

Condition Assessment Manual

Draft Tube Gates Inspection Form and Checklist



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Prepared by

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Draft Tube Gates - Inspection Form

General Information:

Date of Site Visit: _____

Plant Name: _____

Source(s) of Data: _____

Gate System Inspected: _____

Description of General Arrangement: _____

General Construction Description: _____

Typical Storage Conditions: _____

Age of Gate and Associated Parts: _____

Accessibility for Visual Inspection: _____

Previous Condition Assessment Date(s): _____

Estimated Life Remaining [Yrs]: _____

Gates:

Gate Seals:

Hoists and Lifting Equipment:

Bearing Structure:

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Draft Tube Gates Check List				
Topic	Yes	No	N/A	Comments/Details
A. General Information				
What are the plant specific life and serviceability needs for the draft tube gate system? <i>[How long will the gate system be required, are there future plans for facility decommissioning, are there any plans for replacement or major upgrades, etc.?)</i>				
Have all accessibility issues been addressed and discussed with plant personnel prior to the site visit? <i>[Determine which parts require special access for inspection, which parts will not be available for visual inspection, alternative means of collecting data (i.e. interviews with plant personnel), etc.]</i>				
Identify the appropriate testing techniques to be used. <i>[Depends on accessibility, construction materials, plant requirements, safety restrictions, etc.]</i>				
Identify any special equipment required for the plant walk down. <i>[Depends on accessibility, construction materials, plant requirements, safety restrictions, etc.]</i>				
Have all plant records regarding maintenance, repairs, operating conditions, performance data, etc. been gathered or requested?				

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Draft Tube Gates Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
B. Gate, Seals, and Gate Slots				
<p>Are the gates original or have they been replaced/upgraded since facility commissioning?</p> <p><i>[If replaced, why were they replaced and what changes (if any) were made to the original design?]</i></p>				
<p>Is there evidence of steel corrosion of gate parts? If yes, how severe is the corrosion and what is the extent?</p> <p><i>[Look for pitting, surface rust, section loss, etc.]</i></p>				
<p>Are the gate seals intact and functioning properly?</p> <p><i>[Look for seal deterioration (i.e. cracks or chips), damage, or irregularities. Check for any debris trapped between seal and sealing surface. Are the seals leaking?]</i></p>				
<p>Is there evidence of gate slot movement or misalignment which could result in gate binding?</p> <p><i>[Slot misalignment could be a result of concrete growth (AAR). Other causes of irregularities can include local deterioration or concrete spalling. If possible, collect precise measurements to determine if movement has occurred.]</i></p>				
<p>Is there evidence of gate member deterioration, damage, or overstress?</p> <p><i>[Look for loose/missing bolts or rivets, weld cracks or gouges, member warping, loose or misaligned exterior plates, excessive deformations, etc. Could result in twisting of gate when being lifted.]</i></p>				

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Draft Tube Gates Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
C. Hoists and Lifting Equipment				
Are hoists and lifting equipment working properly? <i>[Are moving parts properly lubricated, is oil free of contaminants, gears and bearings do not have excessive wear, hoist ropes have no broken strands or deformation, etc. Are there any unusual sounds or excessive vibrations propagating from the gearbox?]</i>				
Is excessive debris present near hoisting equipment? <i>[May cause blockage of gate lifting lugs and result in malfunction of lifting beam sheaves or lift lug engagement device.]</i>				
Is there evidence (records or visual inspection) of hoisting equipment motor overload (either currently or previously) and what is the apparent cause? <i>[May be due to motor under-sizing, additional frictional and resisting gate loads (i.e. gate binding), drive shaft misalignment, old age, and deterioration of motor windings.]</i>				
Are hoisting mechanisms regularly inspected? If yes, how often and how extensive is the inspection.				
Is there any evidence of deterioration or damage of hoisting equipment? <i>[Corrosion of lifting beam and lugs, member deformations, etc.]</i>				

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Draft Tube Gates Check List - Continued				
Topic	Yes	No	N/A	Comments/Details
D. Miscellaneous				
Are gates stored in a dry environment and not exposed to weather when not in operation? <i>[Storage conditions can impact gate condition and life expectancy (i.e. poor storage conditions might accelerate gate deterioration).]</i>				
Does the facility have a routine inspection and maintenance plan for draft tube gates currently in place? <i>[If yes, what is the frequency and extent of inspections? What type of maintenance is routinely performed and how often?]</i>				
Have there been any changes to the original design? <i>[Gate materials, coatings, seal configurations and materials, gate slots configuration, hoisting/lifting equipment].</i>				

For overall questions
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