

# WPN Guide: Leak Noise Correlation

Successful leak noise correlation is an art. This guide presents best practices, tips and troubleshooting approaches that might be useful in field situations. Please use the Support feature of WPN2 to contact us if you'd like assistance with a particular LNC deployment or have some techniques to share.

## Number 1 Best Practice

Use the PLD to confirm the leak:

1. Set the PLD to use the **Ground** filter and turn on **High Resolution**
2. Listen from the surface, like asphalt, sand or grass and note the Sound Index
3. Move about 6 feet and listen again
4. Repeat until you are standing over the point with the highest Sound Index

## Deploying Sensors

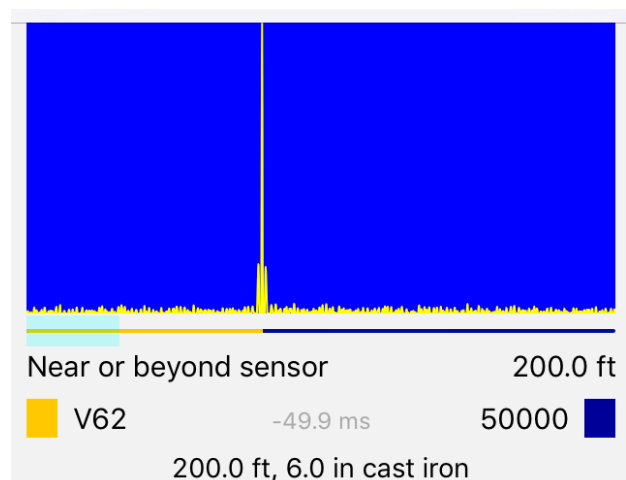
1. Place sensors on 2 or 3 sides of the suspected leak location, ideally on the pipe itself or nearby valves or hydrants
  - On an inaccessible valve attach the sensor to a valve key, horizontally near the ground
  - On a hydrant, attach the sensor vertically to a flange or top operating nut, or horizontally near the ground
  - On a non-ferrous material, like a meter or plastic pipe, attach to a clamping, steel, adjustable wrench
2. **Key:** The sensor will pick up small vibrations only if it is securely and rigidly attached. A wire brush can be useful to remove dust from the contact surface.

## The Leak Indication is “Near or Beyond Sensor”

This happens often and usually means that the leak is *beyond* the sensor (hinted at by the light blue shading on the left).

In the pictured correlation, leak sound is arriving at the yellow sensor from somewhere on the left and then traveling on to the blue sensor (right).

Occasionally the leak is actually within 10 feet of the sensor, but usually the leak is somewhere past the yellow sensor. It may be quite far away and/or on another pipe.



## Pinpointed Leak Location Seems Wrong

There are several common causes of a correlation peak leading to a location that seems wrong:

1. The pinpointed location is at a 'T'; and the leak is on another pipe off the T (like a service)
2. The pipe has a unique sound velocity and the leak is nearby (more likely with cast iron & PVC)
3. The actual pipe material or size are different from what has been entered
4. The actual pipe route between sensors is different from the distance that has been entered

## Phantom Sounds

Pipelines can have non-leak sounds that correlate well, for example from partially closed valves, sprinklers, usage spikes, or pipe fittings that rattle. Similarly a pipe location or a valve may vibrate, producing a phantom sound, because of a nearby leak. Consider:

- Closing a curb stop to see if noise from a pipe hanger or valve goes away (leak on service)
- Operating a valve nut to see if noise changes (accelerated flow through partially open valve)
- Looking around for possible noise sources, like sprinklers or meters turning
- Repeating the correlation to rule out intermittent usage flow noise