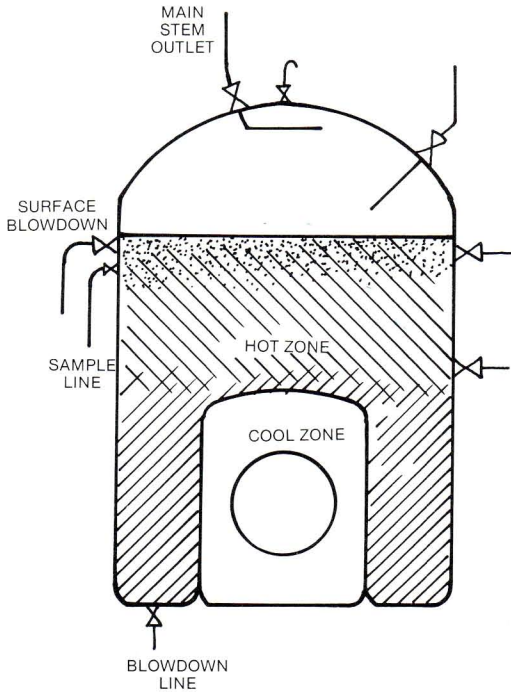


CIRCULATION PATTERNS AND EFFECTS UNDER DIFFERENT STEAMING CONDITIONS

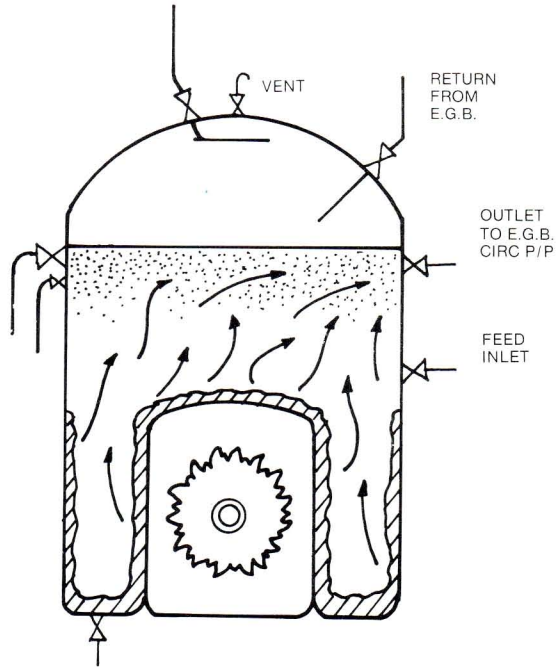
EXHAUST GAS BOILER IN OPERATION

Dissolved solids are more dense near the water surface in each case.

AUXILIARY BOILER IN OPERATION



FURNACE ACTS AS A COOLER AND CONTAMINANTS "DROP OUT" OF CIRCULATION, FORMING SLUDGES.



SLUDGES BECOME "STIRRED UP" AND GO BACK INTO CIRCULATION

- In both cases, highest concentrations are at water surface so that samples taken at this point are more representative of conditions.
- It also means that surface blowdown is the most effective in controlling conductivity (dissolved solids).
- Excessive sludges shown above, will "BAKE" onto metal surfaces.
- A well operated boiler would never reach these levels if top blowdown was carried out regularly and solids NEVER allowed to become so dense.