Water condensation may form on the copper pipes to and from the water heater. First check to make sure these pipes are dry. If they are wet, then that may be the source of the leaking issue.

Do not authorize replacement of the water heater unit a complete inspection of all possible water sources is finished. Necessary correction action, such as the installation of a thermal expansion tank, may be needed.

1. Is there water collecting on the floor?
   - Yes
   - No: Go to Question #4.

   Check for water on the floor around the base of the water heater.

2. Is the water collecting immediately below the T&P discharge tube?
   - Yes
   - No: Go to Question #3

   Check for water immediately below the opening of the T&P discharge tube. This would indicate thermal expansion. If there is no thermal expansion tank installed, then that is the appropriate fix.

3. Does the water evaporate over night?
   - Yes
   - No: Go to Question #4

If the water evaporates over night or during the day, then there is no leak. A leaking water heater would always have water on the floor and never dry up over time.
How to Diagnose a Leaker

4. Is there a thermal expansion tank installed?
   - No: Verify there is a check valve or backflow preventer in the system line.
   - Yes: Perform a thermal expansion test as indicated below.

5. Is the thermal expansion tank pressurized?
   - No: Pressurize tank or replace if damaged.
   - Yes: Thermal expansion tank must have at least 15 PSI of air pressure above the cold water service pressure.

6. Is there any water collecting in the wells of the anode rod or the cold inlet and hot outlet nipples?
   - No: Go to Question #7
   - Yes: Check the wells of the anode rod, cold water inlet nipple and hot water outlet nipple for standing water. Use a Q-tip, napkin, Kleenex or other absorbent material.
How to Diagnose A Leaker

7. Is the water coming from the threads of the nipple?
   No → Leak is above the water heater. Locate the leaking pipe and repair as needed.
   Yes → Using a flashlight, examine the threads to see if there is water seeping between the threads of the nipple and the thread of the spud on the water heater.

8. Is the water coming from the threads of the drain valve, electric heating elements, gas valve connection, or T&P valve?
   No → Go to question #8
   Yes → Using a flashlight, examine the threads to see if there is water seeping between the threads of the elements, gas valve or T&P valve of the spud on the water heater.

9. Does the water leak extinguish the pilot burner (frequent pilot outage)?
   No → If you got this far, there is no place else to go. You have examined every potential leak point. Have customer dry up any water near the heater; including the water piping to and from the heater. Make sure the call is properly logged in the system. Encourage them to watch and check closely; and to call back if the water returns.
   Yes → If the unit is a gas heater, then ask one more question #9.
   If the unit is an electric heater, then the tank is probably not leaking at this point. Escalate the call if you are unsure.
How to Diagnose A Leaker

**Thermal Expansion Test**

1. Make sure water heater is full of water.
2. Place a pressure gauge on the drain valve of the water heater.
3. Open the drain valve all the way. Note the starting pressure. (If there is a thermal expansion tank installed in the system, it should be charge 15 PSI higher that this reading.)
4. Turn thermostat up to its highest setting to demand heat.
5. Watch the pressure gauge until the water heater is satisfied.
6. Record the highest pressure reading during recovery.
7. If the pressure gauge got above 145 PSI and the T&P valve dribbles water, then install a thermal expansion tank or verify pressure in the thermal expansion tank.
8. Return thermostat to safe setting of less than 125°F.

Using a flashlight, examine the burner plate for signs of dried up water puddles, rust or corrosion.

Yes

The tank probably is not leaking. Order FaxBack # 1402 – Condensation.