EXHIBIT X

Submittals, Reviews, and Hold Points

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1.0 Submittals

1.01 SUMMARY:

A. This Section includes definitions, descriptions, transmittal, and review of submittals.

B. Related Work Specified Elsewhere:

1. Project meetings, schedules, and reports: Exhibit M of the Agreement.

1.02 GENERAL INFORMATION:

A. Definitions:

1. Select shop drawings (meaning equipment and fabrication requirements for construction, inclusive of arrangement, sub drawings etc. provided inclusive of field requirements for Owner use regarding future operations and maintenance), product data, and Samples are Technical Submittals prepared by Contractor, Subcontractor, manufacturer, or other Persons and submitted by Contractor to Owner as a basis for approval of the use of Equipment and Materials proposed for incorporation in the Work or needed to describe installation, operation, maintenance, or technical properties, as specified in each Division of the Specifications.
   a. Shop drawings include custom prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects.
   b. Product data includes standard printed information on materials, products, and systems; not custom prepared for this Work, other than the designation of selections from available choices.
   c. Samples include both fabricated and un-fabricated physical examples of materials, products, and Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or where indicated for more detailed testing and analysis. Mockups are a special form of samples which are too large to be handled in the specified manner for transmittal of sample Submittals.
2. Informational submittals are those technical reports, administrative submittals, certificates and guarantees not defined as shop drawings, product data, or samples.
   a. Technical reports include laboratory reports, tests, technical procedures, technical records, and Contractor's design analysis.
   b. Administrative submittals are those nontechnical submittals required by the Agreement or deemed necessary for administrative records. These submittals include maintenance agreements, bonds, project photographs, physical work records, statements of applicability, copies of industry standards, project record data, schedules, security/protection/safety data, and similar type submittals.
   c. Certificates and guarantees are those submittals on Equipment and Materials where a written certificate or guarantee from the manufacturer or Contractor is called for in the Technical Specifications.
3. Refer to ARTICLES 1.03 and 1.04 of this Part for detailed lists of submittals and specific requirements.

B. Quality Requirements:

1. Submittals such as drawings and data submitted shall be of suitable quality for legibility and reproduction purposes. Every line, character, and letter shall be clearly legible. Drawings such as reproducibles shall be useable for further reproduction to yield legible hard copy.
2. Documents submitted that do not conform to the specified requirements shall be subject to rejection by Owner, and upon request, Contractor shall resubmit conforming documents. If conforming submittals cannot be obtained, such documents shall be retraced, redrawn, or photographically restored as may be necessary to meet such requirements. Contractor's or its

Subcontractors' failure to initially satisfy the legibility quality requirements will not relieve Contractor or its Subcontractors from meeting the required schedule for submittals.

C. Language and Dimensions:
   1. All words and dimensional units shall be in the English language.
   2. Metric dimensional unit equivalents may be stated in addition to English units. However, English units of measurement shall prevail.
   3. All words shall be in the English language.

D. Submittal Completeness:
   1. Submittals shall be complete with respect to dimensions, design criteria, materials of construction, and other information specified to enable Owner to review the information effectively.
   2. Where standard drawings are furnished which cover a number of variations of the general class of equipment, each drawing shall be annotated to indicate exactly which parts of the drawing apply to the equipment being furnished. Use hatch marks to indicate variations which do not apply to the submittal. The use of "highlighting markers" will not be an acceptable means of annotating submittals. Such annotation shall also include proper identification of the submittal permanently attached to the drawing.
   3. Reproduction or copies of Agreement drawings or portions thereof will not be accepted as complete fabrication or erection drawings, but will be acceptable when used by Contractor as a drawing upon which to indicate information on erection or to identify detail drawing references. Whenever the Agreement drawings are revised to show additional Contractor's information, the title block shall be replaced with Contractor's title block, and the professional seal shall be removed from the drawing.

E. Form of Submittals:
   1. Submittals and other project documents shall be transmitted in electronic format as specified.
      a. Electronic format shall include Microsoft Office formats, Adobe *PDF format, Primavera, or AutoCAD.
      b. Selected submittals may be provided in paper ("hardcopy") copies with advance approval of Owner, and using procedures specified herein.
      c. Equipment instruction books and operating manuals shall be provided in paper copies in addition to specified electronic format.
   2. Electronic Format using Owner's Document Management System (DMS):
      a. Scanned submittals and documents are not acceptable. Transmit submittal and project documents in:
         (1) Adobe *PDF files created directly from native electronic format, or
         (2) Owner approved equal.
         (3) Electronic Submittals in .TIF format are permitted only with specific Owner approval.
      b. Each drawing shall be submitted with an electronic file name that is equivalent to the drawing number, and any resubmitted drawing shall use the same file name as the original file name each time. No spaces or periods (except in the file extension) are allowed in the file name.
      c. Contractor submittals shall be accompanied with a completed transmittal letter. Submittals that are not accompanied with an approved transmittal letter will not be accepted and will be returned to Contractor.
      d. All Contractor transmittal letters submitted to Owner shall be in the form supplied and shall contain as a minimum the following information:
         (1) Contractor's Name.
         (2) Project number.
         (3) Agreement number.

(4) Filename.
(5) Description of the information contained in the specific submittal.
(6) Revision number.
(7) Submittal type.
(8) Date of submittal.

e. Nonconforming submittals are subject to rejection.

3. Owner's review comments will be provided electronically in Adobe *PDF format.
4. Digital delivery media for transmittal of electronic documents and submittals shall be through Owner's DMS in accordance with the procedures specified herein, as addressed below. See Section 5.0 below for more details.

1.03 TECHNICAL SUBMITTALS:

A. Items shall include but not be limited to, the following:
1. Manufacturer's specifications.
2. Catalogs, or parts thereof, of manufactured equipment.
3. Shop fabrication and erection drawings.
4. General outline drawings of equipment showing overall dimensions, location of major components, weights, and location of required building openings and floor plates.
5. Detailed equipment installation drawings, showing foundation details, anchor bolt sizes and locations, base plate sizes, location of Owner's connections, grounding pads and all clearances required for erection, operation, and disassembly for maintenance.
6. Schematic diagrams for electrical items, showing external connections, terminal block numbers, internal wiring diagrams, and one-line diagrams.
7. Bills of material and spare parts list.
8. Instruction books and operating manuals.
9. Material lists or schedules.
10. Performance tests on equipment by manufacturers.
11. Samples and color charts.
12. All drawings, catalogs, or parts thereof, manufacturer's specifications and data, samples, instructions, and other information specified or necessary:
a. To determine that Equipment and Materials conform to the design concept and comply with intent of the Agreement.
b. For proper erection, installation, operation, and maintenance of Equipment and Materials which will be reviewed for general content but not for basic details.
c. To determine what supports, anchorages, structural details, connections, and services are required for Equipment and Materials, and effects on contiguous or related structures, Equipment and Materials.

B. Schedule of Submittals:
1. Prepare a schedule for submission of all Submittals specified or necessary for approval of the use of Equipment and Materials proposed for incorporation in the Work or needed for proper installation, operation, or maintenance. Submit the schedule with the Work progress schedule. Schedule submission of all submittals to permit review, fabrication, and delivery in time so as to not cause delay in the Work of Owner or its Subcontractors or any other Person as described herein.
2. In establishing schedule for submittals, allow [redacted] in Owner's office for reviewing original submittals and [redacted] in Owner's office for reviewing re-submittals.
3. Submittals requiring revisions shall be resubmitted within [redacted] after receipt of Owner's review notations.
4. The schedule shall indicate anticipated dates of original submission for each item and shall be based upon at least one resubmission of each item.

5. Schedule all submittals (shop drawings, product data, and samples), not listed in Section 2 below, required prior to fabrication or manufacture for submission as necessary to meet Agreement delivery requirements.
6. Resubmit submittals the number of times required to be approved. However, any need for re-submittals in excess of the number set forth in the accepted schedule, or any other delay in obtaining approval of submittals, will not be grounds for extension of the schedule.

C. Transmittal of Submittals:
1. All submittals (shop drawings, product data, and samples) for Equipment and Materials furnished by Contractor, Subcontractors, manufacturers, and other Persons shall be submitted to Owner thru the Contractor.
   a. Reports and letters shall be [redacted]" unless containing drawings requiring [redacted]" for legibility.
   b. Shop drawings shall [redacted] and submitted in a rolled fashion unless otherwise agreed by Owner during the Work.
2. Transmit all Submittals to Owner as follows:
   a. Mark each Submittal by project name and number, Agreement title and number, and applicable Technical Specification Section and Article numbers. Include in the letter of transmittal the drawing number and title, sheet number (if applicable), revision letter, and electronic file name (if applicable). Unidentifiable submittals will be returned for proper identification.
   b. Check and approve submittals of Subcontractors, other Persons, and manufacturers prior to transmitting. Contractor's submission shall constitute a representation to Owner that Contractor approves submittals and has determined and verified all design criteria, quantities, dimensions, materials, catalog numbers, compliance with Codes and Standards, and similar data, and Contractor assumes full responsibility for doing so; and Contractor has coordinated each submittal with requirements of the Work and the Agreement.
   c. At the time of each submission, call to attention in the letter of transmittal any deviations from requirements of the Agreement.
   d. Make all modifications noted or indicated and return the required number of revised submittals until approved. Direct specific attention in writing, or on revised submittals, to changes other than the modifications called for by on previous submittals. Previously approved submittals transmitted for final distribution will not be further reviewed and are not to be revised. If errors are discovered during manufacture or fabrication, correct the submittal and resubmit for review.
   e. Following completion of the Work and prior to final payment, furnish record documents and approved samples and shop drawings necessary to indicate "as constructed" conditions, including field modifications, in the number of copies specified. Furnish additional copies for insertion in equipment instruction books and operating manuals as required. All such copies shall be clearly marked "PROJECT RECORD."
      (1) Submit a final record copy of the master field drawing list which shall indicate the final revision status of each drawing on the list.
      (2) Accompany submittal with transmittal letter containing date, contract number and title, Contractor's name, address and telephone number, number and title of each record document and signature of Contractor's authorized representative.
3. Quantity Requirements:
   a. Except as otherwise specified, transmit all shop drawings in the following quantities for Owner's use. Additional copies shall also be provided to the Owner as required by the Owner:
      [redacted]
      (a) [redacted].

e. When all submittals have been updated to "as-constructed" conditions, transmit to Owner in electronic format.

f. Contractor and Owner may copy and use for internal operations and staff training purposes any and all document submittals required by this Agreement and approved for final distribution, whether or not such documents are copyrighted, at no additional cost to Contractor or Owner.

D. Owner's Review:

1. Owner may review submittals for indications of Work or material deficiencies.
2. Owner will respond to the Contractor on submittals which indicate there may be a Work or material deficiency.
3. Contractor shall respond promptly to Owner's comments.
4. Owner's review of shop drawings, product data, or samples will not relieve Contractor of responsibility for any deviation from requirements of the Agreement unless Contractor has in writing called Owner's attention to such deviation at the time of submission, and Owner has given written concurrence in and approval of the specific deviation. Approval by Owner shall not relieve Contractor from responsibility for errors or omissions in submittals.

E. Instruction Books and Operating Manuals:

1. In addition to electronic submittals specified above, equipment instruction books and operating manuals prepared by the each equipment supplier and the Contractor shall include the following:
   a. Index and tabs.

b. Instructions for installation, start-up, operation, inspection, maintenance, parts lists and recommended spare parts, and data sheets showing model numbers.
c. Matrix of all regularly scheduled maintenance requirements.
d. Applicable drawings.
e. Warranties and guarantees.
f. Name and address of nearest manufacturer-authorized service facility.
g. All additional data specified.

2. Information listed above shall be bound into hard-back binders. Four manuals are required, two equivalent to heavy duty Bok-Hinge Split Prong or McBee Swing Hinge post type binders and two in standard binders. [redacted]". Binder color shall be black. Capacity shall be a [redacted], but sufficient to contain and use sheets with ease.
   a. Provide the following accessories:
      (1) Label holder.
      (2) Business card holder.
      (3) Sheetlifters.
      (4) Horizontal pockets.
   b. The following information shall be imprinted, inserted, or affixed by label on the binder front cover: See Exhibit V for details.
      (1) Owner's name.
      (2) Owner's facility or plant name.
      (3) Equipment item name.
      (4) Volume number (if applicable).
      (5) Agreement number.
      (6) Manufacturer's name and address.
   c. The following information shall be imprinted, inserted, or affixed by label on the binder spine:
      (1) Equipment item name.
      (2) Owner's name and Owner's facility or plant name.
      (3) Manufacturer's name.
      (4) Agreement number.
      (5) Volume number (if applicable).
   d. Submit mockup of cover and spine for Owner's review.

F. Samples:
   1. Office samples shall be of sufficient size and quantity to clearly illustrate the following:
      a. Functional characteristics of the product, with integrally related parts and attachment devices.
      b. Full range of color, texture, and pattern.
      c. Material, manufacturer, pertinent catalog number, and intended use.

1.04 INFORMATIONAL SUBMITTALS:

A. Informational submittals are comprised of technical reports, administrative submittals, and guarantees which relate to the Work, but do not require Owner approval prior to proceeding with the Work. Informational submittals include but are not limited to:
   1. Test reports.
   2. Certification on materials:
      a. Steel mill tests.
   3. Shipping and/or packing lists.
   4. Job progress schedules.
   5. Equipment and Materials delivery schedules.
   6. Warranties and guarantees.

B. Transmittal of Informational Submittals:
   1. All informational submittals furnished by Contractor, Subcontractors, manufacturers, and other Persons shall be submitted to Owner unless otherwise specified.
      a. Identify each informational submittal by project name and number, Agreement title and number, and the Technical Specification Section and Article numbers marked thereon or in the letter of transmittal. Unidentifiable submittals will be returned for proper identification.
      b. At the time of each submission, call to the attention of Owner in the letter of transmittal any deviations from the requirements of the Agreement.
   2. Quantity Requirements:
      a. Technical reports and administrative submittals except as otherwise specified:
         (1) [redacted].
   3. Test Reports:
      a. The party specified responsible for testing or inspection shall in each case, unless otherwise specified, arrange for the testing laboratory or reporting agency to distribute test reports as follows:
         [redacted]
         (2) [redacted].

C. Owner's Review:
   1. Owner may review informational submittals for indications of Work or material deficiencies.
   2. Owner will respond to the Contractor on those informational submittals which indicate Work or material deficiency.
   3. Contractors shall respond promptly to any identified deficiencies.

2.0 Submittal Schedule

A. Commercial

Item No.	Reference Document	Submittals Item	Submittal Dates			
			Calendar		Event	Due Date
1	0000	**Commercial**				
2	0000	Certificate of Insurance		[redacted]	[redacted]	
3	0000	Intl' Transportation Insurance Certificate		[redacted]	[redacted]	
4	0000	Acknowledge Acceptance and Return of Contract	[redacted]	[redacted]	[redacted]	
5	0000	Performance Bond	[redacted]	[redacted]	[redacted]	
6	0000	Letter of Credit	[redacted]	[redacted]	[redacted]	
7	0000	Notice of any Cancellation, Termination or Material Changes of Insurance Policies	[redacted]	[redacted]	[redacted]	
8	0000	Project Organizational Chart, Including key personnel resumes		[redacted]	[redacted]	
9	0000	Installation & Commissioning Spare Parts List	[redacted]	[redacted]	[redacted]	
10	0000	Recommended Two-Year Operational Spare Parts List	[redacted]	[redacted]	[redacted]	
11	0000	Catalog Data Sheets with Dimensions				
12	0000	Standard Training Classes				
13	0000	Training Agenda, Schedule, Outline and Materials	[redacted]	[redacted]	[redacted]	
14	0000	Preliminary Work Progress Schedule	[redacted]	[redacted]	[redacted]	

15	0000	Work Progress Schedule				
16	0000	Manufacturer Field Staffing Plan, including Names and Durations of Visits				
17	0000	Progress Reports				
18	0000	Detailed Drawing Submittal Schedule				
19	0000	Partial Lien Waiver				
20	0000	Quality Assurance/Quality Control Manuals, unless on file with Owner's QA/AC Dept.				
21	0000	Preliminary Instruction Books				
22	0000	Preliminary O & M Manuals				
23	0000	Final Instruction Books				
24	0000	Final O & M Manuals				
25	0000	MBE/WBE Reporting				
26	0000	Accruals				
27	0000	Factory Acceptance Test Procedures				
28	0000	Copies of Certified Test and Inspection Reports				
29	0000	Transportation/Shipping Plan				
30	0000	Notice of Shipment				
31	0000	Packing Lists				
32	0000	List of all accessory equipment to be shipped loose to Jobsite				
33	0000	Shipment Bill of Materials				
34	0000	Unloading and Handling Requirements and Procedures				
35	0000	Description and details of preservation and protection systems and recommended storage procedures				
36	0000	Lubrication list and initial fill requirements				
37	0000	Material Safety Data Sheets				
38	0000	Design Data/ Design Calculations				
39	0000	Final Bill of Materials				
40	0000	Final Lien Waiver				
41	0000	Final As-Constructed Documentation				
42	0000	Contractor Document List				
43	0000	Project Cash Flows				
44	0000	Exhibit W				
45	0000	All Remaining Submittals (Commercial, Technical, and Otherwise) not listed but to be determined.				

B. Technical WFGD

46	**0000**	**Technical Scope and System Performance Requirements**				
47	0000	Preliminary Electrical Load list				
48	0000	Final Electrical Load List				
49	0000	Schematic/Wiring Diagrams				
50	0000	Instrument Location Diagrams showing locations of instrument taps				
51	0000	Preliminary DCS Logic Diagrams				
52	0000	Final DCS Logic Diagrams				
53	0000	Preliminary DCS Graphics				
54	0000	Final DCS Graphics				
55	0000	Preliminary DCS I/O List				
56	0000	Final DCS I/O List				
57	0000	Preliminary Instrument List				
58	0000	Final Instrument List with setpoints				
59	0000	Preliminary Instrument List				
60	0000	Final Instrument List with setpoints				
61		3D Composite Drawing exploded view of ductwork and WFGD shipped components				
62		Utility(air, steam, water) consumptions list				
63	**05120**	**Structural Steel**				
64	05120	Structural Steel Material Certification				
65	00000	Information on the allowable forces and moments on connections				
66	05120	High Strength Bolts Material Certification				
67	05120	Direct Tension Indicators Material Certification				
68	05120	Structural Steel Fabrication and Erection Drawings				
69	05300	**Metal Deck Form**				
70	05300	Metal Deck Form Detail and Erection Drawings				
71	07410	**Metal Wall and Roof Panels - Field Assembled System**				
72	07410	5 inch by 3 inch color samples				
73	07410	Shop drawings that show materials, sizes, gauges, screws and sizes, system construction, and method of attachment				
74	07410	Design calculations				
75	**08200**	**Sliding Doors**				
76	08200	Complete detail drawings of all items specified				
77	08200	List of hardware				
78	08200	Sliding metal doors schematic diagrams				
79	08200	Sliding metal doors pushbutton station schematics and layout, contact development				
80	**08330**	**Rolling Metal Doors**				
81	08330	Rolling metal doors drawings and data				
82	08330	Rolling metal doors registration, manuals				
83	08330	Rolling metal doors schematic diagrams				
84	08330	Rolling metal doors pushbutton station schematics and layout, contact development				
85	**00000**	**Agitators**				
86	00000	Agitator drawings and component weights				

87	00000	Agitator mounting detail drawing	[redacted]	[redacted]	[redacted]	
88	00000	**Wet Limestone Flue Gas Desulfurization System**	[redacted]	[redacted]	[redacted]	
89	00000	Detailed outline drawings of WFGD system equipment	[redacted]	[redacted]	[redacted]	
90	00000	Schematic drawings and data regarding the WFGD system	[redacted]	[redacted]	[redacted]	
91	00000	**All drawings required for plant layout:**	[redacted]	[redacted]	[redacted]	
92	00000	All drawings required for plant layout other than those associated with reagent preparation and byproduct dewatering. These drawings shall indicate all major equipment locations and give information such as piping corridors equipment space requirements, access requirements, and all pertinent information required for location of platforms.	[redacted]	[redacted]	[redacted]	
93	00000	All drawings required for plant layout of the reagent preparation and byproduct dewatering. These drawings shall indicate all major equipment locations and give information such as piping corridors, equipment space requirements, access requirements, and all pertinent information required for location of platforms.	[redacted]	[redacted]	[redacted]	
94	00000	3D AutoCAD model of major components	[redacted]	[redacted]	[redacted]	
95	00000	Equipment/motor outline drawings, including all ground floor-mounted equipment (including dimensions, weights, and anchorage requirements)	[redacted]	[redacted]	[redacted]	
96	00000	Preliminary electrical equipment	[redacted]	[redacted]	[redacted]	
97	00000	Electrical equipment	[redacted]	[redacted]	[redacted]	
98	00000	All drawings required for foundation design. These drawings shall indicate all foundation interface information including: embedments plan size, locations, and thickness; anchor bolt sizes, locations, and materials (i.e., A36, A307, etc.); floor drain locations, sizes, and expected flow rates, and loads divided into separate load cases, i.e. dead, live, snow, wind, and seismic with magnitudes and directions clearly noted.	[redacted]	[redacted]	[redacted]	
99	00000	Preliminary WFGD system (not to exceed loads)	[redacted]	[redacted]	[redacted]	
100	00000	Preliminary tanks, reagent preparation and byproduct dewatering (not to exceed loads)	[redacted]	[redacted]	[redacted]	
101	00000	Final and certified WFGD system (loads and embedments)	[redacted]	[redacted]	[redacted]	
102	00000	Final and certified tanks, reagent preparation and byproduct dewatering (loads and embedments)	[redacted]	[redacted]	[redacted]	
103	00000	Detailed ductwork outline drawings	[redacted]	[redacted]	[redacted]	
104	00000	Hanger list	[redacted]	[redacted]	[redacted]	
105	00000	Preliminary hanger list	[redacted]	[redacted]	[redacted]	
106	00000	Final hanger list	[redacted]	[redacted]	[redacted]	
107	00000	Piping support drawing submittal	[redacted]	[redacted]	[redacted]	
108	00000	Preliminary piping support drawing submittal	[redacted]	[redacted]	[redacted]	
109	00000	Final piping support drawing submittal	[redacted]	[redacted]	[redacted]	
110	00000	**Insulation Information**	[redacted]	[redacted]		
111	00000	Preliminary drawings detailing types and thicknesses of insulation for pipelines, auxiliary equipment items, and flatwork areas	[redacted]	[redacted]	[redacted]	
112	00000	Final drawings detailing types and thicknesses of insulation for pipelines, auxiliary equipment items, and flatwork areas	[redacted]	[redacted]	[redacted]	

113	00000	Typical standard drawing for each valve type, size, pressure class, material, and accessories with applicable tag numbers	[redacted]	[redacted]	[redacted]	
114	00000	**Preliminary piping and instrument diagrams.**	[redacted]	[redacted]	[redacted]	
115	00000	Preliminary piping and instrument diagrams including pipe termination information, piping materials, and freeze protection requirements.	[redacted]	[redacted]	[redacted]	
116	00000	Preliminary piping routing (AR piping)	[redacted]	[redacted]	[redacted]	
117	00000	**Final piping and instrument diagrams.**	[redacted]	[redacted]	[redacted]	
118	00000	Final piping and instrument diagrams excluding reagent preparation/dewatering.	[redacted]	[redacted]	[redacted]	
119	00000	Final piping and instrument diagrams for reagent preparation/dewatering.	[redacted]	[redacted]	[redacted]	
120	00000	Final piping routing (AR piping)	[redacted]	[redacted]	[redacted]	
121	00000	Layout and details of all structural steel support framing at the ductwork supports, WFGD system, tanks, reagent preparation and byproduct dewatering system	[redacted]	[redacted]	[redacted]	
122	00000	Erection drawings for structural steel	[redacted]	[redacted]	[redacted]	
123	00000	Electronic I/O List	[redacted]	[redacted]	[redacted]	
124	00000	Preliminary Logic Diagrams	[redacted]	[redacted]	[redacted]	
125	00000	Final Logic Diagrams	[redacted]	[redacted]	[redacted]	
126	00000	**Control system cabinet and controller outline.**	[redacted]	[redacted]	[redacted]	
127	00000	Description of control system cabinet and controller outline, dimensions, weights, and mounting provisions for all systems provided with equipment within this specification	[redacted]	[redacted]	[redacted]	
128	00000	Final control system cabinet and controller outline, dimensions, weights, and mounting provisions for all systems provided with equipment within this specification	[redacted]	[redacted]	[redacted]	
129	00000	**Control system electrical schematic diagrams (elementaries) for the following:**	[redacted]	[redacted]	[redacted]	
130	00000	Reagent preparation system	[redacted]	[redacted]	[redacted]	
131	00000	Wet FGD System	[redacted]	[redacted]	[redacted]	
132	00000	Byproduct Dewatering system	[redacted]	[redacted]	[redacted]	
133	00000	Control cabinet control electrical schematics, wiring diagrams, field circuit requirements, and termination details for the following systems:	[redacted]	[redacted]	[redacted]	
134	00000	**Other accessory equipment not included with specific items listed above**	[redacted]	[redacted]	[redacted]	
135	00000	Reagent preparation system	[redacted]	[redacted]	[redacted]	
136	00000	Wet FGD System	[redacted]	[redacted]	[redacted]	
137	00000	Byproduct Dewatering system	[redacted]	[redacted]	[redacted]	
138	00000	Other accessory equipment not included with specific items listed above	[redacted]	[redacted]	[redacted]	
139	00000	Detailed erection drawings	[redacted]	[redacted]	[redacted]	
140	00000	Insulation performance specification including all necessary drawings for Purchaser to contract insulation and lagging supply and erection.	[redacted]	[redacted]	[redacted]	

141	00000	Design requirements including fastening of insulation and lagging to supports, flashing methods, convection barriers, lagging closures, and provisions for expansion and contraction				
142	00000	Insulation details specific to sidewalls; roofs; instrument and test port connections; dampers; fans; and penetrations for breeching, ductwork, support steel, etc.				
143	00000	Fabrication details for field fabricated pipe elbow jacketing, and access door and manhole insulated covers				
144	00000	Drawings showing general erection plan.				
145	00000	Final As-Built Drawings and Documentation (Only if different from previously submitted drawings)				
146	00000	Major equipment list, including all ship loose components				
147	00000	Estimated sound pressure level of equipment (at design operating conditions) at any location 5 ft above the floor and 3 ft away from the equipment (dB to a reference of 20 micropascals, "A" Scale) Data should be broken down by octaves.				
148	00000	**Valve operator data, including the following:**				
149	00000	Pneumatic operator wiring diagrams				
150	00000	Pneumatic operator sizing calculations				
151	00000	Makeup, Service, cooling water requirements.				
152	00000	Preliminary NTE listing of makeup and service water requirements including flows, pressures and temperatures. Complete listing of equipment cooling water requirements including flow rates, pressure drops, and temperature rises or heat loads.				
153	00000	Final listing of makeup and service water requirements including flows, pressures and temperatures. Final complete listing of equipment cooling water requirements including flow rates, pressure drops, and temperature rises or heat loads.				
154	00000	Drawings showing all air and water piping interconnections.				
155	00000	Station and instrument airflow and pressure requirements.				
156	00000	NTE station and instrument airflow and pressure requirements (total)				
157	00000	Final station and instrument airflow and pressure requirements (total)				
158	00000	Accessory equipment & instrument list.				
159	00000	Complete accessory equipment & instrument list, excluding reagent preparation and byproduct dewatering, including instrument ranges and recommended set points				
160	00000	Complete accessory equipment & instrument list, including reagent preparation and byproduct dewatering, including instrument ranges and recommended set points				
161	00000	Complete listing of valves				
162	00000	Programmable Logic Control System (PLC) Wiring diagrams showing termination information, I/O card arrangements, etc.				

163	00000	Complete startup/shutdown procedures, I/O list, and System Requirement Specification for all equipment furnished by the Supplier that will be controlled by the Programmable Logic Control System (PLC)	[redacted]	[redacted]	[redacted]	
164	00000	Logic Diagrams for PLC system	[redacted]	[redacted]	[redacted]	
165	00000	**Listing of all electrical equipment and control system cabinets requiring electrical service.**	[redacted]	[redacted]	[redacted]	
166	00000	Preliminary listing of all electrical equipment and control system equipment requiring electrical service with required kW, kVA, full load amperes, locked-rotor amperes, and voltage and phases (including all motors, heaters, and motor operators)	[redacted]	[redacted]	[redacted]	
167	00000	Certified listing of all electrical equipment and control system equipment requiring electrical service with required kW, kVA, full load amperes, locked-rotor amperes, and voltage and phases (including all motors, heaters, and motor operators)	[redacted]	[redacted]	[redacted]	
168	00000	Detail of procedure for grouting all equipment to bases, including the type of grout and requirements for placement	[redacted]	[redacted]	[redacted]	
169	00000	Superimposed medium voltage motor and driven equipment speed-torque curves at minimum, rated, and maximum voltage range	[redacted]	[redacted]	[redacted]	
170	00000	Superimposed thermal limit and time-current curves for medium voltage motors at minimum, rated, and maximum voltage range	[redacted]	[redacted]	[redacted]	
171	00000	Instrument Calibration Data Sheets	[redacted]	[redacted]	[redacted]	
172	00000	Detailed description of proposed model test and model test procedures	[redacted]	[redacted]	[redacted]	
173	00000	Final model test report	[redacted]	[redacted]	[redacted]	
174	00000	Tank mixer calculations pertaining to sizing of components	[redacted]	[redacted]	[redacted]	
175	00000	Data reports for all code stamped shop fabricated tanks, if applicable.	[redacted]	[redacted]	[redacted]	
176	00000	Leak test reports for all shop fabricated tanks not receiving ASME code stamp	[redacted]	[redacted]	[redacted]	
177	00000	Lubrication list, and initial fill requirements	[redacted]	[redacted]	[redacted]	
178	00000	Valve installation instructions for use by the installing Contractor	[redacted]	[redacted]	[redacted]	
179	00000	Detailed operator interface screens, operation procedures, screen linking details and data highway details to allow DCS Supplier to develop and link DCS screens for control of WFGD auxiliary equipment.	[redacted]	[redacted]	[redacted]	
180	00000	**Shop Fabricated Tanks**	[redacted]	[redacted]	[redacted]	
181	00000	Domestic Documentation for shipments whereby, Supplier is responsible for required documentation. These may include, but not limited to the following: a. Commercial Invoice (C.I.) b. Packing List c. Bill Of Lading d. Multimodal Transport Document e. Inland Waterway Document f. Railway Consignment Note g. Road Consignment Note	[redacted]	[redacted]	[redacted]	

182	00000	Equipment Handling, Storage, and Installation Requirements at Site Prior to Placing Equipment in Service		[redacted]	[redacted]	
183	00000	Data reports for ASME code stamped tanks	[redacted]	[redacted]	[redacted]	
184	00000	Pressure and leak test reports	[redacted]	[redacted]	[redacted]	
185	00000	For all shop applied coatings and linings, a letter of certification from a representative of the coating manufacturer shall be submitted to the Purchaser, verifying that all interior coatings have been applied in strict accordance with the instructions and recommendations of the coating manufacturer and that the overall coating systems meet the coating manufacturer's standards	[redacted]	[redacted]	[redacted]	
186	00000	Factory Acceptance Test Procedure Including Acceptance Criteria	[redacted]	[redacted]	[redacted]	
187	00000	Foundation requirements: Loads listed separately for each support (dead, hydro, wind, seismic, etc.) showing magnitude and direction for each load at each support; Baseplate footprint.	[redacted]	[redacted]	[redacted]	
188	00000	Anchorage requirements including bolt sizes, materials, and locations	[redacted]	[redacted]	[redacted]	
189	00000	Nozzle locations, schedule, and size	[redacted]	[redacted]	[redacted]	
190	00000	Diagram of allowable forces and moments on piping connections	[redacted]	[redacted]	[redacted]	
191	00000	Detailed general arrangement drawing for all equipment furnished including horizontal and vertical center-of-gravity.	[redacted]	[redacted]	[redacted]	
192	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
193	00000	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
194	**13902**	**Fire Protection and Detection Systems**	[redacted]	[redacted]	[redacted]	
195	13902	Copies of Certified Test and Inspection Reports	[redacted]	[redacted]	[redacted]	
196	13902	Final arrangement drawings including layouts, supports, sprinkler/spray data, etc.; Mechanical sprinkler plan and electrical drawings indicating cable and raceway installed by the Supplier between local panels and local devices for each system.	[redacted]	[redacted]	[redacted]	
197	13902	Hydraulic Calculations	[redacted]	[redacted]	[redacted]	
198	13902	Power requirements, kVA, including voltage and current requirements	[redacted]	[redacted]	[redacted]	
199	**13902**	**Panel location in building and panel internal layout**		[redacted]	[redacted]	
200	13902	Shutdown logics	[redacted]	[redacted]	[redacted]	
201	13902	Extinguisher layout.	[redacted]	[redacted]	[redacted]	
202	**13902**	**Hose station layout with pressure and flow calculations.**		[redacted]	[redacted]	
203	13902	Drawings indicating foundation requirements and loads (equipment/valve house footprint; anchor bolt locations, sizes, and materials).	[redacted]	[redacted]	[redacted]	
204	13902	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
205	13902	Dimensional Control Panel layout drawings including overall dimensions, detailing all power, control and instrumentation terminal block sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	

206	13902	Network signaling communication drawings between FAAP and local panels, (designating cable specifications (Including O.D.'s) and quantity of each cable type. Drawing shall include Purchaser's duct bank tag number for tubes used by the fire protection system	[redacted]	[redacted]	[redacted]	
207	13902	Piping accessory drawings (valves, strainers, pressure indicators, orifices, flow switches, etc.)	[redacted]	[redacted]	[redacted]	
208	13902	Spray nozzle, sprinkler, and heat detection device drawings	[redacted]	[redacted]	[redacted]	
209	13902	All interface information between the Purchaser supplied piping, etc.	[redacted]	[redacted]	[redacted]	
210	13902	Battery sizing calculations, for each panel specified with standby battery	[redacted]	[redacted]	[redacted]	
211	13902	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
212	13902	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
213	13902	Priced spare parts list	[redacted]	[redacted]	[redacted]	
214	13902	Sub-supplier list	[redacted]	[redacted]	[redacted]	
215	13902	Quality Manual, uncontrolled copy	[redacted]	[redacted]	[redacted]	
216	13902	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
217	13902	Detailed list of instrumentation and control equipment listing manufacturer, model number, range, setpoint, signal level, etc	[redacted]	[redacted]	[redacted]	
218		Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
219	**14200**	**Elevators**	[redacted]	[redacted]	[redacted]	
220	14200	Bill of Material, Including Quantity, Description, and Part Number	[redacted]	[redacted]	[redacted]	
221	14200	Recommended erection sequence in detail	[redacted]	[redacted]	[redacted]	
222	14200	Copy of all required permits	[redacted]	[redacted]	[redacted]	
223	14200	Certified design data and performance curves	[redacted]	[redacted]	[redacted]	
224	14200	Arrangement drawings	[redacted]	[redacted]	[redacted]	
225	14200	Support details and load data, including hoist way requirements, machine room arrangement and clearances, and pit dimensions	[redacted]	[redacted]	[redacted]	
226	14200	Electrical drawings, including electrical loads, schematic diagrams	[redacted]	[redacted]	[redacted]	
227	14200	Fabrication and erection drawings	[redacted]	[redacted]	[redacted]	
228	14200	Final drawings and specifications	[redacted]	[redacted]	[redacted]	
229	**14621**	**Hoists and Trolleys**	[redacted]	[redacted]	[redacted]	
230	14621	Certified Outline Drawings, including Loads, Clearances, Hook Dimensions, and Data	[redacted]	[redacted]	[redacted]	
231	14621	Certified Field Erection Drawings	[redacted]	[redacted]	[redacted]	
232	14621	Electrical load requirements, KVA	[redacted]	[redacted]	[redacted]	
233	14621	Schematic diagrams	[redacted]	[redacted]	[redacted]	
234	14621	Details of festoon cable system showing conductor size, number of conductors, conductor type, method of cable support, etc.	[redacted]	[redacted]	[redacted]	
235	14621	Pushbutton station schematics and layout, contact development	[redacted]	[redacted]	[redacted]	
236	**14622**	**Jib Crane**	[redacted]	[redacted]	[redacted]	
237	14622	Certified Outline Drawings, including Loads, Clearances, Hook Dimensions, and Data	[redacted]	[redacted]	[redacted]	

238	14622	Certified Field Erection Drawings	[redacted]	[redacted]	[redacted]	
239	14622	Electrical load requirements, KVA	[redacted]	[redacted]	[redacted]	
240	14622	Pushbutton station schematics and layout, contact development	[redacted]	[redacted]	[redacted]	
241	00000	**Pipe Supports Designed by Supplier**	[redacted]	[redacted]	[redacted]	
242	00000	Design conference	[redacted]	[redacted]	[redacted]	
243	00000	Shop drawing submittal	[redacted]	[redacted]	[redacted]	
244	00000	**Fabricated Steel Pipe**	[redacted]	[redacted]	[redacted]	
245	00000	Copies of Certified Test and Inspection Reports including material test reports	[redacted]	[redacted]	[redacted]	
246	00000	Factory Acceptance Test Procedure Including Acceptance Criteria	[redacted]	[redacted]	[redacted]	
247	00000	Pipe wall thickness calculations in accordance with the applicable code for pipe wall thickness sized by the Supplier (Pipe Bends)	[redacted]	[redacted]	[redacted]	
248	00000	Manufacturer's data for piping material and piping accessories	[redacted]	[redacted]	[redacted]	
249	00000	Documentation that integrally reinforced forged branch outlet fittings have been designed in accordance with the applicable code	[redacted]	[redacted]	[redacted]	
250	00000	Bending equipment and procedures used for all pipe bends, including calculations to document compliance with Code required minimum wall thickness resulting from bending and post bending heat treatment procedures	[redacted]	[redacted]	[redacted]	
251	00000	Bending results documentation showing records of actual wall thicknesses	[redacted]	[redacted]	[redacted]	
252	00000	ASME pipe data report forms	[redacted]	[redacted]	[redacted]	
253	00000	Erection lug sizing calculations in accordance with the applicable codes.	[redacted]	[redacted]	[redacted]	
254	00000	Drawings of each finished machined wye type fitting, safety relief valve vesselet and LOL type fitting	[redacted]	[redacted]	[redacted]	
255	00000	Special piping details including butt weld end preparations, special connections such as performance test connections, and other details	[redacted]	[redacted]	[redacted]	
256	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
257	00000	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
258	00000	Pipe root side purging procedure	[redacted]	[redacted]	[redacted]	
259	00000	**Large Diameter FRP Pipe**	[redacted]	[redacted]	[redacted]	
260	00000	Certified details of pipe fittings, flanges, and specials, including dimensions and weights	[redacted]	[redacted]	[redacted]	
261	00000	A certified laying arrangement showing each section of pipe or specialty giving section identification, dimensions, location of manholes, physical properties, and standard and restrained joint locations	[redacted]	[redacted]	[redacted]	
262	00000	Certified joint details, including restraining joint design drawings	[redacted]	[redacted]	[redacted]	
263	00000	Certified details of internal stiffeners, reinforcing, and supports required for concrete encased piping	[redacted]	[redacted]	[redacted]	
264	00000	Calculations and drawing documenting code application of branch reinforcement	[redacted]	[redacted]	[redacted]	

265	00000	Recommendations for the design and location of pipe supports	[redacted]	[redacted]	[redacted]	
266	00000	Data supporting the qualification of the design strain values and the associated test basis	[redacted]	[redacted]	[redacted]	
267	00000	Design basis tests performed, including documentation of test specimens and coupons used	[redacted]	[redacted]	[redacted]	
268	00000	Calculations providing criteria for pipe design, including proof of design certified test data from previous tests and a complete description of the scope of all previous proof of design tests conducted, including hydrostatic design basis tests	[redacted]	[redacted]	[redacted]	
269	00000	Description of the recommended anti-flotation anchoring and certified details of provisions for attachment of anchors to pipe	[redacted]	[redacted]	[redacted]	
270	00000	Recommendations, including case history documentation of experience, for elastomeric gaskets suitable for application	[redacted]	[redacted]	[redacted]	
271	00000	Bills of material to allow Purchaser to procure all necessary bolting, elastomeric gaskets, and other materials necessary for the installation of piping system	[redacted]	[redacted]	[redacted]	
272	00000	Drawings indicating proposed shipping lengths of each piece	[redacted]	[redacted]	[redacted]	
273	00000	Fabrication procedures for the following processes: filament winding, standard and restrained joint; fabrication; inspection and repair; verification of material composition; material control; and machine and equipment calibration	[redacted]	[redacted]	[redacted]	
274	00000	Adhesive and curing agent storage, handling, and curing procedure	[redacted]	[redacted]	[redacted]	
275	00000	Joiners' and inspectors' qualifications and certificates	[redacted]	[redacted]	[redacted]	
276	00000	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
277	00000	**General Service Pipe**	[redacted]	[redacted]	[redacted]	
278	00000	Factory Acceptance Test Procedure Including Acceptance Criteria	[redacted]	[redacted]	[redacted]	
279	00000	A laying arrangement listing each section of pipe or specialty giving dimensions, physical properties, and joint locations	[redacted]	[redacted]	[redacted]	
280	00000	Details of pipe fittings, attachments, joints, and specials, including dimensions and weights	[redacted]	[redacted]	[redacted]	
281	00000	Diagram of allowable forces and moments on piping connections	[redacted]	[redacted]	[redacted]	
282	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
283	00000	**Slurry Pumps**	[redacted]	[redacted]	[redacted]	
284	00000	Pump characteristic curves	[redacted]	[redacted]	[redacted]	
285	00000	Detailed outline drawing of each pump, including materials of construction	[redacted]	[redacted]	[redacted]	
286	00000	Detailed pump and motor assembly drawings showing overall dimensions, foundation requirement, and total weights	[redacted]	[redacted]	[redacted]	
287	00000	Details of shaft seals and bearings	[redacted]	[redacted]	[redacted]	
288	00000	Soleplate and baseplate and motor support drawings	[redacted]	[redacted]	[redacted]	
289	00000	Coupling drawings	[redacted]	[redacted]	[redacted]	
290	00000	Miscellaneous piping drawings	[redacted]	[redacted]	[redacted]	
291	00000	**General Service Horizontal Pumps**		[redacted]	[redacted]	

292	00000	Pump characteristic curves	[redacted]	[redacted]	[redacted]	
293	00000	Detailed outline drawing of each pump including materials of construction	[redacted]	[redacted]	[redacted]	
294	00000	Detailed pump and motor assembly drawings showing overall dimensions, foundation requirement, and total weights	[redacted]	[redacted]	[redacted]	
295	00000	Details of shaft seals and bearings	[redacted]	[redacted]	[redacted]	
296	00000	Baseplate and motor support drawings	[redacted]	[redacted]	[redacted]	
297	00000	**General Service Vertical Pumps**	[redacted]	[redacted]	[redacted]	
298	00000	Pump characteristic curves	[redacted]	[redacted]	[redacted]	
299	00000	Detailed outline drawing of each pump, including materials of construction	[redacted]	[redacted]	[redacted]	
300	00000	Detailed pump and motor assembly drawings showing overall dimensions, foundation requirement, and total weights	[redacted]	[redacted]	[redacted]	
301	00000	Details of shaft seals and bearings	[redacted]	[redacted]	[redacted]	
302	00000	Baseplate and motor support drawings	[redacted]	[redacted]	[redacted]	
303	00000	**Piping Expansion Joints - Rubber**	[redacted]	[redacted]	[redacted]	
304	00000	Certified drawings showing dimensions, weights, and materials of construction	[redacted]	[redacted]	[redacted]	
305	00000	Calculations documenting the size and quantity of control units	[redacted]	[redacted]	[redacted]	
306	00000	**Piping Expansion Joints - Metallic**	[redacted]	[redacted]	[redacted]	
307	00000	Certified drawings indicating type, size, arrangement, weights of each component, and breakdown for shipment	[redacted]	[redacted]	[redacted]	
308	00000	Dimensions needed for installation and correlation with other materials and equipment	[redacted]	[redacted]	[redacted]	
309	00000	**Automatic Flushing Type Strainers**	[redacted]	[redacted]	[redacted]	
310	00000	Certified outline drawings of strainers; sectional view with correct dimensional data and materials of construction	[redacted]	[redacted]	[redacted]	
311	00000	Certified data for strainers including design pressure and temperature and pressure drop curves	[redacted]	[redacted]	[redacted]	
312	00000	**Steel Valves 2-1/2 Inches (65 mm) and Larger**	[redacted]	[redacted]	[redacted]	
313	00000	Documentation of body casting repairs, including post-weld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
314	00000	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
315	00000	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator	[redacted]	[redacted]	[redacted]	
316	00000	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
317	00000	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
318	00000	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	
319	00000	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, and butt weld end details	[redacted]	[redacted]	[redacted]	

320	00000	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer				
321	00000	Motor and actuator information sheets with actuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer				
322	00000	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)				
323	00000	Coating and surface preparation specification				
324	00000	Valve pneumatic tubing diagrams				
325	00000	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.				
326	00000	Sectional drawing showing materials and internal construction				
327	00000	**General Service Valves (Furnished with Equipment)**				
328	00000	Documentation of body casting repairs, including post-weld heat treatment records and re-examination records				
329	00000	Radiograph reports in accordance with ANSI B16.34				
330	00000	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator				
331	00000	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34				
332	00000	Wiring and elementary diagrams showing all external power/control/instrumentation connections.				
333	00000	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.				
334	00000	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, and butt weld end details				
335	00000	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer				
336	00000	Motor and actuator information sheets with actuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer				
337	00000	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)				

338	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
339	00000	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
340	00000	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
341	00000	**Rubber Seated Butterfly Valves**	[redacted]	[redacted]	[redacted]	
342	00000	Documentation of body casting repairs, including post-weld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
343	00000	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
344	00000	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
345	00000	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
346	00000	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	
347	00000	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, orientation of disks and shafts, direction of rotation, location of operator, and operator removal clearances	[redacted]	[redacted]	[redacted]	
348	00000	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer	[redacted]	[redacted]	[redacted]	
349	00000	Motor and actuator information sheets with actuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer	[redacted]	[redacted]	[redacted]	
350	00000	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)	[redacted]	[redacted]	[redacted]	
351	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
352	00000	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
353	00000	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.	[redacted]	[redacted]	[redacted]	
354	00000	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
355	00000	**Metal Seated Butterfly Valves**	[redacted]	[redacted]	[redacted]	
356	00000	Certified correct dimensional data for each size and type of valve	[redacted]	[redacted]	[redacted]	
357	00000	Cross-sectional assembly views of the valves indicating materials used for each component	[redacted]	[redacted]	[redacted]	
358	00000	Outline drawings of the valves showing dimensions, weight, and center of gravity for each assembled valve, operator, and accessory	[redacted]	[redacted]	[redacted]	
359	00000	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	

360	00000	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)				
361	00000	**Control Valves**				
362	00000	Documentation of body casting repairs, including post-weld heat treatment records and re-examination records				
363	00000	Radiograph reports in accordance with ANSI B16.34				
364	00000	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator				
365	00000	Shell pressure test and seat leakage test reports (for tests required by ASME B16.34 and ANSI/FCI 70-2)				
366	00000	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34				
367	00000	Wiring and elementary diagrams showing all external control/instrumentation connections.				
368	00000	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.				
369	00000	Engineering Information (Valve Packet)				
370	00000	Manufacturer's Specification and Design Data Sheets, Including Scope Description				
371	00000	Valve/Actuator Assembly Outline Drawings, Including Dimensions (End-to-End, Removal), Weight, Direction of Flow, and Weld End Details (Included with Valve Packet)				
372	00000	Price Summary				
373	00000	Applicable Catalog 10 sheets showing flow coefficients versus percent open				
374	00000	Flow Data; Cv, Cg, or Cs Versus Valve Opening for All Valve design cases submitted to vendor				
375	00000	Chemical Cleaning Cover, and/or Flush Kits, Piping Connections Drawings, Including Overall Dimensions and Weights				
376	00000	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)				
377	00000	Coating and surface preparation specification				
378	00000	Valve pneumatic tubing diagrams				

379	00000	Factory Valve and Accessory Outline Drawings (Consistent with Supplier Type I Drawings) With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.		[redacted]	[redacted]	
380	00000	Sectional drawing showing materials and internal construction		[redacted]	[redacted]	
381	00000	**Automatic Recirculation Control (ARC) Valves**		[redacted]	[redacted]	
382	00000	Outline drawings showing end-to-end dimensions, end preparation details, and center of gravity location for each assembled valve and operator	[redacted]	[redacted]	[redacted]	
383	00000	Certified performance curves showing switch point and bypass flow characteristics	[redacted]	[redacted]	[redacted]	
384	00000	Cross-sectional assembly drawings indicating construction materials for each part	[redacted]	[redacted]	[redacted]	
385	00000	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator	[redacted]	[redacted]	[redacted]	
386	00000	**Safety and Relief Valves**	[redacted]	[redacted]	[redacted]	
387	00000	Documentation of body casting repairs, including post-weld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
388	00000	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
389	00000	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator	[redacted]	[redacted]	[redacted]	
390	00000	Shell pressure test and seat leakage test reports (for tests required by ASME B16.34 and ANSI/FCI 70-2)	[redacted]	[redacted]	[redacted]	
391	00000	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
392	00000	Valve and accessory outline with overall dimensions and weights (including accessories),	[redacted]	[redacted]	[redacted]	
393	00000	Valve specification sheet including operating conditions, set pressure, fluid conditions, and orifice and valve selection	[redacted]	[redacted]	[redacted]	
394	00000	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
395	00000	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
396	00000	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions and end-to-end dimensions.	[redacted]	[redacted]	[redacted]	
397	00000	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
398	00000	**Plate and Frame Heat Exchangers**	[redacted]	[redacted]	[redacted]	
399	00000	Equipment storage and handling requirements	[redacted]	[redacted]	[redacted]	
400	00000	Maximum allowable forces and moments on piping connections	[redacted]	[redacted]	[redacted]	
401	00000	Certified heat exchanger specification sheets indicating performance data.	[redacted]	[redacted]	[redacted]	

402	00000	Detailed Outline drawings of the integral strainers including dimensions and opening size.	[redacted]	[redacted]	[redacted]	
403	00000	Detailed certified outline drawings including all dimensions and location and size of all piping connections.	[redacted]	[redacted]	[redacted]	
404	00000	Support details including anchor bolt layout and empty and flooded weights.	[redacted]	[redacted]	[redacted]	
405	00000	Assembly Drawings with all internal components and materials.	[redacted]	[redacted]	[redacted]	
406	00000	Data reports and inspection certificates required by codes.	[redacted]	[redacted]	[redacted]	
407	00000	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
408	00000	**Shell and Tube Heat Exchangers**	[redacted]	[redacted]	[redacted]	
409	00000	Maximum allowable forces and moments on piping connections or recommendations for determining the allowable forces and moments	[redacted]	[redacted]	[redacted]	
410	00000	Certified heat exchanger specification sheets indicating performance data	[redacted]	[redacted]	[redacted]	
411	00000	Detailed outline drawings including all dimensions and location and size of all piping connections	[redacted]	[redacted]	[redacted]	
412	00000	Support details including anchor bolt layout and empty and flooded weights	[redacted]	[redacted]	[redacted]	
413	00000	Assembly drawings with all internal components and materials	[redacted]	[redacted]	[redacted]	
414	00000	Data reports and inspection certificates required by codes	[redacted]	[redacted]	[redacted]	
415	00000	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
416	**15700**	**HVAC Systems**	[redacted]	[redacted]	[redacted]	
417	15700	Construction drawings showing ductwork and equipment, locations, elevations, and dimensions; equipment tag numbers, terminal device tag numbers with airflow quantities indicated; accessory and control component locations; pressure classifications of ductwork.	[redacted]	[redacted]	[redacted]	
418	15700	Legend, notes, abbreviations, and detail sheets showing the legend for ductwork, equipment, accessories and any other symbolism used on the drawings; notes clarifying the presentation of HVAC items shown on the drawings and details of construction.	[redacted]	[redacted]	[redacted]	
419	15700	Schematics of the HVAC systems including flow rates to each space, pressurization quantities, air movement between rooms, equipment, tag numbers, instrumentation location, room names and notes clarifying the drawing.	[redacted]	[redacted]	[redacted]	
420	15700	Air conditioning load calculations with considerations of transmission and solar gain, people, lighting, mechanical and electrical equipment, motors, electronic equipment, computers, miscellaneous appliances and infiltration or ventilation air	[redacted]	[redacted]	[redacted]	
421	15700	Heating and ventilating calculations for non-air conditioned spaces.	[redacted]	[redacted]	[redacted]	
422		Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
423	**15720**	**HVAC Air Handling Units**	[redacted]	[redacted]	[redacted]	
424	15720	Sound level data	[redacted]	[redacted]	[redacted]	
425	15720	Certified performance curves	[redacted]	[redacted]	[redacted]	
426	15720	Arrangement drawings	[redacted]	[redacted]	[redacted]	
427	15720	Electrical one-line and elementary diagrams	[redacted]	[redacted]	[redacted]	

428	15720	Coating data	[redacted]	[redacted]	[redacted]	
429	15720	Piping and instrument diagrams	[redacted]	[redacted]	[redacted]	
430	15720	Control system logic diagrams	[redacted]	[redacted]	[redacted]	
431	15720	Control panel layout	[redacted]	[redacted]	[redacted]	
432	15720	Electric heater wiring diagrams	[redacted]	[redacted]	[redacted]	
433	15720	Assembly drawings and erection sequence	[redacted]	[redacted]	[redacted]	
434	15720	Point-to-point wiring diagrams	[redacted]	[redacted]	[redacted]	
435	15720	Reconnection diagram	[redacted]	[redacted]	[redacted]	
436	15720	Sound test results	[redacted]	[redacted]	[redacted]	
437	15720	Vibration test results	[redacted]	[redacted]	[redacted]	
438	15720	Pressure test results	[redacted]	[redacted]	[redacted]	
439	15720	Leakage test results	[redacted]	[redacted]	[redacted]	
440	**15730**	**HVAC Air Conditioners**	[redacted]	[redacted]	[redacted]	
441	15730	Sound level data	[redacted]	[redacted]	[redacted]	
442	15730	Certified performance curves	[redacted]	[redacted]	[redacted]	
443	15730	Arrangement drawings	[redacted]	[redacted]	[redacted]	
444	15730	Electrical one-line and elementary diagrams	[redacted]	[redacted]	[redacted]	
445	15730	Coating data	[redacted]	[redacted]	[redacted]	
446	15730	Piping and instrument diagrams	[redacted]	[redacted]	[redacted]	
447	15730	Control system logic diagrams	[redacted]	[redacted]	[redacted]	
448	15730	Control panel layout	[redacted]	[redacted]	[redacted]	
449	15730	Electric heater wiring diagrams	[redacted]	[redacted]	[redacted]	
450	15730	Assembly drawings and erection sequence	[redacted]	[redacted]	[redacted]	
451	15730	Point-to-point wiring diagrams	[redacted]	[redacted]	[redacted]	
452	15730	Reconnection diagram	[redacted]	[redacted]	[redacted]	
453	15730	Sound test results	[redacted]	[redacted]	[redacted]	
454	15730	Vibration test results	[redacted]	[redacted]	[redacted]	
455	15730	Pressure test results	[redacted]	[redacted]	[redacted]	
456	15730	Leakage test results	[redacted]	[redacted]	[redacted]	
457	**15760**	**HVAC Heaters**	[redacted]	[redacted]	[redacted]	
458	15760	Shop drawings	[redacted]	[redacted]	[redacted]	
459	15760	Dimensional data	[redacted]	[redacted]	[redacted]	
460	15760	Sound level data	[redacted]	[redacted]	[redacted]	
461	15760	Electrical data	[redacted]	[redacted]	[redacted]	
462	15760	Wiring diagrams	[redacted]	[redacted]	[redacted]	
463	15760	Installation instructions	[redacted]	[redacted]	[redacted]	
464	15760	Electrical one-line and elementary diagrams	[redacted]	[redacted]	[redacted]	
465	15760	Coating data	[redacted]	[redacted]	[redacted]	
466	15760	Assembly drawings and erection sequence	[redacted]	[redacted]	[redacted]	
467	15760	Point-to-point wiring diagrams	[redacted]	[redacted]	[redacted]	
468	**15810**	**HVAC Ductwork and Accessories**	[redacted]	[redacted]	[redacted]	
469	15810	Coating Data	[redacted]	[redacted]	[redacted]	
470	15810	Arrangement Drawings including HVAC equipment and ductwork sizes and location.	[redacted]	[redacted]	[redacted]	
471	15810	As-Built Drawings	[redacted]	[redacted]	[redacted]	
472	15810	Access Panel Data	[redacted]	[redacted]	[redacted]	
473	15810	Pressure Relief Door Data	[redacted]	[redacted]	[redacted]	
474	15810	Assembly Drawings and Erection Sequence	[redacted]	[redacted]	[redacted]	

475	15810	Flexible Duct Data	[redacted]	[redacted]	[redacted]	
476	15810	Sealing Material Data	[redacted]	[redacted]	[redacted]	
477	15810	Insulation Data	[redacted]	[redacted]	[redacted]	
478	15810	Flexible Connector Data	[redacted]	[redacted]	[redacted]	
479	15810	Typical Support Details	[redacted]	[redacted]	[redacted]	
480	**15820**	**HVAC Dampers**	[redacted]	[redacted]	[redacted]	
481	15820	Dimension data	[redacted]	[redacted]	[redacted]	
482	15820	Certified performance curves	[redacted]	[redacted]	[redacted]	
483	15820	Shop Drawings.	[redacted]	[redacted]	[redacted]	
484	15820	Coating data	[redacted]	[redacted]	[redacted]	
485	**15830**	**HVAC Fans**	[redacted]	[redacted]	[redacted]	
486	15830	Sound level data	[redacted]	[redacted]	[redacted]	
487	15830	Certified performance curves	[redacted]	[redacted]	[redacted]	
488	15830	Dimension data	[redacted]	[redacted]	[redacted]	
489	15830	Arrangement drawings	[redacted]	[redacted]	[redacted]	
490	15830	Electrical one-line and elementary drawings	[redacted]	[redacted]	[redacted]	
491	15830	Coating data	[redacted]	[redacted]	[redacted]	
492	15830	Point-to-point wiring diagrams	[redacted]	[redacted]	[redacted]	
493	15830	Bearing life calculations	[redacted]	[redacted]	[redacted]	
494	15830	Assembly drawings and erection sequence	[redacted]	[redacted]	[redacted]	
495	15830	Sound test results	[redacted]	[redacted]	[redacted]	
496	**15861**	**HVAC Gravity Roof Ventilators**	[redacted]	[redacted]	[redacted]	
497	15861	Shop Drawings	[redacted]	[redacted]	[redacted]	
498	15861	Assembly drawings and erection sequence	[redacted]	[redacted]	[redacted]	
499	15861	Dimension data	[redacted]	[redacted]	[redacted]	
500	15861	Performance data	[redacted]	[redacted]	[redacted]	
501	15861	Color Sample and Coating data	[redacted]	[redacted]	[redacted]	
502	15861	Wiring and connection diagrams	[redacted]	[redacted]	[redacted]	
503	15861	Motor actuator data sheet	[redacted]	[redacted]	[redacted]	
504	15861	Commissioning plan	[redacted]	[redacted]	[redacted]	
505	15861	Pre-startup check list	[redacted]	[redacted]	[redacted]	
506	15861	Functional performance check list	[redacted]	[redacted]	[redacted]	
507	**15920**	**HVAC Temperature Control**	[redacted]	[redacted]	[redacted]	
508	15920	Drawings and data	[redacted]	[redacted]	[redacted]	
509	15920	Dimensions, weight, and clearance required	[redacted]	[redacted]	[redacted]	
510	15920	Field connection - type, size, and location	[redacted]	[redacted]	[redacted]	
511	15920	Coating data and coating color	[redacted]	[redacted]	[redacted]	
512	15920	Temperature control panel layout drawing	[redacted]	[redacted]	[redacted]	
513	15920	Duct and instrumentation flow diagrams (D&ID)	[redacted]	[redacted]	[redacted]	
514	15920	Control system elementary diagrams	[redacted]	[redacted]	[redacted]	
515	15920	Component internal elementary diagrams	[redacted]	[redacted]	[redacted]	
516	15920	Seller's sequence of operation (each system)	[redacted]	[redacted]	[redacted]	
517	15920	Control components manufacturer's information	[redacted]	[redacted]	[redacted]	
518	15920	Electrical components manufacturer's information	[redacted]	[redacted]	[redacted]	
519	15920	Wiring and connection diagrams (point-to-point)	[redacted]	[redacted]	[redacted]	
520	00000	**Insulation and Lagging**	[redacted]	[redacted]	[redacted]	
521	00000	Drawings detailing types and thicknesses of insulation for pipelines, auxiliary equipment items, and flatwork areas	[redacted]	[redacted]	[redacted]	

522	00000	Installation details for insulation and lagging supports for each flatwork area or equipment	[redacted]	[redacted]	[redacted]	
523	00000	Installation details including fastening of insulation and lagging to supports, flashing methods, convection barriers, lagging closures, and provisions for expansion and contraction	[redacted]	[redacted]	[redacted]	
524	00000	Installation details specific to sidewalls; roofs; hoppers and hopper crotch areas; hopper poke holes and instrument and test port connections; dampers; fans; and penetrations for breeching, ductwork, support steel, etc.	[redacted]	[redacted]	[redacted]	
525	00000	Fabrication details for field fabricated pipe elbow jacketing, and access door and manhole insulated covers	[redacted]	[redacted]	[redacted]	
526	00000	Storage and handling requirements for insulation and lagging materials to be erected by others	[redacted]	[redacted]	[redacted]	
527	00000	**Electrical Design and Equipment**	[redacted]	[redacted]	[redacted]	
528	00000	Certified design data and performance curves	[redacted]	[redacted]	[redacted]	
529	00000	Arrangement and fabrication/ erection drawings	[redacted]	[redacted]	[redacted]	
530	00000	Detailed set of drawings to include arrangement drawings, interconnection drawings, schematics, nameplate schedule and bill of materials	[redacted]	[redacted]	[redacted]	
531	00000	Final set of above drawings in addition to interconnection wiring diagrams	[redacted]	[redacted]	[redacted]	
532	00000	Current transformer ratio correction factor and excitation curves	[redacted]	[redacted]	[redacted]	
533	**16120**	**AC/DC Panelboards**	[redacted]	[redacted]	[redacted]	
534	16120	Bill of material, including quantity, description, and part number.	[redacted]	[redacted]	[redacted]	
535	16120	Transparency time-current characteristic curves for each type of circuit breaker, protective relay, and each type of fuse furnished within each panel	[redacted]	[redacted]	[redacted]	
536	16120	Outline drawings and breaker arrangement	[redacted]	[redacted]	[redacted]	
537	16120	Panelboard directories	[redacted]	[redacted]	[redacted]	
538	**16125**	**Dry Type Transformers**	[redacted]	[redacted]	[redacted]	
539	16125	Manufacturer's catalog sheets showing manufacturer's data including transformer impedances, noise level in decibels and amount of heat rejected at 50% and 100% load, enclosure details, size, weight, ratings, coil material	[redacted]	[redacted]	[redacted]	
540	16125	Wiring diagrams	[redacted]	[redacted]	[redacted]	
541	**16410**	**Junction Boxes**	[redacted]	[redacted]	[redacted]	
542	16410	Manufacturer's catalog sheets for junction boxes and all devices mounted in the junction boxes	[redacted]	[redacted]	[redacted]	
543	16410	Terminal block layout and terminal numbering.	[redacted]	[redacted]	[redacted]	
544	**16430**	**Disconnect Switches**	[redacted]	[redacted]	[redacted]	
545	16430	Manufacturer's catalog sheets showing equipment data including fuse manufacturer's name and model number along with fuse curves when fusible disconnects are furnished.	[redacted]	[redacted]	[redacted]	
546	**16501**	**Lighting**	[redacted]	[redacted]	[redacted]	
547	16501	Lighting and Receptacle Layout and wiring drawing	[redacted]	[redacted]	[redacted]	
548	16501	Lighting illumination calculations	[redacted]	[redacted]	[redacted]	
549	16501	Lighting equipment catalog sheets	[redacted]	[redacted]	[redacted]	

550	16501	Arrangement drawings including lighting fixtures sizes and locations	[redacted]	[redacted]	[redacted]	
551	16501	UPS drawings, including UPS arrangements, wiring and schematic diagrams,	[redacted]	[redacted]	[redacted]	
552	00000	**Control Design and Equipment**	[redacted]	[redacted]	[redacted]	
553	00000	Complete set of hardcopy printout of all graphic displays for local control	[redacted]	[redacted]	[redacted]	
554	00000	Recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
555	00000	**Local Control Panels**	[redacted]	[redacted]	[redacted]	
556	00000	Panel outline dimension drawings	[redacted]	[redacted]	[redacted]	
557	00000	Panel internal arrangement drawings	[redacted]	[redacted]	[redacted]	
558	00000	Control panel layout drawings	[redacted]	[redacted]	[redacted]	
559	00000	Panel internal wiring diagrams	[redacted]	[redacted]	[redacted]	
560	00000	Panel external connection diagrams	[redacted]	[redacted]	[redacted]	
561	00000	Panel tubing and piping drawings	[redacted]	[redacted]	[redacted]	
562	00000	Panel component cut sheets	[redacted]	[redacted]	[redacted]	
563	00000	**Subsystem - Programmable Logic Control System**	[redacted]	[redacted]	[redacted]	
564	00000	Notice of Factory Inspection or Tests	[redacted]	[redacted]	[redacted]	
565	00000	PLC power, communications, and grounding wiring diagrams	[redacted]	[redacted]	[redacted]	
566	00000	PLC equipment location and arrangement drawings	[redacted]	[redacted]	[redacted]	
567	00000	PLC System equipment layout	[redacted]	[redacted]	[redacted]	
568	00000	PLC I/O wiring diagrams	[redacted]	[redacted]	[redacted]	
569	00000	PLC System external connection diagrams	[redacted]	[redacted]	[redacted]	
570	00000	PLC external hardwired I/O list	[redacted]	[redacted]	[redacted]	
571	00000	Preliminary PLC to DCS I/O data interface list	[redacted]	[redacted]	[redacted]	
572	00000	Final PLC to DCS I/O data interface list	[redacted]	[redacted]	[redacted]	
573	00000	Preliminary recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
574	00000	Final recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
575	00000	PLC program printouts for review	[redacted]	[redacted]	[redacted]	
576	00000	Complete set of hardcopy printout of all graphic displays for local control	[redacted]	[redacted]	[redacted]	
577	00000	PLC system operation and maintenance instruction manuals	[redacted]	[redacted]	[redacted]	
578	00000	Operator interface system operation and maintenance instruction manuals	[redacted]	[redacted]	[redacted]	
579	00000	Final PLC program printouts and electronic file of PLC program	[redacted]	[redacted]	[redacted]	
580	00000	**Vibration Monitoring Equipment**	[redacted]	[redacted]	[redacted]	
581	00000	Bill of Material, Including Quantity, Description, and Part Number	[redacted]	[redacted]	[redacted]	
582	00000	Wiring and elementary diagrams showing all external control/instrumentation/power connections.	[redacted]	[redacted]	[redacted]	
583	00000	Wiring and elementary diagrams showing all external control/instrumentation/power connections.	[redacted]	[redacted]	[redacted]	
584	00000	Detailed Job Specific System hardware Layout Drawings (Internal Cabinet Layout Drawings for all cabinets)	[redacted]	[redacted]	[redacted]	
585	00000	Detailed Job Specific Equipment Dimension Drawings (Drawings to include: Overall dimensions; door locations, swings and threshold elevations; All power, control and instrumentation junction box sizes and arrangements).	[redacted]	[redacted]	[redacted]	

586	00000	Detailed Job Specific Power and Grounding Wiring Diagrams (Drawings to include : Maximum power, control and instrumentation cable size termination requirements; Ground lug size and location)	[redacted]	[redacted]	[redacted]	
587	00000	Detailed Job Specific DCS to Vibration Monitoring Communications Drawings (Drawings to include: communications connection location/connector type and prefab communications cable configuration requirements,)	[redacted]	[redacted]	[redacted]	
588	00000	Equipment Storage Requirements.	[redacted]	[redacted]	[redacted]	
589	00000	**Local Instrument Racks and Enclosures**	[redacted]	[redacted]	[redacted]	
590	00000	Preliminary electrical load list	[redacted]	[redacted]	[redacted]	
591	00000	Air requirements	[redacted]	[redacted]	[redacted]	
592	00000	Foundation design data, including equipment operating loads, anchor bolt sizes and locations, and equipment base sizes	[redacted]	[redacted]	[redacted]	
593	00000	Equipment outline, layout, and arrangement drawings	[redacted]	[redacted]	[redacted]	
594	00000	Piping details	[redacted]	[redacted]	[redacted]	
595	00000	Final electrical load list	[redacted]	[redacted]	[redacted]	
596	00000	Point-to-point internal physical wiring diagrams	[redacted]	[redacted]	[redacted]	
597	00000	Wiring diagrams (field wiring)	[redacted]	[redacted]	[redacted]	
598	00000	**Instrument Enclosures**	[redacted]	[redacted]	[redacted]	
599	00000	Air requirements (for each enclosure)	[redacted]	[redacted]	[redacted]	
600	00000	Piping details (for each enclosure)	[redacted]	[redacted]	[redacted]	
601	00000	Final electrical load list (for each enclosure)	[redacted]	[redacted]	[redacted]	
602	00000	Point-to-point internal physical wiring diagrams (for each enclosure)	[redacted]	[redacted]	[redacted]	
603	00000	Instrument data sheets (ISA type)	[redacted]	[redacted]	[redacted]	
604	00000	Dimensional drawings (for each enclosure) including: Detailed general arrangement drawings for all equipment; Weight; Overall dimensions; Door locations, swings, and threshold elevations; All power, control, and instrumentation junction box sizes and location	[redacted]	[redacted]	[redacted]	
605	00000	Anchorage requirements including bolt sizes, materials (i.e., A36, A307, etc.) and locations.	[redacted]	[redacted]	[redacted]	
606	00000	Drawings and data on accessory equipment including valves, fittings, terminal blocks, convenience receptacles, and other components.	[redacted]	[redacted]	[redacted]	
607	00000	Factory acceptance test procedure including acceptance criteria.	[redacted]	[redacted]	[redacted]	
608	00000	Notice of factory inspection or tests	[redacted]	[redacted]	[redacted]	
609	00000	Copies of certified inspection or test reports.	[redacted]	[redacted]	[redacted]	
610	00000	Copies of all applicable service bulletins, application guides, installation updates or other similar documentation for the devices being furnished (or certification that no such documents apply to product being supplied).	[redacted]	[redacted]	[redacted]	
611	00000	**Instrumentation**	[redacted]	[redacted]	[redacted]	
612	00000	Outline drawing showing all dimensions including process connection sizes, tag number/description and model/serial number.	[redacted]	[redacted]	[redacted]	
613	00000	Terminal block layout and terminal nomenclature if applicable.	[redacted]	[redacted]	[redacted]	
614	00000	Flow element calculation sheet showing beta ratio and differential pressure drop/loss if applicable.	[redacted]	[redacted]	[redacted]	

615	00000	Flow element overall and component dimension/material drawing if applicable.				
616	00000	Calibration Certification/Report if applicable.				
617	00000	**Design Ambients and HVAC Criteria**				
618	00000	Certified ventilation & Heating, design load calculations with considerations of transmission and solar gain, people, lighting, mechanical and electrical equipment, motors, electronic equipment, computers, miscellaneous appliances, infiltration.				
619	00000	For HVAC Ventilation Equipment: Approval of calculations required before approval of equipment shop drawings. Fan curves, motor data, coating data, dimensional data including piping connection sizes and location, weight, performance data, wiring diagrams and sound level data.				
620	00000	For Louvers: Shop drawings, AMCA performance data including wind driven rain certification, free area and pressure drop data, coating data sheet and color sample				
621	00000	For Ventilation Controls: Approval of calculations required before approval of equipment shop drawings. Wiring diagrams, control and electrical components data sheets, sequence of operations, control system architecture, and temperature control panel layout drawings.				
622	**E635**	**Medium Voltage Induction Motors**				
623	E635	Motor dimensional drawings				
624	E635	Motor nameplate data				
625	E635	Preliminary Motor Data Sheets				
626	E635	Completed Motor Data Sheets				
627	E635	Superimposed medium voltage motor and driven equipment speed-torque curves at minimum, rated, and maximum voltage range				
628	E635	Superimposed thermal limit and time-current curves for medium voltage motors at minimum, rated, and maximum voltage range				
629	E635	Power factor versus percent load curves for medium voltage motors				
630	E635	Wiring diagrams				
631	E635	Bearing disassembly and reassembly drawings				
632	E635	Medium voltage motor rotor removal clearance drawings				
633	E640	Low Voltage Induction Motors				
634	E640	Motor dimensional drawings				
635	E640	Motor nameplate data				
636	E642	Single-Phase Induction Motors				
637	E642	Motor nameplate data				
638	E642	Motor dimensional drawings				
639	E645	Electric Actuators				
640	E645	Actuator outline diagrams				
641	E645	Wiring diagrams				
642	**K100**	**Instrumentation**				
643	K100	Instrument factory calibration sheets				

644	K100	Flow element calculation data sheets showing beta ratio, dP, flow	[redacted]	[redacted]	[redacted]	
645	K100	ISA-format datasheets for all Instruments	[redacted]	[redacted]	[redacted]	
646	**Q001**	**ISO:9001:2000 Quality System Requirements**	[redacted]	[redacted]	[redacted]	
647	Q001	Quality Manual, controlled copy	[redacted]	[redacted]	[redacted]	
648	Q001	Certification Letter or Certificate of Authorization (copy), if certified by a registered agency, e.g., ASME Certificate of Authorization, ISO Certificate	[redacted]	[redacted]	[redacted]	
649	Q001	Sub-supplier listing	[redacted]	[redacted]	[redacted]	
650	Q001	Inspection and test plan	[redacted]	[redacted]	[redacted]	
651	Q001	Notification of inspection/test (for B&V hold/witness points)	[redacted]	[redacted]	[redacted]	
652	Q1XX	_	[redacted]	[redacted]	[redacted]	
653	Q1XX	Welding Procedure Specifications (WPS) with applicable Procedure Qualification Records (PQR)	[redacted]	[redacted]	[redacted]	
654	Q1XX	Procedures for storing, issuing, and reconditioning of electrodes, wires, and fluxes	[redacted]	[redacted]	[redacted]	
655	Q1XX	Repair procedures associated with a nonconformance report	[redacted]	[redacted]	[redacted]	
656	Q1XX	Post-weld heat treatment procedures	[redacted]	[redacted]	[redacted]	
657	Q1XX	Solution annealing heat treatment procedure, if required	[redacted]	[redacted]	[redacted]	
658	Q1XX	Visual inspectors' qualifications and certificates	[redacted]	[redacted]	[redacted]	
659	Q1XX	Nondestructive examination procedures	[redacted]	[redacted]	[redacted]	
660	Q1XX	Root side purging procedures	[redacted]	[redacted]	[redacted]	
661	Q1XX	Nonconformance reports	[redacted]	[redacted]	[redacted]	
662	Q1XX	ASME/NBIC Data Reports	[redacted]	[redacted]	[redacted]	
663	Q1XX	Radiographs	[redacted]	[redacted]	[redacted]	
664	**Q1XX**	**Brazing of Copper Tubing**	[redacted]	[redacted]	[redacted]	
665	Q1XX	Brazing procedures and applicable Procedure Qualification Records	[redacted]	[redacted]	[redacted]	
666	**Q1XX**	**Soldering of Copper Tubing**	[redacted]	[redacted]	[redacted]	
667	Q1XX	Soldering procedures	[redacted]	[redacted]	[redacted]	
668	**Q1XX**	**Welding of Duplex Stainless Steel, Super Duplex Stainless Steel, and Alloy C-276 for Flue Gas Desulfurization**	[redacted]	[redacted]	[redacted]	
669	Q1XX	Written plan for training of production welders of duplex stainless steel, super duplex stainless steel, and Alloy C-276	[redacted]	[redacted]	[redacted]	
670	Q1XX	Detailed Pickling Procedure (when required)	[redacted]	[redacted]	[redacted]	
671	**Q301**	**Manufacturer's Standard Coating**	[redacted]	[redacted]	[redacted]	
672	Q301	Shop drawings that identify shop-applied coating systems	[redacted]	[redacted]	[redacted]	
673	Q301	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
674	**Q302**	**Purchaser Specified Exterior Shop Coating**	[redacted]	[redacted]	[redacted]	
675	Q302	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
676	Q302	Manufacturer's color cards	[redacted]	[redacted]	[redacted]	
677	Q302	Manufacturer's surface preparation and coating application procedures. Include manufacturer's construction standards and recommended practices for surface contamination testing, crack and joint treatment, edge treatment, coating penetration and termination.	[redacted]	[redacted]	[redacted]	

678	Q302	Manufacturer's certification of the coating applicator	[redacted]	[redacted]	[redacted]	
679	Q302	Applicator's experience record	[redacted]	[redacted]	[redacted]	
680	Q302	Manufacturer's approval of surface condition prior to coating application	[redacted]	[redacted]	[redacted]	
681	Q302	Applicator's inspection and test reports	[redacted]	[redacted]	[redacted]	
682	Q302	Manufacturer's field representative inspection and test report	[redacted]	[redacted]	[redacted]	
683	**Q303**	**Interior Coatings and Linings**	[redacted]	[redacted]	[redacted]	
684	Q303	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
685	Q303	Applicator's blast media data sheets	[redacted]	[redacted]	[redacted]	
686	Q303	Manufacturer's surface preparation and coating application procedures. Include manufacturer's construction standards and recommended practices for surface contamination testing, crack and joint treatment, edge treatment, coating penetration and termination.	[redacted]	[redacted]	[redacted]	
687	Q303	Manufacturer's certification of the coating applicator	[redacted]	[redacted]	[redacted]	
688	Q303	Applicator's experience record	[redacted]	[redacted]	[redacted]	
689	Q303	Applicator's approval of manufacturer's surface preparation and coating application procedures	[redacted]	[redacted]	[redacted]	
690	Q303	Manufacturer's approval of surface condition prior to coating application	[redacted]	[redacted]	[redacted]	
691	Q303	Applicator's inspection and test reports	[redacted]	[redacted]	[redacted]	
692	Q303	Manufacturer's field representative inspection and test report	[redacted]	[redacted]	[redacted]	
693	**Q305**	**Rubber Lining**	[redacted]	[redacted]	[redacted]	
694	Q305	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
695	Q305	Manufacturer's surface preparation and coating application procedures. Include manufacturer's construction standards and recommended practices for surface contamination testing, crack and joint treatment, edge treatment, coating penetration and termination.	[redacted]	[redacted]	[redacted]	
696	Q305	Manufacturer's certification of the coating applicator	[redacted]	[redacted]	[redacted]	
697	Q305	Applicator's experience record	[redacted]	[redacted]	[redacted]	
698	Q305	Applicator's inspection and test reports	[redacted]	[redacted]	[redacted]	
699	**Q400**	**General Equipment Requirements**	[redacted]	[redacted]	[redacted]	
700	Q400	Shipment Plan providing details of field assembly work required as described in the Supplier's proposal.	[redacted]	[redacted]	[redacted]	
701	**Q502**	**Electrical Data**	[redacted]	[redacted]	[redacted]	
702	Q502	Completed motor information sheets	[redacted]	[redacted]	[redacted]	
703	Q502	Completed electric actuator information sheet	[redacted]	[redacted]	[redacted]	
704	**S400**	**Standard Supplier Load Tables Equipment and Components**	[redacted]	[redacted]	[redacted]	
704	S400	Specific Supplier Loads (NTE and Final/Certified) shall be furnished at 60 and 90 days, respectively.	[redacted]	[redacted]	[redacted]	
705	S400	Preliminary location drawings for embedments and anchor bolts.	[redacted]	[redacted]	[redacted]	
706	S400	Preliminary anchor bolt details.	[redacted]	[redacted]	[redacted]	

D. Technical PJFF

707	01500	**Technical Scope and System Performance Requirements**				
708	01500	Preliminary Electrical Load list				
709	01500	Final Electrical Load List				
710	01500	Schematic/Wiring Diagrams				
711	01500	Instrument Location Diagrams showing locations of instrument taps				
712	01500	Preliminary DCS Logic Diagrams				
713	01500	Final DCS Logic Diagrams				
714	01500	Preliminary DCS Graphics				
715	01500	Final DCS Graphics				
716	01500	Preliminary DCS I/O List				
717	01500	Final DCS I/O List				
718	01500	Preliminary Instrument List				
719	01500	Final Instrument List with setpoints				
720	01500	Preliminary Instrument List				
721	01500	Final Instrument List with setpoints				
722	01500	3D Model (Electronic Version)				
723	01503	**Fabric Filters**				
724	01503	Detailed Drawing Submittal Schedule				
725	01503	Physical flow model test protocol for the FGD system				
726	01503	CFD flow model test protocol for the FGD system				
727	01503	Notification of physical flow model test for FGD				
728	01503	Physical flow model test results including rest of flue gas flow path				
729	01503	CFD flow model test results including rest of flue gas flow path				
730	01503	Certified performance curves				
731	01503	Foundation design information				
732	01503	Expansion joint design data				
733	01503	Certified fabric filter support details including anchor bolt layout				
734	01503	Detailed outline drawings				
735	01503	Fabric filter connections list				
736	01503	Logics				
737	01503	Wiring and elementary diagrams showing all external power/control/instrumentation connections.				
738	01503	Electrical schematics				

739	01503	PLC ladder diagrams if PLC is being furnished as part of the Contract.	[redacted]	[redacted]	[redacted]	
740	01503	Electrical load list	[redacted]	[redacted]	[redacted]	
741	01503	Recommended graphics	[redacted]	[redacted]	[redacted]	
742	01503	PLC and/or DCS I/O list	[redacted]	[redacted]	[redacted]	
743	01503	Data link I/O list	[redacted]	[redacted]	[redacted]	
744	01503	Instrument location drawings	[redacted]	[redacted]	[redacted]	
745	01503	Instrument connection details	[redacted]	[redacted]	[redacted]	
746	01503	Instrument list	[redacted]	[redacted]	[redacted]	
747	01503	Panel, junction box, and cabinet arrangement drawings	[redacted]	[redacted]	[redacted]	
748	01503	Receiving and storage instructions	[redacted]	[redacted]	[redacted]	
749	01503	Bill of Material, Including Quantity, Description, and Part Number	[redacted]	[redacted]	[redacted]	
750	01503	Manufacturer's standard coating system data sheets	[redacted]	[redacted]	[redacted]	
751	01503	Model study results	[redacted]	[redacted]	[redacted]	
752	01503	Recommended detailed erection sequence and procedure	[redacted]	[redacted]	[redacted]	
753	01503	Recommended spare parts list	[redacted]	[redacted]	[redacted]	
754	01503	Instruction Manual	[redacted]	[redacted]	[redacted]	
755	**05120**	**Structural Steel**			[redacted]	
756	05120	Structural Steel Material Certification			[redacted]	
757	05120	High Strength Bolts Material Certification			[redacted]	
758	05120	Direct Tension Indicators Material Certification			[redacted]	
759	05120	Structural Steel Fabrication and Erection Drawings	[redacted]	[redacted]	[redacted]	
760	**05175**	**Metal Silos and Bins Designed by Supplier**	[redacted]	[redacted]	[redacted]	
761	05175	Tank outline drawings	[redacted]	[redacted]	[redacted]	
762	05175	Nozzle schedule	[redacted]	[redacted]	[redacted]	
763	05175	Foundation loading and anchorage details	[redacted]	[redacted]	[redacted]	
764	05175	Seismic design calculations	[redacted]	[redacted]	[redacted]	
765	05175	Roof, shell, and bottom design and construction details	[redacted]	[redacted]	[redacted]	
766	05175	Access provision drawings and details	[redacted]	[redacted]	[redacted]	
767	05175	Coating procedures	[redacted]	[redacted]	[redacted]	
768	05175	Piping and piping support details	[redacted]	[redacted]	[redacted]	
769	05175	Field erection plan drawings and details	[redacted]	[redacted]	[redacted]	
770	05175	Certified mill test reports	[redacted]	[redacted]	[redacted]	
771	**07410**	**Metal Wall and Roof Panels**	[redacted]	[redacted]	[redacted]	
772	07410	5 inch by 3 inch color samples	[redacted]	[redacted]	[redacted]	
773	07410	Shop drawings that show materials, sizes, gauges, screws and sizes, system construction, and method of attachment	[redacted]	[redacted]	[redacted]	
774	**08200**	**Sliding Doors**	[redacted]	[redacted]	[redacted]	
775	08200	Complete detail drawings of all items specified	[redacted]	[redacted]	[redacted]	

776	08200	List of hardware	[redacted]	[redacted]	[redacted]	
777	08200	Sliding metal doors schematic diagrams	[redacted]	[redacted]	[redacted]	
778	08200	Sliding metal doors pushbutton station schematics and layout, contact development	[redacted]	[redacted]	[redacted]	
779	**08330**	**Rolling Metal Doors**	[redacted]	[redacted]	[redacted]	
780	08330	Rolling metal doors drawings and data	[redacted]	[redacted]	[redacted]	
781	08330	Rolling metal doors registration, manuals	[redacted]	[redacted]	[redacted]	
782	**11512**	**PAC Handling and Injection System**	[redacted]	[redacted]	[redacted]	
783	11512	Piping and instrument diagrams (P&ID)	[redacted]	[redacted]	[redacted]	
784	11512	Drawings and data on accessory equipment including blowers, valves, fittings, and other components	[redacted]	[redacted]	[redacted]	
785	11512	Wiring and elementary diagrams showing all external control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
786	11512	Dimensional drawings including: Overall dimensions; Door locations, swings, and threshhold elevations; equipment locations; power, control and instrumentation junction box sizes and locations; Ground lug size and location if specified; Dimensions of any exterior appurtenances such as bin vent filters units, loading pipe, intake air filters, etc.	[redacted]	[redacted]	[redacted]	
787	11512	Detailed general arrangement drawing for all equipment furnished	[redacted]	[redacted]	[redacted]	
788	11512	Injection port dimension, location in ductwork.	[redacted]	[redacted]	[redacted]	
789	11512	Injection lance detail drawing.	[redacted]	[redacted]	[redacted]	
790	**11516**	**Dry Sorbent Injection**	[redacted]	[redacted]	[redacted]	
791	11516	Piping and instrument diagrams (P&ID)	[redacted]	[redacted]	[redacted]	
792	11516	Drawings and data on accessory equipment including blowers, valves, fittings, and other components	[redacted]	[redacted]	[redacted]	
793	11516	Wiring and elementary diagrams showing all external control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
794	11516	Dimensional drawings including: Overall dimensions; Door locations, swings, and threshhold elevations; equipment locations; power, control and instrumentation junction box sizes and locations; Ground lug size and location if specified; Dimensions of any exterior appurtenances such as bin vent filters units, loading pipe, intake air filters, etc.	[redacted]	[redacted]	[redacted]	
795	11516	Detailed general arrangement drawing for all equipment furnished	[redacted]	[redacted]	[redacted]	
796	11516	Injection port dimension, location in ductwork.	[redacted]	[redacted]	[redacted]	
797	11516	Injection lance detail drawing.	[redacted]	[redacted]	[redacted]	
798	**13204**	**Shop Fabricated Tanks**	[redacted]	[redacted]	[redacted]	

799	13204	Domestic Documentation for shipments whereby, Supplier is responsible for required documentation. These may include, but not limited to the following: a. Commercial Invoice (C.I.) b. Packing List c. Bill Of Lading d. Mutimodal Transport Document e. Inland Waterway Document f. Railway Consignment Note g. Road Consignment Note				
800	13204	Equipment Handling, Storage, and Installation Requirements at Site Prior to Placing Equipment in Service				
801	13204	Data reports for ASME code stamped tanks				
802	13204	Pressure and leak test reports				
803	13204	For all shop applied coatings and linings, a letter of certification from a representative of the coating manufacturer shall be submitted to the Purchaser, verifying that all interior coatings have been applied in strict accordance with the instructions and recommendations of the coating manufacturer and that the overall coating systems meet the coating manufacturer's standards				
804	13204	Factory Acceptance Test Procedure Including Acceptance Criteria				
805	13204	Foundation requirements: Loads listed separately for each support (dead, hydro, wind, seismic, etc.) showing magnitude and direction for each load at each support; Baseplate footprint.				
806	13204	Anchorage requirements including bolt sizes, materials, and locations				
807	13204	Nozzle locations, schedule, and size				
808	13204	Diagram of allowable forces and moments on piping connections				
809	13204	Detailed general arrangement drawing for all equipment furnished including horizontal and vertical center-of-gravity.				
810	13204	Coating and surface preparation specification				
811	**13503**	**Pressure Vessels**				
812	13503	None				
813	**13902**	**Fire Protection and Detection Systems**				
814	13902	Sprinkler system layout and hydraulic calculations				
815	13902	Fire and initiating and notification drawings.				
816	13902	Power requirements, kW				
817	13902	Panel location and panel internal layout				

818	13902	Drawings indicating foundation requirements and loads (equipment/valve house footprint; anchor bolt locations, sizes, and materials).	[redacted]	[redacted]	[redacted]	
819	13902	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
820	13902	All interface information between the Purchaser supplied piping, etc.	[redacted]	[redacted]	[redacted]	
821	13902	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
822	13902	Detailed list of instrumentation and control equipment listing manufacturer, model number, range, setpoint, signal level, etc	[redacted]	[redacted]	[redacted]	
823	**14544**	**BMH Pneumatic Conveying System**	[redacted]	[redacted]	[redacted]	
824	14544	Certified blower performance curves	[redacted]	[redacted]	[redacted]	
825	14544	Lubrication requirements	[redacted]	[redacted]	[redacted]	
826	14544	Pre-erection storage requirements	[redacted]	[redacted]	[redacted]	
827	14544	Wiring and elementary diagrams showing all external control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
828	**14621**	**Hoists and Trolleys**	[redacted]	[redacted]	[redacted]	
829	14621	Certified Outline Drawings, including Loads, Clearances, Hook Dimensions, and Data	[redacted]	[redacted]	[redacted]	
830	14621	Certified Field Erection Drawings	[redacted]	[redacted]	[redacted]	
831	14621	Electrical load requirements, KVA	[redacted]	[redacted]	[redacted]	
832	14621	Schematic diagrams	[redacted]	[redacted]	[redacted]	
833	14621	Details of festoon cable system showing conductor size, number of conductors, conductor type, method of cable support, etc.	[redacted]	[redacted]	[redacted]	
834	14621	Pushbutton station schematics and layout, contact development	[redacted]	[redacted]	[redacted]	
835	**14622**	**Jib Crane**	[redacted]	[redacted]	[redacted]	
836	14622	Certified Outline Drawings, including Loads, Clearances, Hook Dimensions, and Data	[redacted]	[redacted]	[redacted]	
837	14622	Certified Field Erection Drawings	[redacted]	[redacted]	[redacted]	
838	14622	Electrical load requirements, KVA	[redacted]	[redacted]	[redacted]	
839	14622	Pushbutton station schematics and layout, contact development	[redacted]	[redacted]	[redacted]	
840	**15062**	**Pipe Supports Designed by PJFF Supplier**	[redacted]	[redacted]	[redacted]	
841	15062	Design conference	[redacted]	[redacted]	[redacted]	
842	15062	Shop drawing submittal	[redacted]	[redacted]	[redacted]	
843	**15150**	**Skid Base**	[redacted]	[redacted]	[redacted]	
844	15150	None	[redacted]	[redacted]	[redacted]	
845	**15211**	**Air Compressors**	[redacted]	[redacted]	[redacted]	
846	15211	Certified performance curves	[redacted]	[redacted]	[redacted]	

847	15211	Major dimensions of compressors and all accessory equipment including dismantling, dimension connections, and direction of rotation				
848	15211	Detailed outline drawings				
849	15211	Piping and instrument diagrams				
850	15211	Base and baseplate drawings				
851	15211	Electrical schematics and wiring diagrams, including all controls				
852	15211	Power wiring connection diagrams and connection details				
853	15211	Foundation design data				
854	15211	Instrument diagrams				
855	15211	Elementaries, logics, or programming information				
856	15211	Instrument data sheets (ISA Type)				
857	15211	Pressure and leak test reports for receivers				
858	**15212**	**Air Dryers - Desiccant Type**				
859	15212	Detailed outline drawings and assembly views showing major dimensions, connections, loads, and center of gravity locations				
860	15212	Piping and instrument diagrams				
861	15212	Base and baseplate drawings				
862	15212	Electrical schematics and wiring diagrams, including all controls				
863	15212	Detailed drawings showing Purchaser piping and wiring connections and interfaces				
864	15212	Typical cross-sectional views of dryers and each filter				
865	15212	Control panel arrangement				
866	15212	Assembly drawings and maintenance information				
867	15212	Proof of desiccant dryer towers registration with the National Board of Boiler and Pressure Vessel Inspectors				
868	15212	Filter and dryer pressure drop versus flow curves (Prefilter pressure drop shall be based on dryer outlet flow plus purge flow.)				
869	15212	Performance curve showing inlet air saturated temperature versus exit dew point temperature at discharge pressures of 70, 90, 110, and 125 psig (480, 620, 758, and 860 kPa g)				
870	**15221**	**Fabricated Steel Pipe**				
871	15221	Copies of Certified Test and Inspection Reports including material test reports				
872	15221	Factory Acceptance Test Procedure Including Acceptance Criteria				

873	15221	Pipe wall thickness calculations in accordance with the applicable code for pipe wall thickness sized by the Supplier (Pipe Bends)	[redacted]	[redacted]	[redacted]	
874	15221	Manufacturer's data for piping material and piping accessories	[redacted]	[redacted]	[redacted]	
875	15221	Documentation that integrally reinforced forged branch outlet fittings have been designed in accordance with the applicable code	[redacted]	[redacted]	[redacted]	
876	15221	Bending equipment and procedures used for all pipe bends, including calculations to document compliance with Code required minimum wall thickness resulting from bending and post bending heat treatment procedures	[redacted]	[redacted]	[redacted]	
877	15221	Bending results documentation showing records of actual wall thicknesses	[redacted]	[redacted]	[redacted]	
878	15221	ASME pipe data report forms	[redacted]	[redacted]	[redacted]	
879	15221	Erection lug sizing calculations in accordance with the applicable codes.	[redacted]	[redacted]	[redacted]	
880	15221	Drawings of each finished machined wye type fitting, safety relief valve vesselet and LOL type fitting	[redacted]	[redacted]	[redacted]	
881	15221	Special piping details including butt weld end preparations, special connections such as performance test connections, and other details	[redacted]	[redacted]	[redacted]	
882	15221	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
883	15221	Hydrostatic Testing Procedure	[redacted]	[redacted]	[redacted]	
884	15221	Pipe root side purging procedure	[redacted]	[redacted]	[redacted]	
885	**15225**	**General Service Pipe**	[redacted]	[redacted]	[redacted]	
886	15225	Factory Acceptance Test Procedure Including Acceptance Criteria	[redacted]	[redacted]	[redacted]	
887	15225	A laying arrangement listing each section of pipe or specialty giving dimensions, physical properties, and joint locations	[redacted]	[redacted]	[redacted]	
888	15225	Details of pipe fittings, attachments, joints, and specials, including dimensions and weights	[redacted]	[redacted]	[redacted]	
889	15225	Diagram of allowable forces and moments on piping connections	[redacted]	[redacted]	[redacted]	
890	15225	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
891	**15243**	**Piping Expansion Joints - Rubber**	[redacted]	[redacted]	[redacted]	
892	15243	Certified drawings showing dimensions, weights, and materials of construction	[redacted]	[redacted]	[redacted]	
893	15243	Calculations documenting the size and quantity of control units	[redacted]	[redacted]	[redacted]	
894	**15244**	**Piping Expansion Joints - Metallic**	[redacted]	[redacted]	[redacted]	

895	15244	Certified drawings indicating type, size, arrangement, weights of each component, and breakdown for shipment	[redacted]	[redacted]	[redacted]	
896	15244	Dimensions needed for installation and correlation with other materials and equipment	[redacted]	[redacted]	[redacted]	
897	**15245**	**Flexible Hoses**	[redacted]	[redacted]	[redacted]	
898	15245	None	[redacted]	[redacted]	[redacted]	
899	**15247**	**Silencers**	[redacted]	[redacted]	[redacted]	
900	15247	Outline drawings of each silencer showing connection details, foundation support details, weight, operating loads, and center of gravity	[redacted]	[redacted]	[redacted]	
901	**15248**	**Pressure Breakdown Orifices**	[redacted]	[redacted]	[redacted]	
902	15248	Detailed flow calculation drawings showing the data used, equations, final beta ratio calculation results, and differential pressure drops	[redacted]	[redacted]	[redacted]	
903	15248	Orifice plate outline drawings showing dimensions (including thickness) and material specifications	[redacted]	[redacted]	[redacted]	
904	**15261**	**Steel Valves 2-1/2 Inches and Larger**	[redacted]	[redacted]	[redacted]	
905	15261	Documentation of body casting repairs, including postweld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
906	15261	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
907	15261	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator	[redacted]	[redacted]	[redacted]	
908	15261	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
909	15261	Wiring and elementary diagrams showing all external power/control/instrumentation wiring connections.	[redacted]	[redacted]	[redacted]	
910	15261	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	
911	15261	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, and butt weld end details	[redacted]	[redacted]	[redacted]	
912	15261	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer	[redacted]	[redacted]	[redacted]	

913	15261	Motor and actuator information sheets with acuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer	[redacted]	[redacted]	[redacted]	
914	15261	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)	[redacted]	[redacted]	[redacted]	
915	15261	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
916	15261	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
917	15261	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.	[redacted]	[redacted]	[redacted]	
918	15261	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
919	**15262**	**Steel Valves 2 Inches and Smaller**	[redacted]	[redacted]	[redacted]	
920	15262	None	[redacted]	[redacted]	[redacted]	
921	**15263**	**General Service Valves (Furnished with Equipment)**	[redacted]	[redacted]	[redacted]	
922	15263	Documentation of body casting repairs, including postweld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
923	15263	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
924	15263	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator	[redacted]	[redacted]	[redacted]	
925	15263	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
926	15263	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
927	15263	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	
928	15263	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, and butt weld end details	[redacted]	[redacted]	[redacted]	

929	15263	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer	[redacted]	[redacted]	[redacted]	
930	15263	Motor and actuator information sheets with acuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer	[redacted]	[redacted]	[redacted]	
931	15263	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)	[redacted]	[redacted]	[redacted]	
932	15263	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
933	15263	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
934	15263	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.	[redacted]	[redacted]	[redacted]	
935	15263	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
936	**15265**	**Rubber Seated Butterfly Valves**	[redacted]	[redacted]	[redacted]	
937	15265	Documentation of body casting repairs, including postweld heat treatment records and re-examination records	[redacted]	[redacted]	[redacted]	
938	15265	Radiograph reports in accordance with ANSI B16.34	[redacted]	[redacted]	[redacted]	
939	15265	Shell pressure test and seat leakage test reports (for tests required by ASME B16.34 and ANSI/FCI 70-2)	[redacted]	[redacted]	[redacted]	
940	15265	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34	[redacted]	[redacted]	[redacted]	
941	15265	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
942	15265	Dimensional drawings including overall dimensions, detailing all power, control and instrumentation junction box sizes and locations and maximum power, control and instrumentation cable termination requirements. Also provide ground lug size and location, if specified or furnished.	[redacted]	[redacted]	[redacted]	

943	15265	Valve and accessory outline with overall dimensions, weights (including operators and accessories), direction of flow, orientation of disks and shafts, direction of rotation, location of operator, and operator removal clearances	[redacted]	[redacted]	[redacted]	
944	15265	Calculations establishing valve motor operator torque requirements. Data shall be calculated and submitted by Valve Manufacturer	[redacted]	[redacted]	[redacted]	
945	15265	Motor and actuator information sheets with acuator rating, running times, rated voltage, running load (hp), running amps, starting amps, and installed amps, include whether valve is torque seated or position seated. Data shall be calculated and submitted by Actuator Manufacturer	[redacted]	[redacted]	[redacted]	
946	15265	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)	[redacted]	[redacted]	[redacted]	
947	15265	Coating and surface preparation specification	[redacted]	[redacted]	[redacted]	
948	15265	Valve pneumatic tubing diagrams	[redacted]	[redacted]	[redacted]	
949	15265	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions, operator removal clearance, end-to-end dimensions, and direction of flow.	[redacted]	[redacted]	[redacted]	
950	15265	Sectional drawing showing materials and internal construction	[redacted]	[redacted]	[redacted]	
951	**15266**	**Metal Seated Butterfly Valves**	[redacted]	[redacted]	[redacted]	
952	15266	Certified correct dimensional data for each size and type of valve	[redacted]	[redacted]	[redacted]	
953	15266	Cross-sectional assembly views of the valves indicating materials used for each component	[redacted]	[redacted]	[redacted]	
954	15266	Outline drawings of the valves showing dimensions, weight, and center of gravity for each assembled valve, operator, and accessory	[redacted]	[redacted]	[redacted]	
955	15266	Wiring and elementary diagrams showing all external power/control/instrumentation connections.	[redacted]	[redacted]	[redacted]	
956	15266	Limit switches, solenoid valves, positioners, position transmitter data including make, model, electrical ratings, and physical arrangements. (Vendor only needs to submit once if components don't change from one valve to the next.)	[redacted]	[redacted]	[redacted]	
957	**15271**	**Safety and Relief Valves**	[redacted]	[redacted]	[redacted]	

958	15271	Documentation of body casting repairs, including postweld heat treatment records and re-examination records				
959	15271	Radiograph reports in accordance with ANSI B16.34				
960	15271	Requirements for disassembly of valves for preheat, welding, and PWHT, including critical temperature thresholds for any points on the valve body/actuator				
961	15271	Shell pressure test and seat leakage test reports (for tests required by ASME B16.34 and ANSI/FCI 70-2)				
962	15271	ANSI Pressure Class Ratings for all Valves in accordance with ASME B16.34				
963	15271	Valve and accessory outline with overall dimensions and weights (including accessories),				
964	15271	Valve specification sheet including operating conditions, set pressure, fluid conditions, and orifice and valve selection				
965	15271	Coating and surface preparation specification				
966	15271	Valve pneumatic tubing diagrams				
967	15271	Factory Valve and Accessory Outline Drawings With all Accessory Equipment Shown. Drawings should include overall dimensions and end-to-end dimensions.				
968	15271	Sectional drawing showing materials and internal construction				
969	**15700**	**HVAC Systems**				
970	15700	Construction drawings showing ductwork and equipment, locations, elevations, and dimensions; equipment tag numbers, terminal device tag numbers with airflow quantities indicated; accessory and control component locations; pressure classifications of ductwork.				
971	15700	Legend, notes, abbreviations, and detail sheets showing the legend for ductwork, equipment, accessories and any other symbology used on the drawings; notes clarifying the presentation of HVAC items shown on the drawings and details of construction.				
972	15700	Schematics of the HVAC systems including flow rates to each space, pressurization quantities, air movement between rooms, equipment, tag numbers, instrumentation location, room names and notes clarifying the drawing.				

973	15700	Air conditioning load calculations with considerations of transmission and solar gain, people, lighting, mechanical and electrical equipment, motors, electronic equipment, computers, miscellaneous appliances and infiltration or ventilation air	[redacted]	[redacted]	[redacted]	
974	15700	Heating and ventilating calculations for non-air conditioned spaces.	[redacted]	[redacted]	[redacted]	
975	15700	Outside air calculations for occupied areas to verify compliance with local codes, if applicable	[redacted]	[redacted]	[redacted]	
976	15700	For HVAC Equipment: Fan curves, motor data, coating data, dimensional data including piping connection sizes and location, weight, performance data, wiring diagrams and sound level data.	[redacted]	[redacted]	[redacted]	
977	15700	For Filters: filter efficiency, airflow resistance, dust holding capacity, media material, thickness, density and dimensional data.	[redacted]	[redacted]	[redacted]	
978	15700	For Dampers: AMCA certified pressure drop and leakage data.	[redacted]	[redacted]	[redacted]	
979	15700	For Terminal Devices: Flow versus pressure drop and flow versus throw.	[redacted]	[redacted]	[redacted]	
980	15700	Wiring diagrams, control and electrical components data sheets, sequence of operations, control system architecture (if applicable), and temperature control panel layout drawings.	[redacted]	[redacted]	[redacted]	
981	**15760**	**HVAC Heaters**	[redacted]	[redacted]	[redacted]	
982	15760	None	[redacted]	[redacted]	[redacted]	
983	**15820**	**HVAC Dampers**	[redacted]	[redacted]	[redacted]	
984	15820	None	[redacted]	[redacted]	[redacted]	
985	**15830**	**HVAC Fans**	[redacted]	[redacted]	[redacted]	
986	15830	None	[redacted]	[redacted]	[redacted]	
987	**15920**	**HVAC Temperature Control**	[redacted]	[redacted]	[redacted]	
988	15920	None	[redacted]	[redacted]	[redacted]	
989	**15941**	**Insulation and Lagging**	[redacted]	[redacted]	[redacted]	
990	15941	Drawings detailing types and thicknesses of insulation for pipelines, auxiliary equipment items, and flatwork areas	[redacted]	[redacted]	[redacted]	
991	15941	Installation details for insulation and lagging supports for each flatwork area or equipment	[redacted]	[redacted]	[redacted]	
992	15941	Installation details including fastening of insulation and lagging to supports, flashing methods, convection barriers, lagging closures, and provisions for expansion and contraction	[redacted]	[redacted]	[redacted]	

993	15941	Installation details specific to sidewalls; roofs; hoppers and hopper crotch areas; hopper poke holes and instrument and test port connections; dampers; fans; and penetrations for breeching, ductwork, support steel, etc.	[redacted]	[redacted]	[redacted]	
994	15941	Fabrication details for field fabricated pipe elbow jacketing, and access door and manhole insulated covers	[redacted]	[redacted]	[redacted]	
995	15941	Storage and handling requirements for insulation and lagging materials to be erected by others	[redacted]	[redacted]	[redacted]	
996	**16051**	**Electrical Design and Equipment**	[redacted]	[redacted]	[redacted]	
997	16051	Certified design data and performance curves	[redacted]	[redacted]	[redacted]	
998	16051	Arrangement and fabrication/ erection drawings	[redacted]	[redacted]	[redacted]	
999	16051	Detailed set of drawings to include arrangement drawings, interconnection drawings, schematics, nameplate schedule, and bill of materials	[redacted]	[redacted]	[redacted]	
1000	16051	Final set of above drawings in addition to interconnection wiring diagrams	[redacted]	[redacted]	[redacted]	
1001	16051	Current transformer ratio correction factor and excitation curves	[redacted]	[redacted]	[redacted]	
1002	16051	Time overcurrent curves for each overload, molded case circuit breaker, and solid-state protective device used	[redacted]	[redacted]	[redacted]	
1003	**16120**	**AC/DC Panelboards**	[redacted]	[redacted]	[redacted]	
1004	16120	Bill of material, including quantity, description, and part number.	[redacted]	[redacted]	[redacted]	
1005	16120	Transparency time-current characteristic curves for each type of circuit breaker, protective relay, and each type of fuse furnished within each panel	[redacted]	[redacted]	[redacted]	
1006	16120	Outline drawings and breaker arrangement	[redacted]	[redacted]	[redacted]	
1007	16120	Panelboard directories	[redacted]	[redacted]	[redacted]	
1008	**16125**	**Dry Type Transformers**	[redacted]	[redacted]	[redacted]	
1009	16125	Manufacturer's catalog sheets showing manufacturer's data including transformer impedances, noise level in decibels and amount of heat rejected at 50% and 100% load, enclosure details, size, weight, ratings, coil material	[redacted]	[redacted]	[redacted]	
1010	16125	Wiring diagrams	[redacted]	[redacted]	[redacted]	
1011	**16410**	**Junction Boxes**	[redacted]	[redacted]	[redacted]	
1012	16410	Manufacturer's catalog sheets for junction boxes and all devices mounted in the junction boxes	[redacted]	[redacted]	[redacted]	
1013	16410	Terminal block layout and terminal numbering.	[redacted]	[redacted]	[redacted]	
1014	**16430**	**Disconnect Switches**	[redacted]	[redacted]	[redacted]	

1015	16430	Manufacturer's catalog sheets showing equipment data including fuse manufacturer's name and model number along with fuse curves when fusible disconnects are furnished.	[redacted]	[redacted]	[redacted]	
1016	**16501**	**Lighting**	[redacted]	[redacted]	[redacted]	
1017	16501	Lighting and Receptacle Layout and wiring drawing	[redacted]	[redacted]	[redacted]	
1018	16501	Lighting illumination calculations	[redacted]	[redacted]	[redacted]	
1019	16501	Lighting equipment catalog sheets	[redacted]	[redacted]	[redacted]	
1020	16501	Arrangement drawings including lighting sizes and locations	[redacted]	[redacted]	[redacted]	
1021	16501	UPS drawings, including UPS arrangements, wiring and schematic diagrams,	[redacted]	[redacted]	[redacted]	
1022	**17051**	**Control Design and Equipment**	[redacted]	[redacted]	[redacted]	
1023	17051	Recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
1024	17051	Complete set of hardcopy printout of all graphic displays for local control	[redacted]	[redacted]	[redacted]	
1025	**17052**	**Local Control Panels**	[redacted]	[redacted]	[redacted]	
1026	17052	Panel outline dimension drawings	[redacted]	[redacted]	[redacted]	
1027	17052	Panel internal arrangement drawings	[redacted]	[redacted]	[redacted]	
1028	17052	Control panel layout drawings	[redacted]	[redacted]	[redacted]	
1029	17052	Panel internal wiring diagrams	[redacted]	[redacted]	[redacted]	
1030	17052	Panel external connection diagrams	[redacted]	[redacted]	[redacted]	
1031	17052	Panel tubing and piping drawings	[redacted]	[redacted]	[redacted]	
1032	17052	Panel component cut sheets	[redacted]	[redacted]	[redacted]	
1033	**17053**	**Subsystem - Programmable Logic Control System**	[redacted]	[redacted]	[redacted]	
1034	17053	Notice of Factory Inspection or Tests	[redacted]	[redacted]	[redacted]	
1035	17053	PLC power, communications, and grounding wiring diagrams	[redacted]	[redacted]	[redacted]	
1036	17053	PLC equipment location and arrangement drawings	[redacted]	[redacted]	[redacted]	
1037	17053	PLC System equipment layout	[redacted]	[redacted]	[redacted]	
1038	17053	PLC I/O wiring diagrams	[redacted]	[redacted]	[redacted]	
1039	17053	PLC System external connection diagrams	[redacted]	[redacted]	[redacted]	
1040	17053	PLC external hardwired I/O list	[redacted]	[redacted]	[redacted]	
1041	17053	Preliminary PLC to DCS I/O data interface list	[redacted]	[redacted]	[redacted]	
1042	17053	Final PLC to DCS I/O data interface list	[redacted]	[redacted]	[redacted]	
1043	17053	Preliminary recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
1044	17053	Final recommended DCS graphic displays	[redacted]	[redacted]	[redacted]	
1045	17053	PLC program printouts for review	[redacted]	[redacted]	[redacted]	
1046	17053	Complete set of hardcopy printout of all graphic displays for local control	[redacted]	[redacted]	[redacted]	
1047	17053	PLC system operation and maintenance instruction manuals	[redacted]	[redacted]	[redacted]	
1048	17053	Operator interface system operation and maintenance instruction manuals	[redacted]	[redacted]	[redacted]	

1049	17053	Final PLC program printouts and electronic file of PLC program	[redacted]	[redacted]	[redacted]	
1050	**17205**	**Local Instrument Racks and Enclosures**	[redacted]	[redacted]	[redacted]	
1051	17205	Preliminary electrical load list	[redacted]	[redacted]	[redacted]	
1052	17205	Air requirements	[redacted]	[redacted]	[redacted]	
1053	17205	Foundation design data, including equipment operating loads, anchor bolt sizes and locations, and equipment base sizes	[redacted]	[redacted]	[redacted]	
1054	17205	Equipment outline, layout, and arrangement drawings	[redacted]	[redacted]	[redacted]	
1055	17205	Piping details	[redacted]	[redacted]	[redacted]	
1056	17205	Final electrical load list	[redacted]	[redacted]	[redacted]	
1057	17205	Point-to-point internal physical wiring diagrams	[redacted]	[redacted]	[redacted]	
1058	17205	Wiring diagrams (field wiring)	[redacted]	[redacted]	[redacted]	
1059	**17220**	**Instrument Enclosures**	[redacted]	[redacted]	[redacted]	
1060	17220	Air requirements (for each enclosure)	[redacted]	[redacted]	[redacted]	
1061	17220	Piping details (for each enclosure)	[redacted]	[redacted]	[redacted]	
1062	17220	Final electrical load list (for each enclosure)	[redacted]	[redacted]	[redacted]	
1063	17220	Point-to-point internal physical wiring diagrams (for each enclosure)	[redacted]	[redacted]	[redacted]	
1064	17220	Instrument data sheets (ISA type)	[redacted]	[redacted]	[redacted]	
1065	17220	Dimensional drawings (for each enclosure) including: Detailed general arrangement drawings for all equipment; Weight; Overall dimensions; Door locations, swings, and threshold elevations; All power, control, and instrumentation junction box sizes and locations	[redacted]	[redacted]	[redacted]	
1066	17220	Anchorage requirements including bolt sizes, materials (i.e., A36, A307, etc.) and locations.	[redacted]	[redacted]	[redacted]	
1067	17220	Drawings and data on accessory equipment including valves, fittings, terminal blocks, convenience receptacles, and other components.	[redacted]	[redacted]	[redacted]	
1068	17220	Factory acceptance test procedure including acceptance criteria.	[redacted]	[redacted]	[redacted]	
1069	17220	Notice of factory inspection or tests	[redacted]	[redacted]	[redacted]	
1070	17220	Copies of certified inspection or test reports.	[redacted]	[redacted]	[redacted]	
1071	17220	Copies of all applicable service bulletins, application guides, installation updates or other similar documentation for the devices being furnished (or certification that no such documents apply to product being supplied).	[redacted]	[redacted]	[redacted]	
1072	**17300**	**Instrumentation**	[redacted]	[redacted]	[redacted]	

1073	17300	Outline drawing showing all dimensions including process connection sizes, tag number/description and model/serial number.	[redacted]	[redacted]	[redacted]	
1074	17300	Terminal block layout and terminal nomenclature if applicable.	[redacted]	[redacted]	[redacted]	
1075	17300	Flow element calculation sheet showing beta ratio and differential pressure drop/loss if applicable.	[redacted]	[redacted]	[redacted]	
1076	17300	Flow element overall and component dimension/material drawing if applicable.	[redacted]	[redacted]	[redacted]	
1077	17300	Calibration Certification/Report if applicable.	[redacted]	[redacted]	[redacted]	
1078	**17301**	**Stainless Steel Tags**	[redacted]	[redacted]	[redacted]	
1079	17301	None	[redacted]	[redacted]	[redacted]	
1080	**17302**	**Phenolic Nameplates**	[redacted]	[redacted]	[redacted]	
1081	17302	None	[redacted]	[redacted]	[redacted]	
1082	**E635**	**Medium Voltage Induction Motors**	[redacted]	[redacted]	[redacted]	
1083	E635	Motor dimensional drawings	[redacted]	[redacted]	[redacted]	
1084	E635	Motor nameplate data	[redacted]	[redacted]	[redacted]	
1085	E635	Preliminary Motor Data Sheets	[redacted]	[redacted]	[redacted]	
1086	E635	Completed Motor Data Sheets	[redacted]	[redacted]	[redacted]	
1087	E635	Superimposed medium voltage motor and driven equipment speed-torque curves at minimum, rated, and maximum voltage range	[redacted]	[redacted]	[redacted]	
1088	E635	Superimposed thermal limit and time-current curves for medium voltage motors at minimum, rated, and maximum voltage range	[redacted]	[redacted]	[redacted]	
1089	E635	Power factor versus percent load curves for medium voltage motors	[redacted]	[redacted]	[redacted]	
1090	E635	Wiring diagrams	[redacted]	[redacted]	[redacted]	
1091	E635	Bearing disassembly and reassembly drawings	[redacted]	[redacted]	[redacted]	
1092	E635	Medium voltage motor rotor removal clearance drawings	[redacted]	[redacted]	[redacted]	
1093	**E640**	**Low Voltage Induction Motors**	[redacted]	[redacted]	[redacted]	
1094	E640	Motor dimensional drawings	[redacted]	[redacted]	[redacted]	
1095	E640	Motor nameplate data	[redacted]	[redacted]	[redacted]	
1096	E640	Completed Motor Data Sheets	[redacted]	[redacted]	[redacted]	
1097	**E642**	**Single-Phase Induction Motors**	[redacted]	[redacted]	[redacted]	
1098	E642	Motor nameplate data	[redacted]	[redacted]	[redacted]	
1099	E642	Motor dimensional drawings	[redacted]	[redacted]	[redacted]	
1100	**E645**	**Electric Actuators**	[redacted]	[redacted]	[redacted]	
1101	E645	Actuator outline diagrams	[redacted]	[redacted]	[redacted]	
1102	E645	Wiring diagrams	[redacted]	[redacted]	[redacted]	
1103	**K100**	**Instrumentation**	[redacted]	[redacted]	[redacted]	
1104	K100	Instrument factory calibration sheets	[redacted]	[redacted]	[redacted]	

1105	K100	Flow element calculation data sheets showing beta ratio, dP, flow	[redacted]	[redacted]	[redacted]	
1106	K100	ISA-format datasheets for all Instruments	[redacted]	[redacted]	[redacted]	
1107	K100	Calculations for TW's vib failure analysis confirming thermowells will not fail in service	[redacted]	[redacted]	[redacted]	
1108	**Q001**	**ISO 9001 Quality System Requirements**	[redacted]	[redacted]	[redacted]	
1109	Q001	Quality Manual, controlled copy	[redacted]	[redacted]	[redacted]	
1110	Q001	Certification Letter or Certificate of Authorization (copy), if certified by a registered agency, e.g., ASME Certificate of Authorization, ISO Certificate	[redacted]	[redacted]	[redacted]	
1111	Q001	Subsupplier listing	[redacted]	[redacted]	[redacted]	
1112	Q001	Inspection and test plan	[redacted]	[redacted]	[redacted]	
1113	Q001	Notification of inspection/test (for B&V hold/witness points)	[redacted]	[redacted]	[redacted]	
1114	**Q002**	**General Quality System Requirements**	[redacted]	[redacted]	[redacted]	
1115	Q002	Quality Manual, controlled copy	[redacted]	[redacted]	[redacted]	
1116	Q002	Certification Letter or Certificate of Authorization (copy), if certified by a registered agency, e.g., ASME Certificate of Authorization, ISO Certificate	[redacted]	[redacted]	[redacted]	
1117	Q002	Subsupplier listing	[redacted]	[redacted]	[redacted]	
1118	Q002	Inspection and test plan	[redacted]	[redacted]	[redacted]	
1119	Q002	Notification of inspection/test (for B&V hold/witness points)	[redacted]	[redacted]	[redacted]	
1120	**Q101**	**General Welding Requirements**	[redacted]	[redacted]	[redacted]	
1121	Q101	Welding Procedure Specifications (WPS) with applicable Procedure Qualification Records (PQR)	[redacted]	[redacted]	[redacted]	
1122	Q101	Procedures for storing, issuing, and reconditioning of electrodes, wires, and fluxes	[redacted]	[redacted]	[redacted]	
1123	Q101	Repair procedures associated with a nonconformance report	[redacted]	[redacted]	[redacted]	
1124	Q101	Post-weld heat treatment procedures	[redacted]	[redacted]	[redacted]	
1125	Q101	Solution annealing heat treatment procedure, if required	[redacted]	[redacted]	[redacted]	
1126	Q101	Visual inspectors' qualifications and certificates	[redacted]	[redacted]	[redacted]	
1127	Q101	Nondestructive examination procedures	[redacted]	[redacted]	[redacted]	
1128	Q101	Root side purging procedures	[redacted]	[redacted]	[redacted]	
1129	Q101	Nonconformance reports	[redacted]	[redacted]	[redacted]	
1130	Q101	ASME/NBIC Data Reports	[redacted]	[redacted]	[redacted]	
1131	Q101	Radiographs	[redacted]	[redacted]	[redacted]	
1132	**Q1XX**	**Brazing of Copper Tubing**	[redacted]	[redacted]	[redacted]	

1133	Q1XX	Brazing procedures and applicable Procedure Qualification Records	[redacted]	[redacted]	[redacted]	
1134	**Q1XX**	**Soldering of Copper Tubing**	[redacted]	[redacted]	[redacted]	
1135	Q1XX	Soldering procedures	[redacted]	[redacted]	[redacted]	
1136	**Q301**	**Manufacturer's Standard Coating**	[redacted]	[redacted]	[redacted]	
1137	Q301	Shop drawings that identify shop-applied coating systems	[redacted]	[redacted]	[redacted]	
1138	Q301	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
1139	**Q302**	**Purchaser Specified Exterior Shop Coating**	[redacted]	[redacted]	[redacted]	
1140	Q302	Manufacturer's product data sheets	[redacted]	[redacted]	[redacted]	
1141	Q302	Manufacturer's color cards	[redacted]	[redacted]	[redacted]	
1142	Q302	Manufacturer's surface preparation and coating application procedures. Include manufacturer's construction standards and recommended practices for surface contamination testing, crack and joint treatment, edge treatment, coating penetration and termination.	[redacted]	[redacted]	[redacted]	
1143	Q302	Manufacturer's certification of the coating applicator	[redacted]	[redacted]	[redacted]	
1144	Q302	Applicator's experience record	[redacted]	[redacted]	[redacted]	
1145	Q302	Manufacturer's approval of surface condition prior to coating application	[redacted]	[redacted]	[redacted]	
1146	Q302	Applicator's inspection and test reports	[redacted]	[redacted]	[redacted]	
1147	Q302	Manufacturer's field representative inspection and test report	[redacted]	[redacted]	[redacted]	
1148	**Q400**	**General Equipment Requirements**	[redacted]	[redacted]	[redacted]	
1149	Q400	Shipment Plan providing details of field assembly work required as described in the Supplier's proposal.	[redacted]	[redacted]	[redacted]	
1150	**Q502**	**Electrical Data**	[redacted]	[redacted]	[redacted]	
1151	Q502	Completed motor information sheets	[redacted]	[redacted]	[redacted]	
1152	Q502	Completed electric actuator information sheet	[redacted]	[redacted]	[redacted]	

3.0 Review

Per Exhibit Section 1.1.03B.2 above.

4.0 Hold Points

The following list of activities shall be treated as Hold Points:

A. Shipment of Ductwork
B. Flow Model Review
C. Equipment Factory Acceptance Test Prior To Shipment
D Backfill Placement Compaction Testing
E. Rebar Placement
F. Concrete Placement
G. Insulation Placement over Ductwork (Weld Inspections)
H. Paint Primer and Final Coat
I Bearing Pile Blow Count
J. Structural Steel Connection Final Bolt Up
K. Embedded Grounding and Conduits (Prior to Concrete Pour)
L. Electrical Devices (Transformers, Switchgear, MCC, Controls) Prior to Energization

5.0 Owner Electronic Submittal Specifications

LG&E / KU Specifications for Electronic Submittal of Vendor Documentation

1.0 Introduction

1.1. The purpose of this document is to set forth the minimum standards for submittal of vendor documentation for equipment or package system purchases. This document would typically be provided to Equipment Suppliers.

1.2. LG&E / KU Generation utilizes Oracle IPM as a repository that provides secure storage, backup and recovery for all electronic files, document images, and various record types that are not likely to change. Examples: Vendor drawings, instruction manuals, correspondence, and all other vendor documentation. Drawing and document numbers are assigned by the supplier.

1.3. Documents from sub-vendors shall be included and provided in a similar fashion to those of the primary vendor.

1.4. Project records are to be submitted to the LG&E / KU project manager per this specification and shall include a formal transmittal.

1.5. Final documentation shall include the most recent revisions and up to date information, as-built or as-delivered modifications to be submitted within [redacted] of project completion.

1.6. This document sets forth the basic guidelines for electronic drawing/document submittal. Since technology is constantly evolving, file formats and application versions listed in this document are subject to mutually agreeable change.

2. Oracle IPM (formerly Stellent IBPM) – Vendor Drawings and other documents

2.1. This specification provides minimum requirements on how documents shall be provided electronically to LG&E / KU.

2.2. Unless otherwise specified in the contract or purchase order, final documentation, drawings, specifications, and manuals are to be submitted in electronic format on CD or DVD.

2.3. In addition, electronic submissions may be requested via e-mail, and hard copies may be required.

2.4. Letter/Legal size documents are to be submitted in Microsoft Word or Adobe *PDF format.

2.5. Drawings created by CAD software shall be submitted in AutoCAD DWG format or *PDF images. Non-CAD drawings shall be submitted in TIFF or *PDF formats.

2.6. Each drawing submitted in CAD, *PDF, and TIFF format shall have a unique filename unless the drawing is only intended to be submitted as a page in a larger document or manual.

2.7. Photographs, aerial photos or maps etc. shall be submitted in JPG format.

2.8. If the number of records being submitted exceeds [redacted], an index (as it applies per type of record being submitted) shall be provided for each vendor or sub-vendor drawing and other documentation for storage into Oracle IPM. Drawings are to be indexed individually. Other documentation, such as project files, can be batched by the Document Type and indexed as a group. The index shall be submitted electronically in Excel or Access format which includes, as a minimum, the information contained in TABLE 1 at the end of the Specification.

3. Oracle IPM - Technical Library Manuals and Reports

3.1. Technical manuals, parts catalogs and equipment specifications originating from an equipment manufacturer or distributor shall be submitted in *PDF format.

3.2. Power Plant system manuals which contain a compilation of customized technical specs or equipment manuals from various sources must be provided in a sectional format with a detailed table of contents. System manuals may be submitted in a bound hardcopy or *PDF format. Hard copies shall be submitted with duplicate *PDF files. The *PDF shall closely mimic the sectional hardcopy style with a table of contents referencing each section. If the entire manual is greater than [redacted], then each section must be provided as a separate *PDF file.

3.3. Technical and Regulatory Reports including Outage Reports must be submitted in *PDF format, rendered from the original document when possible, otherwise PDF's containing scanned images of the report(s) are acceptable. Desktop services may be able to provide you with the necessary *PDF print driver required to output compound *PDF document from your software application.

3.4. All manuals and reports will be provided to LG&E / KU by filling out spreadsheets provided by LG&E / KU following the format laid out in TABLE 2 at the end of the Specification.

***PDF Format:** *All PDF documents submitted must be PDF/A-1a or PDF/A-1b compliant. See ISO Spec 19005-1:2005 Document Management - Electronic document file format for long term preservation - Part 1 Reference: http://en.wikipedia.org/wiki/PDF/A*

TABLE 1 – Typical Information for Oracle IPM Data Submission

Field Name	Character Limit	Examples
Document ID#	20	*Louisville Order #, Contract #, PO #, Spec ID #, Photo #, or Plant ID #*
Initiative #	16	*LG&E / KU Project #*
Supplier	40	Manufacturer
Supplier Document ID	30	Manufacturing Drawing #
AE Name	40	
AE Drawing #	30	
Type of Equipment Description	90	Drawing or Record Title, Description
Plant/Location	20	
Unit	20	MC4 or TC2 or COM for common systems
Comments	50	Additional information pertaining to document
Record Type	10	Record Types: PD – for Drawings and PF – for other documentation. If PF applies then Document Type must also be supplied. Files are to be batched and labeled by Document Type.
Record Source	20	Vendor
Document Type	20	Contracts, specifications, financial, proposal/bids, correspondence, manuals, pictures and miscellaneous.
Record Description	50	Specific type of record for example : Structural Calculations Report
Volume #	10	With leading 0's (001, 010 or 999)
System	50	
Equipment #	50	EID #, Serial #, Shop Order #
Date	10	MM/DD/YYYY (Format consistency important)

TABLE 2 – Typical information for Technical Library Manuals and Reports

Data Entry Instructions			
Field Name	**Description / Comments**	**Type / Length**	**Values / Examples**
Media Label	The name of the media the document is contained on. Please make sure to uniquely identify each media volume delivered, use black permanent marker to label media.	Char / 20	Project Name – IOM-001
File Path	Enter the relative path of the file being indexed without drive a letter. (Path relative to the root of the source media, CD/DVD etc..)	Char / 50	\dir1\dir2\filename.pdf
Record Type	Manual for all IOM Manuals, sections or chapters contained in a manual. Report for all inspection or reports on specific plant equipment and or systems that are not specifically incorporated with an IOM Manual.	Picklist	MANUAL, REPORT
Document Id	Order #, PO #, Contract #, Spec Id	Char / 20	Louisville Order #, Contract #, PO #
Project No	LG&E or KU designated project number	Char / 16	LG&E / KU Project Number
Plant	Standard 2 Character Plant ID	Picklist	TC, MC, GH, CR, PR, BR, etc..
Unit	Standard 2 digit Unit Id, 00 designates entire plant facility	Picklist	00, 01, 02, 03, etc..
System	System name from Maximo	Picklist	FUEL OIL EQUIPMENT, COAL CONVEYOR
Sub-System	Sub-system name from Maximo	Picklist	ALARM MISC INST. AND CONTROL
Manual / Report Title	Manual / Report Title is repeated for each section / chapter for all entries contained in a particular manual or report. Including tables of contents, sections/chapters appendixes and attachments	Char / 50	COAL CONVEYOR
Volume	Volume Id of Manual or Report	Numeric / 3	1, 2, 3 etc
Set (Volume Set)	Volume set Id of Manual or Report	Numeric / 3	1, 2, 3 etc
Manufacturer / Supplier	Name of manufacturer or supplier of equipment	Char / 30	General Electric
Revision Date	Document revision date or Report of report	Char / 10	MM/DD/YYYY or MM/YYYY
Section / Chapter Id	Please use the following conventions for section enumeration: TOC Table of Contents, 00 Entire Manual or Report contained in a single file. Letters and/or numbers can be used. Examples: (1 = Section 1), (1.1 = Section 1 Sub-section 1), (1.1.1, 1.1.a and 1.1.1a) are all valid. Make sure that all Id's are in the proper sequential order for each Manual or Report.	Char / 10	Sequential enumeration of Section / Chapter
Section / Chapter Description	Detailed description of Section or Chapter	Char / 150	Section / Chapter level description
Comments	Data entry comments (not filed)	Char / 150	Misc. comments

LG&E / KU Specifications for Electronic Submittal of Engineered Drawings

1.0 Introduction

1.1. The purpose of this document is to set forth the minimum standards for submittal of engineered drawings for all outside engineered systems or plant improvements. This document would typically be provided to Architects and Engineering firms.

1.2. LG&E / KU Generation utilizes the Drawing Management System (DMS) which works with AutoCAD and CAD viewing software to create, edit, view, and manage CAD drawings. DMS houses *drawings only* that are likely to require updating and editing. Examples include: most A/E generated drawings such as electrical schematics, wiring diagrams, P&ID, steel, concrete and piping plans/details, and general arrangement drawings. Drawing numbers are normally assigned by LG&E / KU.

1.3. Engineered drawings are to be submitted to the LG&E / KU project manager per these specifications and are to include a formal transmittal.

1.4. Final documentation shall include the most recent revisions and up to date information, as-built or as-delivered modifications to be submitted [redacted] of project completion.

This document sets forth the basic guidelines for electronic drawing/document submittal. Since technology is constantly evolving, file formats and application versions listed in this document are subject to mutually agreeable change.

2. Drawing Management System - CAD drawings

2.1. General

2.1.1. This specification provides minimum requirements on how CAD drawings shall be provided to the Owner.

2.1.2. There are no defined CAD standards that the Owner requires the A/E to follow. It is up to the Contractor to use their standards as long as it complies with the other requirements of this document.

2.1.3. Once the final copy is released to the Owner, the Owner will become the proprietor of the electronic drawing. The Owner will take full responsibility for all future modifications and subsequent liability thereof.

2.1.4. Unless otherwise specified in the contract or purchase order, only the final copy of the drawing shall be provided to the Owner for electronic storage. The final copy shall include all as-built or as-delivered modifications.

2.1.5. All new CAD drawings shall be vector based unless a copy of a waiver to this requirement for the specific drawing(s) is provided with the transmittal.

2.1.6. Unless otherwise specified in the contract or purchase order existing plant prints requiring modification shall be redlined and submitted electronically in color TIFF/JPG or *PDF format as a sketch (SK) drawing. The drawing number shall include the letters SK and the existing plant drawing number. An SK drawing can be used to identify a drawing

to be voided. LG&E/KU will be responsible for incorporating these changes into the existing drawing. Black and white TIFF or *PDF redlined drawings may be submitted if redlined hard copies are also provided if a copy of a waiver to this requirement for the specific drawing(s) is provided with the transmittal.

2.1.7. The Owner shall provide to the Contractor an AutoCAD version of all LG&E / KU drawing title blocks as required. The Owner shall also provide hard copy, TIFF or *PDF images of existing plant drawings for redlining unless otherwise outlined in the contract.

2.1.8. The Owner reserves the right to request sample AutoCAD drawings to test our ability to access and properly view the drawing information within our applications.

2.1.9. Upon project completion final paper copies of as-built drawings shall be provided to the project manager or designee unless a copy of a waiver to this requirement for the specific drawing(s) is provided with the transmittal. The number of paper drawing sets required shall be outlined in the contract.

***PDF Format:** *All PDF documents submitted must be PDF/A-1a or PDF/A-1b compliant. See ISO Spec 19005-1:2005 Document Management - Electronic document file format for long term preservation - Part 1 Reference: http://en.wikipedia.org/wiki/PDF/A*

2.2. **Vector Based CAD Drawings**

2.2.1. Drawings shall be drawn in AutoCAD 2008 version or later but must be saved and turned over to the owner in AutoCAD 2007 file format.

2.2.2. When using other CAD applications and performing conversions to AutoCAD the vendor shall ensure that drawing attributes, block names, line types, line weights, font styles, dimension styles, etc. are properly converted. Ultimately the converted file, when plotted, should look identical to the version created in the native CAD format. The Owner may request electronic copies of converted files to review the conversion quality from native format to AutoCAD.

2.2.3. The drawings shall be bordered by a title block/drawing sheet provided by the owner. Drawing sizes A thru E are available by request.

2.2.3.1. The drawing sheet shall be inserted as a block retaining all of the title block attributes and layers. **Do not explode or modify the title block or change the title block name, layer names, or modify the attribute tag names in the Owner supplied title block.**

2.2.3.2. The drawing sheet shall be inserted at the 0,0 coordinate in layout 1 paper space view such that the lower left hand corner of the sheet is at 0,0.

2.2.3.3. The title block attributes shall be filled out. See Table 1 for typical title block attributes and Figure 1 for a sample title block. Other LG&E / KU title blocks may be used depending on plant locations and drawing size.

2.2.3.4. The Contractor shall provide their company name in the Originally Designed by attribute in the title block. In addition, they may insert their own title block, company logo, and/or PE stamp to the immediate left of the Owner's title block **as a separate AutoCAD block**. This information shall not stand taller than the Owner's title block. See Figure 1.

2.2.4. All non-dimensioned drawings shall be drawn at a 1 to 1 scale. These drawings may include electrical schematics, wiring, and connection diagrams, mechanical flow diagrams, and logic diagrams.

2.2.5. The Contractor will provide the Owner an estimated range of drawing numbers for each of the major disciplines (Arch, Civil, Structural, Mech, Elect) and by plant unit or common. The Owner will provide a range of Unit-specific LG&E / KU drawing numbers to the Contractor as required based on this information.

2.2.6. Drawing numbers shall use the following format:

GH3-E-12345-4321 or GH3-SK-E-12345-4321

Where-

***GH3** is the 3 or 4 digit plant and unit number (0=common)*
***SK** used only if identifying a redlined existing plant drawing*
***E** is the engineering discipline (E-Electrical, C-Civil, M-Mechanical, A-Architectural, S-Structural)*
***12345** is the 5-digit next available drawing number based on location AND discipline. Field must have the leading zeros padded to (5) digits such that drawing "432" would appear as "00432"*
***4321** is an optional Contractor-assigned 4-digit alphanumeric describing a specific page or sheet number of the drawing. This field is optional but if used it shall be padded to (4) characters.*

2.2.7. The Contractor may include their own drawing number in their title block (if included) but all internal and external drawing references shall utilize the Owner's assigned drawing number.

2.2.8. LG&E / KU drawing number revisions shall start with the letter "A" and proceed through the alphabet skipping the letters "I" and "O". Numbers are not to be used for LG&E / KU revisions unless used for preliminary drawings for review not for final submittal.

2.3. **Raster (or hybrid) Based CAD Drawings**

2.3.1. Where required, hybrid CAD techniques may be employed to modify existing plant drawings. Do not use AutoCAD's *WIPEOUT* command to mask raster images. The raster images shall be modified using raster editing software such as Raster Design 2008 as provided by Autodesk.

2.3.2. Raster images shall be provided in a GP4 (CALs Group 4, Type 1) format. Other formats may be acceptable upon review with the LG&E / KU.

2.3.3. A sample drawing (containing as a minimum both a DWG and a GP4 file) shall be provided to test LG&E / KU's ability to access the hybrid drawing information.

2.3.4. All raster images shall be scanned at a minimum 200 DPI resolution. Higher resolutions shall be used if the drawing detail or quality warrants it.

2.3.5. Scanning shall be by the Contractor or by the Owner as outlined in the specific contract. The original raster title block shall be removed. The standard Owner's title block will be inserted as per paragraph 2.2.3.2. the scanned image shall be visible in a viewport.

2.3.6. If specified in the contract vectorization of raster or hybrid drawings may be required prior to final submission. Contractor and Owner will agree upon drawings to be vectorized.

2.3.7. ALL OTHER ITEMS IN SECTION 2.2 APPLY.

2.4. **CAD Drawing Submittal**

2.4.1. Final AutoCAD drawings and raster images (in the case of Hybrid drawings) shall be submitted to Owner on CD or DVD. The file names shall match the LG&E / KU drawing numbers

2.4.2. Back-up TIFF or *PDF images of the drawings as produced from the native CAD application shall be provided on the CD. TIFF or *PDF images shall include the signed PE stamp if applicable.

2.4.3. Drawings may be created using x-references and/or links to other drawings but when the final drawing is submitted to Owner, all external references shall be permanently bound into the drawing such that there is only one DWG file per drawing. Likewise if there are multiple insertions of raster images (in the case of Hybrid drawings) they shall be merged into a single raster image file with the same name as the DWG file except using the file extension of one of the approved raster formats.

2.4.4. Each drawing shall be submitted under a different file name. For example if three drawings are created using three different paper space views of the same model space, it shall be duplicated three times and only the view representative of the individual drawing shall be saved in the final file as layout 1 in paper space. Any extraneous drawing entities in model space not pertaining to the drawing shall be deleted.

2.4.5. Standard AutoCAD text fonts should be used. If any non-standard AutoCAD fonts, textures, dimension styles, plot styles, etc. are used within the drawing, a copy shall be provided when the drawings are submitted to Owner.

2.4.6. If drawings are created with line weights based on Color Tables, the proper CTB file shall also be provided to the Owner. CTB filenames are to be unique and should include the vendor's initials and a date.

2.4.7. Non-standard support files submitted according to 2.4.5 and 2.4.6. shall be given unique filenames containing originating company's name or initials.

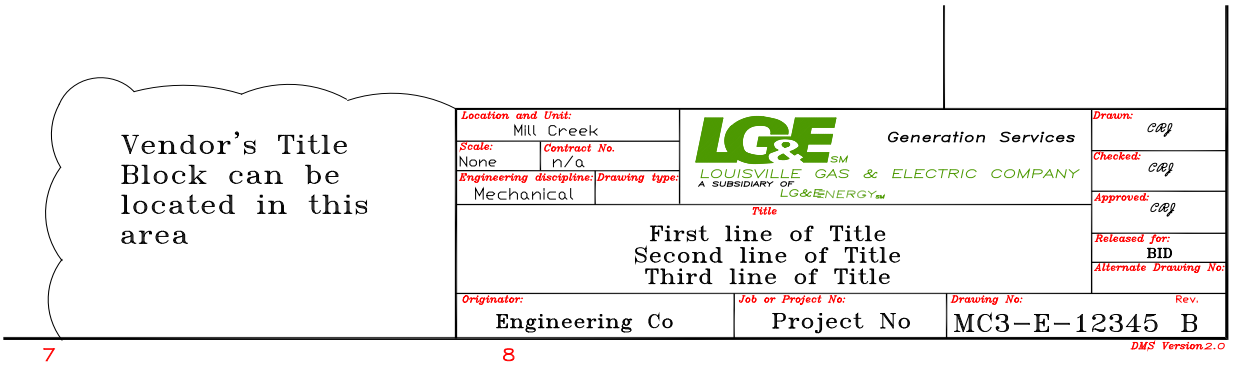
2.4.8. If drawings are created based on layer/level dependent line weights, a listing of those settings shall be provided to the Owner. (NOTE: Line weights based on CTB tables is preferred).

2.4.9. The Contractor shall keep a backup copy of all electronic data provided to Owner for a minimum of 1 year from the date sent to Owner.

2.4.10. All drawings and media provided to Owner shall be fully manifested. If [redacted] or more drawings are to be submitted an index shall be provided electronically in Excel or Access format which includes, as a minimum, the information contained in TABLE 1 at the end of the Specification.

TABLE 1 – Typical Drawing Attribute Information for DMS Submission

Field Name	Character Limit	Examples
Project	8	*As agreed upon in the contract*
Drawing Number	20	*As agreed upon in the contract*
Alternate Drawing Number	20	Vendor's internal drawing number (optional)
Revision	1	A or B or C… (skipping I and O)
Original creation date	8	12/01/00
Latest revision date	8	12/31/00
Title	96	
Location	4	MC4 or TC1 or GH0 (0=common systems)
Engineering Discipline	1	E=electrical, C=civil, M=mechanical, A=architectural, S=structural
Drawing Type	Any	wiring, schematic, flow, logic, site plan, foundation, piping, details, steel, etc.
Drawing size	1	D or E, etc.
Scale	Any	¼"=1', none, as noted, etc.
CAD Filename	Any	File name shall match the LG&E/KU drawing number and shall not contain any spaces.
Release Reason	Any	Construction, Approval, Reference, etc



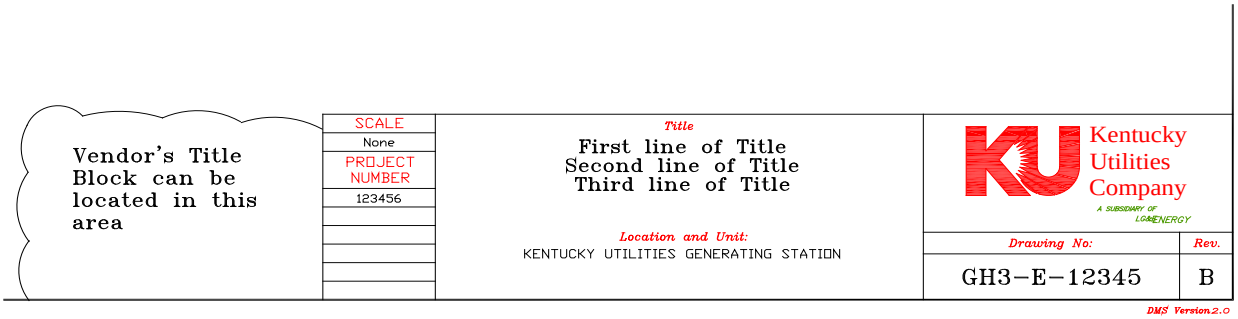


Figure 1

Sample Title Block

(other versions and formats are available)