CLAIMS:

1. A processor for removing contaminates from contaminated water to generate potable water, the processor comprising:

a) a boiler-condenser assembly and a compressor unit mounted in at least one sealed housing;

b) the boiler-condenser assembly comprising at least one shell, each shell being cylindrical and formed of a thin wall of heat conductive material, each shell having a top, a bottom, an inside, boiler surface and an outside, condenser surface, and each shell rotating about a longitudinal axis of rotation;

c) a contaminated water inlet positioned to direct contaminated water from a source to each inside, boiler surface, whereby water may boil on the inside, boiler surface to be converted to vapor when the boiler-condenser assembly is rotating, and any contaminated water not boiling and becoming vapor becomes wastewater, each shell rotating at a sufficient rotational velocity so that contaminated water reaching the inside, boiler surface is held against the inside, boiler surface;

d) the compressor unit having a compressor with a lower-pressure inlet and a higher-pressure outlet;

e) the lower-pressure inlet of the compressor communicating with the inside, boiler surface of each shell, the compressor being adapted to raise the pressure of vapor from each inside, boiler surface, the higher-pressure outlet of the compressor communicating with the outside, condenser surface of each shell, whereby vapor condenses on the outside, condenser surface of the shell as potable water, and the energy from condensation transfers heat and raises the temperature of each shell sufficiently to boil water on the inside, boiler surface;

f) at least one wiper positioned to contact the outside, condenser surface to remove condensate from the outside, condenser surface.

2. The processor of claim 1 wherein the at least one sealed housing comprises a housing having an upper region and a lower region, the compressor unit being mounted in the upper region, the boiler-condenser assembly being mounted in the lower region, and the compressor unit being above the boiler-condenser assembly.

3. The processor of claim 1, wherein the at least one sealed housing is a single housing, a motor mounting outside the single housing and further comprising a magnetic coupler having a first rotating member outside the at least one housing and operably connected to the motor and a

second rotating member mounted inside the single housing, the second rotating member operably connected to the compressor.

4. The processor of claim 1 further comprising at least two concentric shells, each shell being operatively connected to at least one other shell, so the shells rotate together.

5. The processor of claim 1, further comprising at least one boiler wiper in contact with the inside, boiler surface of at least one shell.

6. The processor of claim 1, further comprising at least one rotating vapor seals that blocks the passage of boiling and condensing vapors.

7. The processor of claim 1, wherein the compressor is configured to raise the pressure of the vapor exiting the compressor to a pressure higher than the pressure of the vapor as the vapor was boiled on the inside, boiler surface; at least one seal separating the higher-pressure vapor from the lower-pressure vapor, the at least one seal comprising a channel mounted for rotation with rotation of the boiler-condenser assembly, the channel having a distal portion extending away from the axis of rotation and a proximal portion opposite the distal portion, the channel containing liquid, a stationary disk extending away from the axis of rotation into the channel and dividing the liquid in the channel into a first portion and a second portion in fluid communication with each other, the first portion being exposed to the lower-pressure vapor and the second portion being exposed to the higher-pressure vapor, wherein rotation of the channel holds the liquid against the distal portion of the channel, the channel having enough length from the proximal to the distal portion to maintain the first and second regions of liquid on both sides of the disk when the shell rotates.

8. The processor of claim 7, wherein the contaminated water inlet has an end positioned near the channel of the at least one seal for directing contaminated water near the proximal portion of the channel.

9. The processor of claim 1, further comprising a first framework assembly between the at least one shell and the axis of rotation, the first framework assembly creating a boiling chamber between the first framework assembly and the boiling surface of the at least one shell, the first framework assembly mounted for blocking the flow of vapor in the boiling chamber above the at least one shell but allowing the flow of vapor in the boiling chamber below the at least one shell, a second framework assembly mounted radially outside the at least one shell and the axis of rotation, the second framework assembly creating a condenser chamber between the second framework assembly and the outside, condenser surface of the at least one shell, the

second framework assembly mounted for allowing vapor to flow into the condenser chamber from above the at least one shell but blocking the flow of vapor in the condenser chamber below the at least one shell.

10. The processor of claim 1, wherein the at least one sealed housing is a single housing, a canister surrounding at least a portion of the single housing and forming a space between the single housing and the canister, the canister connected to the source of contaminated water.

11. The processor of claim 1, further comprising a second seal comprising a channel mounted for rotation with rotation of the boiler-condenser assembly, the channel having a distal portion extending away from the axis of rotation and a proximal portion opposite the distal portion, the channel containing liquid, a stationary disk extending away from the axis of rotation into the channel and dividing the liquid in the channel into a first portion and a second portion in fluid communication with each other, the first portion being exposed to the lower-pressure vapor and the second portion being exposed to the higher-pressure vapor, the second seal being positioned so that wastewater from the inside, boiler surface vapor passes over the proximal portion when the first portion and the second portion are full of liquid, wherein rotation of the channel directs the water toward the channel.

12. The processor of claim 1 further comprising a freshwater outlet, the freshwater outlet having one end positioned to receive freshwater removed from the outside, condenser surface, freshwater pressurizing means attached to the other end of the freshwater outlet for raising the pressure of the freshwater in the freshwater outlet to at least ambient pressure.

13. The processor of claim 12 wherein the freshwater pressurizing means comprises a freshwater pitot pump, the freshwater pitot pump comprising a rotating chamber receiving freshwater from the freshwater outlet, a pitot tube inside the rotating chamber having two ends, the first end facing freshwater moving in the rotating chamber as the rotating chamber rotates to raise the pressure of the freshwater in the pitot tube, the second end of the pitot tube extending outside the processor so the freshwater can flow at at least ambient pressure.

14. The processor of claim 1 further comprising a wastewater outlet, the wastewater outlet having one end positioned to receive wastewater removed from the outside, condenser surface, wastewater pressurizing means attached to the other end of the wastewater outlet for raising the pressure of the wastewater in the wastewater outlet to at least ambient pressure.

15. The processor of claim 14 wherein the wastewater pressurizing means comprises a wastewater pitot pump, the wastewater pitot pump comprising a rotating chamber receiving

wastewater from the wastewater outlet, a pitot tube inside the rotating chamber having two ends, the first end facing wastewater moving in the rotating chamber as the rotating chamber rotates to raise the pressure of the wastewater in the pitot tube, the second end of the pitot tube extending outside the processor so the wastewater can flow at at least ambient pressure.

16. The processor of claim 12 further comprising a freshwater pitot pump connected to the freshwater outlet, the freshwater pitot pump comprising a chamber revolving about an axis of rotation, the pitot pump receiving freshwater from the freshwater outlet, a pitot tube inside the rotating chamber having two ends, the first end facing freshwater moving in the rotating chamber as the rotating chamber rotates to raise the pressure of the freshwater in the pitot tube, the second end of the pitot tube extending outside the processor so the freshwater can flow at at least ambient pressure, the processor further comprising a wastewater outlet, a wastewater pitot pump connected to the wastewater outlet, the wastewater pitot pump comprising a chamber rotating about an axis of rotation, the chamber of the wastewater pitot pump receiving wastewater from the wastewater outlet, a pitot tube inside the rotating chamber having two ends, the first end facing wastewater moving in the rotating chamber as the rotating chamber rotates to raise the pressure of the wastewater in the pitot tube, the second end of the pitot tube extending outside the processor so the wastewater can flow at at least ambient pressure, the axis of rotation of the freshwater chamber being parallel with the axis of rotation of the wastewater chamber.

17. The processor of claim 1 wherein the compressor unit comprises a compressor housing and a compressor mounted in the compressor housing, the compressor housing having a base, a cylindrical outer wall and a top, the cylindrical outer wall having openings to allow vapor pressurized by the compressor to flow out of the cylindrical outer wall.

18. The processor of claim 17 wherein the sealed housing comprises a lower housing plate, an upper housing plate and an outer wall extending between the lower housing plate and the upper housing plate, the processor further comprising a compressor housing support between the base of the compressor housing and the lower housing plate, the compressor housing support having at least on opening in the path of vapor from the inside boiler surface to the compressor.

19. The processor of claim 1, further comprising a motor, a transmission for transferring motion from the motor to the compressor and from the compressor to the at least one shell.

20. The processor of claim 19, wherein the transmission comprises gears of varying diameters operably connected to each other, the gears being sized to rotate the compressor at a rotational velocity greater than the rotational velocity of the boiler-condenser assembly.

21. The processor of claim 1 further comprising a center post and wherein the boiler-condenser assembly comprises:

a cylindrical sidewall, a dome and a disk-shaped bearing support, the bearing support having an inside near the center post and an outside spaced from the inside, the cylindrical sidewall extending upright from the outside of the disk-shaped bearing support;

a hub, at least one arm attaching and spacing the hub proximally from the bearing support, the hub being mounted for rotation about the center post;

a diverter fixed to the center post and mounted below the at least one shell in a position in the path of wastewater from the inside, boiler surface of the shells;

the diverter having at least one opening through the diverter, each opening through the diverter positioned above the space between the hub and the inside of the bearing support.

22. The processor of claim 1 wherein the boiler-condenser assembly further comprises:

a cylindrical sidewall, a dome and a disk-shaped bearing support, the disk-shaped bearing support having an inside near a center post and an outside spaced from the inside, the cylindrical sidewall extending upright from the outside of the disk-shaped bearing support;

a framework assembly mounted radially outside relative to the axis of rotation of a shell, the framework assembly creating a condenser chamber between the framework assembly and the outside, condenser surface of the shell;

the framework assembly having an angled brace being farther from the bottom of the shell and closer to the top of the shell;

an opening in the cylindrical sidewall positioned to receive water from the framework assembly; and

a channel positioned to receive water from the opening in the cylindrical sidewall.

23. The processor of claim 1, further comprising a source of heat acting on the at least one sealed housing.

24. The processor of claim 1, wherein the compressor raises the pressure of the vapor exiting the compressor to a pressure higher than the pressure of the vapor as the vapor was boiled on the inside, boiler surface;

a) at least one seal separating the higher-pressure vapor from the lower-pressure vapor, the at least one seal comprising a channel mounted for rotation with rotation of the boiler-condenser assembly, the channel having a distal region extending away from the

axis of rotation and a proximal region opposite the distal portion, the channel containing liquid, a stationary disk extending away from the axis of rotation into the channel and dividing the liquid in the channel into a first portion and a second portion in fluid communication with each other, the first portion being exposed to the lower-pressure vapor and the second portion being exposed to the higher-pressure vapor, wherein rotation of the channel holds the liquid against the distal portion of the channel, the channel having enough length from the proximal to the distal portion to maintain the first and second portions of liquid on both sides of the disk when the shell rotates

b) a tube extending from the source of contaminated water into at least one seal for providing liquid to the channel.

25. A processor for removing contaminates from contaminated water comprising:

a) a hermetically sealed housing capable of holding a near-vacuum pressure up to above atmospheric pressure at which contaminated water boils at the near-vacuum pressure up to above atmospheric pressure;

b) a boiler-condenser unit mounted in the hermetically sealed housing, the boiler-condenser unit having at least one shell of heat-conductive material mounted for rotation about a longitudinal axis of rotation, each of the at least one shell being generally parallel to the longitudinal axis of rotation, each of the at least one shell having an inside, boiler surface facing toward the longitudinal axis of rotation and an outside, condenser surface facing away from longitudinal axis of rotation;

c) a source of contaminated water flowing inside the boiler-condenser unit to the inside, boiler surface of each shell, the inside, boiler surface of each shell boiling contaminated water from the inside, boiler surface at the vacuum pressure in the hermetically sealed housing to convert at least some contaminated water into vapor;

d) a compressor having a lower-pressure side and a higher-pressure side, the compressor being mounted to receive vapor boiled on the inside, boiler surface of each shell to raise the vapor's pressure from the lower-pressure side to a higher-pressure side, the compressor being mounted to direct the higher-pressure vapor to the outside, condenser surface of each shell so vapor striking the outside, condenser surface condenses on the outside, condenser surface of each shell;

e) a framework assembly mounted radially outside relative to the axis of rotation of a shell, the framework assembly creating a condenser chamber between the framework assembly and the outside, condenser surface of the shell;

f) a motor operably connected to each shell for rotating each shell;

g) at least one wiper positioned in contact with at least one condenser surface, the at least one wiper removing condensate from the outside, condenser surface as the outside, condenser surface rotates past the at least one wiper; and

h) at least one wiper positioned in contact with at least one boiler surface, the at least one wiper filming the boiling fluid and removing wastewater from the inside, boiler surface as the inside, boiler surface rotates past the at least one wiper.

26. A process for removing contaminates from contaminated water comprising:

a) evacuating a housing to a near-vacuum pressure at which water boils at ambient temperature;

b) rotating a boiler-condenser shell mounted in the housing about a longitudinal axis of rotation, the boiler-condenser shell having an inside, boiler surface and an outside, condenser surface, the inside boiler surface being closer than the outside, condenser surface to the longitudinal axis of rotation;

c) directing the vapor generated from boiling inside the boiler-condenser shell to a compressor;

d) raising the pressure of the vapor within the compressor;

e) directing elevated-pressure vapor from the compressor to the outside of the boiler-condenser shell whereby the vapor condenses on the outside of the boiler-condenser shell, the condensation transferring heat energy to the boiler-condenser shell;

f) wiping at least some of the condensate from the outside of the boiler-condenser shell;

g) collecting the condensate from the boiler-condenser shell; and

h) collecting any contaminated water that did not boil from the inside, boiler surface.

27. The process of claim 26, further comprising injecting steam at atmospheric pressure into the housing before evacuating the housing.

28. A processor for generating potable water from contaminated water comprising:

a) a vacuum housing capable of holding a near vacuum;

b) a boiler-condenser assembly in the vacuum housing subjected to the near vacuum in the vacuum housing, the boiler-condenser assembly comprising at least two concentrically mounted shells of heat-conductive material rotating together about a longitudinal axis of rotation, each shell of the at least two concentrically mounted shells having an inside, boiler surface and an outside, condenser surface;

c) a compressor mounted in the vacuum housing, the compressor having a lower-pressure side and a higher-pressure side, the compressor being mounted to receive vapor boiled on the inside, boiler surface of each shell, the compressor being mounted to direct the higher-pressure vapor to the outside, condenser surface of each shell so vapor striking the outside, condenser surface condenses on the outside, condenser surface of each shell;

d) an inlet extending from a source of contaminated water to at least one outlet close enough to the inside, boiler surface of each shell so contaminated water exiting the inlet can reach the inside, boiler surface, the inside, boiler surface of each shell being capable of boiling contaminated water from the inside, boiler surface at the vacuum pressure in the housing to convert contaminated water into vapor;

e) the compressor increasing the vapor's temperature passing through the compressor sufficiently to supply enough energy through each shell to boil water on the inside, boiler surface of the shells; and

f) a motor operably connected to each shell and the compressor for rotating the compressor and shell.

29. The processor of claim 28, further comprising at least one condenser wiper in contact with and removing at least some condensed water from the outside, condenser surface of each shell.

30. The processor of claim 28, further comprising at least one boiler wiper in contact with and spreading at least water on the inside, boiler surface of each shell.