

TECHNICAL SERVICES AGREEMENT 7220-C-79(Q)  
LABORATORY SOILS TESTING

FOR  
CONSUMERS POWER COMPANY  
MIDLAND UNITS 1 & 2

BECHTEL POWER CORPORATION  
P. O. BOX 1000  
ANN ARBOR, MICHIGAN 48106

S. 806282

TECHNICAL SERVICES

AGREEMENT

TSA-7220-C-79 (C)

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SCHEDULE A

SCHEDULE B

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# TECHNICAL SERVICES

## AGREEMENT

THIS AGREEMENT is entered into as of the 15th day of January, 1979 between Bechtel Power Corporation (Bechtel), and Goldberg-Zoino-Dunnicliff & Associates (Contractor).  
Inc.

Bechtel has entered into a contract with Consumers Power Company (Owner) under which Bechtel is responsible for procurement of certain services in connection with Midland Units 1 and 2 located at Midland, Michigan.

Bechtel desires Contractor to perform the technical services described in Schedule A attached hereto and made a part hereof and Contractor agrees so to do for the compensation and in accordance with the terms and conditions set forth herein. Such services shall be performed during the period set forth in said Schedule A. For satisfactory performance of the services described in Schedule A, Bechtel will pay to Contractor the compensation provided for in said Schedule.

### ARTICLE 1 ENTIRE AGREEMENT

This Agreement embodies the entire agreement between Bechtel and Contractor. The parties shall not be bound by or be liable for any statement, representation, promise, inducement, or understanding of any kind or nature not set forth herein. No changes, amendments, or modifications of any of the terms or conditions of the Agreement shall be valid unless reduced to writing and signed by both parties.

### ARTICLE 2 INDEPENDENT CONTRACTOR

Contractor represents that it is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly licensed, equipped, organized, and financed to perform such work. Contractor shall act as an independent contractor and not as the agent of Bechtel or Owner in performing the Agreement, maintaining complete control over its employees and all of its subcontractors. Nothing contained in this Agreement or any subcontract awarded by Contractor shall create any contractual relationship between any such subcontractor and either Bechtel or Owner. Contractor shall perform all work in accordance with its own methods subject to compliance with the Agreement.

### ARTICLE 3 AUTHORIZED REPRESENTATIVES

Before starting work, Contractor shall designate a competent, authorized representative acceptable to Bechtel to represent and act for Contractor and shall inform Bechtel in writing of the name and address of such representative together with a clear definition of the scope of his authority to represent and act for

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Contractor and shall specify any and all limitations of such authority. Contractor shall keep Bechtel informed of any subsequent changes in the foregoing. Such representative shall be present or be fully represented at the site of work at all time when work is actually in progress. During periods when work is suspended, arrangements for an authorized representative acceptable to Bechtel, shall be made for any emergency work which may be required. All notices, determinations, instructions, and other communications given to the authorized representative by Bechtel shall be binding upon Contractor.

At all times when work is being performed under the Agreement there will be available a competent representative of Bechtel. Bechtel will notify Contractor, in writing, of the name of such representative and of any subsequent changes.

#### ARTICLE 4 NOTICES

Any notices provided for hereunder shall be in writing and may be served either personally on the authorized representative of the receiving party at the site of work or by registered mail to the address of that party or as such address may have been changed by written notice.

Except as may be required by law, Contractor shall not make any announcement or release any information concerning this Agreement or the Project or any part thereof to any member of the public, press, or any official body, unless prior written consent is obtained from Bechtel.

#### ARTICLE 5 LAWS AND REGULATIONS - PERMITS

Contractor and its employees and representatives shall at all times comply with all applicable laws, ordinances, statutes, rules or regulations. Contractor shall comply with all personnel rules, plant rules and regulations, safety regulations and other instructions of Bechtel, and shall conduct its services in such manner as to avoid endangering the safety or unlawfully interfering with the convenience of the public.

Except as otherwise specified, Contractor shall procure and pay for all permits and inspections and shall furnish any bonds, security or deposits required to permit performance of its work hereunder.

#### ARTICLE 6 LABOR AND PERSONNEL

Contractor shall furnish competent and skilled personnel to perform the work under this Agreement. In the event work is to be performed on the jobsite, Contractor shall comply with and cooperate in enforcing Bechtel's jobsite procedures and regulations and shall, to the extent permissible under applicable law, comply with the provisions of Bechtel's collective bargaining agreements which validly and lawfully apply to work performed on the particular jobsite under this Agreement.

Contractor shall advise Bechtel promptly, in writing, of any labor dispute or anticipated labor dispute known to Contractor which may reasonably be expected to affect the performance of Contractor's services.

Contractor shall, if requested to do so by Bechtel, remove from the job any employee whom Bechtel determines to be incompetent, dishonest or uncooperative.

#### ARTICLE 7 DISCOVERY OF CONFLICTS, ERRORS, OMISSIONS OR DISCREPANCIES

In case of conflict or discrepancies, errors, or omissions among the various parts of this Agreement, the matter shall be submitted immediately by Contractor to Bechtel for clarification. Any work affected by such conflicts, discrepancies, errors, or omissions which is performed by Contractor prior to clarification by Bechtel shall be at Contractor's risk.

#### ARTICLE 8 AGREEMENT INTERPRETATION

All claims of Contractor, all questions concerning interpretation or clarification of this Agreement or the acceptable fulfillment of this Agreement on the part of Contractor and all questions as to compensation and to extension of time shall be submitted in writing to Bechtel for determination. All determinations, instructions, and clarifications of Bechtel shall be final, unless the Contractor files with Bechtel, within 14 calendar days after Bechtel notifies Contractor of any such determination, instruction, or clarification, a written protest, stating clearly and in detail the basis thereof. Bechtel will issue a decision upon each such protest, and its decision will be final. At all times, Contractor shall proceed with the work in accordance with the determinations, instructions, and clarifications of Bechtel. Contractor shall be solely responsible for requesting instructions or interpretations and shall be solely liable for any cost and expenses arising from its failure to do so. Contractor's failure to protest Bechtel's determinations, instructions, or clarifications within 14 days after receipt thereof shall constitute a waiver by Contractor of all its rights to further protest, judicial or otherwise.

#### ARTICLE 9 PATENT INDEMNITY

Owner shall have a permanent, assignable, nonexclusive royalty-free license to use any concept, product or process, patentable or otherwise, furnished or supplied to Owner or Bechtel by Contractor or its employees, or otherwise developed or first reduced to practice by Contractor or its employees in the performance of services under this Agreement. If requested by Owner or Bechtel, Contractor agrees to do all things necessary, at Owner's sole cost and expense, to obtain patents or copyrights on any processes, products, or writings developed or produced by Contractor and its employees in the performance of services under this Agreement, to the extent the same may be patented or copyrighted, and Contractor further agrees to execute or cause to

be executed such documents as may be necessary to implement and carry out the provisions of this paragraph. All materials prepared or developed by Contractor or its employees hereunder including documents, calculations, maps, sketches, notes, reports, data, models and samples, shall become the property of Owner when prepared, whether delivered to Owner or Bechtel or not, and shall, together with any materials furnished Contractor and its employees by Owner or Bechtel hereunder, be delivered to Owner upon request, and, in any event, upon termination of this Agreement.

Contractor will indemnify and save Owner and/or Bechtel harmless from and against any and all costs, royalties, damages, and/or expenses of any nature or kind whatsoever which may arise out of or result from or be reasonably incurred in contesting any claim that the methods, processes or acts employed by, or plans, drawings, specifications and other written data provided by Contractor or its employees in connection with the performance of services hereunder, infringes or contributes to the infringement of, any letters patent.

Contractor shall have the right, in order to avoid such claims or actions, to substitute at its expense noninfringing equipment, materials, or processes, or to modify such infringing equipment, materials and processes so they become noninfringing, or obtain the necessary licenses to use the infringing equipment, materials or processes, provided that such substituted and modified equipment, materials and process shall meet all the requirements and be subject to all the provisions of this Agreement.

#### ARTICLE 10 INDEMNITY

Contractor hereby indemnifies and shall defend and hold harmless Owner, Bechtel, and their employees or authorized representatives from and against any and all suits, actions, legal or administrative proceedings, claims, demand, damages, liabilities, interest, attorney's fees, costs and expenses of whatsoever kind or nature whether arising before or after completion of the work hereunder and in any matter directly caused, occasioned or contributed in whole or in part, or claimed to be caused, occasioned or contributed in whole or in part, by reason of act, omission, fault or negligence whether active or passive of Contractor or of anyone acting under its direction or control or on its behalf in connection with or incident to the performance of this Agreement.

Contractor's aforesaid indemnity and hold harmless obligations, or portions or applications thereof, shall apply to the fullest extent permitted by law but in no event shall they apply to liability caused by the sole negligence or wilful misconduct of the party indemnified or held harmless.

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## ARTICLE 11 SUBCONTRACTS AND ASSIGNMENTS

Any contract entered into by Contractor with any subcontractor or any person or organization (including those who are to furnish materials or equipment fabricated to a special design) for the performance of this Agreement or any portion thereof without prior written consent of Bechtel shall be void. Consent will not be given to any proposed contract, as mentioned above, which would relieve Contractor or its surety of their responsibilities under this Agreement. Contractor shall, upon request of Bechtel, furnish Bechtel with two copies of all such subcontracts, purchase orders or similar documents, provided that the prices thereon may be deleted unless the compensation to be paid thereunder is reimbursable under this Agreement.

The Contractor may assign monies due or to become due it under the Agreement, and such assignment will be recognized by Bechtel, provided that written notice thereof is given to Bechtel at least 10 calendar days before payment is due. Any assignment of monies shall be subject to all proper set-offs in favor of Bechtel and to all deductions provided for in the Agreement. All money withheld, whether assigned or not, shall be subject to being used by Bechtel for the completion of the work in the event Contractor should be in default therein, or for the payment of claims or liens.

## ARTICLE 12 NONDISCLOSURE

Contractor agrees that he will not divulge to third parties, without the written consent of Bechtel, any information which relates to the technical or business activities of Owner or Bechtel or their affiliates obtained from or through Owner or Bechtel in connection with the performance of this Agreement unless; (i) the information is known to Contractor prior to obtaining the same from Owner or Bechtel; (ii) the information is, at the time of disclosure by Contractor, then in the public domain; or (iii) the information is obtained by Contractor from a third party who did not receive same, directly or indirectly, from Owner or Bechtel and who has no obligation of secrecy with respect thereto. Contractor further agrees that he will not, without the prior written consent of Bechtel, disclose to any third party any information developed or obtained by Contractor in the performance of this Agreement except to the extent that such information falls within one of the categories described in (i), (ii) or (iii) above.

If so requested by Bechtel, Contractor further agrees to require its employees to execute a nondisclosure agreement prior to performing any services under this Agreement.

## ARTICLE 13 QUALITY SURVEILLANCE

All work performed by Contractor shall be subject to the quality surveillance and approval of Bechtel at all times, but such approval shall not relieve Contractor of responsibility for the proper performance of the work. Contractor shall provide

sufficient, safe and proper facilities at all times for such quality surveillance of the work, and shall furnish all information concerning the work, and grant Owner's and Bechtel's duly authorized representatives free access at all reasonable times to Contractor's facilities where the work under this Agreement is performed.

#### ARTICLE 14 TERMINATION

Bechtel may by written notice to Contractor terminate this Agreement in whole or in part at any time, either for Bechtel's convenience or for the default of Contractor. Upon such termination, all data, plans, specifications, reports, estimates, summaries, completed work and work in process, and such other information and materials as may have been accumulated by Contractor in performing this Agreement shall, in the manner and to the extent determined by Bechtel, become the property of and be delivered to Bechtel. If the termination is for the convenience of Bechtel, an equitable adjustment shall be made by agreement between Contractor and Bechtel in the compensation to be paid Contractor under this Agreement but no amount shall be allowed for anticipated profit on unperformed services.

#### ARTICLE 15 TAXES

Contractor shall pay all taxes, levies, duties and assessments of every nature due in connection with any work under the Agreement and shall make any and all payroll deductions required by law, and hereby indemnifies and holds harmless Owner and Bechtel from any liability on account of any and all such taxes, levies, duties, assessments and deductions.

#### ARTICLE 16 EXAMINATION OF CONTRACTOR'S RECORDS

Bechtel or its representatives shall have the right to examine any books, records and other documents of Contractor directly pertaining to costs when such costs are the basis of compensation to Contractor hereunder.

Bechtel will give Contractor reasonable notice of such intended examinations.

#### ARTICLE 17 INSURANCE

Contractor shall carry and maintain during the performance of services under this Agreement, Workmen's Compensation and Employer's Liability Insurance covering Contractor's employees in accordance with statutory requirements at location of work and such other insurance coverage normally carried by Contractor insuring against injury, loss or damage to persons and property caused by Contractor's activities. Any additional insurance as may be required shall be set forth under Special Provisions of Schedule A. Contractor will maintain in effect at all times during the performance of the work all specified insurance coverage with insurers and under forms of policy satisfactory to Bechtel.



Neither Owner nor Bechtel is maintaining any insurance on behalf of Contractor covering loss or damage to the work or to any other property of Contractor unless otherwise specifically set forth under the Special Provisions of Schedule A.

None of the requirements contained herein as to types, limits and approval of insurance coverage to be maintained by Contractor are intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Contractor under this Agreement.

Contractor shall deliver to Bechtel no later than ten (10) days after award of the Agreement but in any event prior to execution of the Agreement by Bechtel and prior to commencing work Certificates of Insurance, identified on their face as to Project Name and the Agreement Number to which applicable, as evidence that policies providing such coverage and limits of insurance are in full force and effect, which Certificates shall provide that not less than thirty (30) days advance notice will be given in writing to Bechtel prior to cancellation, termination, or alteration of said policies of insurance.

Contractor shall deliver the original Certificate of Insurance and one copy to the following address:

Bechtel Power Corporation  
P.O. Box 1000  
Ann Arbor, Michigan 48106  
Attn: Subcontracts Department  
TSA-7220-C-79(Q)

with one additional copy each to:

Bechtel Power Corporation  
P.O. Box 2167  
Midland, Michigan 48640  
Attn: Project Superintendent  
TSA-7220-C-79(Q)

and

Consumers Power Company  
Insurance Department  
212 W. Michigan Avenue  
Jackson, Michigan 49201

Any cancellations, terminations and alterations of such policies shall be mailed to:

Bechtel Power Corporation  
P.O. Box 2167  
Midland, Michigan 48640  
Attn: Field Subcontract Administrator  
TSA-7220-C-79(Q)

with a copy to:

Consumers Power Company  
Insurance Department  
212 W. Michigan Avenue  
Jackson, Michigan 49201

ARTICLE 18 WAIVER

None of the conditions of the Agreement shall be considered waived by Bechtel unless such waiver is given in writing by Bechtel. No such waiver shall be a waiver of any past or future default, breach or modification of any of the conditions of the Agreement unless expressly stipulated in such waiver.

ARTICLE 19 EQUAL OPPORTUNITY SUPPLEMENT

1. Contractor is aware of and is fully informed of Contractor's obligations under Executive Order 11246, and, where applicable, shall comply with the requirements of such Order and all orders, rules and regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 CFR Section 60-1.4, and the clause therein entitled "Equal Opportunity Clause" which, by this reference, is incorporated herein.

2. Contractor is aware of and is fully informed of Contractor's responsibilities under Executive Order No. 11701, "List of Job Openings for Veterans" and, where applicable, shall comply with the requirements of such Order, and all orders, rules and regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 CFR Section 30-250 et seq. and the clause therein entitled "Affirmative Action Obligations of Contractors and Subcontractors for Disabled Veterans and Veterans of the Vietnam Era" which, by this reference, is incorporated herein.

3. Contractor certifies that segregated facilities, including but not limited to washrooms, work areas, locker rooms, are not and will not be maintained or provided for Contractor's employees. Where applicable, Contractor shall obtain similar certification from any of its subcontractors, vendors or suppliers performing work under this Contract.

4. Contractor is aware of and is fully informed of Contractor's responsibilities under the Rehabilitation Act of 1973, and, where applicable, shall comply with the provisions of the Act, and the regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 CFR Section 60-741 and the clause entitled "Affirmative Action Obligations of Contractors and Subcontractors for Handicapped Workers" which, by this reference, is incorporated herein.

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ARTICLE 20 SURVIVAL

The obligations imposed on Contractor and Contractor's employees by and pursuant to the following listed Articles shall survive termination of this Agreement: Laws and Regulations-Permits, Patent Indemnity, Indemnity, Nondisclosure, Termination, and Examination of Contractor's Records.

Bechtel Power Corporation  
(Bechtel)

Goldberg-Zoino-Dunnicliff &  
(Contractor) Associates Inc.

777 East Eisenhower Parkway  
Ann Arbor, Michigan 48106  
(Address)

30 Tower Rd.  
Newton Upper Falls, Mass.  
(Address)

By: V. P. White, Subcontract Specialist  
(Type/Print Name & Title  
& Sign Name)

*William S. Zoino - Treas.*  
William S. Zoino  
(Type/Print Name & Title  
& Sign Name)

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SCHEDULE A  
TO  
TECHNICAL SERVICES AGREEMENT  
TSA-7220-C-79(Q)  
BETWEEN  
BECHTEL POWER CORPORATION  
AND  
GOLDBERG-ZOINO-DUNNICLIFF & ASSOCIATES INC.

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A. STATEMENT OF SERVICES

Contractor shall provide all technical and professional services required to perform soil laboratory testing at Midland Units 1 and 2, located at Midland, Michigan.

All testing shall be done in accordance with Technical Specification 7220-C-79(Q) (Schedule B).

B. COMPENSATION

Contractor shall be paid according to the below listed prices:

<u>Item</u>	<u>Estimated Quantity and Unit</u>	<u>Item Description</u>	<u>Unit Price</u> \$	<u>Total Price</u> \$
1.0		Visual classification (at the laboratory)		
1.1	200 Ea	Undisturbed clay samples	25.00	5000.00
1.2	25 Ea	Undisturbed sand samples	10.00	250.00
1.3	150 Ea	Split spoon samples	4.00	600.00
1.4	50 Ea	Bag sample handling	20.00	1000.00
2.0		Grain size analysis		
*2.1	150 Ea	Sieve only	20.00	3000.00
2.2	25 Ea	Hydrometer only	20.00	500.00
2.3	150 Ea	Sieve, and hydrometer	35.00	5250.00
3.0	350 Ea	Moisture content (in addition to those reported with other tests)	3.00	1050.00
4.0	125 Ea	Atterberg limits (liquid and plastic limits and plasticity index) to include natural moisture content	25.00	3125.00
5.0	100 Ea	Dry unit weight (in addition to those reported with other tests)	4.00	400.00
6.0	20 Ea	Shrinkage limit (ASTM D 427)	20.00	400.00
7.0	50 Ea	Specific gravity	20.00	1000.00
8.0		Unconfined compression test to include stress-strain curve, moisture content, and dry unit weight. Price includes sample trimming to any size.		

\* For samples greater than 50 lbs. add \$20.00 per test

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<u>Item</u>	<u>Estimated Quantity and Unit</u>	<u>Item Description</u>	<u>Unit Price</u>	<u>Total Price</u>
8.1	60 Ea	Undisturbed sample	\$ 50.00	\$ 3000.00
8.2	40 Ea	Remolded sample	60.00	2400.00
8.3	50 Ea	Compacted samples	75.00	3750.00
9.0		Triaxial compression test, unconsolidated undrained to include deviator stress versus strain curve, moisture content and dry unit weight. Price includes sample trimming to any size.		
9.1	25 Ea	Undisturbed sample	75.00	1875.00
9.2	5 Ea	Remolded sample	85.00	425.00
9.3	5 Ea	Compacted samples	100.00	500.00
**10.0		Consolidation test to include plots of deformation versus square root of time for each pressure, deformation versus logarithmic time for each pressure, strain versus logarithmic pressure and void ratio versus logarithmic pressure. Include permeability values for each pressure, water content, and density for each specimen. Price includes sample trimming to any size.		
10.1	30 Ea	Per undisturbed sample	295.00	8850.00
10.2	10 Ea	Remolded sample	305.00	3050.00
10.3	10 Ea	Compacted samples	320.00	3200.00
11.0		Moisture-density relation, using 10-pound hammer and 18-inch drop, 5 points to include a natural moisture content (ASTM D 1557)		
***11.1	60 Ea	ASTM D 1557 - Method D	140.00	8400.00
***11.2	60 Ea	Bechtel Modified Proctor	100.00	6000.00

\*\* Price quoted does not include specific gravity

\*\*\* Price quoted includes breakdown, separation, air drying and curing of samples greater than 50 lbs. For samples between 25 and 50 lbs. deduct \$20.00, if less than 25 lbs. Used, deduct \$40.00.

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<u>Item</u>	<u>Quantity and Unit</u>	<u>Item Description</u>	<u>Unit Price</u>	<u>Total Price</u>
			\$	\$
12.0	5 Ea	Relative density test to be performed in accordance with U.S. Army Corps of Engineers Manual, EM 1110-2-1906, 1965: Appendix XII A, Modified Providence Vibrated Density Test	90.00	450.00
13.0	300 Hrs	Special laboratory tests or other tests will be measured to the nearest hour as the number of hours of such tests or work satisfactorily performed	15.00- 45.00 per hr	4500.00- 13,500.00
14.00	As Required	Pickup of samples at subject project to be delivered to GZD Laboratories for testing	15.00- 40.00 per hr plus direct costs	_____
15.0	As Required	In-place density determinations to be performed at the subject project (D 1556-74)	25.00- 30.00 per hr plus direct costs	_____
16.0	As Required	Special materials or equipment needed as authorized by Bechtel (any set-up time required will be listed under Item 13.0)	Direct cost \$	_____
17.0	CU FT/Mo	Storage of samples at the laboratory	0.25	_____
18.0		QA/QC surcharge		3000.00
		<p>It is current practice of Goldberg, Zoino, Dunicliff and Associates to require a "Start-up" fee for all jobs including AQ/QC consideration. This fee is intended to cover the additional costs associated with QA/QC jobs particularly those involved with QA meetings and in-house or client initiated audits of Goldberg, Zoino, Dunicliff and Associates Inc. A lump sum fee of \$3000.00 is assigned. The charges will be billed directly at the costs indicated below, not to exceed \$3000.00.</p>		

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<u>Item</u>	<u>Estimated Quantity and Unit</u>	<u>Item Description</u>	<u>Unit Price</u>	<u>Total Price</u>
		Hourly rates of individuals who may become involved with quality assurance matters for the projects are as follows:	\$	\$

	<u>Name</u>	<u>Hourly Rate</u>		
	Principal in Charge	\$45.00		
	Staff Consultant	40.00		
	Q. A. Officer	35.00		
	Assistant Laboratory Director	30.00		
	Senior Laboratory Technician (I)	25.00		
	Laboratory Technician (II)	20.00		
	Laboratory Technician (III)	15.00		
19.0	As Required Meetings with engineers, telephone bill, meals, Zerox charges, etc.	15.00 to 45.00/hr plus direct cost		
20.0	6 Ea Cation Exchange Capacity Exchangeable Cation Determination	75.00		450.00
21.0	6 Ea X-ray diffraction tests	80.00		480.00

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Contractor shall be responsible for pickup and delivery of samples to Boston.

Contractor shall perform any special sample preparation and testing, as authorized by Bechtel.

Contractor is responsible for any special equipment and materials needed as authorized by Bechtel.

Contractor shall submit interim and final billings to:

Bechtel Power Corporation  
P.O. Box 1000  
Ann Arbor, Michigan 48106  
Attn: Accounts Payable  
TSA-7220-C-79(Q)

C. PERIOD OF PERFORMANCE

This Agreement shall be valid from September 8, 1978 to March 7, 1979.

D. SPECIAL PROVISIONS

1. Contractor Responsibilities

Except as otherwise stated, Contractor shall arrange and provide for mobilization/demobilization of its equipment and work forces, including but not limited to provisions for temporary facilities, customs clearance and customs claims, work permits and applicable licenses, and for immigration and emigration of all personnel.

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2. Source of Supply

Contractor shall purchase from Owner or its affiliates any services, materials, or supplies which are required for the performance of Contractor's services and which Owner or its affiliates supply at prices and of quality equivalent to that obtainable elsewhere by Contractor.

3. Documents and Data

All materials, prepared or developed by Contractor or its employees hereunder, including all data, plans, specifications, reports, estimates, calculations, summaries, models, and samples, shall become the property of Owner when prepared, whether delivered to Owner or Bechtel or not, and shall, together with any materials furnished to Contractor and its employees by Owner or Bechtel hereunder, be delivered to Owner or Bechtel upon request.

4. Bechtel Approval of Contractor Personnel

All Contractor personnel assigned to perform work under this Agreement shall have prior written approval of Bechtel. All Contractor personnel visiting the site of the work shall have prior written approval of Bechtel. No personnel assigned to perform services on a regular basis shall be taken off the services without the prior written approval of Bechtel.

5. Changes in Services

When changes in the services are required by Bechtel or requested by Contractor, Contractor shall promptly estimate their effect on the cost of the services, and on its schedule, and so notify Bechtel. No change shall be implemented by Contractor unless it is approved by Bechtel in writing and unless otherwise agreed to in writing. The provisions of this Agreement shall apply to all changes in the services. If Bechtel determines that any change materially affects the cost or time of performance of this Agreement as a whole, Contractor and Bechtel will mutually agree in writing to an equitable adjustment.

6. Insurance

Contractor shall at its sole expense maintain in effect at all times during the performance of its obligations hereunder insurance coverages with limits not less than

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those set forth below with insurers and under forms of policies satisfactory to Bechtel.

<u>Coverage</u>	<u>Minimum Amounts and Limits</u>
(1) Workmen's Compensation:	Statutory requirements at location of work
(2) Employer's Liability	To extent included under Workmen's Compensation Insurance Policy
(3) Comprehensive General Liability:	
(i) Bodily Injury	**\$500,000 each occurrence
(ii) Property Damage	\$100,000 each occurrence
(4) Comprehensive Automobile Liability (Owned, Hired and Non-owned)	
(i) Bodily Injury	**\$500,000 each occurrence
(ii) Property Damage	\$100,000 each occurrence

\*\*Separate limits per person are acceptable provided the per person and per occurrence limits for Bodily Injury are each not less than \$500,000.

The policy of insurance which affords Comprehensive General Liability shall contain a provision or endorsement stating that such insurance:

- a) Applies to the liability assumed by Contractor under this Agreement, subject to all of the terms and conditions of such insurance.
- b) Does not contain any exclusions as to loss or damage to property caused by explosion or resulting from collapse of buildings or structures or damage to property underground, commonly referred to by insurers as the "XCU" hazards.

Should any of the work:

- a) Be upon or contiguous to navigable bodies of water. Contractor shall also carry insurance covering its employees for benefits available under the Federal Longshoremen's and Harbor Workers' Act to the extent required by law or to the extent required under any admiralty and similar law of jurisdiction in which work is performed.

SL806300

- b) Involve watercraft owned or operated by Contractor. Liability arising out of such watercraft shall be insured by the Comprehensive General Liability insurance or by equivalent insurance such as Protection and Indemnity insurance with a combined single limit not less than \$2,000,000 each occurrence. Such insurance shall name Owner and Bechtel as additional insureds, state that it is primary insurance as regards the additional insureds and contain a cross-liability or severability of interest clause. If the hull is insured, such insurance shall provide for an insurer's waiver of subrogation rights in favor of Owner and Bechtel.
- c) Involve aircraft (fixed wing or helicopter) owned or operated by Contractor. Liability arising out of such aircraft shall be insured for a combined single limit not less than \$2,000,000 each occurrence and such limit shall apply to Bodily Injury (excluding passengers), Property Damage and Passenger Bodily Injury Liability. Such insurance shall name Owner and Bechtel as additional insureds, state that it is primary insurance as regards the additional insureds and contain a cross-liability or severability of interest clause. If the hull is insured, such insurance shall provide for an insurer's waiver of subrogation rights in favor of Owner and Bechtel.
- d) Involve the handling and/or rigging of property in excess of \$300,000. Contractor shall also carry "All Risk" Transit Insurance, or "All Risk" Motor Truck Cargo Insurance, or such similar form of insurance that will insure against physical loss or damage to the property being transported, moved or handled by Contractor pursuant to the terms of this Agreement. Such insurance shall provide a limit of not less than the replacement cost of the highest value single lift or highest value being moved, whichever is greater, and shall insure the interests of Owner, Bechtel and Contractor as their respective interests may appear and shall include an insurer's waiver of subrogation rights in favor of each.

7. Procedure for Application of 10CFR21

- 1) The requirements of 10CFR21 apply to nuclear safety-related goods and services under this agreement.
- 2) When applicable, supplier is required by the regulations to specify in its lower tier purchase orders or subcontracts that the requirements of 10CFR21 apply.
- 3) With respect to an evaluated "defect" or "failure to comply" with NRC regulatory requirements, supplier has an obligation under the regulations to report directly

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to the NRC unless supplier is assured that the necessary report to the NRC is provided by others. IF SUPPLIER MAKES A REPORT (ORAL OR WRITTEN) TO THE NRC IN CONNECTION WITH THIS AGREEMENT, BECHTEL SHALL BE NOTIFIED IMMEDIATELY BY TWX (810) 223-6032, TELEX 23-01-01, OR TELEPHONE (313) 994-7200, WITH THE REPORT INFORMATION. THIS NOTIFICATION WILL BE FOLLOWED BY A COPY OF THE WRITTEN REPORT WHICH SHALL BE MAILED TO:

Bechtel Power Corporation  
Project Engineer - Job 7220  
Post Office Box 1000  
Ann Arbor, Michigan 48106

- 4) If information is received which the supplier is unable to evaluate, supplier should immediately report this information to:

Bechtel Associates Professional Corporation  
Project Engineer - Job 7220  
Post Office Box 1000  
Ann Arbor, Michigan 48106

Any such report should contain complete details as specified in Part 21.21(b)(3) describing both the possible "defect" or "failure to comply", and the extent of supplier's examination which led to the conclusion that the item may be reportable under the provisions of 10CFR21.

**SLS06302**

SCHEDULE B  
TO  
TECHNICAL SERVICE AGREEMENT  
TSA-7220-C-79(Q)

11/78

**SL806303**


Bechtel Associates Professional Corporation  
Ann Arbor, Michigan

**AGREEMENT**  
**FOR**  
**TECHNICAL SERVICES**  
**FOR**  
**SOILS LABORATORY TESTING**  
**TSA-7220-C-79 (Q)**  
**FOR**  
**CONSUMERS POWER COMPANY**  
**MIDLAND PLANT UNITS 1 AND 2**  
**MIDLAND, MICHIGAN**

SL806304


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AA-G-100373

△					
△	11-14-76	Revised as Noted on Facing Sheet			
△	9-8-78	Issued for Purchase			
No.	DATE	REVISIONS	BY	CHK	APPR
ORIGIN			CONSUMERS POWER COMPANY MIDLAND PLANT UNITS 1 & 2 MIDLAND, MICHIGAN		
BAPC			JOB No. 7220 SPEC/DES GUIDE No.      REV 7220 C-79 (Q)              1		

SHEET.	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.
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APP. A	1												
APP. B	0												
APP. C	0												
APP D	7												

NO.	DATE	REVISIONS	BY	CHK'D	APP'D	NO.	DATE	REVISIONS	BY	CHK'D	APP'D
1	11-14-75	Revised shts 1,ii,iii 1-6, and Appendix A; Added sht 7 and App D	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>						
0	9-8-78	Issued for Purchase	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>						

	<b>FACING SHEET</b> CONSUMERS POWER COMPANY MIDLAND PLANT UNITS 1 & 2 SOIL LABORATORY TESTING	JOB No. 7220  Specification 7220 C-79 (Q) <b>S806305</b> <i>ii</i>	REV. 1
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AA-G-110273



TECHNICAL SPECIFICATION  
FOR  
SOILS LABORATORY TESTING

CONTENTS

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APPENDIXES

A	Quality Assurance Program Requirements for Contractors
B	Engineering Document Requirements, Form G-321-D
C	Engineering Document Category Definitions, Form G-321-D
D	General Requirements for Supplier Quality Assurance Programs, Specification 7220-G-23, Rev 7

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ASTM	D 2487-69(1975)	Classification of Soils for Engineering Purposes
ASTM	D 2488-69(1975)	Description of Soils (Visual-Manual Procedure)
ASTM	D 2850-70	Unconsolidated, Undrained Strength of Cohesive Soils in Triaxial Compression
ASTM	D 2974-71	Moisture, Ash and Organic Matter of Peat Material

B. ADDITIONAL REFERENCES

- 1) Carroll, D., "Clay Materials: A Guide to Their X-ray Identification," Special Paper 126, The Geological Society of America (1970)
- 2) Mortland, M.M., and Mellor, J.L., "Conductometric Titration of Soils for Cation-Exchange Capacity," Soil Science Society of America Proceedings, Vol 19 (1954)
- 3) Seed, H.B., and Duncan, J.M., "Correction for Strength Tests Data," Journal of Soil Mechanics for Foundation Division, September 1967
- 4) "Standard Methods for Examination of Water and Wastewater," 14th ed, APHA-AWWA-WPCF (1975)
- 5) "Test Procedure for Hydrometer Analysis of Soils," January 1969, Harvard University
- 6) "Test Procedure for Sieve Analysis and Combined Mechanical Analysis of Soils," January 1969, Harvard University
- 7) The U.S. Army Corps of Engineers Manual EM 1110-2-1906, Appendix III

5. LABORATORY TESTING

A. LABORATORY TESTS

- 1) Unless otherwise directed or required by Bechtel, laboratory tests shall be assigned in writing by Bechtel.
- 2) Unless otherwise required or approved by Bechtel, laboratory test procedures shall be in accordance with the standards listed in Article 4. Procedures which are not standard shall be submitted in writing to Bechtel in accordance with Form G-321-D (see Appendixes B and C) for approval.

## B. TESTING EQUIPMENT

Equipment used in testing shall be within original manufacturer's specification limits and be traceable to the National Bureau of Standards. Equipment calibration shall be at the expense of the Contractor. Such equipment includes, but is not limited to, dial gages, proving rings, load cells, and electronic and electrical read-out equipment.

## C. INDEX PROPERTIES TESTS

### 1) Classification

- a) Unless otherwise directed by Bechtel, samples assigned for engineering properties tests shall be classified in accordance with ASTM D 2487.
- b) Other samples will be designated by Bechtel for visual classification in the laboratory according to ASTM D 2488. When applicable, tube samples shall be carefully extruded and visually classified. Also, representative moisture content tests, vane shear tests, and pocket penetrometer tests shall be conducted when applicable.
- c) A tabulation containing the visual classification of samples along with sample number, boring number, and any pertinent observations shall be prepared and kept up-to-date for use by Bechtel in preparing test assignments.
- d) Undisturbed samples of sand shall be extruded just before testing.

### 2) Mechanical Analysis

Unless otherwise directed by Bechtel, samples assigned for mechanical analysis shall be performed in accordance with "Test Procedure for Sieve Analysis and Combined Mechanical Analysis of Soils" and "Test Procedure for Hydrometer Analysis of Soils," both dated January 1969. In some cases, only the sieve analysis or only the hydrometer analysis will be required.

### 3) Atterberg Limits

Unless otherwise directed by Bechtel, determination of Atterberg limits shall be made on representative portions of all samples selected for engineering properties tests. Additional samples may also be selected for Atterberg limits testing as required by Bechtel. Determinations shall conform to The U.S. Army Corps of Engineers Manual EM 1110-2-1906, Appendix III with the following exceptions:

- a) The cup is not washed and dried between liquid limit determinations.
- b) Three-point determinations of liquid limit may be used.

The natural water content shall be reported for each sample tested for Atterberg limits.

4) Natural Moisture Content and Unit Weight

Moisture content and dry unit weight shall be determined for undisturbed soil samples as required by Bechtel. Moisture content determinations shall be made in accordance with ASTM D 2216. The volume of specimens used to determine the natural unit weight shall be obtained either by direct measurement or by the displacement method. The dry unit weight shall be calculated from the natural unit weight and natural water content.

5) Specific Gravity

Unless otherwise directed by Bechtel, specific gravity tests shall be determined in accordance with ASTM D 854. Specific gravity tests shall be made for all samples on which consolidation tests are performed unless otherwise directed by Bechtel.

6) Compaction

Compaction tests on selected samples shall be made in accordance with ASTM D 1557 unless otherwise specified by Bechtel. Compaction tests will also be made using a modification involving 4 layers and 25 hammer blows per layer.

D. ENGINEERING PROPERTIES TESTS

1) Unconfined Compression Test ( $Q_u$ )

Unconfined compression tests shall be made on selected undisturbed or remolded samples of cohesive soil in accordance with ASTM D 2166 and as required by Bechtel. Stress-strain curves, Atterberg limits, and natural moisture content shall be reported for each specimen tested. Sufficient load increments shall be used to allow for an accurate determination of the shape of the initial part of the stress-strain curve.

2) Unconsolidated-Undrained Triaxial Test (UU)

Unconsolidated-undrained triaxial compression tests shall be made in accordance with ASTM D 2850 with the following modifications, *when applicable.* WS

- a) Axial deformation of the sample is measured during application of the confining pressure.
- b) Applied pressures are corrected for the affects of a membrane in accordance with the procedure outlined by Seed and Duncan (see Section 4.B.3).

Test specimens shall be sheared at the chamber pressure equal to the effective overburden pressure. Atterberg limits and a plot of deviation stress versus axial strain shall be reported for each specimen.

3) Consolidation Tests

a) Consolidation tests shall be performed on undisturbed samples in accordance with ASTM D 2435 and as noted below. The sample shall be loaded and unloaded using the following pressures, unless otherwise required by Bechtel, each of which should be maintained for 24 hours or until primary consolidation is completed, as directed by Bechtel.

Loading: 0.5, 1, 2, 4, 8, 16, and 32 kips per square foot

Unloading: 8, 2, 0.5, and near zero (0.05) kips per square foot

The time intervals for deformation readings shall be 0:05 s, 15 s, 30 s, 1 min, 1.5 min, 2 min, 3 min, 4 min, 6 min, 9 min, 15 min, 20 min, and at periodic intervals thereafter.

The Contractor shall prepare and furnish plots of logarithmic pressure versus void ratio curves, all time-consolidation and time-rebound curves, together with values of  $C_c$ ,  $C_v$ ,  $T_{90}$ ,  $T_{50}$ , and permeability for each major pressure increment.

E. ORGANIC CONTENT DETERMINATION

The organic content of soil samples selected by Bechtel shall be tested in accordance with ASTM D 2974.

F. CATION EXCHANGE CAPACITY, X-RAY DIFFRACTION, AND EXCHANGEABLE CATION DETERMINATIONS

- 1) Cation exchange capacity test and calcium carbonate determination shall be made by the method described by M.M. Mortland and J.L. Mellor (see Section 4.B.2, pp 363-364 of reference).
- 2) X-ray diffraction analysis shall be performed in accordance with the procedure described by D. Carroll (see Section 4.B.1).
- 3) Exchangeable cation determination shall be made in accordance with the procedure described in "Standard Methods for Examination of Water and Wastewater" (see Section 4.B.4).

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6. SHIPPING, HANDLING, PACKAGING, AND STORING SAMPLES

Samples shall be shipped by the Contractor's laboratories at intervals and by means described within Contractor's hand delivery shipping preparation procedures submitted in accordance with Form G-321-D (see Appendixes B and C). Undisturbed samples shall be handled in such a manner as to minimize shock, vibration, and disturbance. Boxes containing shock absorbent materials and designed to prevent disturbance of the samples prepared in the laboratory shall be used to transport all samples. Sample containers shall be kept sealed and not subjected to temperatures less than 40F nor greater than 80F.

7. REPORTS

A. FINAL TEST RESULTS

- 1) Within 15 calendar days after the laboratory test assignment, two copies of the preliminary test results completed to date shall be submitted to Bechtel in accordance with Form G-321-D (see Appendixes B and C).
- 2) Final test results shall be reported within 30 days of the assignment or as directed by Bechtel. These reports shall be submitted to Bechtel in accordance with Form G-321-D (see Appendixes B and C).
- 3) Each report shall include summary tables of the tests performed, along with the test results. A detailed description of the test procedures used shall be submitted. No interpretation of these test results is required.

8. QUALITY ASSURANCE REQUIREMENTS

A. QUALITY ASSURANCE PROGRAM

The Contractor shall, in accordance with Appendix A, establish and maintain a quality assurance program during performance which shall ensure that the work will conform to the applicable portions of this specification. The Contractor's quality assurance program shall apply to all the laboratory testing work, including handling and storage of all samples, as directed by Bechtel.

B. ACCESS FOR AUDITS

Bechtel shall have free access to all phases of the work and shall have the authority to stop work if the specification requirements, including those of documentation, have not been fulfilled.

Audits will be made by the Contractor in accordance with their approved QA manual to determine whether such items conform to the applicable drawings and specification.

9. MEASUREMENT FOR PAYMENT

A. LABORATORY TESTS

Laboratory tests of the various kinds listed in Schedule A to this technical services agreement will be measured as the number of such tests satisfactorily performed.

B. SPECIAL LABORATORY TESTS

Special laboratory tests or work will be measured to the nearest hour as the number of hours of such tests or work satisfactorily performed. Such work shall be approved by Bechtel in advance.



## Appendix A

QUALITY ASSURANCE PROGRAM REQUIREMENTS  
FOR LABORATORY TESTINGCONTENTS

1.	SCOPE	1
2.	GENERAL PROGRAM REQUIREMENTS	1
3.	ADDITIONAL REQUIREMENTS	1
4.	QUALITY SURVEILLANCE	3

APPENDIXES

1	Supplier QA Program Requirements Data Sheet, rev. 1.
2	Supplier Deviation Disposition Request, rev. 0

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## Appendix A

1. SCOPE

- A. This specification establishes the quality assurance program requirements for Contractors of services as specified in the procurement documents.
- B. This specification does not delete or revise (but is in addition to) those requirements defined by the procurement documents. If the Contractor believes that an inconsistency exists between this specification and the procurement documents and referenced codes and standards, he shall immediately notify Bechtel for resolution.

2. GENERAL PROGRAM REQUIREMENTS

- A. The project quality assurance program is governed by NRC Regulation 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants. To satisfy this requirement, Bechtel's Contractors shall maintain a quality assurance program that conforms to the applicable provisions of ANSI N45.2-1971, Quality Assurance Program Requirements for Nuclear Power Plants.
- B. The Contractor shall establish and implement a quality assurance program that conforms to the requirements specified on the Supplier Quality Assurance Program Requirements Data Sheet, and to the other applicable codes and standards as cited in the technical specification. These quality assurance requirements shall apply to all aspects of the work necessary for carrying out this contract.

3. ADDITIONAL REQUIREMENTS

- A. Prior to starting any activities relating to the applicable contract or other written agreement, the Contractor shall submit a controlled copy of his quality assurance program document(s) which defines the program he will follow to meet this specification. With the document(s), the Contractor shall submit a facsimile of the data sheet, on which the "Supplier Document & Paragraph References" column shall be completed by listing document identity numbers and applicable paragraphs which satisfy the criteria imposed (as delineated in the left-hand column of the data sheet, App. 1).

Bechtel may accept, or accept with comments, the Contractor's quality assurance program document(s). The Contractor may proceed only with those activities related to the QA program elements that are acceptable, and authorization to proceed with additional activities will be granted only after acceptable changes to their QA documents have been agreed to and implemented by the Contractor. All changes must be submitted to Bechtel for final acceptance.

If the Contractor's function is limited to placing the order with another company, the Contractor shall be responsible for providing a controlled copy of that company's quality

assurance program manual to Bechtel. The manual must meet the requirements outlined in this specification. If the Contractor will store, repackage, or in any way handle the components/material before shipment to Bechtel, he shall submit his program in addition to the actual Contractor's program. Both Contractor's quality assurance program documents must meet the requirements as outlined in this specification that pertain to the work he performs.

- B. Acceptance of Contractor's program does not relieve the Contractor of the obligation to comply with the requirements of the procurement documents, including this specification. If the quality program is subsequently found to be ineffective or inadequate in providing for acceptable control, Bechtel reserves the right to require necessary revisions. All proposed program modifications shall be submitted to Bechtel for review and acceptance.
- C. The Contractor shall identify and document all deviations from the requirements of the Bechtel procurement document(s) and/or Bechtel-accepted technical documents. Deviations, along with the Contractor's suggested corrective action, shall be transmitted to Bechtel on the SDDR (App. 2, Supplier Deviation Disposition Request) form for review and disposition. Any deviation is considered unacceptable until approved by Bechtel in writing. Detailed instructions are provided on the back of the SDDR form, a copy of which is attached to this specification.

The Contractor shall submit deviation requests, including supporting technically valid information that is sufficient for evaluation, to Bechtel within 5 working days after detection of the nonconforming condition. If this time limit cannot be met, notification by telephone, TWX, or other appropriate means is acceptable, at which time a revised submittal date shall be established. SDDRs prepared by lower-tier organizations shall be submitted through the Contractor to Bechtel. Bechtel will complete action on the SDDR and return a copy with applicable attachments to the Supplier. Where indicated, the Contractor or Bechtel shall revise documents to reflect the changed condition.

A copy of the completed SDDR (including attachments) shall be included by the Contractor in the quality verification data package for the item(s) to which it applies. The SDDR is considered complete when all entries are made including Bechtel project engineer approval and the appropriate verification signature by the Contractor.

- D. Engineering and quality verification documents shall be submitted to Bechtel in accordance with the provisions of Forms G-321-D (appendix to the technical specification). All quality related records, procedures, and qualifications shall be available for examination by Bechtel, Bechtel's authorized agent, and/or Owner. No quality related records shall be destroyed or otherwise disposed of without written permission of Bechtel until all items required by the

procurement documents have been delivered and final payment has been received. The Contractor may be required to retain, for a limited time, certain records that are not transmitted to Bechtel. Record identification and retention time for these records, if required, will be covered by the procurement documents.

4. QUALITY SURVEILLANCE

- A. All aspects of work necessary for carrying out this contract, whether performed by the Contractor or his subcontractors, are subject to surveillance and audit by Bechtel or Bechtel's authorized agents and/or Owner. This surveillance or audit shall in no way relieve the Contractor of any contractual responsibilities.

Note: The term surveillance, here, may include inspection, survey, and/or audit.

- B. Bechtel or Bechtel's designated representative, shall be given free access to the Contractor and his subcontractor's facilities for purposes of surveillance and audit.





# Supplier Deviation Disposition Request

FOR SUPPLIER USE		NOTE: The reverse side of this form contains the instructions for its preparation and use. Items marked with an asterisk (*) are for Bechtel entries only.			FOR BECHTEL USE	
Supplier SDDR No.	Date Submitted			* Bechtel SDDR No.	* Date Received	
Supplier shall complete all blocks 1 through 18 with black ink or typewriter. Use NA for Not Applicable.						
1. Supplier Name: _____ Address: _____ City & State: _____ Zip: _____						
2. Supplier's Order No.	3. Supplier's Part No.	4. Supplier's Part Name	5. Date Deviation Determined	6. Previous SDDR No.		
7. Bechtel P O. No.	8. Bechtel Part No.	9. Bechtel Part Name	10. Bechtel Inspector Notified	11. Bechtel Eng. Notified		
12. Qty or Serial No.	13. Deviation Description (Attach extra sheets, photographs, sketches, etc. as necessary)					
14. Supplier's Disposition Classification: <input type="checkbox"/> Use As Is <input type="checkbox"/> Repair <input type="checkbox"/> Modify Bechtel Requirement						
15. Proposed Disposition and Technical Justification: (Attach extra sheets, sketches, etc. as necessary)						
16. Associated Supplier Document Change(s):						
17. Cost Effects:						
18. Suppliers Authorized Representative						
Signature: _____		Name: _____			Title: _____	
					Date: _____	
* 19. Bechtel Engr. Action:		Proposed Disposition		Engr. Follow-up:		
<input type="checkbox"/> Accepted		<input type="checkbox"/> Rejected		<input type="checkbox"/> Draw Change <input type="checkbox"/> Other		
				<input type="checkbox"/> Spec/Req. Change		
				<input type="checkbox"/> Other Suppliers Affected		
* 20. Bechtel Disposition Statement including Justification (Attach extra sheets, sketches, etc. as necessary)						
* 21. Bechtel Acceptance		Date	Verification Signatures		Date	
GS _____		_____	<div style="font-size: 2em; font-weight: bold;">SL806319</div>		Date	
PE _____		_____			22. Supplier _____	
POB _____		_____			* 23. Bechtel Supplier Quality Representative _____	

(APPENDIX 2)

INSTRUCTIONS FOR COMPLETING SDDR FORM

(Use Black Ink or Typewriter)

This form is used by a supplier to:

- a) Notify Bechtel of deviations from approved technical requirements and document the supplier's proposed disposition, and with their technical justification
- b) Record Bechtel's disposition of the SDDR.

A deviation is any departure from the technical requirements of the procuring documents which the supplier proposes to incorporate in the completed item or service provided. Deviation disposition can be classified as Repair, Use-As-Is, or Modify Requirement.

Repair is defined as the process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original requirement. Repair includes alterations to the properties of the material through heat-treating, welding, metal deposition, chemical processing, etc. This form is not to be used for cases where Bechtel has previously provided authorization to proceed using an accepted repair procedure covering a specific type of repair; however, records must be maintained for each specific repair.

Bechtel's engineering action and disposition statement does not relieve the Supplier from responsibility for the accuracy, adequacy, or suitability of the item or service being provided as defined in the procuring documents, nor does it constitute waiver of the right to renegotiate the terms of the procuring documents.

NOTE: Items marked by an asterisk (\*) are for Bechtel use only.

Block No.	Entry Information
1.	Supplier's name and address. List lower-tier Supplier's name and location (City and State) if applicable.
2.	Enter the Supplier's order number if one has been assigned.
3.	Enter Supplier's Part No. as applicable from the drawing, catalog, internal specification, etc. If the Deviation Request applies to all parts and additional space is needed, a list of parts to which the request applies may be attached.
4.	Enter Supplier's Part Name.
5.	Enter the date and the method (Spec. review, NDE, dielectric test, etc.) used to disclose the deviation.
6.	List any previous SDDR's and their dates that have been submitted for deviations requested on this Purchase Order.
7.	Enter the Bechtel Purchase Order Number.
8.	Enter the Bechtel Requisition Item, part, tag or code number as it appears in the requisition. If additional space is needed, a separate sheet may be attached.
9.	Enter the Bechtel Part Name if one has been assigned.
10.	Enter the date and the method (TWX, letter, etc.) used to notify the Bechtel Supplier Quality Representative.
11.	Enter the date and the method (TWX, letter, etc.) used to notify Bechtel Engineering.
12.	As applicable, enter quantities or serial numbers of the items to which the deviation applies. If not serialized, record lot, batch, heat or other applicable identifying information.
13.	Describe the deviating characteristics and define the extent of the out-of-specification condition for each identified piece affected. Identify the location of the deviating characteristic by print coordinates or specific location, as applicable. Attach extra sheets, photographs, sketches, etc., as necessary.
14.	Identify disposition classification.
15.	Describe the proposed disposition and provide technical justification for Bechtel's evaluation. If the deviation is correctable by repair, submit a detailed repair procedure or reference the procedure previously accepted (Level 1) by Bechtel for use in similar situations. Provide Bechtel control number, supplier control number and procedure title.
16.	Identify the nature of changes that may result on associated supplier documents (drawings, specs., procedures, installation instructions, etc.).
17.	Enter the cost impact of the subject deviation.
18.	Enter the name (typed or printed), signature and title of the supplier representative authorizing the disposition request and date signed.
*19.	Enter an X in the applicable boxes.
*20.	Provide appropriate justification for the Bechtel action(s) indicated in Block 19. When changes to drawings, specifications, requisitions, or other Bechtel documents are involved, each document should be identified and the associated change briefly described. If other suppliers are affected, indicate who they are and the document that initiated resolution of that involvement. "Other" follow-up action (e.g., the need for additional Bechtel calculations, additional drawings or sketches, inspection by a Project Engineering representative, etc.) should also be identified here.
*21.	GS - Signature of the responsible Discipline Group Supervisor accepting the Engineering action and the date signed. PE - Signature of the Bechtel Project Engineer and the date signed.
22.	Signature of the supplier's inspector or other representative authorized to verify that the accepted disposition was correctly accomplished.
*23.	Signature of the Bechtel Supplier Quality Representative or other representative verifying that the accepted disposition was correctly accomplished.

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NOTE: A copy of the completed SDDR form shall be included by the supplier in the QC data package for each item to which it applies.

READ INSTRUCTIONS ON BACK BEFORE FILLING IN FORM

These requirements for Engineering and Quality Verification Documents are to be fulfilled in accordance with the schedule set forth below. Supplier's failure to comply with these requirements may result in order cancellation or withholding of payment until compliance is established.

1. Document Category Number	2. Specification Paragraph Reference	3. Kind of Copies	ENGINEERING DOCUMENTS				QUALITY VERIFICATION DOCUMENTS					12. Remarks	
			4. Quantity Required		5. Prior Approval Required		6. Quantity Required for Release	7. Distribution Code	8. Supplier Conform Check	9. Inspection Release	10. Engineering Review		11. Field QCE Check In
			Initial	Final	Yes	No							
		Reproducible											
		Microfilm											
26.0E	5.A.2	Reproducible	2	2									
		Microfilm			X		N/A						
3.0E	7.A.1	Reproducible	2										
		Microfilm			X		N/A						
29.0E	7.A.2	Reproducible	2	2									
		Microfilm			X		N/A						
6.0E	8.0	Reproducible	1	1									
		Microfilm			X		N/A						
28.0	6.0	Reproducible	2	2									
		Microfilm			X		N/A						
		Reproducible											
		Microfilm											
		Reproducible											
		Microfilm											
		Reproducible											
		Microfilm											
		Reproducible											
		Microfilm											

13. Supplier's Order No.	14. Supplier's Part No.	15. Supplier's Part Name	16. Quantity
17. Buyer's Req. Item No.	18. Buyer's Line/Equip., Tag or Code No.	19. Buyer's Part Name	20. Transmittal


21. Supplier's Conformance Statement: We certify that the listed work and required documents meet the requirements of the procuring documents. Supplier: \_\_\_\_\_ Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

22. Inspection Release Statement: Work was released based on satisfactory completion of inspection and review of documentation. Authorized Deviations:  YES, Noted under 12, Remarks  NONE. District Inspector: \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

23. Engineering Review Statement: The Quality Verification Documents submitted to Engineering with this form have been reviewed for conformance to the specified requirements and are acceptable. Engineer: \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

24. QCE Check-in Statement: This form and the Quality Verification Documents referenced herein have been received and their relationship to the hardware items verified. CONTROL NO. \_\_\_\_\_ FILE NO. \_\_\_\_\_ QCE: \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

After QCE Check-in Distribute to: Procurement Manager, Field Office Manager, Material Supervisor

 8-321-0 AA REV 2 5/74	MIDLAND PLANTS - UNITS 1 & 2 CONSUMERS POWER COMPANY	JOB NO. 7220 SUB806321 P.O./SPEC. NUMBER C-79 (Q)
	ENGINEERING AND QUALITY VERIFICATION DOCUMENT REQUIREMENTS	



INSTRUCTIONS FOR PREPARING G-321-0

- A. PURPOSE:** This is a multi-purpose form to be used by Buyer/Contractor to specifically identify documents required of the supplier to satisfy specification requirements, and is to be used by the supplier as a cover sheet for Quality Verification Documents when submitting them to the Buyer/Contractor.
- B. GENERAL INFORMATION:** Engineering (E) and Quality Verification (V) Documents are identified by Category number and title in section H, below.
- C. USE:** A copy of the front of this form shall be completed by the supplier and provided to the Buyer's/Contractor's Inspector along with the applicable Quality Verification Documents for his review prior to release of the unit(s).
- D. DISTRIBUTION:** All Engineering (E) Documents are to be sent to the Project Engineer at the address shown below (Code a).

When inspection release is completed, the Verification (V) Documents are to be distributed to the respective addresses shown below in accordance with the distribution code specified in Column 7. A copy of the completed Form G-321-0 must accompany each "package" of Verification Documents to its destination. Also, a copy of completed Form G-321-0 is to be included with the hardware shipment and a copy sent separately to the Project Field Quality Control Engineer at the jobsite.

Code a.

Bechtel Power Corporation P.O. Box 1000 Ann Arbor, Michigan 48106

- E. DEFINITIONS OF TERMS:** (See also Document Category Definitions G-321-SUP A)
- Supplier** - This is a generic term and is synonymous with the terms seller, vendor, contractor, sub-contractor, sub-supplier, etc.  
**Reproducible** - can be legibly duplicated by either microreproduction or electrostatic dry process.  
**Microfilm** - 35mm microfilm conforming to the requirements of the procurement documents. When not specified, supplier shall submit his standard for approval.  
**Prior Approval Required** - Bechtel approval required prior to use of documents in the design, fabrication, installation, or other work process.  
**Initial** - the first submittal of a document in accordance with the schedule mutually agreed to by the Buyer and the supplier.  
**Final** - the submittal that reflects the resolution of review comments, or the complete submittal required. Both are to be accepted prior to rendering final payment. Drawings submittal is final must be full size reproducible made from original document. Adjacent to the title block, each drawing must be certified and show Buyer's job title, job number, purchase order number, line, equipment, tag or code number, and the manufacturer's serial number(s).  
**Certified** - the dated Signature and Title of an authorized and responsible employee of the supplier.  
**N/A** - Not applicable - can be used for individual entries, columns and lines by Project engineering, and for individual entries by the supplier.

**F. BECHTEL ENTRY INSTRUCTIONS**

Entry No.	Information Required
1	Enter Document Category Number.
2	Enter Specification paragraph reference.
3	Make no entry. Refer to kind of copies required.
4	Enter the number of each kind of copy for "Initial" or "Final" submittals of Engineering Documents.
5	Enter approval requirement by X under "Yes" or "No" column.
6	Enter the number of each kind of copy of Quality Verification Documents required for release of the item or installation.
7	Enter Quality Verification Document distribution code letter in accordance with paragraph D above.
8	Make no entry. For supplier use only.
9	Bechtel Inspector to complete upon release. Sign on line 22.
10	Enter Bechtel Engineering review confirmation. Sign on line 23.
11	Bechtel QCE to complete check-in. Sign on line 24.
12	Enter remarks as appropriate.

**G. SUPPLIER ENTRY INSTRUCTIONS**

Entry No.	Information Required
8	Enter number of pages of each type of Quality Verification Documents being submitted for the unit(s) being released. Sign Statement of Conformance on line 21.
12	Enter remarks as appropriate. When a deviation has occurred, reference the deviation(s) and Buyer/Contractor's authorization in this column, and include the authorization document(s) in the Verification Document Package.
13, 14, 15	Enter information as required.
16	Enter the numbers of units covered by the Quality Verification Documents being submitted. For each requisition item no. being released provide a separate copy of this completed form and the supporting Quality Verification Documents.
17, 18, 19	Enter information as required.
20	Enter identification number(s) traceable to the unit(s) being released, e.g. serial no., heat no. of major component, cable reel no. or other unique designator.

- H. DOCUMENT CATEGORY NUMBERS:** Engineering (E) and Quality Verification (V) Document Requirements as shown in Column 1, and defined in G-321-SUP A Document Category Definitions. For details, see specification paragraph(s) referenced in Column 2.

<b>1.0 DRAWINGS (E)</b>	<b>16.2 Typical Material Used</b>	<b>28.0 RT - RADIOGRAPHIC EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>
1.1 Outline Dimensions, Service and Foundation/Mounting Details	<b>11.0 MATERIAL DESCRIPTION (E)</b>	<b>21.0 MT - MAGNETIC PARTICLE EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>
1.2 Assembly Drawings	<b>12.0 WELDING PROCEDURES AND QUALIFICATIONS (E), AND VERIFICATION REPORTS (V)</b>	<b>22.0 PT - LIQUID PENETRANT EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>
1.3 Shop Detail Drawings	<b>13.0 WELD ROD CONTROL PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>	<b>23.0 EDDY CURRENT EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>
1.4 Wiring Diagrams	<b>14.0 REPAIR PROCEDURES (E), AND MAJOR REPAIR VERIFICATION REPORTS (V)</b>	<b>24.0 PRESSURE TEST - HYDRO, AIR, LEAK, BUBBLE OR VACUUM TEST PROCEDURE (E), AND VERIFICATION REPORTS (V)</b>
1.5 Control Logic Diagrams	<b>15.0 CLEANING AND COATING PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>	<b>25.0 INSPECTION PROCEDURE (E), AND VERIFICATION REPORTS (V)</b>
1.6 P & IDs	<b>16.0 HEAT TREATMENT PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>	<b>26.0 PERFORMANCE TEST PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>
<b>2.0 PARTS LIST AND COST (E)</b>	<b>17.0 CERTIFIED MATERIAL PROPERTY REPORTS (V)</b>	<b>25.1 Mechanical Tests</b>
<b>3.0 COMPLETED BECHTEL DATA SHEETS (E)</b>	<b>17.1 MTR (Certified Material Test Reports)</b>	<b>25.2 Electrical Tests</b>
<b>4.0 INSTRUCTIONS (E)</b>	<b>17.2 Inspect Test Data</b>	<b>27.0 PROTOTYPE TEST REPORT (E &amp; V)</b>
4.1 Erection/Installation	<b>17.3 Ferrite Data</b>	<b>28.0 SUPPLIER SHIPPING PREPARATION PROCEDURE (E)</b>
4.2 Operating	<b>17.4 Material Certificate of Compliance</b>	
4.3 Maintenance	<b>17.5 Electrical Property Reports</b>	
4.4 Site Storage and Handling	<b>17.6 CODE COMPLIANCE (V)</b>	
<b>5.0 SCHEDULES: ENGINEERING AND FABRICATION/ERECTION (E)</b>	<b>18.0 UT - ULTRASONIC EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)</b>	
<b>6.0 QUALITY ASSURANCE MANUAL/PROCEDURES (E)</b>		
<b>7.0 SEISMIC DATA REPORT (E)</b>		
<b>8.0 ANALYSIS AND DESIGN REPORT (E)</b>		
<b>9.0 ACOUSTIC DATA REPORT (E)</b>		
<b>10.0 SAMPLES (E)</b>		
10.1 Typical Quality Verification Documents		

29.0 SUMMARY REPORT

# DOCUMENT CATEGORY DEFINITIONS

(E) – Engineering Documents. This term comprises procedures, drawings, specifications, QA plans, prototype qualification test reports, and other similar documents that require Bechtel approval prior to fabrication, or prior to use of the document in the design, fabrication, installation, or other work process. The term is also applied to price lists, and instructional documents for handling, storage, maintenance, etc., that are of informational interest only to project engineering.

(V) – Quality Verification Documents. This term comprises material test reports, heat treatment charts, welding records, NDE results, performance test reports, etc., which demonstrates or certify conformance to the technical or inspection requirements of the procurement documents.

## 1.0 DRAWINGS (E)

- 1.1 Outline Dimensions, Services and Foundation/Mounting Details – Drawings providing external envelope, including lugs, center line(s), location and size for electrical cable, conduit, fluid, and other service connections, isometrics, and details related to foundations and mountings.
- 1.2 Assembly Drawings – Detailed drawings indicating sufficient information to facilitate assembly of the component parts of an equipment item.
- 1.3 Shop Detail Drawings – Drawings which provide sufficient detail to facilitate the fabrication or manufacture of the equipment item. This includes but is not limited to, spool drawings, heat exchanger internal details, internal piping and wiring, cross-section details and architectural details.
- 1.4 Wiring Diagrams – Drawings which show the schematic wiring and connection information for electrical items.
- 1.5 Control Logic Diagrams – Drawings which show the paths which input signals must follow to accomplish the required response.
- 1.6 P & IDs – Piping and Instrumentation Diagrams which show piping system details and the basic control elements.

## 2.0 PARTS LIST AND COST (E) – Exploded view with identified parts and recommended spare parts for one year's operation with unit cost.

## 3.0 COMPLETED BECHTEL DATA SHEETS (E) – Information provided by a supplier on data sheets furnished by Bechtel which states serial numbers, operating ranges, etc., of equipment that the supplier intends to deliver to satisfy the specification requirements.

## 4.0 INSTRUCTIONS (E)

- 4.1 Erection/Installation – Detailed written procedures, instructions, and drawings required to erect or install material or equipment.
- 4.2 Operating – Detailed written instructions describing how an item or system should be operated.
- 4.3 Maintenance – Detailed written instructions required to disassemble, reassemble and maintain items or systems in an operating condition.
- 4.4 Site Storage and Handling – Detailed written instructions which define the requirements and time period, for lubrication, rotation, heating, lifting or other handling requirements to prevent damage or deterioration during storage and handling at jobsite. This includes: Shipping instructions.

## 5.0 SCHEDULES: ENGINEERING AND FABRICATION/ERECTION (E) – Bar charts, critical path methods, etc., which chronologically detail the sequence of activities.

## 6.0 QUALITY ASSURANCE MANUAL/PROCEDURES (E) – The document(s) which describe(s) the planned and systematic measures that are used to assure that structures, systems, and components will meet the requirements of the procurement documents.

## 7.0 SEISMIC DATA REPORT (E) – The analytical or test data which provides physical response information on an item, material, component or system in relation to the conditions imposed by the stated seismic criteria.

## 8.0 ANALYSIS AND DESIGN REPORT (E) – The analytical data, (stress, electrical loading, fluid dynamics, etc.), which assures that an item satisfies specified requirements.

## 9.0 ACOUSTIC DATA REPORT (E) – The noise, sound and other vibration data required by specification which is in the audible range and above the seismic frequency.

## 10.0 SAMPLES (E) – A representative example of the material to be used or a representative data package which will be submitted for the items purchased as required in the specification.

## 11.0 MATERIAL DESCRIPTION (E) – The technical data describing a material which a supplier proposes to use for a specific order. This usually applies to architectural items, e.g., metal siding, decking, doors, paints, coatings.

## 12.0 WELDING PROCEDURES AND QUALIFICATIONS (E), AND VERIFICATION REPORTS (V) – The welding procedure specification and supporting welding procedure qualification test records required for welding, hard facing, overlay, brazing and soldering. A verification report of welds performed includes the identification of the qualified welder(s), and the procedure(s) used, and certification that the welder(s) were qualified.

## 13.0 WELD ROD CONTROL PROCEDURES (E), AND VERIFICATION REPORTS (V) – The procedures for controlling issuance, handling, storage and traceability. Verification report(s) for weld rod are defined as certified material test reports which include the requirements defined by the code and material specification imposed by the procurement documents.

## 14.0 REPAIR PROCEDURES (E), AND MAJOR REPAIR VERIFICATION REPORTS (V) – The procedures for controlling material removal and replacement by welding, brazing, etc., subsequent thermal treatments, and final acceptance inspection. Verification reports may include weld repair locations (maps), material test reports for filler metal, pre-and-post-weld heat treatment records, NDE records, etc. The resolution of whether a repair is major or not is a Bechtel responsibility.

- 15.0 **CLEANING AND COATING PROCEDURES (E), AND VERIFICATION REPORTS (V)** — The procedures for removal of dirt, grease or other surface contamination and includes application of protective coatings. Verification reports include certification of visual examination for surface preparation, surface profile, materials, etc., humidity data, temperature data and coating thickness data as required by the procurement documents.
- 16.0 **HEAT TREATMENT PROCEDURES (E), AND VERIFICATION REPORTS (V)** — The procedures for controlling temperature, time at temperature as a function of thickness, furnace atmosphere, cooling rate and method, etc. Verification reports normally include furnace charts or similar records which identify and certify the item(s) treated, the procedure used, furnace atmosphere, time at temperature, cooling rate, etc. Verification data may be in either narrative or tabular form.
- 17.0 **CERTIFIED MATERIAL PROPERTY REPORTS (V)**
- 17.1 **MTR (Certified Material Test Reports)** — These reports include all chemical, physical, mechanical and electrical property test data required by the material specification and applicable codes. This is applicable to cement, concrete, metals, cable jacket materials, rebar, rebar splices, etc. The certified MTR shall include a statement of conformance that the material meets the specification requirements.
- 17.2 **Impact Test Data** — Results of all Charpy or drop weight tests including specimen configuration, test temperature and fracture data.
- 17.3 **Ferrite Data** — Report of the ferrite percentage for stainless steel materials used, including castings & welding filler metals as deposited.
- 17.4 **Material Certificate of Compliance** — Verification document which certifies conformance to the requirements of the applicable material specification.
- 17.5 **Electrical Property Reports** — Report of electrical characteristics, e.g., dielectric, impedance, resistance, flame test, corona, etc.
- 18.0 **CODE COMPLIANCE (V)** — Verifying documents (such as data Forms U-1, N-2, Specs, etc.), which are prepared by the manufacturer or installer and certified by the Authorized Code Inspector.
- 19.0 **UT — ULTRASONIC EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Method of detection and examination results of presence and certain characteristics of discontinuities and inclusions in materials by the use of high frequency acoustic energy.
- 20.0 **RT — RADIOGRAPHIC EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Method of detection and examination results of presence and certain characteristics of discontinuities and inclusions in materials by x-ray or gamma-ray exposure on photographic film.
- 21.0 **MT — MAGNETIC PARTICLE EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Method of detection and examination results of surface (or near surface) discontinuities in magnetic materials by distortion of an applied magnetic field.
- 22.0 **PT — LIQUID PENETRANT EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Method of detection and examination results of surface discontinuities in materials by application of a penetrating liquid in conjunction with suitable developing techniques.
- 23.0 **EDDY CURRENT EXAMINATION PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Method for detection and examination results of discontinuities in material by distortion of an applied electromagnetic field.
- 24.0 **PRESSURE TEST — HYDRO, AIR, LEAK, BUBBLE OR VACUUM TEST PROCEDURE (E), AND VERIFICATION REPORTS (V)** — Method for evaluating the structural and mechanical adequacy or integrity by application of differential pressure, and report of the test results.
- 25.0 **INSPECTION PROCEDURE (E), AND VERIFICATION REPORTS (V)** — Organized process followed for the purpose of determining that specified requirements (dimensions, properties, performance results, etc.) are met. Documented findings resulting from an inspection are included in the verification report.
- 26.0 **PERFORMANCE TEST PROCEDURES (E), AND VERIFICATION REPORTS (V)** — Tests performed to demonstrate that functional design and operational parameters are met and the report of the test results.
- 26.1 **Mechanical Tests**, e.g., pump curves, valve stroking, load, temperature rise, calibration, environmental, etc.
- 26.2 **Electrical Tests**, e.g., load, impulse, overload, continuity, voltage, temperature rise, calibration, saturation, loss, etc.
- 27.0 **PROTOTYPE TEST REPORT (E & V)** — Report of a test which is performed on a standard or typical example of equipment, material or item, and is not required for each item produced in order to substantiate the acceptability of equal items. This normally includes tests which may, or could be expected to, result in damage to the item(s) tested.
- 28.0 **SUPPLIER SHIPPING PREPARATION PROCEDURE (E)** — The procedure used by a supplier to prepare finished materials or equipment for shipment from his facility to the jobsite.
- 29.0 **SUMMARY REPORT**


S.806324

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Bechtel Associates Professional Corporation  
Ann Arbor, Michigan

GENERAL REQUIREMENTS  
FOR  
SUPPLIER QUALITY ASSURANCE PROGRAMS  
FOR THE  
MIDLAND PLANT  
UNITS 1 AND 2  
FOR  
CONSUMERS POWER COMPANY


8405260072

no.	DATE	ANSI Ref.	REVISIONS	BY	CHK	APP
△	5-24-78		Added Paragraph 1.4, corrected Rev. No. on Exhibit A Corrected Sheet ii-Rev. 6-Block-Added clarification in Paragraph 2.2, Exhibit B revised	R.E.C.	CD	
△	6/23/77		Revised as noted to clarify and incorporate OA Req. Guide Requirements Deleted APP. III	LAM		
△	8-9-74		Revised to Ref. Data Sheet 1 and Add Appendix III	VB		
△	6-18-74		Revised to delete "n" des. and add Appendix II	BBN		
△	4-15-74		Revised To New Mandatory Term Per ITP 6.10 to Clarify	BBN		
ORIGIN			 GENERAL REQUIREMENTS FOR SUPPLIER QUALITY ASSURANCE PROGRAMS			JOB No. 7220
						SPEC. DES GUIDE No.
						Sheet 1 7220-G-23

AA-G-100377

SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.	SHEET	LATEST REV.
1	7												
11	7												
111	7												
1	7												
2	7												
3	7												
4	7												
5	7												
6	7												
7	7												
8	7												
ADD I	6												
App II													
1	6												
2	6												
Exh A	7												
Exh B													
1	7												
2	7												

6	6/22/77	Revised to clarify & incorp. Reg. Guides <i>Revised 100 ITT</i>	LAM	R.E.B.									
5	8-7-74	Rev. to Ref. Data Sht and add Appendix III <i>Rev. to delete "Q" des</i>	ITB	SLM									
4	6-18-76	add App. II	DM	SLM									
3	3-29-74	Rev. to Change Form	DM	SLM									
2	3-11-74	Rev. Per CPCo Comments	DM	SLM									
1	1/18/74	Rev. Per CPCo comments	DM	SLM									
0	10/3/73	Initial Issue	DM	SLM			7	5/24/76	OFFICE EXH A Rev. 5	R.E.B.			
NO.	DATE	REVISIONS	BY	CHK'D	APP'D	NO.	DATE	REVISIONS	BY	CHK'D	APP'D	NO.	DATE



M-238-1C  
3-11-58

FACING SHEET

GENERAL REQUIREMENTS FOR SUPPLIERS QUALITY

ASSURANCE PROGRAMS




JOB No 7220

Specification  
**51806326**




Sheet 11

GENERAL REQUIREMENTS  
FOR  
SUPPLIER QUALITY ASSURANCE PROGRAMS  
FOR THE  
MIDLAND PLANT  
UNITS 1 & 2  
FOR  
CONSUMERS POWER COMPANY



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APPENDIX II	SDDR INSTRUCTION		
EXHIBIT A	SAMPLE DATA SHEET 1		
EXHIBIT B	SDDR FORM		

1.0 SCOPE

- 1.1 This specification provides the quality assurance requirements for the equipment, material, or services as specified in the purchase order, specifications, or material requisitions.
- 1.2 This specification does not delete or revise (but is in addition to) those requirements defined by the procurement documents. If a supplier believes that an inconsistency exists between this specification and the procurement documents and referenced codes and standards, he shall immediately notify Bechtel for resolution. 
- 1.3 Definitions used herein are derived from ANSI N45.2.10-1973. If the supplier needs clarification, requests departure, or feels an inconsistency exists between this specification and the procurement documents, he shall immediately notify Bechtel for resolution. 
- 1.4 For all activities within the scope of the ASME B&PV Code, the supplier shall maintain a quality program that is in compliance with current Code requirements. All revisions necessary to meet these requirements shall be submitted to the buyer within seven days after the supplier receives written acceptance by the authorized inspection agency. Evidence of Code acceptance shall accompany the submittal. 

2.0 GENERAL PROGRAM REQUIREMENTS

- 2.1 The term supplier, as used herein, includes seller, vendor, contractor, and subcontractor.
- 2.2 The project quality assurance program is governed by NRC Regulation 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants." To satisfy this requirement, the supplier shall establish and implement a quality assurance program that conforms to the applicable provisions of ANSI N45.2-1971, "Quality Assurance Program Requirements for Nuclear Power Plants" as delineated on Data Sheet 1 (Exhibit A) and to the other codes and standards as cited in the contract documents. For commodities within the scope of the ASME   


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B&PV Code, the Code shall govern; for those items not within the scope of the Code, ANSI N45.2-1971 QA program requirements shall be applicable. These quality assurance requirements shall apply to all aspects of the work necessary for carrying out this contract, including design, procurement, fabrication, inspection, installation, and testing. (Data Sheet 1 is attached to this specification for reference only. This completed form is attached to the material requisition package.)

- 2.3 In the event a supplier does have a quality assurance program in accordance with Paragraph 2.2 and if the supplier's function is limited to placing the order with the actual manufacturer, the supplier shall be responsible for providing a controlled copy of the manufacturer's quality assurance program documents to Bechtel within 30 days after the award. The manufacturer's and supplier's quality assurance program documents must meet the requirements as outlined in this specification that pertain to the activities he performs. In no case will the supplier start activities without prior approval of the portions of the program applicable to the respective operation.
- 2.4 When audits are required the supplier shall implement a system of internal and external audits consistent with the requirements of ANSI N45.2.12, Draft 4, Rev. 1, dated November 1, 1974, "Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants."
- 2.5 When it becomes necessary for the supplier to procure materials, components, or services from a subsupplier(s), it is the suppliers responsibility to establish and implement a procurement control process consistent with the requirements and guidelines of ANSI N45.2.13, Draft 3 Rev. 3 dated June 1975, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants."
- 2.6 Definitions utilized in the Supplier's Quality Assurance Program shall be consistent with ANSI N45.2.10-1973.





3.0 ADDITIONAL REQUIREMENTS

3.1 Within 30 days after award of contract and prior to starting any activities relating to the applicable contract, the supplier shall submit a controlled copy of his quality assurance program documents which defines the program that he will follow to meet this specification. With his quality assurance program documents, the supplier may be required to submit a facsimile of data sheet 1, on which he shall complete the "Supplier Document and Paragraph References" column by listing document identity numbers and applicable paragraphs which satisfy the criteria imposed on him (as delineated in the lefthand column of the data sheet). Such a requirement would be invoked at the time of submittal of the controlled copy of the quality assurance program documents.



3.2 Bechtel may approve, approve with comments, or disapprove the supplier quality assurance program documents. Upon Bechtel's approval, activities may proceed. If approved with comments, the Supplier may proceed, provided that he incorporates Bechtel's comments in the quality assurance program documents (i.e. revisions, addenda, or amendments) and resubmits them for final approval within 30 days. In no case will the supplier start activities without prior approval of the portions of the program applicable to the respective operation. Changes to the Bechtel approved program shall be submitted by the supplier for approval in the same manner as original submittals.



NOTES: Approval does not relieve the supplier of the obligation to comply with the requirements of the procurement documents, including this specification. If the program is subsequently found to be ineffective or inadequate in providing for acceptable control, Bechtel reserves the right to require necessary revisions. All proposed program modifications shall be submitted to Bechtel for review and acceptance in accordance with the requirements for initial program submittals.

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3.3 In order to comply with Subsection 50.55(e) of 10 CFR 50 Appendix B, the supplier, in less than 12 hours after detection, shall report to Bechtel Project Engineering each deficiency found in design, manufacturing, and/or construction, which, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant, and which represents:



- a. A significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of ANSI N45.2
- b. A significant deficiency in final design as approved and released for manufacturing and/or construction such that the design does not conform to the criteria and bases stated in the specifications
- c. A significant deficiency in manufacturing and/or construction of/or significant damage to a structure, system, or component which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in this specification or to otherwise establish the adequacy of the structure, system, or component to perform its intended safety functions
- d. A significant deviation from performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of a structure, system, or component to meet the criteria and bases stated in the specifications or to otherwise establish the adequacy of the structure, system, or component to perform its intended safety function.
- e. Notification of reportable deficiencies as delineated above shall be by telephone or TWX, followed up by a completed SDDR form per instructions in Appendix II.



3.4 Any departure from the requirements of the procuring documents or Bechtel approved supplier technical documents which the supplier intends to incorporate in the completed item or service provided must be documented on a Supplier Deviation Disposition Request (SDDR). Deviation requests shall be submitted to the Bechtel project engineer with a copy to the Bechtel supplier quality representative if one is assigned within five working days after detection. Specific instructions are contained in Appendix II. The signature of the suppliers authorized representative in block number 17 of the SDDR form, signifies compliance with Paragraph 3.3. In addition, the supplier shall also maintain a status list of all nonconformances.

#### 3.4.1 Definitions

- a) Rework is defined as the process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, reassembling, or other corrective means. Items classified as rework do not require submittal of the SDDR.
- b) See sheet 2 of SDDR for definition of repair.

3.5 Engineering and quality verification documents shall be submitted to Bechtel in accordance with the provisions of Form G-321-D. While in the supplier's facilities these and other records required by applicable codes and standards which are necessary to verify activities affecting quality, shall be maintained in facilities to protect contents from possible destruction by causes such as fire, flooding, tornadoes, insects, rodents, and from possible deterioration by a combination of extreme variations in temperature and humidity conditions. Storage systems shall provide for the accurate retrieval of information without undue delay. (Compliance to ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants" fulfills these requirements.) Quality assurance records are those records which



furnish documentary evidence of the quality of items and of activities affecting quality. Records become quality assurance records upon issuance for use.

- 3.5.1 Records shall not be stored loosely. They shall be firmly attached in binders or placed in folders or envelopes for storage on shelving in containers. Steel file cabinets are preferred.
- 3.5.2 An audit system shall be established to assure that the quality assurance records' storage system is effective. The following shall be performed as a minimum:
- a. Periodic surveys to assure that records logged in are available and have been placed in their proper location within the files and to assure that the control system is adequate
  - b. Periodic audits to assure that the facilities are in good condition and that the temperature/humidity controls and protective devices are functioning properly
  - c. Periodic audits of the records to assure that the documents are not deteriorating due to improper storage practices or rough handling
  - d. The frequency of surveys and audits delineated above shall be determined by the supplier and addressed in the quality assurance program documents
- 3.6 All quality related records, procedures, and qualifications shall be available for examination by Bechtel or Bechtel's authorized agents.
- 3.7 The applicable quality assurance records shall be considered valid only if stamped, initialed, signed, or otherwise authenticated and dated by authorized personnel. These may be either the original or a high quality reproducible copy.



- 3.8 No quality related record shall be destroyed or otherwise disposed of without written permission of Bechtel (or their designee).

3.9 QUALIFICATIONS OF INSPECTION, EXAMINATION, AND TESTING PERSONNEL

3.9.1 The supplier's quality assurance program shall provide measures to assure that personnel performing safety-related inspections, examinations, and tests are qualified to perform these activities. Such measures include procedures for qualifications of personnel describing the minimum experience, training, and proficiency testing required for qualification. The measures shall also include requirements for records documenting inspection, examination, and testing personnel. (Compliance to ANSI N45.2.6, "Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants" fulfills these requirements.)

3.9.2 Nondestructive examination performed according to the quality requirements of Section III of the ASME Boiler and Pressure Vessel Code shall be performed by supplier personnel certified to SNT-TC-1A

3.9.3 Personnel qualification procedures will be reviewed by Bechtel prior to initiation of inspections, examinations, or tests.

4.0 QUALITY SURVEILLANCE

4.1 All designing, procuring, manufacturing, processing, assembling, testing, examination, and inspection operations performed by the supplier and his lower-tier suppliers are subject to surveillance by Bechtel or Bechtel authorized agents. This surveillance shall no way relieve the supplier of any contractual responsibilities.

NOTE: The term surveillance, here, may include inspection, survey, and/or audit.

4.2

The Bechtel supplier quality representative shall be given free access to the supplier and his subsupplier's facilities to perform the necessary surveillance and report on work in all phases of design, manufacture and testing.

4.3

The supplier shall give the Bechtel supplier quality representative at least five working days prior notice of all tests, and other check points in the manufacturing program specifically requested by the representative after a joint review of supplier's work performance and this specification.

4.4

If the requirements of this specification have not been fulfilled, the Bechtel supplier quality representative has the authority to refuse release for shipment.

APPENDIX I

PROPOSAL

(This sheet applies to the bid stage)

With his proposal, each bidder shall submit a summary description of the quality assurance program to be implemented in the performance of the work, or an uncontrolled copy of his quality assurance manual or procedure. This shall include information on the organization of the bidder, including the authority and responsibility of personnel performing QA/QC functions. It shall also explain administrative policies and procedures to be used in carrying out the program.

The bidder shall provide an adequate statement of justification if his quality assurance program does not need to contain all of the elements or portions thereof called for in Data Sheet 1 (Exhibit A). Any modifications agreed to by Bechtel will be identified in the procurement documents.

Bechtel will evaluate the description of the quality assurance program to determine its acceptability. An acceptable quality assurance program is a mandatory requirement for placing an order.

If a bidder is currently performing to or has completed a Bechtel order which invokes the requirements of this specification, he may, in lieu of submitting a copy of his manual, submit a letter listing the date of Bechtel acceptance, the controlled manual to be used and the revision that is currently in effect or was in effect, and a statement that it will apply for this proposed effort.

Bechtel reserves the right to survey/audit the bidder/supplier to determine the adequacy of his quality program as he proposed or is executing.



## APPENDIX II

### SDDR INSTRUCTIONS

DEVIATION - any departure from the requirements of the procuring documents, which the supplier intends to incorporate in the completed item or service provided.

- 1.0 The supplier shall be required to submit deviation requests to the Bechtel project engineer with a copy to the Bechtel supplier quality representative within five working days after detection. When this time limit cannot be met, notification by telephone, TWX, etc is acceptable; at that time, a revised submittal date shall be established. Any deviation is considered unacceptable until approval from Bechtel in writing is obtained.
- 2.0 SDDRs must be supported by technically valid information that is sufficient for project engineering evaluation. When necessary, the supplier shall attach supporting technical documents (of reproducible quality) to the SDDR. One copy of each attachment must also be supplied to the Bechtel (supplier quality representative), if assigned.
- 3.0 Detailed instructions for completion of the SDDR are shown on the attached form and instruction sheet, Exhibit B. It is required that all portions of the SDDR applicable to the supplier be completed prior to submittal to Bechtel including Block No. 10. If the entries are not completed, the SDDR will be returned to the supplier for inclusion of the pertinent information.
- 4.0 A copy of the SDDR, with the applicable attachment(s), is returned to the supplier after completion of Bechtel engineering actions.
- 5.0 For approved SDDRs, suppliers may be required by project engineering to change their engineering documents to reflect the "as-built" condition without extra cost to the Buyer.

A copy of the completed SDDR (including attachments) shall be included by the supplier in the QC data package for the item(s) to which it applies. The SDDR is considered complete when all entries are made including the appropriate verification signatures by the supplier and Bechtel supplier quality representative. If no representative is assigned for the order,



arrangements will be made by Bechtel engineering for verification of implementation.

- 6.0 A copy of the SDDR form shall be maintained as a QA record by the supplier after all entries have been completed.



TO BE COMPLETED  
BY BECHTEL

TO BE COMPLETED BY THE SUPPLIER

SUPPLIER DOCUMENT AND  
PARAGRAPH REFERENCES

APPLICABLE

- QUALITY ASSURANCE PROGRAM
- ORGANIZATION
- DESIGN CONTROL
- PROCUREMENT DOCUMENT CONTROL
- INSTRUCTIONS, PROCEDURES, AND DRAWINGS
- DOCUMENT CONTROL
- CONTROL OF PURCHASED MATL., EQUIP., & SERVICES
- IDENT. & CONTROL OF MATLS., PARTS, COMPONENTS
- CONTROL OF SPECIAL PROCESSES
- INSPECTION
- TEST CONTROL
- CONTROL OF MEASURING AND TEST EQUIPMENT
- HANDLING, STORAGE AND SHIPPING
- INSPECTION, TEST AND OPERATING STATUS
- NONCONFORMING ITEMS
- CORRECTIVE ACTION
- QUALITY ASSURANCE RECORDS
- AUDITS
- OTHERS

**SAMPLE**

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NO.	DATE	REVISIONS	BY	CHECKED	APPROVED
7220-G-23					
DATA SHEET 1			JOB NO.		
			DOCUMENT NO.	REV.	

Supplier Deviation Disposition Request

Rev. 7  
Page 1 of 2

FOR SUPPLIER USE	
Supplier SDDR No.	Date Submitted

NOTE: The reverse side of this form contains the instructions for its preparation and use. Items marked with an asterisk (\*) are for Bechtel entries only.

FOR BECTHEL USE	
* Bechtel SDDR No.	* Date Received

Supplier shall complete all blocks 1 through 18 with black ink or typewriter. Use NA for Not Applicable.

1. Supplier Name \_\_\_\_\_ Address \_\_\_\_\_ City & State \_\_\_\_\_ Zip \_\_\_\_\_

2. Supplier's Order No. \_\_\_\_\_ 3. Supplier's Part No. \_\_\_\_\_ 4. Supplier's Part Name \_\_\_\_\_ 5. Date Deviation Determined \_\_\_\_\_ 6. Previous SDDR No. & Date \_\_\_\_\_

7. Bechtel P.O. No. \_\_\_\_\_ 8. Bechtel Part No. \_\_\_\_\_ 9. Bechtel Part Name \_\_\_\_\_ 10. Bechtel Inspector Notified \_\_\_\_\_ 11. Bechtel Eng. Notified \_\_\_\_\_

12. Qty or Serial No. \_\_\_\_\_ 13. Deviation Description (Attach extra sheets, photographs, sketches, etc. as necessary)

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14. Supplier's Disposition Classification:  Use As Is  Repair  Modify Bechtel Requirement

15. Proposed Disposition and Technical Justification: (Attach extra sheets, sketches, etc. as necessary)

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16. Associated Supplier Document Change(s):

\_\_\_\_\_

17. Cost Effects:

\_\_\_\_\_

18. Supplier's Authorized Representative

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

\*19. Bechtel Engrg. Action: Proposed Disposition  Accepted  Rejected

Engrg. Follow-up:  Dwg Change  Other  Spec/Req. Change  Other Suppliers Affected

\*20. Bechtel Disposition Statement including Justification (Attach extra sheets, sketches, etc. as necessary)

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*21. Bechtel Acceptance	Date	Verification Signatures	Date
GS _____	_____	22. Supplier _____	_____
PE _____	_____	*23. Bechtel Supplier	_____
POB _____	_____	Quality Representative _____	_____