# Condition Assessment Manual

## *Raw Water System Inspection Form and Checklist*




Revision 1.0, 1/18/2012

## Raw water - Inspection Form

**General Information:**

Date of Site Visit: _____ Unit No._____

Plant Name: _____

Source/s of data: _____

Total Raw Water System Flow rate:
(GPM):_____

Max System Pressure (at source)
(PSI):_____

Normal System Operating pressure: _____

Raw Water System Description:_____
_____
_____
_____
_____
_____

Maintenance History / Major Repairs/ Replacement Description:
_____
_____
_____
_____
_____
_____
_____

Raw Water circulation: Pumped_____ Gravity _____

**Pumped Circulation Systems (Only):**

Pump
Manufacturer/Type/Model:_____Age:_____

Number of Pumps:_____

Motor Nominal HP:_____

Pump ratings flow (gpm): _____ head (ft): _____

Pump Seals: Packing_____ Mechanical Seals_____

Pump Maintenance History / Major Repairs/ Replacement Description:
_____
_____
_____
_____

**Raw Water Strainer**

Strainer Manufacturer: _____Age_____

Manual_____ Automatic_____

Strainer Size: _____

Strainer type: Simplex_____ Duplex _____

Strainer Materials of Construction: Housing_____ Basket(s)_____

Perforation size__

Strainer Maintenance History / Major Repairs/ Replacement Description:
_____
_____
_____
_____

**Proportional Valve (if installed)**

Pro. Valve Manufacturer: _____Age_____

Actuation Operator (pneumatic, hydraulic, electric): _____

Actuation Control (analog, digital): _____

Type: _____Size: _____

Connection type: Inlet_____ Discharge: _____

Pro. Valve Material of Construction: _____

Rated Pressure_____ Rated Flow Range: _____

Pro. Valve Maintenance History / Major Repairs/ Replacement Description:
_____
_____
_____
_____

| Raw Water Check List | | | | |
|---|---|---|---|---|
| **Topic** | **Yes** | **No** | **N/A** | **Comments/Details** |
| **Maintenance & Major Repair History** | | | | |
| Are there plant preventive maintenance procedures (TPM) for the raw water system piping, valves, pumps? Are they routinely carried out? | | | | |
| Have there been any major piping repairs/replacements? | | | | |
| Have corrodible raw water systems materials or portion thereof been replaced with non- corrodible materials such as stainless steel, fiberglass, PVC, CPVC, ABS, HDPE, or other materials | | | | |
| Has (have) the proportioning valve(s) Valve been rebuilt or replaced? | | | | |
| Has the raw water piping system support system been maintained such that there are no known excessive stresses or stains being placed on piping, valves, fittings, strainers or pumps (if so equipped)? | | | | |
| Are there signs or is there a history of settlement or movement of piping in relation to concrete/steel structures? If so have there been any leaks or other visible damage to raw water system components or the concrete/steel structures? If so, have there been repairs and a maintenance program in place to monitor and assess the need for ongoing maintenance and repairs to ensure the integrity of the raw water system and associated structure? | | | | |

| Raw Water Check List - Continued | | | | |
|---|---|---|---|---|
| **Topic** | **Yes** | **No** | **N/A** | **Comments/Details** |
| **Maintenance & Major Repair History - Continued** | | | | |
| Have there been any major valve inspection/repairs/replacements? | | | | |
| Are there valves that will not seal well enough to stop the flow of water to equipment needing to be isolated? If so are plans to address these valves? | | | | |
| | | | | |
| | | | | |
| | | | | |

| Raw Water Check List - Continued | | | | |
|---|---|---|---|---|
| **Topic** | **Yes** | **No** | **N/A** | **Comments/Details** |
| **Equipment Condition Assessment** | | | | |
| Are exposed sections of piping, valves, fittings, and other components insulated to eliminate corrosion due to condensation on its outer surface that is exposed to the local environment? (Note: "exposed" piping out in the open as opposed to piping "embedded in concrete")<br>If yes, does the insulation contain asbestos fibers? | | | | |
| Are there signs of external corrosion on non-insulated sections of exposed piping and valves? | | | | |
| Are there known "through the wall" leaks in raw water system components (piping, valves, fittings, strainers etc.)? | | | | |
| Has there been an effort to assess the build-up of biological or sedimentary materials on raw water system internals?<br><br>If so, are there known build-ups of biological or sedimentary materials on raw water system internals?<br><br>If so are systems in place to monitor internal build-ups and remove the materials before generating unit performance is adversely affected? | | | | |

| Raw Water Check List - Continued | | | | |
|---|---|---|---|---|
| **Topic** | **Yes** | **No** | **N/A** | **Comments/Details** |
| **Equipment Condition Assessment - Continued** | | | | |
| Are instruments connected and operational? | | | | |
| Are alarm transmitters (differential pressure) operational? | | | | |
| Is the proportioning valve performance adequate for controlling generator air temperature? | | | | |
| Are there long term valve packing and or pump packing leaks for which attempts to repair have not been successful? | | | | |
| Has the performance of the raw water system been a contributor to availability/performance events such as forced outages, forced unit deratings, or maintenance outage? If so, on average over the last 5 years how many MWHL (Megawatt Hours Lost) have been attributed to Raw Water System performance (or lack thereof)? | | | | |
| Do the pumps (if equipped) run smooth (little to no vibration)? | | | | |
| Are the pumps running in their Equipment Reliability Operating Envelope (EROE)? | | | | |

For overall questions
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