

Consultant
Spec. No. 120
Issue: Com, 02-22-84

PRELIMINARY

NUCLEAR SAFETY RELATED
Project: 4391-00

SARGENT & LUNDY
ENGINEERS
CHICAGO

Consultant
Spec. No. 120
Issue: Com, 02-22-84

TESTING SERVICES FOR STEAM GENERATOR SNUBBERS

CONSULTING SERVICES

PRE-AWARD ISSUE SUMMARY PAGE

Purpose of Issue	Date	Pages Affected
Com - Spec. No. 120 issued for Client Comment	02-22-84	All

INSTRUCTION TO BIDDERS

RE: Consultant Specification No. 120
Testing Services for Steam Generator Snubbers
Issue: Com, 02-22-84

Bidder is invited to submit a proposal in accordance with these Bid Documents to perform testing services for two (2) Steam Generator Snubbers manufactured by Boeing and owned by Commonwealth Edison Company. The snubbers are for use at Commonwealth Edison Company's Byron and Braidwood Stations.

1. PROPOSAL DUE DATE

- 1.1 Bidder's proposal must be submitted on or before _____, and be valid for acceptance by Purchaser/Consulting Engineers for 90 days from said date.
- 1.2 Upon receipt of these Bid Documents, Bidder shall notify Mr. Charles F. Beck, Head, Purchasing Division, Sargent & Lundy, by return mail, whether Bidder will or will not submit a proposal covering these Bid Documents. In the event Bidder will not submit a proposal, these Bid Documents shall be returned immediately to Mr. Charles F. Beck, Head, Purchasing Division, Sargent & Lundy, 55 East Monroe Street, Chicago, Illinois 60603.
- 1.3 Proposal will not be considered unless it includes Proposal Form, properly filled out, and all required submittals specified in the Bid Documents. Bidder shall use the same format, paragraph numbering, and page numbering of the Bid Documents in preparing his bid for submittal.

2. PRICE INFORMATION

All price information shall appear only where specified in Proposal Form Part 1, and shall not appear elsewhere in Bidder's proposal. Other price information, such as options or alternates, shall be set forth in Proposal Form, Part 1, or attached thereto. No price information shall be included in the Bidder's technical or other non-priced data.

3. COMPLETENESS OF PROPOSAL

- 3.1 It is Purchaser's intent that Bidder's proposal shall be complete in order to avoid adding extras to the contract price. Therefore, Bidder shall include in his proposal all work or services indicated in the Bid Documents and which is normally considered part of the type of work or service covered by the Bid Documents, whether or not such work or service is fully detailed in the Bid Documents.
- 3.2 If any apparent omissions or conflicts are noted in the Bid Documents, Bidder is to notify immediately Mr. Charles F. Beck, Head, Purchasing Division.

4. BID DOCUMENTS

The following are attached hereto and form the Bid Documents:

- 4.1 These Instruction to Bidders.
- 4.2 Consultant Specification No. 120.
- 4.3 Purchaser's "Terms and Conditions of this Purchase Order for Professional and Technical Services," PD/PS (01/84).
- 4.4 Insurance Requirements for Professional Services, dated May 12, 1983.

Any contract or purchase order resulting from these Bid Documents will incorporate the terms and provisions of said documents. It is intended that these Bid Documents shall prevail over conflicting provisions contained in Contractor's proposal. All exceptions to these Bid Documents must be listed together and specifically identified under the heading "Exceptions" in Bidder's proposal. Bidder's printed terms and conditions are not considered specific exceptions, and will not be accepted as such by Purchaser.

5. PROPOSAL DISTRIBUTION

- 5.1 Bidder's proposal must be made out in six (6) copies, enclosed in sealed envelopes marked "Confidential Proposal - Consultant Specification No. 120," and distributed as follows:

Original and five (5) copies
with prices:

Mr. Charles F. Beck
Head, Purchasing Division
Sargent & Lundy
32nd Floor
55 East Monroe Street
Chicago, Illinois 60603

One (1) copy with prices:

Commonwealth Edison Company
Comptroller's Staff
P. O. Box 767
Chicago, Illinois 60690

- 5.2 Any engineering or technical matters related to these Bid Documents shall be directed to:

Mr. R. A. Salsbury
Project Management Division
Telephone 312/269-6856

- 5.3 All commercial and contractual matters related to these Bid Documents shall be directed to:

Mr. C. F. Beck
Head, Purchasing Division
Telephone: 312/269-3620

- 5.4 Any price or technical data submitted by Bidder subsequent to submittal of the original proposal shall state the reason for the revision, be submitted in the same number as the original proposal, and be mailed or delivered as indicated above, in sealed envelopes clearly marked "Confidential - Consultant Specification No. 120."
6. NONDISCLOSURE OF PRICE INFORMATION
The price information set forth in Bidder's proposal or supplemental price information submitted subsequent to the original proposal, shall not be disclosed to Purchaser's employees, agents or to any other party, other than those specified above, or where specifically approved by the Head of Purchaser's Purchasing Division.
7. RIGHT TO REJECT
The right is reserved by Purchaser to reject any or all proposals or any portion thereof. Neither receipt of proposal nor failure to reject proposal shall impose any legal obligation on Sargent & Lundy or its Client.
8. GENERAL FINANCIAL AND TECHNICAL QUALIFICATIONS
In addition to completed Proposal Forms, Parts 1 and 2, and all other submittals required by the Bid Documents, the following shall be included with each copy of Bidder's proposal:
- 8.1 Copies of Bidder's three most recent annual reports. This shall include CPA opinion letter, balance sheet, income statement, statement of sources and application of funds, and notes to balance sheet.
- 8.2 A description or brochure of Bidder's history and organization including Bidder's qualifications, experience, and list of current and recently completed projects.
- 8.3 Copies of current published commercial descriptive literature, catalogs, brochures, etc., describing the services to be provided, and any price lists. The descriptive literature and price list shall be those which show "established catalog and market price."
9. TERMS OF PAYMENT
Net thirty (30) days upon completion of work and receipt of invoice.
10. RESTRICTED DOCUMENTS
The Purchaser's Bid Documents contain proprietary and restricted information and may not be used, reproduced, or revealed to others without the prior written permission of the Head of Purchaser's Purchasing Division.

NUCLEAR SAFETY RELATED
Project: 4391-00

SARGENT & LUNDY
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CERTIFICATION OF SPECIFICATION

FOR

TESTING SERVICES FOR STEAM GENERATOR SNUBBERS

CONSULTING SERVICES

I certify that this Specification was prepared by me or under my supervision and that I am a registered professional engineer under the laws of the State of Illinois.

Certified By: _____ Date: _____

Revision: _____ Certified By: _____ Date: _____

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

CS-1
Final

TESTING SERVICES FOR STEAM GENERATOR SNUBBERS
CONSULTING SERVICES

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SPECIFICATION FOR
TESTING SERVICES FOR STEAM GENERATOR SNUBBERS

DIVISION 1 - GENERAL REQUIREMENTS

101. PURCHASER/CONSULTING ENGINEERS: SARGENT & LUNDY.
102. CONTRACTOR: THE FIRM OR ORGANIZATION RETAINED TO PERFORM THE SERVICES OR WORK SET FORTH IN THIS SPECIFICATION.
103. OWNER: COMMONWEALTH EDISON COMPANY.
104. SCOPE OF SERVICES
- 104.1 Contractor shall perform testing services for two (2) Steam Generator Snubbers, consisting of the following:
- a. Contractor shall design and develop a test program for two (2) Boeing manufactured Steam Generator Snubbers owned by Commonwealth Edison Company. Contractor's test plan shall be submitted to Purchaser/Consulting Engineers for review, per the schedule contained in Article 106 herein.
 - b. Upon acceptance of the test plan by Purchaser/Consulting Engineers, Contractor shall test the Steam Generator Snubbers to determine characteristics.
 - c. Contractor shall, upon completion of testing, furnish Purchaser/Consulting Engineers a complete report of the tests.
- 104.2 The snubbers, weighing approximately 13,000 lbs. each, will be delivered to Contractor's facilities by Owner. Contractor shall be responsible for unpacking, inspecting, and notifying Purchaser/Consulting Engineers of any damage to the snubbers as received at Contractor's facilities. Contractor shall be responsible for any damage or loss until snubbers are returned to destination specified by the Owner. After the testing is complete, Contractor shall repackage the snubbers, and provide transportation of the snubbers to Owner's Braidwood Station.
105. TESTING
- 105.1 The snubbers shall be tested with end blocks attached to the snubbers to preclude possible damage to the snubber assembly. The end blocks will be attached when the snubbers are delivered to Contractor. In the event Contractor proposes to remove the end blocks, Contractor shall include with his proposal the procedures to accomplish this along with a detailed list of work responsibilities.
- 105.2 Contractor shall provide all services required to test the two (2) Steam Generator Snubbers, complete with control valves, to determine

snubber characteristics, including lockup velocity, bleed rate, and spring rate at static loads around 260, 770, and 1950 kips.

- 105.3 The snubbers shall be tested in both tension and compression, with the piston in the hot position (46.57 inches pin to pin). The snubber and fluid shall be at operating temperature (120 ± 5°F) during the test.
- 105.4 Contractor shall prepare detailed procedures, which shall be submitted to Purchaser/Consulting Engineers for review and acceptance. Contractor shall provide test results in the form of a report, including all data, calculations, computer analysis, and plots of load and displacement vs. time during the tests necessary to determine snubber characteristics.

106. SCHEDULE

- 106.1 Upon award of contract, Contractor shall perform services as follows:

	<u>Date</u>
a. Submit Quality Assurance/Control procedures.....	Within 2 weeks from date of contract award.
b. Prepare and submit test plan.....	Within 2 weeks from date of contract award.
c. Begin tests.....	Upon receipt of test plan approval.
d. Complete tests.....	Within two weeks of start test.
e. Submit Test Report.....	Within one week of test completion.
f. Return Snubbers to Owner.....	Within two weeks of test completion.

107. DEFINITIONS

- 107.1 Wherever the terms "approved", "as approved", "satisfactory", "as requested", or other similar terms are used in this Specification, they shall mean "as reviewed", etc., by the Purchaser/Consulting Engineers unless otherwise specifically stated.

- 107.2 Wherever the term "Work" or "Service" is used in this Specification, it shall be construed to mean the "Scope of Services" as described in Article 104.
- 107.3 Wherever the word "Owner" appears in the Bid Documents, it shall be construed to mean "Commonwealth Edison Company".
- 107.4 Wherever the word "Purchaser" or "Purchaser/Consulting Engineers" appears in the Bid Documents, it shall be construed to mean "Sargent & Lundy".
- 107.5 Contractor is herewith designated as the firm or organization employed to perform/provide the services specified herein, including the Scope of Services portion (Article 104) of this Specification.
108. SITE VISIT
Contractor shall consult with Purchaser/Consulting Engineers in the event Contractor desires to visit Owner's jobsite to familiarize himself with site conditions. In such event, Contractor shall abide by any/all rules Owner may have in effect of at the project site. Further, Contractor shall properly warn all of his employees with respect to any/all facilities and structures which constitute a hazard to his employees, and shall provide necessary protection for his employees.
109. QUALITY ASSURANCE
- 109.1 A Consultant who has a controlled copy of his Quality Assurance Program assigned to the Head - Quality Assurance Division, Sargent & Lundy, need only submit documented verification that the controlled copy is applicable to the Scope of Services covered by this Specification and include information covering the current effective date of the Program Manual including all current revisions in effect.
- 109.2 A Consultant who does not have a controlled copy of his Quality Assurance Program assigned to the Purchaser that is applicable to the work shall submit two (2) controlled copies of his Quality Assurance Program for review to the Purchaser with his bid. The controlled copies shall be assigned to the Head, Quality Assurance Division of Sargent & Lundy. The program shall meet the applicable requirements of 10CFR50, Appendix B. ANSI N45.2, "Quality Assurance Program Requirements for Nuclear Facilities" and applicable subsidiary standards are acceptable guides in meeting these requirements.
- 109.3 Consultant shall submit with his proposal a preliminary list of the Quality Assurance/Control procedures, including auditor qualification and training, special process procedures, and documentation which applies to the WORK and which he intends to submit to the Purchaser. The preliminary list will be reviewed during the preaward meeting between Purchaser and Consultant. A mutually

agreed upon detailed list of Quality Assurance/Control procedures, special process procedures, and documentation shall be developed at the preaward meeting and will be included as part of this document, as applicable.

- 109.4 Within two weeks after notification of award of purchase order and prior to start of work, Consultant shall submit to Sargent & Lundy's Quality Assurance Division for review two copies of the detailed Quality Assurance/Control procedures applicable to the WORK described in this Specification. The procedures shall detail design control, testing, inspection, cleaning, etc., activities necessary for the accomplishment of the WORK and the assurance of its quality and requisite documentation. Procedures shall be qualified, as necessary, to Code or Standard requirements. These procedures shall detail equipment to be used, limiting conditions, acceptance/rejection criteria, techniques, etc., that will be used.
- 109.5 Consultant shall provide the necessary documents for assuring the quality of his work and these shall include but not be limited to the following:
- a. An organization chart and appropriate attachments addressing in a detailed manner the responsibilities of the personnel involved in the contracted work and the resume of their capabilities.
 - b. The Consultant's organization showing the reporting relationship between the Quality Assurance personnel and top management and a listing of the responsibilities of the Quality Assurance personnel and the degree of authority granted them to carry out their responsibilities.
 - c. A detailed description of the procedures and instrumentation to be used in data acquisition and processing. Sample of the forms used to accomplish this work shall be attached to these procedures.
 - d. A description of the manner to control documents describing procedures and instrumentation, as well as any other document which will be a result of this Specification. The description shall address the manner of transmittal, commenting, approving, revising and implementing all these documents.
 - e. Consultant shall describe in a detailed manner the procedures to control and the measuring procedures he will use for calibration and testing all the instrumentation used for the performance of his work.
 - f. Consultant shall report any failure of the instrumentation or nonconformance to the data acquisition procedures or process procedures as soon as he notices them and describe the manner for reporting nonconformances and illustrate them with sample forms utilized for this reporting. Consultant shall describe the general procedures to follow for correcting nonconformances.

- g. Consultant shall describe all the measures he will take for handling and shipping the recorded data of his work, the manner of identification he will use in order to avoid misinterpretation during the processing, and the measures he will take to make them retrievable if needed. This data shall be submitted with Consultant's proposal.
- h. Consultant shall furnish the Purchaser with a copy of all recorded data, when required. Procedure to accomplish this requirement will be outlined during the award meeting.
- i. Consultant shall describe the manner and period of time he will maintain all recorded and processed data in the performance of his work. No records or data shall be disposed of without the written consent of the Purchaser.
- j. A detailed description of the procedure for validation of computer programs not supplied by the Purchaser used for the performance of the WORK.
- k. A detailed description of the control measures employed for the preparation and review of design calculations.

109.6 The Consultant shall revise all or any portion of the procedures as required by the Purchaser's Quality Assurance Division reviews, and shall submit the procedures as many times as required until satisfactory to the Purchaser's Quality Assurance Division. Procedures shall be acceptable to S&L prior to Consultant beginning WORK covered by the particular procedure.

109.7 The Purchaser and any other representative designated by the Purchaser, shall have full access to the Consultant's and his Subtier Consultant's facilities and quality records for audits and during the WORK for reviewing progress and determining acceptability of the WORK. The Purchaser or his designated representative shall be notified at least seventy-two hours (3 working days) prior to start of specified tests and inspection points agreed upon during the review of the detailed Quality Assurance/Control procedures.

109.8 Consultant shall be responsible for the review, comment and acceptance of the Quality Assurance Program, Quality Assurance/Control and WORK procedures of his Subtier Consultants. In addition, Consultant shall be responsible for his Subtier Consultant's work to be performed to the requirements of 10CFR50 Appendix B.

109.9 Nonconformances, deviations from the procurement document requirements, and proposed resolutions shall be promptly submitted to the Purchaser in writing for resolution. After submittal and before authorization, Consultant may only proceed with any work recognizing

that all such work is subject to acceptance or rejection by Sargent & Lundy.

- 109.10 Records shall be maintained to furnish evidence of activities affecting quality. They shall be identifiable and retrievable as necessary and made available to the Purchaser on request. The records shall be clear, legible, and of suitable quality for micro-filming and/or storage for the life of the plant.
- 109.11 Prior to start of work at the site, Consultant shall notify Sargent & Lundy's Quality Assurance Division of the expected date when work will begin. In the event of work being interrupted, resulting in appreciable delay before its resumption, Consultant shall also advise Sargent & Lundy's QA Division of the date when work is being resumed at the site.
- 109.12 Prior to start of WORK, Consultant shall verify and document the education and work experience qualifications of personnel performing safety related activities under this Specification.
- 109.13 Where activities will be performed other than at site or Consultant's home office, the Consultant shall advise S&L's Quality Assurance Division of the location of the activity and the expected date when work will begin.

110.

CODES AND STANDARDS

The following Codes and Standards are applicable to the Services to be provided under this Specification to the extent specified herein. The referenced documents shall be the issue applicable to the particular project for which the Service is performed. These documents are not attached to this Specification:

- 110.1 ASME Section III, Division I, "Nuclear Power Plant Components" 1974 Edition with Addenda and Code Cases in effect up to and including the Summer '975 Addenda.
- 110.2 ANSI N45.2 Quality Assurance Requirements For Nuclear Facilities.
- 110.3 10 CFR Part 21 - Reporting of Defects and Nonconformance.
- 110.4 10 CFR Part 50 - Appendix B Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.
- 110.5 The American Institute of Steel Construction (AISC) Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings (7th Edition).

111.

CONFORMANCE WITH 10 CFR PART 21

The Services to be provided under this Specification which are Nuclear Safety Related require the application of the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 21, Report of Defects and Noncompliance (10 CFR Part 21). It is the respon-

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sibility of the Contractor to implement the provisions of 10 CFR Part 21 insofar as they are applicable to the Contractor's Services under this Specification.

TESTING SERVICES FOR STEAM GENERATOR SNUBBERS
CONSULTING ENGINEERS

DIVISION 2 - SUPPLEMENTS, DRAWINGS AND DATA

201. SUPPLEMENTS

The following are attached hereto and form a part hereof:

- 201.1 Terms and Conditions of this Purchase Order, PD/PS (01/84).
- 201.2 Sargent & Lundy Insurance Requirements for Professional Subcontractors, dated May 12, 1983.
- 201.3 Form 30-B - Standard Specification for Contractor's Drawing and Data Transmittal.

202. DRAWINGS (PURCHASER/CONSULTING ENGINEERS')

The following drawings form a part hereof for reference only:

202.1 Steam Generator Snubber Drawings (from Specification F/L-2805):

- D275 - No 200, Sh. 1, Rev. B
- D275 - No 200, Sh. 2, Rev. C
- D275 - No 201, Sh. 1, Rev. E
- D275 - No 201, Sh. 2, Rev. E
- D275 - No 202, Rev. C
- D275 - No 203, Rev. C
- D275 - No 204, (Orig)
- D275 - No 205, Rev. B
- D275 - No 207, Rev. A
- D275 - No 208, Rev. A
- D275 - No 209, Sh. 1, Rev D
- D275 - No 209, Sh. 2, Rev. A
- D275 - No 209, Sh. 3, Rev. B
- D275 - No 2011, Rev. A

202.2 Structural Drawing:
S-1114, Rev. Y

203. DATA (CONTRACTOR'S)

203.1 Furnish the following data, after award:

- a. Data for Review:
 - a1. Detailed Test Procedures called for in Articles 105.4.
 - a2. Detailed quality control procedures called for in Articles 109.4 and 109.6.

a3. Verification of work history and qualification of personnel called for in Article 109.12.

b. Data for Record: Test results, records and data called for in Article 105.

203.2 Furnish the following data with proposal:

a. A preliminary list of Quality Control Procedures and Documentation, as called for in Article 109.3.

b. Procedures for handling data, as called for in Article 109.5g.

c. General qualification data called for in Section 9 of the Instruction to Bidders document.

d. Controlled copies of Consultant Quality Assurance Program, or documented verification that such document has been assigned to Sargent & Lundy and is applicable to the Scope of Services specified herein as called for in Articles 109.1 and 109.2.

e. A detailed description of WORK Bidder will be performing as Consultant.

f. A schedule indicating the time required for completion of testing of both snubbers on a normal and expedited basis.

g. The test machine availability.

h. Description of the following:

h1. Test machine.

h2. Present capacity of test machine for static and dynamic testing including the following:

h2.1 Cyclic capability as a function of load frequency and load magnitude.

h2.2 Maximum rate of loading and unloading as a function of load magnitude.

h2.3 Minimum time to achieve load reversal as a function of load magnitude.

h3. Modifications of test machine required to accommodate the snubbers and the specified testing required.

i. Special requirements.

j. Work by others.

- k. Exceptions to the test plan.
- l. Cost of testing, broken down as follows: labor, retooling and machine modifications (material), other costs on a normal and expedited basis. This data shall be submitted on pages separate from all other data, as noted in the Instruction to Bidders document.
- m. Time required to make test machine modifications.
- n. Experience in snubber testing.
- o. Based on Bidder's experience, a statement concerning variations in hydraulic snubber spring rate versus load and frequency.
- p. The following alternate work:
 - pl. Cyclic stiffness testing at the 260K load level.
 - p2. Stiffness testing of the snubber utilizing a full cycle tension to compression square wave test where load reversal is achieved in the minimum time possible.
- 203.3 Furnish any/all other data required, when so requested.
- 203.4 Submittal Form: Per Form 30 and as follows:

Furnish legible full size reproductions of all strip charts, drawings and data submitted for review from the retesting.
- 203.5 Contractor's test plan, reports, and any/all technical correspondence related to the services covered by this Specification shall be submitted in quadruplicate to:

R. A. Salsbury
Project Management Division
Mail Code 22M02
Sargent & Lundy
55 East Monroe Street
Chicago, Illinois 60603
Telephone: 312/269-6856

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203.6

The contract/purchase order shall be administered by Purchaser/Consulting Engineers' Purchasing Division. Therefore, all administrative notices and contractual concerns shall be addressed to:

R. D. Gors
Purchasing Division
Mail Code 32E25
Sargent & Lundy
55 East Monroe Street
Chicago, Illinois 60603
Telephone 312/269-8697

**TERMS AND CONDITIONS OF THIS
PURCHASE ORDER FOR
PROFESSIONAL AND TECHNICAL SERVICES**

1. This Purchase Order sets forth the entire agreement between the parties and can be changed or supplemented only by written agreement duly executed by both parties.
2. The Supplier of services, hereinafter called the "Professional", shall exercise the care and skill of those ordinarily skilled in his profession or professions. The Professional will be solely responsible for his own negligent act, error, or omission.
3. In addition to all warranties established by law, the Professional agrees that:
 - (a) All services covered by this Purchase Order shall conform with the instructions, specifications, drawings, samples, or other descriptions furnished or adopted by the Recipients of the services, hereinafter referred to as "Recipients," conforming to standards of quality and workmanship generally accepted by those skilled in the profession or professions related to those services.
 - (b) The performance of all services covered by this Purchase Order shall comply with all federal, state, and other laws, or ordinances and regulations relative thereto, including any applicable regulation of the Nuclear Regulatory Commission if this Purchase Order covers work for nuclear facilities.
 - (c) In supplying any services hereunder, the Professional is and undertakes such performance as an independent contractor with sole responsibility for all persons employed in connection therewith, including, without limitation, exclusive liability for payment of all federal, state and local employment and disability insurance, social security, and other taxes and contributions incurred hereunder.
4. Unless specified otherwise in this Purchase Order, invoices shall be due and payable within 30 days from receipt, provided Professional has fulfilled all provisions of this Purchase Order.
5. If this Purchase Order covers the performance of services for any of the Recipients on any of their premises, the Professional agrees to indemnify and hold each Recipient harmless, to the extent permitted by applicable law, against all liability, claim or demand for personal injury, including death, and damage to property, including loss of use thereof, arising, or alleged to arise, out of the performance, negligent or otherwise, by the Professional, under this Purchase Order, whether or not based in whole or in part on the negligence of any of the Recipients, including all legal fees and costs in connection therewith.
6. The Professional agrees to indemnify and hold all Recipients harmless from loss, cost, or damages by reason of actual or alleged infringement of patents, trademarks, or copyrights in connection with services or goods covered by this Purchase Order, including all legal fees and costs in connection therewith. The Professional shall pay all royalties and license fees applicable to such services or goods.
7. To the extent possible under applicable laws, the Professional hereby waives for himself and for all successors, and subcontractors and their successors, any and all claim or right of lien upon all of the property of all of the Recipients, or any part thereof, as a result of furnishing services or goods under this Purchase Order or any sub-contract made thereunder.
8. The Recipients may, with or without cause, suspend and/or terminate this Purchase Order, in whole or in part, three working days after mailing of written notice, without any liability to the Professional, except to pay for services furnished hereunder and accepted by the Recipients.
9. As used in this Purchase Order, the terms "Recipients of these services" and "Recipients" shall include Sargent & Lundy, its clients, and all persons or business entities for the benefit of whom the services shall have been performed.
10. The Professional agrees and warrants that neither it nor any of its personnel will appropriate for the use of the Professional or reveal to any third party, any information concerning the business of Recipients including shop practices, plans and processes, procedures, research, design, computer programs and documentation, confidential and/or proprietary information, trade secrets, flows and apparatus and methods of operation except as approved and authorized by Recipients.
11. Professional agrees that the equal opportunity clause in Section 202 of Executive Order 11246, as amended, shall be incorporated and made part of this Purchase Order.
12. This Purchase Order shall not be assigned by the Professional without the prior written consent of Sargent & Lundy.
13. This Purchase Order shall be governed by and construed in accordance with the laws of the State of Illinois.
14. Prior to commencing professional services hereunder, Professional shall comply with the insurance provisions set forth on the face of this Purchase Order and shall have the Professional's Insurance Carrier or the Insurance Carrier's agent submit a Certificate of Insurance to the Head, Purchasing Division. Work may not be started until such Certificates have been received by Sargent & Lundy.

EXHIBIT B
INSURANCE REQUIREMENTS FOR
PROFESSIONAL SERVICES

Consultant/professional shall carry the minimum insurance listed below:

A. INSURANCE REQUIRED

1. Worker's Compensation and Occupational Disease Insurance in accordance with statutory limits.
2. Employer's Liability Insurance with a minimum limit of \$500,000.
3. Comprehensive General Liability Insurance as follows:
 - a. Amount
 - (1) Bodily Injury and Property Damage Combined \$2,000,000 limit each occurrence
 - (2) Personal Injury - \$2,000,000 minimum limit
 - b. Type
 - (1) Comprehensive Form
 - (2) Contractual Insurance
 - (3) Broad Form Property Damage
 - (4) Personal Injury
4. Comprehensive Automobile Insurance as follows:
 - a. Amount

Bodily Injury and Property Damage Combined - \$2,000,000 minimum limit
 - b. Type

Comprehensive Form
5. Professional Liability Insurance: Consultant/professional's proposal shall state the total value of professional liability insurance Consultant/professional currently has in force, and what deductible applies.

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STANDARD SPECIFICATION
FOR
CONTRACTOR'S DRAWING AND DATA TRANSMITTAL
(FORM 30-B)

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SARGENT & LUNDY
ENGINEERS
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STANDARD SPECIFICATION
FOR
CONTRACTOR'S DRAWING AND DATA TRANSMITTAL
(FORM 3C-B)

1. GENERAL

1.1 Proposal Drawings and Data:

Drawings and data included as part of the proposal shall show equipment as specified in the applicable Standard Specification Form and Project Specification.

*1.2 After award of contract, all engineering drawings, supporting data, Bills of Materials, etc., shall be submitted to the Consulting Engineers for review in the form of 35mm microfilm mounted on aperture cards. For special additional requirements, see Article 6.

1.3 No design drawings, data, etc., will be considered for review which are not complete in all respects and which have not been thoroughly checked by the Contractor. No design drawings, data, etc., will be considered for review which cover features that are contingent upon review of other features for which the Contractor has not submitted drawings, etc., for review.

*1.4 The Consulting Engineers will review the drawings, data, etc., for compliance with contract specifications and will mark and stamp them to indicate whether changes or corrections are required. If changes or corrections are necessary, drawings, data, etc., with such changes or corrections noted will be returned to the Contractor in the form of aperture cards. Contractor shall resubmit the corrected or changed drawings, data, etc., in the form of aperture cards. All changes, corrections, etc., shall be clearly indicated.

1.5 When no further corrections or changes to drawings, data, etc., are required, the Consulting Engineers will retain the aperture card and make such points as are required.

*1.6 All aperture cards submitted shall be made from the original drawings and supporting data, and shall be first generation.

*1.7 A letter of transmittal must accompany aperture cards, drawings, data, etc., and shall include all information listed under Articles 3.2.1 through 3.2.5. All transmittals received without a letter of transmittal containing such information will be returned to sender. In his letter, Contractor may include other pertinent data or information.

*1.8 Design information shall be included on the Certified Drawings. The fact that such design information may later be included in the instruction and/or operating manuals does not relieve Contractor from compliance with this requirement.

1.9 Instruction and/or operating manuals shall be submitted in accordance with the requirements set forth in the applicable Standard Specification Form and/or Project Specification. Microfilm reproduction of manuals will not be required unless so specified in the Project Specification.

1.10 Any exceptions to this specification shall be clearly set forth in the initial proposal submittal and specifically identified as exceptions.

*2. QUALITY REQUIREMENTS

2.1 General

2.1.1 Drawings and data submitted to the Consulting Engineers shall be of the quality for legibility and reproduction purposes that such drawings and data shall be capable of yielding hard copy reproductions with every line, character and letter clearly legible and useable for further reproduction. Such quality shall be demonstrated to the Consulting Engineers in accordance with the quality test procedure specified in Article 2.2 herein.

2.1.2 Documents submitted to the Consulting Engineers that do not conform to the requirements of this Specification, shall be subject to rejection by the Consulting Engineers, and upon request, Contractor shall resubmit conforming documents. If conforming submittals cannot be obtained from the source documents, such source documents shall be retraced, redrawn or photographically restored as may be necessary to meet such requirements. Contractor's (or his subcontractor's) failure to initially satisfy the legibility quality requirements herein set forth, will not relieve Contractor (or his subcontractors) from meeting the required schedule for submittal of drawings and data.

2.2 Quality Test Procedure

2.2.1 The initial submission of drawings and data to the Consulting Engineers shall be accompanied with the following:

2.2.1.1 35mm aperture card (negative) made from the original source document.

2.2.1.2 A translucent copy made from the microfilm.

2.2.1.3 A diazo blue line print made from the translucent copy made from the microfilm aperture card.

The acceptance of this test by the Consulting Engineers shall be that the resulting diazo blue line print shall be of such quality that every line, letter and character is clearly legible and readable.

2.2.2 The Contractor's drawings and data will be considered as complying to this Specification upon the Consulting Engineers' acceptance of the test in Paragraph 2.2.1. Contractor's drawings and data will be considered to qualify after submittal of initial test and as long as subsequent submittals continue to meet the requirements of this Specification.

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2.2.3 If the drawings and data submitted by the Contractor do not meet the requirements of this Specification at any time, Contractor will be required to submit the Quality Test where and when requested by the Consulting Engineers.

2.3 Full Size Submittals

If the Project Specification or Contract specifies full size submittals of drawings and data in lieu of 35mm aperture cards, such full size submittals (including those specified in Article 7 hereof) shall conform to the legibility quality requirements set forth in Article 2.1 herein.

3. APERTURE CARDS

*3.1 The type of aperture card shall be in accordance with Article 3.5.

3.2 The following information shall appear on the face of each aperture card for identification:

3.2.1 Consulting Engineers' Project Number.

*3.2.2 Project Specification Number and/or Purchaser's Order Number, or B/M Number.

*3.2.3 Drawing Number (see Article 6.2) and Revision Designation.

*3.2.4 Drawing Size or Reduction Ratio (see 3.3.1).

3.2.5 Contractor's Name.

***3.3 Document Sizes, Microfilm Reduction Ratios, and Microfilm Print Back Ratios**

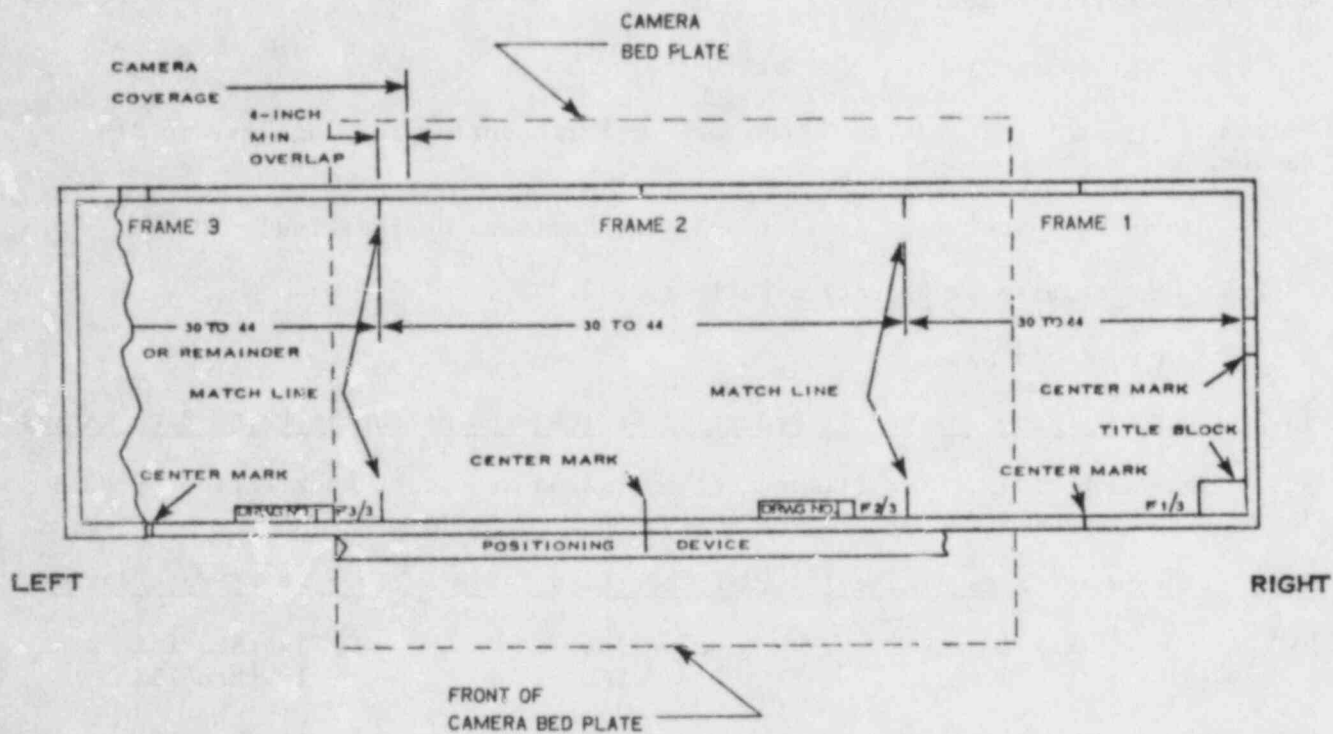
3.3.1 Document sizes, microfilm reduction ratios and print back ratios of such document sizes shall conform to the following:

<u>Size</u>	<u>Document Size (Inches)</u>	<u>M/F Reduction Ratio</u>	<u>M/F Print-Back Ratio</u>
"A"	8 1/2 x 11	16X	14 thru 15X
	9 x 12	16X	14 thru 15X
"B"	11 x 17	16X	14 thru 15X
	12 x 18	16X	14 thru 15X
"C"	17 x 22	16X	14 thru 15X
	18 x 24	16X	14 thru 15X
"D"	22 x 34	24X	14 thru 15X
	24 x 36	24X	14 thru 15X
"E"	34 x 44	30X	14 thru 15X
"F"	28 x 40	30X	14 thru 15X
	30 x 42	30X	14 thru 15X
"J"	36 x 48	30X	14 thru 15X

*3.3.2 Framing of Drawings:

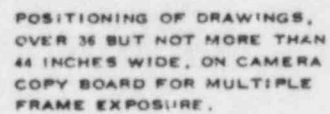
Filming of original drawings larger than size "J" in multiple frames shall proceed from right to left and bottom to top as indicated in the illustrations shown in Articles 3.3.2.1 and 3.3.2.2. Each frame section shall be identified with the drawing number and respective frame number.

3.3.2.1 Right to Left Exposure:



POSITIONING OF DRAWINGS,
OVER 30 BUT NOT MORE THAN
44 INCHES WIDE, ON CAMERA
COPY BOARD FOR MULTIPLE
FRAME EXPOSURE.

3.3.2.2 Bottom to Top Exposure:



*3.3.3 Multiple Documents:

8.5" x 11" size drawings, supporting data, bills of material, etc., that have the same drawing number and successive sheet numbers shall be filmed individually. (Drawings shall not be ganged on a single frame.)

*3.4 Microfilm Requirements:

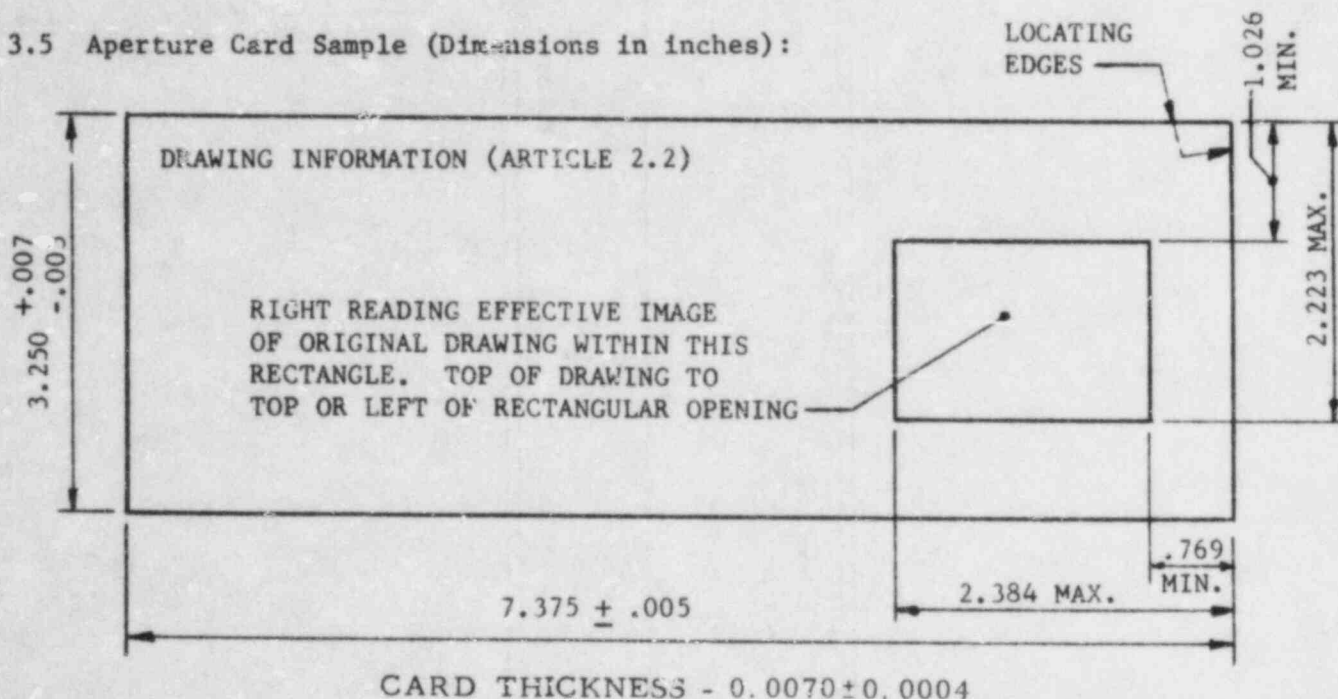
*3.4.1 Microfilm shall be negative type, silver halide, (camera microfilm first generation) nonperforated 35 mm safety film of sufficient quality to meet the following requirements (Article 3.4.2 through 3.4.4).

*3.4.2 Each image on the silver halide film shall have a background diffuse transmission density .90 to 1.30 inclusive. This measurement shall be an average of several random readings on the background of the image.

*3.4.3 Resolution shall be measured by using the National Bureau of Standards Resolution Chart 1010. Image resolution of processed microfilm shall meet the resolution chart pattern for the reduction ratio listed:

Reduction Ratio	16X	24X	30X
First Generation			
(Negative Type)	6.3	4.5	4.0 (Silver Halide Film)

3.5 Aperture Card Sample (Dimensions in inches):



*4. ENGINEERING GRAPHICS The following drafting practices shall be required on all documents and drawings submitted to the Consulting Engineers:

- 4.1 Minimum character height
- | | |
|-------------------------|---------------------|
| "A", "B", and "C" sizes | - 0.125 inch (1/8) |
| "D" and larger | - 0.156 inch (5/32) |

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4.2 Spacing between adjacent characters	0.060 inch (hand lettering)
4.3 Spacing between lines of characters	1/2 to 1 times character height
4.4 Shape of characters	open, well rounded, uniform width, avoid crowding
4.5 Character style	Gothic upper case, microfont
4.6 Density of characters	Dense and uniform
4.7 Lin width	0.010 inch
4.8 Open space between lines	0.060 inch
4.9 Typed data "A", "B", and "C" size sheets	10 point minimum/0.063 inch
4.10 Drawing sizes (see Article 3.3.1).	
4.11 Machine generated characters	Yes, recommended
4.12 Spacing allowed for fractions	Each numeral of fraction minimum character height
4.13 Border centering arrows	4 - center arrows on each side of format
4.14 Recommended ink or pencil	Select pencil or ink to produce dense, sharp, uniform characters and lines.
4.15 Background of document	Free of undesirable background in all areas that contain information content.

***5. GRAPHIC SCALE**

All drawings that are drawn to scale shall have a graphic scale so that any proportional blowback from the original microfilm can be scaled.

6. DRAWING CERTIFICATION AND NUMBERS

6.1 Certification: All drawings or other data by the Contractor shall include, as a minimum, the following identifying information:

*6.1.1 Purchaser's name.

6.1.2 Station or Project name.

6.1.3 Unit number.

6.1.4 Purchaser's Order or Contract number.

6.1.5 Contractor's Order number.

*6.1.6 Purchaser's Equipment number (if any).

6.2 Each separate drawing submitted to the Consulting Engineers shall have a discrete drawing number for proper identification. Duplicate pieces of equipment, such as valves, shall not be grouped on one drawing. Each valve shall have a discrete drawing number.

*7. REPRODUCIBLE INTERMEDIATES

7.1 In addition to furnishing aperture cards, full size right reading good quality reproducible intermediate reproductions of drawings shall be supplied to the Consulting Engineers for Layout and Checking work on the following major equipment.

7.1.1 External turbine related piping arrangement drawings such as gland steam & oil.

7.1.2 Boiler settings drawings, & arrangement drawings such as coal piping & start-up piping.

7.1.3 Condenser outline drawings.

7.1.4 Control Board wiring diagrams.

7.2 The reproducible requirement outlined above shall be followed on only the first two (2) drawing review transmittals.

7.3 After electrical wiring and schematic diagrams have been reviewed and released for fabrication, the Contractor shall send reverse reading negatives to the Consulting Engineers on one of the following papers or an approved equal:

Keuffel and Esser, No. 31-1139 "Photact"

Eugene Dietzgen and Co., No. Pg. 237-15 "Copy-All"

*8. MAILING OF DRAWINGS AND DATA

8.1 Aperture cards, film negatives, reproducible intermediates, etc., shall be transmitted to the Consulting Engineers by first class mail.

8.2 All "A" and "B" size documents shall be mailed flat (unfolded) with chip board protectors on top and bottom of the transmittal.

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8.3 All "C", "D", "E", "F" and larger documents shall be rolled (unfolded) inside of regular mailing tubes. The inside diameter of the rolled documents shall be no less than 1 1/2 inches.

8.4 Aperture cards shall be mailed flat and be protected with chip board protectors on the top and bottom of the transmittal package to prevent damage in transit. The transmittal letter accompanying the aperture cards shall be placed separately in the envelope or transmittal package and not stapled to the cards.

***9. GLOSSARY OF TERMS AND DEFINITIONS**

9.1 Aperture Card. An aperture card is a tabulating card with a rectangular cut-out specifically prepared for mounting of a frame of 35mm microfilm.

9.2 Background Diffuse Transmission Density. A measurement of the non-image portion of the print in terms of the perceptible visual images (shadows, etc.), present in its unit area.

9.3 Diazo. An organic, light-sensitive dye which, when processed by ammonia fumes or an alkaline solution, produces a non-reversing image.

9.4 First Generation. The earliest possible edition of, (in this context), an Aperture card.

9.5 Graphic Scale. A table relating the proper ratios between an object or project and its drawings and/or a drawing and its microfilm prints in the form of a graph.

9.6 Microfilm (35mm). A film bearing a photographic record of printed or other graphic matter on a reduced scale.

9.7 Negative. A reverse reading, black background copy with white lines on paper or film used for subsequent printing.

9.8 Nonperforated. Bearing no holes in the surface area.

9.9 Reduction Ratios. An expression of the relationship between the size of original documents and the size of their microfilm prints.

9.10 Reproducible Intermediate. A reproduction made from the original document which is sufficiently translucent to make further copies.

9.11 Resolution. The process of making the individual parts of an object, closely adjacent optical images or sources of light distinguishable from one another.

9.12 Right Reading. A photographic image which is readable from the front or image side of the material.

9.13 Silver Halide. A microfilm base description.

9.14 Translucent. Admitting the passage of light; partially transparent.

Revision Note: This Form 30-B, dated 6-15-73, supersedes Form 30-A.
An asterisk (*) indicates a revision or addition.

PROPOSAL FORM FOR
TESTING SERVICES FOR
STEAM GENERATOR SNUBBERS

NAME OF BIDDER: _____

1. SCHEDULE OF CHARGES

1.1 Contractor shall be paid by Purchaser for the actual cost of Services performed on the following basis (insert all prices and data as indicated):

1.1.1 Payroll labor:

<u>Position</u> <u>Description</u>	<u>Hourly</u> <u>Payroll</u> <u>Labor</u> <u>Charge</u>	<u>Overhead and</u> <u>Profit Rate</u>	<u>Hourly</u> <u>Billing</u> <u>Charge</u>
	\$	%	\$

NOTE: Hourly payroll labor charge shall include employee's base labor hourly rate, or base salary expressed in a proportionate hourly rate for the period of time engaged in carrying out specified testing activities, plus all other actual payroll costs of labor paid by Contractor including without limitation all such items as vacation, sick time or leave, holidays, payroll taxes and insurance.

NAME OF BIDDER: _____

SCHEDULE OF CHARGES, Cont.

INSERT ALL INFORMATION
WITHIN BRACKETS

- 1.1.2 Charges for use of Contractor's test equipment
(show below or attach a list of test equipment
to be utilized in carrying out test program
and charge to be made for use of each. If a
list is attached to proposal indicate where
such list may be located in proposal):

- 1.1.3 Net cost of all materials and supplies
consumed in conducting specified tests as
evidenced by paid invoices or material tickets
after all trade and cash discounts, plus a
percentage for Contractor's overhead and
profit. Such percentage for Contractor's
overhead and profit is..... [_____ %]
- 1.1.4 Transportation and cartage at actual cost..... [_____ %]
- 1.1.5 Subcontracted Work
- 1.1.5.1 Subcontracted Work at actual cost, plus a
percentage to cover Contractor's overhead and
profit. Such percentage for Contractor's
overhead and profit is..... [_____ %]

NAME OF BIDDER: _____

SCHEDULE OF CHARGES, Cont.

INSERT ALL INFORMATION
WITHIN BRACKETS

1.1.5.2 If no work is anticipated so state:

1.2 Contractor's estimate of the charges he
expects to invoice Purchaser for performing
the specified test program..... [\$_____]

2. ALTERNATE PRICES

2.1 Price for performing cyclic stiffness testing
at the 260 K load level..... [\$_____]

2.2 Price for stiffness testing of the snubber
utilizing a full cycle tension to compression
square wave test where load reversal is
achieved in the minimum time possible..... [\$_____]

3. AUDIT RIGHTS

Purchaser shall have the right, at all
reasonable times, to interview Contractor's
and subcontractors' personnel, review
Contractor's and subcontractors' accounting
and cost control systems and inspect books,
records, accounts and other documents, and
make copies thereof, as necessary to audit and
verify the completeness and accuracy of items
contained in invoices submitted by Contractor.

4. COMPLETENESS OF PRICING

4.1 Is Bidder's proposal complete with regard to
all charges considered part of the work or
services covered by the Bid Documents?..... [_____]

If not, please explain: _____

NAME OF BIDDER: _____

COMPLETENESS OF PRICING, Cont.

INSERT ALL INFORMATION
WITHIN BRACKETS

4.2 Does Bidder foresee any work or services not covered by the Specification but applicable to the intended work or services?..... [_____]

If yes, please explain: _____

4.3 Have any sales, use, or similar type taxes been included in Bidder's prices?..... [_____]

If yes, please detail the sales or use taxes included: _____

5. PROPOSAL VALIDITY
Is Bidder's proposal valid for 90 days from proposal due date?..... [_____]

If not, what is validity period? _____

6. BID DOCUMENTS

6.1 Has Bidder taken any exceptions to the Bid Documents?..... [_____]

If yes, on what page of Bidder's proposal are the exceptions listed? _____

6.2 Does Bidder agree to accept and abide by the "Terms and Conditions of this Purchase Order for Professional and Technical Services" included with the Bid Documents?..... [_____]

If no, please explain: _____

6.3 Will Bidder furnish Purchaser/Consulting Engineers with a Certificate of Insurance

NAME OF BIDDER: _____

BID DOCUMENTS, Cont.

INSERT ALL INFORMATION
WITHIN BRACKETS

evidencing compliance with the insurance
requirements set forth in the Bid Documents?..... [_____]

If no, please explain: _____

7. GENERAL FINANCIAL AND TECHNICAL QUALIFICATIONS
Has Bidder included with his proposal all of
the items listed in Item 9 of the Instructions
to Bidders?..... [_____]

If no, please explain: _____

8. PAYMENT TERMS
Does Bidder accept the payment terms set forth
in Item 10 of the Instructions to Bidders?..... [_____]

If no, please specify the payment terms being
proposed: _____

9. SCHEDULE OF SERVICES
Will Bidder agree to perform the services in
accordance with the schedule set forth in
Article 106 of Consultant Specification
No. 120?..... [_____]

If no, on what page of the proposal has Bidder
presented an alternate schedule of services?..... [_____]

10. SITE VISIT
Has Bidder made a visit to Owner's jobsite to
familiarize himself with site conditions?..... [_____]

NAME OF BIDDER: _____

INSERT ALL INFORMATION
WITHIN BRACKETS

11. QUALITY ASSURANCE

11.1 Does Bidder have a controlled copy of his
Quality Assurance Program assigned to the Head
of Purchaser's Quality Assurance Division?..... [_____]

11.2 Has Bidder submitted with his proposal a
preliminary list of the Quality Assur-
ance/Control procedures for Article 109.3 of
the Specification?..... [_____]

11.3 Will Bidder submit within 2 weeks after
notification of award, two (2) copies of the
detailed Quality Assurance/Control procedures
applicable to the work per Article 109.4 of
the Specification?..... [_____]

11.4 Does Bidder agree to provide the documents
required under Article 109.5 of the Speci-
fication?..... [_____]

11.5 Does Bidder understand and agree with the
provisions set forth in Articles 109.6 through
109.13 of the Specification?..... [_____]

12. CODES AND STANDARDS

Will Bidder comply with the Codes and
Standards applicable to the services as set
forth in Article 110 of the Specification?..... [_____]

13. CONFORMANCE WITH 10 CFR PART 21

Does Bidder agree to implement the provisions
of 10 CFR Part 21 insofar as they are appli-
cable to the services under Consultant Speci-
fication No. 120?..... [_____]

14. CONTRACTOR'S DATA

14.1 Does Bidder agree to furnish the data required
by Article 203.1 of this Specification?..... [_____]

NAME OF BIDDER: _____

CONTRACTOR'S DATA, Cont.

INSERT ALL INFORMATION
WITHIN BRACKETS

14.2 Has Bidder included with his proposal the data
required by Article 203.2 of the
Specification?..... [_____]

15. LOCATION OF TEST FACILITIES

15.1 Name and location of Contractor's test
facilities (insert data below):

15.2 Does Bidder intend to subcontract any of the
testing?..... [_____]

If yes, provide the name and location of the
subcontracted test facilities below: