

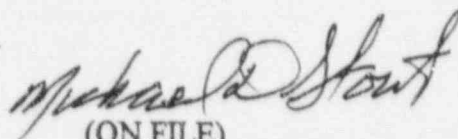
Northeast Utilities
Millstone - Unit 3

Independent Corrective Action Verification Program
(ICAVP)

System Review Checklist

CK-MP3-02 - 5.1, Rev. 1

Mechanical Component Review Checklist

Prepared by:	<u>M. D. Stout</u>	 (ON FILE)	<u>09/10/97</u>
	Name	Signature	Date
Approved by:	<u>A. A. Neri</u>	 (ON FILE)	<u>09/11/97</u>
	Name	Signature	Date

IMPLEMENTATION

System	
Verified By:	
Concurrence By:	

Mechanical Component Review Checklist

Instructions

This checklist supplements PI-MP3-02 and shall be used for the Mechanical Component Review process described in the PI. The application and use of this checklist shall be as follows:

1. The Lead Verifier shall identify all mechanical components included in the scope of the review and shall list the component ID and description on the form included as page 3 of this checklist. The Lead Verifier shall sign and date the form when this step is completed.
2. The Lead Verifier and/or Verifiers shall then complete an individual component checklist for each system component using the applicable component specific checklists included here in. The Lead Verifier and/or Verifiers shall sign and date the individual checklists when completed. For each component specific checklists, the Lead Verifier and/or Verifier shall:
 - a) Enter the component ID
 - b) Enter, for each attribute on the checklist, the requirement or data listed in the licensing documents, specifications, calculation, vendor or design drawings and lists or database. Enter NA if not applicable.
 - c) Enter Yes/No/NA as applicable in the "Acceptable" column.
 - d) For each "No" response, assign a comment number and use the form on page 4 to explain the No response. Discrepancies shall then be processed for PI-MP3-11.
3. Once the review has been completed, the Lead Verifier shall compile the individual component checklists, enter the system name on each sheet, number the sheets sequentially and sign the cover sheet. Only applicable component specific checklists shall be included in the final packages. Checklists for component types not applicable to the system being reviewed shall be omitted.
4. The SRG Lead shall indicate his concurrence that the mechanical component review process has been completed by signing the cover sheet.
5. If needed due to subsequent revisions, insert pages can be as 1A, 1B, 2A, 2B, etc.

Note: The attached checklist pages are sample forms. Electronically generated forms which contain the same technical requirements may be substituted.

CK-MP3-02-5.1

System _____

Sheet _____ of _____

Mechanical Component Review Checklist

Mechanical Component Review Comment Form

[illegible]

Prepared by

Signature _____

Date _____

Mechanical Component Review Checklist

PUMPS

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type/Stages							
3.	Material							
4.	Pressure Rating							
5.	Driver Characteristics							
6.	Connection - Size							
7.	Connection - Weld/Flange End							
8.	Seal Type							
9.	Lubrication System							
10.	Bearing Type							
11.	Manufacturer/Model							
12.	Service/Fluid							
13.	Operating Modes							
14.	Controls/Interlocks/Trips							
15.	Seismic Classification							
16.	ASME Code Class							
17.	Design Pressure							
18.	Design Temperature							
19.	Design Flow							
20.	Minimum (Recirc.) Flow							

Mechanical Component Review Checklist

PUMPS

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
21.	Maximum (Runout) Flow							
22.	Design Discharge Head							
23.	Design Suction Head							
24.	Design Total Developed Head							
25.	Maximum Shutoff Head							
26.	NPSH Available							
27.	NPSH Required							
28.	Electrical Class							
29.	EQ Requirement							
30.	SQ Requirement							

Prepared by _____

Date _____

Mechanical Component Review Checklist

TANKS & VESSELS

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
1.	Tag No./Identification							
2.	Type-Vertical/Horizontal							
3.	Pressure Rating							
4.	Materials							
5.	Connections - Number/Size/Orientation							
6.	Connections-Weld/Flange Ends							
7.	Insulation							
8.	Mounting Details							
9.	Overall Dimensions							
10.	Heaters/Heat Tracing							
11.	Diaphragms							
12.	Coatings/Liners							
13.	Service/Fluid							
14.	Operating Modes							
15.	Seismic Classification							
16.	Controls/Interlocks/Trips							
17.	Radiation Monitoring							
18.	Temperature Control							
19.	ASME Code Class							
20.	Capacity							

Mechanical Component Review Checklist

TANKS & VESSELS

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
21.	Design Pressure							
22.	Design Temperature							
23.	Normal Flows							
24.	Surge Flows							
25.	Overpressure Protection							
26.	Vacuum							
27.	Fluid Properties							
28.	Venting/Overflow							
29.	Environmental Qualification							
30.	Seismic Qualification							

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Date _____

Mechanical Component Review Checklist

CONTAINMENT ISOLATION VALVES

Component ID. _____

<u>Attributes</u>	<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1. Tag No./Identification							
2. Body Type							
3. Material							
4. Pressure Rating							
5. Connection - Size							
6. Connection - Weld/Flange Ends							
7. Normal Position							
8. Type of Operator							
9. Loss of Air/Elec.-Failed Position							
10. Seismic Classification							
11. Required Motor Torque							
12. Stroking Time							
13. ASME Code Class							
14. Design Pressure							
15. Design Temperature							
16. Fluid Design Flow							
17. Differential Pressure							
18. Seismic Qualification Required							
19. Environmental Qualification Required							

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Date _____

Mechanical Component Review Checklist

GENERAL APPLICATION VALVES

Component ID. _____

<u>Attributes</u>	<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1. Tag No./Identification							
2. Body Type							
3. Material							
4. Pressure Rating							
5. Connection - Size							
6. Connection - Weld/Flange Ends							
7. Modulating or On-Off							
8. Normal Position							
9. Type of Operator							
10. Loss of Air/Elec. - Failed							
11. Seismic Classification							
12. Normal Position							
13. Type of Operator							
14. Loss of Air/Elec. - Failed							
15. Seismic Classification							
16. Required Motor Torque							
17. Stroking Time							
18. Limit Switches							
19. Solenoid Valves							
20. ASME Code Class							

Mechanical Component Review Checklist

GENERAL APPLICATION VALVES

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
21.	Design Pressure							
22.	Design Temperature							
23.	Fluid Design Flow							
24.	Differential Pressure							

Prepared by _____

Date _____

Mechanical Component Review Checklist

CHECK VALVES

Component ID. _____

<u>Attributes</u>	<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1. Tag No./Identification							
2. Body Type							
3. Material							
4. Pressure Rating							
5. Connection - Size							
6. Connection - Weld/Flange Ends							
7. Seismic Classification							
8. Leakage rating							
9. Type							
10. Water hammer considerations							
11. ASME Code Class							
12. Design Pressure							
13. Design Temperature							
14. Fluid Design Flow							
15. Differential Pressure							
16. Seismic Qualification Required							
17. Equipment Qualification Required							

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Mechanical Component Review Checklist

HEAT EXCHANGE EQUIPMENT

Component ID. _____

<u>Attributes</u>		<u>Licensing</u> <u>Requirement</u>	<u>Specification</u> <u>Requirement</u>	<u>Calculation</u> <u>Requirement</u>	<u>Vnd/Design</u> <u>Drawing</u>	<u>List/</u> <u>Database</u>	<u>Acceptable</u> <u>Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type							
3.	Materials/Thickness							
	- Tube							
	- Shell							
4.	Outside Diameter							
	- Tube							
	- Shell							
5.	Number of Passes							
	- Tube Side							
	- Shell Side							
6.	Main Nozzle Sizes							
	- Tube Inlet							
	- Tube Outlet							
	- Shell Inlet							
	- Shell Outlet							
7.	Weight							
	- Empty							
	- Full							
8.	Control/Interlocks/Trips							

Mechanical Component Review Checklist

HEAT EXCHANGE EQUIPMENT

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
9.	Fluid Description							
	- Tube Side							
	- Shell Side							
10.	Operating Modes							
11.	Service Requirements							
12.	Tube/Shell Leakage							
	Requirements							
13.	ASME Code Class							
14.	Sizing Codes and Standards							
15.	Heat Transfer Area							
16.	Heat Transfer Load							
17.	Design Operating Pressures							
	- Tube Inlet							
	- Tube Outlet							
	- Shell Inlet							
	- Shell Outlet							
18.	Design Operating Temperatures							
	- Tube Inlet							
	- Tube Outlet							
	- Shell Inlet							
	- Shell Outlet							

Mechanical Component Review Checklist

HEAT EXCHANGE EQUIPMENT

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
19.	Design Operating Flow							
	- Tube Side							
	- Max. ΔP							
	- Shell Side							
	- Max. ΔP							
20.	Number/Size of Vents							
	- Tube Side							
	- Shell Side							
21.	Number/Size of Drains							
	- Tube Side							
	- Shell Side							
22.	Overpressure Protection							
23.	Equipment Qualification							
	Required							
24.	Seismic Qualification Required							

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Mechanical Component Review Checklist

PIPING INLINE COMPONENTS

Component ID. _____

<u>Attributes</u>	<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1. Tag No./Identification							
2. Material							
3. Pressure Rating							
4. Overpressure Protection							
5. Size							
6. Weld/Flange Ends							
7. Attachments/Accessories							
8. Gasketing/Seals							
9. Weight							
10. Service/Fluid							
11. Operating Modes							
12. Seismic Classification							
13. Codes and Standards							
14. Design Flow							
15. Design Pressure							
16. Design Temperature							
17. Size							
18. Pressure Drop							
19. Equipment Qualification Required							
20. Seismic Qualification Required							

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Date _____

Mechanical Component Review Checklist

PRESSURE RELIEF DEVICES

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type							
3.	Manufacturer/Model							
4.	Pressure Rating							
5.	Material							
6.	Exhaust Path							
7.	Accessories							
	1. Backpressure Bellows							
	2. Pilot Relief Valve							
	3. Lifting Lever							
	4. Silencer							
8.	Connection-Size							
9.	Connection-Weld/Flange End							
10.	Limit Switches							
11.	Operator							
12.	Solenoid Valves							
13.	Service/Fluid							
14.	Operating Mode							
15.	Seismic Classification							
16.	Controls/Interlocks/Setpoint							
17.	ASME Code Class							

Mechanical Component Review Checklist

PRESSURE RELIEF DEVICES

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
18.	Design Flow							
19.	Design Pressure							
20.	Design Temperature							
21.	Max. Differential Pressure							
22.	Fluid Properties							
23.	Accumulation/Blowdown							
24.	Back Pressure							
25.	Setpoint/Relief Pressure							
26.	Equipment Qualification Required							
27.	Seismic Qualification Required							

Prepared by _____

Date _____

Mechanical Component Review Checklist

CONTROL VALVES

Component ID. _____

Attributes	Licensing	Specification	Calculation	Vnd/Design	List/	Acceptable	Comment
	<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
1. Tag No./Identification							
2. Body Type							
3. Material							
4. Pressure Rating							
5. Valve/Operator Manufacturer							
6. Connection - Size							
7. Connection - Weld/Flange Ends							
8. Steam Leak Off Requirements							
9. Flow Direction Thru Valve							
10. Modulating or On-Off							
11. Normal Position							
12. Type of Operator							
13. Loss of Air/Elec. - Failed Position							
14. Seismic Classification							
15. Required Motor Torque							
16. Stroking Time							
17. Limit Switches							
18. Trim Design							
19. Performance Characteristics - (Linear, Fast-opening, etc.)							
20. ASME Code Class							

Mechanical Component Review Checklist

CONTROL VALVES

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
21.	Design Pressure							
22.	Design Temperature							
23.	Fluid Design Flow							
24.	Differential Pressure							
25.	CV							
26.	Equipment Qualification Required							
27.	Seismic Qualification Required							
28.	Design/Flow Range							
29.	1. Min. Flow							
30.	2. Normal Flow							
31.	3. Max. Flow							
32.	Leakage Rating/Tight Shutoff Requirements							
33.	Maximum P Valve must open or close against							

Prepared by _____

Date _____

Mechanical Component Review Checklist

HVAC DUCT ACCESSORIES

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type							
3.	Procurement Spec.							
4.	Mfg.							
5.	Model No.							
6.	Size							
7.	Airflow							
8.	Pressure drop							
9.	Pressure rating							
10.	Leakage rating							
11.	Code and standards							
12.	Weight							
13.	Safety classification							
14.	Seismic classification							
15.	EQ requirement							

Prepared by _____

Date _____

Mechanical Component Review Checklist

HVAC DAMPERS

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type (control, isolation, fire, smoke, balancing)							
3.	Procurement spec							
4.	Mfg.							
5.	Model No.							
6.	Size							
7.	Airflow							
8.	Pressure drop							
9.	Pressure rating							
10.	Leakage rating							
11.	Safety classification							
12.	Seismic classification							
13.	Actuator type							
14.	Closing time							
15.	Maximum air velocity							
16.	EQ requirement							

Prepared by _____

Date _____

Mechanical Component Review Checklist

HVAC FANS

Component ID. _____

<u>Attributes</u>	<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1. Tag No./Identification							
2. Type							
3. Procurement Spec							
4. Mfg.							
5. Model No.							
6. Airflow							
7. Fan total pressure							
8. Fan speed							
9. Fan bhp required							
10. Motor hp							
11. Motor speed							
12. Motor voltage/phase/frequency							
13. Codes and standards							
14. Safety classification							
15. Seismic classification							
16. EQ requirement							

Prepared by _____

Date _____

Mechanical Component Review Checklist

HVAC FILTERS

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
1.	Tag No./Identification							
2.	Type							
3.	Procurement Spec							
4.	Mfg.							
5.	Model No.							
6.	Efficiency							
7.	Airflow							
8.	Pressure drop							
9.	Size							
10.	Codes and standards							
11.	Bypass leakage							
12.	Housing leakage							
13.	Housing pressure rating							
14.	Drains							
15.	Fire Protection							
16.	Safety classification							
17.	Seismic classification							

Prepared by _____

Date _____

Mechanical Component Review Checklist

HVAC - LOUVERS

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
1.	Tag No./Identification							
2.	Type							
3.	Procurement spec							
4.	Mfg.							
5.	Model No.							
6.	Size							
7.	Airflow							
8.	Pressure drop							
9.	Pressure rating							
10.	Leakage rating							
11.	Safety classification							
12.	Seismic classification							
13.	Actuator type							
14.	Closing time							
15.	Maximum air velocity							

Prepared by _____

Date _____

Mechanical Component Review Checklist

REFRIGERATION UNITS

	<u>Attributes</u>	<u>Component ID.</u> _____					<u>Acceptable</u> Y/N/NA	<u>Comment</u>
		<u>Licensing</u> <u>Requirement</u>	<u>Specification</u> <u>Requirement</u>	<u>Calculation</u> <u>Requirement</u>	<u>Vnd/Design</u> <u>Drawing</u>	<u>List/</u> <u>Database</u>		
1.	Tag No./Identification							
2.	Type							
3.	Procurement Spec							
4.	Mfg.							
5.	Model No.							
6.	Capacity at rating conditions							
7.	Design load on unit							
8.	Minimum load on unit							
9.	Refrigerant number							
10.	Refrigerant suction temperature/pressure							
11.	Refrigerant condensing temperature/pressure							
12.	Condenser							
	Type (air/water cooled)							
	Tube material/configuration							
	Fin material/configuration							
	Number of passes/circuits							
	Air/water flow (max/min)							
	Air/water entering temperature (max/min)							
	Air/water leaving temperature							
	Pressure rating							
	Temperature rating							

Mechanical Component Review Checklist

REFRIGERATION UNITS

		Component ID. _____					Acceptable Y/N/NA	Comment
<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>		
1.	Tag No./Identification							
2.	Type							
3.	Procurement Spec							
4.	Mfg.							
5.	Model No.							
6.	Capacity at rating conditions							
7.	Design load on unit							
8.	Minimum load on unit							
9.	Refrigerant number							
10.	Refrigerant suction temperature/pressure							
11.	Refrigerant condensing temperature/pressure							
12.	Condenser							
	Type (air/water cooled)							
	Tube material/configuration							
	Fin material/configuration							
	Number of passes/circuits							
	Air/water flow (max/min)							
	Air/water entering temperature (max/min)							
	Air/water leaving temperature							
	Pressure rating							
	Tempetaure rating							

Mechanical Component Review Checklist

-
- Design fouling factor
 - Pressure drop
 - 13. Evaporator
 - Type (direct expansion/chilled water)
 - Tube material/configuration
 - Fin material/configuration
 - Number of passes/circuits
 - Air/water flow (max/min)
 - Air/water entering temperature (max/min)
 - Air/water leaving temperature
 - Pressure rating
 - Temperature rating
 - Design fouling factor
 - Pressure drop
 - 14. Capacity control
 - 15. Interlocks and internal safeties
 - 16. Pressure relief devices
 - 17. Compressor type
 - 18. Compressor motor kW
 - 19. Compressor motor
 - voltage/phase/frequency
 - 20. Codes and standards
 - 21. Safety classification
 - 22. Seismic classification

Prepared by _____

Date _____

Mechanical Component Review Checklist

ELECTRIC HEATING COILS

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type							
3.	Procurement spec.							
4.	Mfg.							
5.	Model No.							
6.	Capacity, kW							
7.	No. of stages							
8.	Airflow							
9.	Pressure drop							
10.	Size							
11.	Minimum velocity							
12.	Capacity control and safeties							
13.	Voltage/phase/frequency							
14.	Inlet configuration							
15.	Safety classification							
16.	Seismic classification							

Prepared by _____

Date _____

Mechanical Component Review Checklist

COOLING COILS

Component ID. _____

<u>Attributes</u>		<u>Licensing Requirement</u>	<u>Specification Requirement</u>	<u>Calculation Requirement</u>	<u>Vnd/Design Drawing</u>	<u>List/ Database</u>	<u>Acceptable Y/N/NA</u>	<u>Comment</u>
1.	Tag No./Identification							
2.	Type							
3.	Procurement spec.							
4.	Mfg.							
5.	Model							
6.	Fluid							
7.	Tube material							
8.	Tube diameter							
9.	Tube wall thickness							
10.	Fin material							
11.	Fin pitch							
12.	Fin thickness							
13.	Number of tube rows							
14.	Number of tubes per row							
15.	Coil serpentine (passes/row)							
16.	Air flow							
17.	Face area							
18.	Air velocity							
19.	Entering air temperature							
20.	Leaving air temperature							
21.	Entering water temperature							
22.	Leaving water temperature							

Mechanical Component Review Checklist

- 23. Water flow
- 24. Water velocity
- 25. Fouling factor
- 26. Codes and standards
- 27. Safety classification
- 28. Seismic classification

Prepared by _____

Date _____

Mechanical Component Review Checklist

PIPELINES

Component ID. _____

	<u>Attributes</u>	<u>Licensing</u>	<u>Specification</u>	<u>Calculation</u>	<u>Vnd/Design</u>	<u>List/</u>	<u>Acceptable</u>	<u>Comment</u>
		<u>Requirement</u>	<u>Requirement</u>	<u>Requirement</u>	<u>Drawing</u>	<u>Database</u>	<u>Y/N/NA</u>	
1.	Material							
2.	Pressure Rating/sch							
3.	Size							
4.	Code Class							
5.	Seismic Class							
6.	Design Pressure							
7.	Design Temperature							
8.	Operating Pressure							
9.	Operating Temperature							
10.	Insulation Thickness							

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Date _____