The 'clean' water is next gravity fed to the treated waste tank where the suspended solids monitoring probe is fitted (pH is also monitored for compliance). Approximately 60% of the ‘clean water’ is recirculated for secondary use. If the level of suspended solids exceeds a pre-determined level, all of the waste water is sent to drain and fresh make-up water is introduced.

The illustration above shows how process liquers are first treated in the cyanide or chrome tanks (see relevant Application Guides) then mixed in a mix tank where the pH is adjusted to between 8 and 9pH.

The liquor is then passed to the floc tank where floc is added allowing solids to settle out.
Why use a turbidity suspended solids monitoring system?

- To monitor the quality of water being discharged to waste to ensure compliance with Local Authority discharge limits and regulations.
- To enable a portion (up to 60%) of waste water to be recycled for secondary use – increasing plant economy.
- To reduce incoming and discharge volumes, therefore reducing load on the plant, saving money and minimizing use of a valuable resource.

Why use ABB Instrumentation?

- System is immune to ambient light – can be used in open channels.
- We offer the most reliable, cost-effective method of monitoring plant operation and efficiency.
- Provides accurate measurement below 5ppm (mg/l) – essential on discharge monitoring, but maintains performance up to 1000FTU to accurately follow changes in process conditions.
- Simple robust sensing system – minimal maintenance and easy calibration.
- Dry calibration standard has many advantages, e.g.:
  - Obviates the use of formazine – is safer, ensures repeatable accurate results and eliminates operator error.
  - Choice of dry standards – enables calibration to be carried out near or close to expected operating range and maximises accuracy.
  - Very robust – designed to avoid physical damage for long life performance.
  - Dry calibration standard storage container – to protect the standard when not in use for long life performance.
- Virtual life time zero, very stable electronics using LED technology – avoids risk of electronic drift.
- Auto cleaning on all systems except low level monitor – extends maintenance periods and optimizes performance on dirty water applications.
- LED technology – reduces risk of algae buildup as no heat is generated.
- Suspended solids capability – unit can be calibrated in mg/l or ppm in addition to NTU/FTU – essential on sewage discharge.
- Robust no fuss emitter and receiver – no special positioning required, can easily be removed and replaced for maintenance purposes. Double sealed with silica gel driers to avoid internal condensation.
- High immunity to temperature fluctuations – unique design minimises error due to temperature change.
- IP66/NEMA 4X Wall mounted transmitter – to work in demanding environments.
- IP66/NEMA 4X Front cover on panel mount version – no additional protection necessary.
- Back lit LCD display – easy to read in all environments.
- Choice of 0 to 10, 0 to 20 and 4 to 20mA isolated current O/P.
- Serial interface option available.
- Non-volatile memory – no battery back-up required.

Dry Calibration Standard for 4670/400

4 Operating Ranges Available:
Model 7997/160, value typically 60 – 80 FTU
Model 7997/161, value typically 450 – 550 FTU
Model 7997/162, value typically 700 – 800 FTU
Model 7997/163, value typically 100 – 160 FTU
What ABB products are suitable?

- **Model 4670/401 dip system:**
  - 1 metre dip
  - or
- **Model 4670/411 dip system:**
  - 2 metre dip
- **Plus choice of four dry standards:**
  - Model 7997/160, value typically 60 – 80 FTU
  - Model 7997/161, value typically 450 – 550 FTU
  - Model 7997/162, value typically 700 – 800 FTU
  - Model 7997/163, value typically 100 – 160 FTU

Other ABB monitoring capabilities suitable for use in other parts of the plant

- pH and Redox monitoring for treatment of cyanide and chrome.
- pH monitoring of mixer tank
- Flow monitoring
- Recorders

Installation

- Ensure there is sufficient cable to allow access to the sensor for maintenance/calibration.
- Where a flow system is used, ensure that flow is regulated on the outlet of the flow system to avoid air bubbles, or use a de-bubbler.