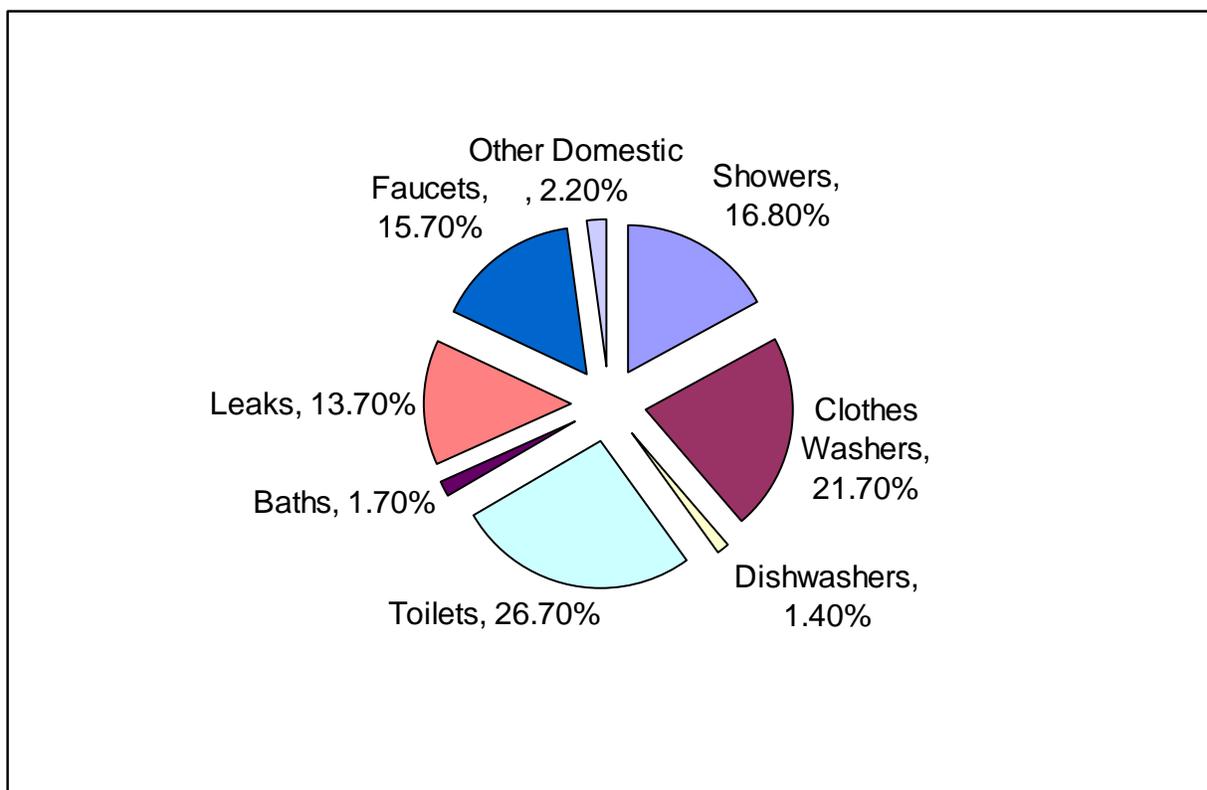
<http://www.h2ouse.org/>

Water Use Statistics

Consumption and Conservation - Daily indoor per capita water use in the typical single family home is 69.3 gallons in the United States. (**Fresno uses well over 200 gallons per person per day!**) Here is the percentage breakdown, followed by a graph, of use in the home:

Uses	Gallons Per Capita	% of Total Daily Use
Showers	11.6	16.8
Clothes Washers	15.0	21.7
Dishwashers	1.0	1.40
Toilets	18.5	26.70
Baths	1.2	1.70
Leaks	9.5	13.7
Faucets	10.9	15.7
Other Domestic Uses	1.6	2.20

(1999 Residential End Uses of Water, American Water Works Association Research Foundation)
<http://www.awwa.org/waterwiser/>



By installing more efficient water fixtures and regularly checking for leaks, households can reduce daily per capita water use by about 35% to about 45.2 gallons per day Here's how it breaks down for households using conservation measures:

Uses	Gallons Per Capita	% of Total Daily Use
Showers	8.8	19.5
Clothes Washers	10.0	22.1
Dishwashers	.7	1.5
Toilets	8.2	18.0
Baths	1.2	2.7
Leaks	4.0	8.8
Faucets	10.8	23.9
Other Domestic Uses	1.6	3.4

Handbook of Water Use and Conservation, Amy Vickers)