



HOW TO CHECK FOR LEAKS IN YOUR WATERFALL:

A PROFESSIONAL GUIDE

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THERE'S NOTHING QUITE AS DISHEARTENING AS WATCHING THE WATER LEVEL IN YOUR BEAUTIFUL WATER FEATURE DROP DAY AFTER DAY. BUT BEFORE YOU PANIC, TAKE A DEEP BREATH—MOST WATERFALL LEAKS ARE EASIER TO FIND AND FIX THAN YOU MIGHT THINK...THEY ARE USUALLY SMALL, THEY ALMOST ALWAYS WILL HAPPEN AT SOME POINT OVER THE LIFE OF YOUR WATER FEATURE (USUALLY MOSTLY IN THE FIRST YEAR OR 2), THERE IS A SYSTEMATIC APPROACH TO FINDING THEM, AND IN THE END - IT'S JUST WATER! AS YOU LIVE WITH AND ENJOY YOUR FEATURE YOU WILL BECOME MORE IN TUNE WITH THE SPECIFIC AREAS THAT MIGHT CAUSE ANY ISSUES, BUT WITH OVER 30 YEARS OF COMBINED EXPERIENCE INSTALLING AND MAINTAINING WATER FEATURES ACROSS SASKATCHEWAN, WE'VE SEEN (AND SOLVED) JUST ABOUT EVERY TYPE OF LEAK IMAGINABLE SO HOPEFULLY WE CAN MAKE THAT PROCESS EASIER FOR YOU!

IN THIS GUIDE, WE'LL WALK YOU THROUGH THE EXACT SYSTEMATIC APPROACH WE USE AT PEREGRINE LANDSCAPE CONSTRUCTION TO DIAGNOSE AND LOCATE LEAKS. BUT FIRST...LET'S UNDERSTAND IT BETTER!

UNDERSTANDING WATER LOSS: LEAK OR EVAPORATION?

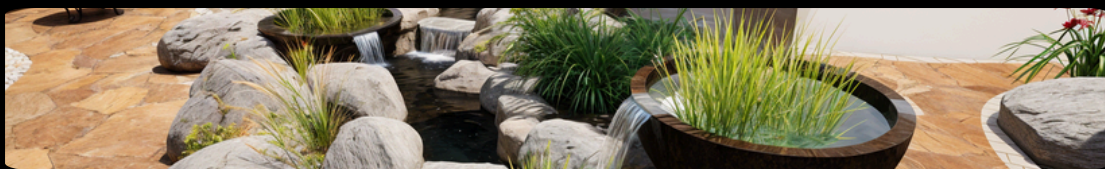
Normal Water Loss

Before we dive into leak detection, it's important to understand that not all water loss is a leak.

You may not realize just how much water can evaporate from a feature while it is running. For most systems anywhere from 0.5% to 2% of the total water in the system per day is normal. This can easily add up to 2" of loss a day on some systems. However certain feature specific factors can decrease or increase this even more or:

- **Temperature and Sunlight:** Higher temperatures and direct sunlight increase evaporation.
- **Wind Exposure:** Stronger winds increase evaporation and can cause water to splash or blow out of the feature.
- **Humidity:** Lower humidity (drier air) increases evaporation.
- **Water Flow and Splashing:** Excessive splashing, misting, or a long stream exposes more water surface area to the air, increasing evaporation. Waterfalls with large pumps, multiple cascades, or multiple fountain elements and lots of splashing experience higher evaporation rates
- **Feature Size:** A larger surface area of the stream and waterfall will naturally lead to more exposure and evaporation
- **Larger GPH pumps:** The more water you're moving, the more you can lose to evaporation
- **Local Climate:** Features in hot, dry climates will experience higher evaporation rates than those in cooler, more humid areas
- **Birds and animals:** Wildlife drinking from or bathing in your feature

With that understood let's get into the different steps/culprits:



THE 4 STEPS OR KEY CULPRITS FOR YOUR LEAK

1. Most Common Leak - Low or Settled Edges

Here's a little secret from the field: 99% of all leaks are NOT due to a hole in the liner. The most common leak is created from low or settled edges—especially in new ponds and waterfalls. Settling at the pond's edge or along the waterfall stream is the most frequent cause of water loss.

Why Edges Settle

This is very common and happens for several reasons:

- Soil compaction over time: A little bit of the topsoil settles naturally
- Liner settlement: The liner underneath everything settles slightly with the soil
- Freeze-thaw cycles in winter
- Heavy rain washing away backfill
- Rocks shifting and pulling liner down

Here's what's important to understand: The leak amount does NOT need to be large to run a basin dry. Several hours of even just a few gallons of water escaping every day adds up fast.

How to Find Low Edge Leaks

The first step—visual inspection for wet spots:

1. Walk the entire perimeter of your pond and waterfall with the water running
2. Look for excessively wet dirt, mulch, or gravel along the edges of the feature
3. Feel the ground with your hands in areas that look to be more wet
4. Look for water staining on rocks or soil just outside the liner boundary
5. Inspect for settling of the liner or depression along the stream edges where you see the moisture
6. Pay special attention to corners, curves, and high flow areas

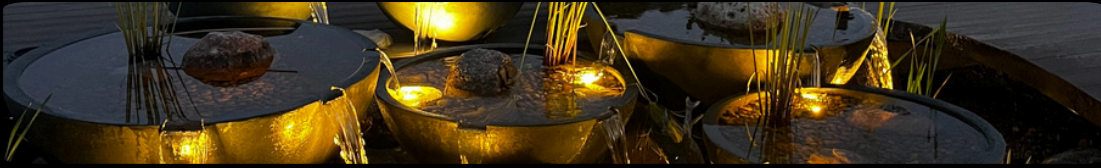
Saturated dirt along the edges is a key indicator of a low liner edge.

How to Fix Low Edge Leaks

The solution is straightforward:

1. Turn off the pump
2. Carefully pull back rocks and gravel from the settled area
3. Backfill with soil beneath the liner
4. Compact the soil firmly by hand to prevent future settling
5. Raise the liner edge at least 2-3 inches above the maximum water level
6. Replace rocks and gravel, ensuring they don't weigh down the liner edge
7. Test by running the system and watching for escaping water

💡 Pro Tip: Never try to investigate a leak if the ground is wet from rainfall—you won't be able to distinguish leak moisture from rain saturation.



2. Most Common Issue - Clogged Reservoir Intake

This is crucial for pondless waterfall and fountainscape owners: The area where water re-enters the underground reservoir by the pump can get clogged with debris—especially during spring when seeds are dropping, during the fall when leaves are falling, or after any cleaning/algae brush-off.

Understanding the clogged intake

Think of it like filling a bathtub with the drain open:

- When both are wide open: The tub drains at the same rate it fills (as designed)
- If you cover half the drain: The tub will eventually fill and overflow

This same effect happens at your basin when debris clogs the intake area.

What Causes Reservoir Clogging

The rock on top of the reservoir gets things lodged in its pores:

- Algae clumps (especially after cleaning or brushing)
- Leaves and needles
- Seeds and organic debris
- Dirt and sediment
- Grass clippings

When these materials clog the pores of the rock, water cannot enter the basin at a fast enough rate. This causes water to rise in that area, get above the liner near the bottom, and overflow into surrounding spaces.

How to Check for Reservoir Clogging

Visual inspection:

1. Turn on the pump and observe the intake area
2. Watch how quickly water disappears into the rock
3. Look for water pooling or rising on the surface
4. Check for visible debris on top of the aquablox or gravel

Signs of clogging:

- Water pools on the surface instead of draining quickly
- Water rises above the normal level in the intake area
- Wet spots appear around the perimeter of the reservoir
- System runs dry faster than normal



2. Most Common Issue - Clogged Reservoir Intake - Cont'd

How to Fix a Clogged Reservoir

The fix is simple:

1. Clear out debris manually from the intake area
 - Remove visible leaves, algae clumps, and organic matter
 - Pull out any large debris by hand
2. Agitate the rock thoroughly
 - Really move the gravel around
 - Shake and shift them to release trapped debris
 - Use your hands or a tool to stir the material
3. Flush the system
 - Use a garden hose to rinse through the rock
 - Watch for debris washing out
 - Continue until water flows freely
4. Test the drainage
 - Fill the reservoir to normal level
 - Run the system
 - Watch to ensure water is getting back down through the aquablox into the lower reservoir quickly (as designed)
 - Water should disappear at the intended spot...if you notice the water travels further before disappearing than usual it means your intake rock might be clogged up a bit
5. Monitor over the next couple days
 - Let the system run
 - Watch for excessive water loss
 - Remember that some water loss is normal daily

💡 Pro Tip: Perform this cleaning maintenance seasonally—especially in spring after winter debris, in fall during leaf drop, and after any algae cleaning sessions.



3. Check for Obstructions in the Stream or Waterfall

Obstructions can redirect water over the liner edge, creating what appears to be a leak. As we live with and enjoy water features it is encouraged for homeowners to play with and enjoy them. However, sometimes we add or move sticks, stones, or statuary in the features that redirect how the water flows in sections which can then cause the water to go up and over a liner edge that it previously wasn't.

What to look for:

- Shifted rocks: If you've adjusted rocks to improve aesthetics, you may have inadvertently diverted water flow
- Excessive plant growth: Aquatic plants or algae in the stream can raise water levels and allow overflow
- Debris accumulation: Leaves, twigs, and organic matter can block flow and cause redirection

The fix:

- Remove obstructions
- Reposition rocks to direct water properly within the liner
- Trim back excessive plant growth
- Clean out debris regularly
- Adjust water flow if necessary
- Monitor to know the fix has worked





4. The Reservoir Test

The final step is to test your reservoir is holding water and there is not a leak underground—and it works for both ponds and pondless systems.

What to do:

1. Turn off your pump completely
2. Mark the current water level in the pond or reservoir with duct tape, grease pencil, or a marked stick
3. Wait 12 or more hours (overnight is ideal)
4. Check if the water level has dropped
5. Use a small aerator during this time to provide oxygen to fish if you have them

What this tells you:

- If the water level stays stable: The leak is in your stream/waterfall (see above steps), plumbing, or a pump issue (not the reservoir itself)
- If the water continues to drop: The leak is in the pond liner or pondless reservoir itself
- If the water drops to a certain level and stops: The leak is at that specific water level—this is incredibly helpful for pinpointing the location

💡 Pro Tip: For the most accurate measurement, place a piece of duct tape in the skimmer or pump vault at the exact water line. This gives you a clear reference point.

If you check these off the list and still have above normal water loss then it might be time to give the professionals a call so we can double check everything, look at other items like plumbing and pumps, or come up with an assessment strategy so we can narrow down the leak together and schedule a time for the fix.

All in all there is nothing to worry about as a leak is simply a leak and your plants will appreciate the extra water for the meantime. By using a systematic approach and learning your features nuances you should be able to spot and solve anything quite quickly in under an hour. And if not, we can then schedule a service call!

