

# **Condition Assessment Manual**

## *Plant General Inspection Form and Checklist*



Revision 1.0, 12/08/2011

## Plant General Inspection Form and Check List

Plant Name: \_\_\_\_\_

Utility: \_\_\_\_\_

Number of units: \_\_\_\_\_

Location: \_\_\_\_\_

Coordinates: \_\_\_\_\_

River name: \_\_\_\_\_

Date of Inspection: \_\_\_\_\_

### **Design and Construction History:**

Date of Commissioning: \_\_\_\_\_

General Construction Description: \_\_\_\_\_

\_\_\_\_\_

Are original design documents available? [Yes/No]: \_\_\_\_\_

If Yes, list available documents (calculations, design criteria, geotechnical reports, etc.):

\_\_\_\_\_

For equipment, are the manufacturer's manuals and drawings available? [Yes/No]: \_\_\_\_\_

If Yes, list available documents: \_\_\_\_\_

\_\_\_\_\_

Design Capacity [MWhr]: \_\_\_\_\_

Water Storage Type [Reservoir, pumped storage, run of river, other]: \_\_\_\_\_

### **Operational History:**

Inflow [ft<sup>3</sup>/sec]: \_\_\_\_\_ Spill [ft<sup>3</sup>/sec]: \_\_\_\_\_ Outflow [ft<sup>3</sup>/sec]: \_\_\_\_\_

Turbine Discharge [ft<sup>3</sup>/sec]: \_\_\_\_\_ Statutory Release [ft<sup>3</sup>/sec]: \_\_\_\_\_

Monthly Power Generation [MWhr]: \_\_\_\_\_ (both heavy and light load hours)

Available Power Generation [MWhr]: \_\_\_\_\_ (less any required statutory releases)

Maximum Power Generation [MWhr]: \_\_\_\_\_ (assuming unlimited water is available)

Storage Changes [ft<sup>3</sup>/sec days]: \_\_\_\_\_

Percent use of storage capacity: \_\_\_\_\_

Percent operating time per unit [%]: \_\_\_\_\_ Number of Outages (Annually): \_\_\_\_\_

Causes of Outages and Equipment Involved: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Changes in operation or expected changes [Yes/No]: \_\_\_\_\_ (deviations from original design)

If Yes, describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Identify any equipment changes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Inspection and Maintenance History:**

Are maintenance reports or inspection records available? [Yes/No]: \_\_\_\_\_

Frequency of Inspections: \_\_\_\_\_ (may vary depending on component)

Identify previous inspection /maintenance issues: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Have there been any major repairs [Yes/No]? If Yes, describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Any notable emergency or unscheduled shutdowns [Yes/No]? If Yes, describe:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Upgrades [Yes/No]: \_\_\_\_\_ (deviations from original design or changes in operation)

Description of upgrade and impact on operation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List inspection/data collection techniques used: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Additional Information:**

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License Status/Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Identify any regulatory agencies (such as FERC): \_\_\_\_\_  
\_\_\_\_\_

List applicable restrictions for upgrade/modernization (Federal, local/state, environmental, financial, etc.):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Have all accessibility issues been identified, if Yes describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List equipment requirements (Lock-out/Tag-out): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

List testing and measurement techniques: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Preliminary upgrade or modernization opportunities: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Plant Contacts:

Name	Contact Information:
_____	_____
_____	_____
_____	_____
_____	_____

Major Equipment Vendors:

Name	Contact Information:
_____	_____
_____	_____
_____	_____
_____	_____

General Assessment Check List				
Topic	Yes	No	N/A	Comments/Details
<b>A. Design and Construction History</b>				
Has the original design criteria been obtained?  <i>[Loadings, design allowances, materials, etc.]</i>				
Are original design calculations available?  <i>[Hydraulic, structural, geotechnical, operational, etc.]</i>				
Are the as-built drawings and specifications available?				
Is there any construction information available?  <i>[Field records, field changes, construction photos, etc.]</i>				
Is there any geotechnical information available?  <i>[History of seismic activity, geotechnical reports, observations, etc.]</i>				

General Assessment Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
<b>B. Operational History</b>				
Have all pertinent plant records or observations been obtained? <i>[Leakage, settlement, vertical/horizontal movement, slope stability, geometric changes, equipment changes, etc.]</i>				
Has information regarding steady state flow conditions been obtained?				
Has information regarding transient flow conditions been obtained?				
Have other important operating characteristics been identified? <i>[Gate closure times, flow restrictions, etc.]</i>				
Are there any future expected modifications to operation?				

General Assessment Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
<b>C. Previous Inspection and Maintenance Reports</b>				
Has information on past inspections been obtained?  <i>[Previous problems or concerns, frequency of inspections, testing methods, data collected, reports, etc.]</i>				
Have previous maintenance items been identified?				
Have any upgrades been implemented?  <i>[Deviations from original design criteria or changes in operation]</i>				

General Assessment Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
<b>D. Plant Specific Requirements</b>				
Are there any applicable regulatory requirements?  <i>[FERC or other governing agencies]</i>				
Has all equipment which will need to be Locked-Out/ Tagged-Out been identified?				
Has all the plant personnel involved been identified?				
Have all plant specific restrictions been identified?  <i>[Accessibility issues, environmental restrictions, financial restrictions, etc.]</i>				
Have all other plant specific requirements been identified?				

General Assessment Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
<b>E. Inspection Details</b>				
What is the goal of the inspection?  <i>[Improve efficiency, general maintenance, safety, life extension, etc.]</i>				
Have all components or features which are to be inspected been identified?				
Has proper consideration been given to scheduling?  <i>[When is the optimal time to perform the inspection; scheduled plant outages, dewatering, etc.]</i>				
How often will the inspection need to take place?  <i>[Yearly, every five years? May vary depending on accessibility, component, function, past maintenance issues, etc.]</i>				
Have all equipment needs and testing/data collection methods been identified? <i>[ROVs, divers, NDT testing equipment, other]</i>				
Has a thorough and comprehensive inspection plan based on plant specific needs been developed?				