

NES MANUFACTURING

101 Swing Road
Greensboro, North Carolina 27409
Phone 919/852-3400

August 25, 1985

Mr. Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance,
Vendor, and Technical Training
Center Programs
Office of Inspection and Enforcement
United States Nuclear Regulatory
Commission
Washington, DC 20555

Reference: Nuclear Energy Services Manufacturing
Docket No. 99901018/85-01

Dear Mr. Zech:

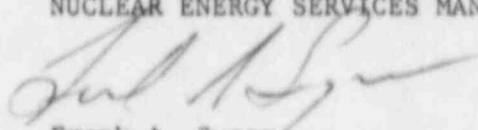
On June 10-15 and June 24-28, 1985, inspectors from your office visited our facility in Greensboro, North Carolina for the purpose of evaluating our work in support of the Three Mile Island Unit 2 defueling project. One violation and twenty-two nonconformances were noted by the inspectors.

Our response to these items is contained in Appendix A (Notice of Violation) and Appendix B (Notices of Nonconformance) to this letter. In responding to the noted items, we have broken each response into five sections: cause, remedial action, remedial action date of completion, preventive action, and preventive action date of completion.


If you have any questions regarding our response, please contact me or Craig Anderson at Nuclear Energy Services, (203) 796-5225.

Sincerely,

NUCLEAR ENERGY SERVICES MANUFACTURING



Frank A. Sugar
General Manager



FAS/CEA/lap
Enclosures

cc T. I. Gillespie, Bechtel
J. P. Mahan, NC Department of Labor
F. Standerfer, GPU

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APPENDIX A

Nuclear Energy Services Manufacturing

Docket No. 99901018/85-01

USNRC NOTICE OF VIOLATION

As a result of the inspection conducted on June 10-14 and June 24-28, 1985 and in accordance with Section 206 of the Energy Reorganization Act of 1974 and its implementing regulation 10 CFR 21, the following violation was identified and categorized in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C), 49 CFR 8583 (March 8, 1984):

Section 21.31 of 10 CFR Part 21 dated May 31, 1984 states, in part, "Each ... corporation... subject to the regulations in this part shall assure that each procurement document for a ... basic component ... specifies, when applicable, that the provisions of 10 CFR Part 21 apply."

Contrary to the above, a review of 50 purchase orders (PO), 35 for materials and 15 for services, pertaining to the Three Mile Island Unit 2 (TMI) defueling canisters indicated that while 10 CFR Part 21 was imposed upon NES by Bechtel (ref. PO TC-016172 dated December 4, 1984), NES POs to 23 vendors (11 material - POs 4010, 4009, 3998, 4008, 4012, 4011, 4292A, 4292, 4356, 4293, and 4291; 12 service-POs 4297, 4664, 4657, 4642, 4639, 4632, 4608, 4607, 4337, 4681, 4467, and 4359) did not similarly specify that 10 CFR Part 21 requirements would apply.

This is a Severity Level IV Violation (Supplement VII).

NES MANUFACTURING RESPONSE

NES Manufacturing's response to the Notice of Violation is in two parts separating the material purchases (POs 4010, 4009, 3998, 4008, 4012, 4011, 4292A, 4292, 4356, 4293

and 4291) from the service purchases (POs 4297, 4664, 4657, 4642, 4632, 4608, 4607, 4337, 4681, 4467 and 4359).

A. Materials

Cause:

NES Manufacturing purchased the items with the understanding that they were exempt from 10CFR21 applicability. Appendix A.1 presents a tabulation of materials by purchase order, vendor and material description for those items noted by the Inspector. A review of this Appendix will show that all items ordered were either:

- a) Stock ASTM materials such as stainless steel plate (ASTM A240), thin wall stainless pipe (ASTM A312) or small diameter rod or bar (ASTM A279).
- b) Standard fastener materials such as 1/4" 20 UNC-8A x 1/2" long pan head machine screws, or #8-32UNC-2A x 1/4" long pan head machine screws.
- c) Standard machine elements such as a hex bushing 1 1/2" x 3/8" or,
- d) Standard fittings such as a 3/8" NPT Cajon #SS-6-CN 300 series stainless close nipple or a Hansen plug ML-3-K21-RW-192 3/8" 316 stainless.

The concrete mix ordered in P.O. 4356 is filler material per Bechtel N.A. Power Corp. and is not important to safety.

None of the items are complex or engineered, and are commercial grade items. They are held in stock by material suppliers.

Based on this, the materials fall under the exemption of commercial grade items of 10CFR21.3(a) (4) (a-1). The items are not subject to design or specification requirements unique to nuclear applications, are used in other applications, and are ordered based on manufacturer's published product description.

Corrective Action:

As NES Manufacturing does not believe that a violation occurred, no corrective action is proposed.

B. Services

Cause:

NES Manufacturing ordered machining and forming services from six(6) vendors on the twelve (12) purchase orders noted. The activities that these vendors provide are commercially available services as listed in Appendix A.2 (milling, bending, drilling, tapping, turning, counterboring, etc.) No welding, heat treatment, cleaning, or nondestructive examination were included in the scope of these services. In each case in question the materials to be formed or machined were supplied by NES Manufacturing to the vendor. Inasmuch as the acceptability of the service was determined upon return of the item to NES Manufacturing via dimensional means, NES Manufacturing does not consider the imposition of 10CFR 21 necessary. Defects or noncompliances during the machining or forming are determined by NES Manufacturing by inspection prior to further processing.

Corrective Action:

As NES Manufacturing does not believe that a violation occurred, no corrective action is proposed.

APPENDIX A.1

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<u>P. O. No.</u>	<u>Vendor</u>	<u>Material Description</u>
84091-4010	A.J. Metal Supply 3923 B Morris Field Dr. Charlotte, NC 28208	3/4" ϕ 304L Stainless Steel (S/S) Bar ASTM A479 or 276 1/4" x 3/8" x Random Length (R/L) 304 S/S ASTM A479 or 276 1" ϕ 304L S/S ASTM A479 or 276
84091-4009	J.T. Ryerson P.O. 32727 Charlotte, NC 28203	7 3/4" O.D. x 6 7/8" ID x 1 1/4" Thick Ring 304L S/S ASTM A240 7 1/2" O.D. x 3/16" Thick Disc 304L S/S ASTM A240 7 1/2" O.D. x 1/8" Thick Disc 304L S/S ASTM A240
84091-3998	Carolina Steel Corp. 1451 S. Elm/Eugene St. Greensboro, NC 24720	1/2" x 6" x 12" 304L S/S Plate ASTM A240
84091-4008	Keystone Tubular Service P.O. Box 992 Butler, PA 16001	8" sch. 20 304L S/S Pipe ASTM A312
84091-4012	Automotive Fasteners 211 S. Elm/Eugene St. Greensboro, NC 27409	1/4"-20UNC-2A x 1/2" L. Pan Hd. Slotted Mach. Screw 300 series S/S #8-32UNC-2A x 1/4" L. Pan Hd. Slotted Mach. Screw 300 series S/S
84091-4011	A.J. Metal Supply (see above address)	1 3/8" or 1 1/2" dia. R/L ASME SB-446 nickel alloy bar stock
84091-4292A	Piedmont Hub P.O. Box 18029 Greensboro, NC 27419	Hex Bushing 1 1/2" x 3/8" 300 series S/S
84091-4292	Charlotte Valve & Fitting 7637 North Tryon St. Charlotte, NC 28213	Close Nipples 3/8" NPT Cajon #SS-6-CN 300 Series S/S Close Nipples 1/4" NPT Cajon #SS-4-CN 300 Series S/S Hex Nipple Cajon #SS-4-HN 300 Series S/S Hex Nipple Cajon #SS-4-ST 300 Series S/S

APPENDIX A.1

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<u>P. O. No.</u>	<u>Vendor</u>	<u>Material Description</u>
84091-4356	Babcock & Wilcox Advanced Ceramics P.O. Box 785 Lynchburg, VA 24505	Ultralight concrete mix (by weight 60% CA-25C Ref. Cement, 11% glass bubbles B29/750, added water 29%)
84091-4293	B&B Hose & Rubber Co. 4604 Bainbridge Blvd. Chesapeake, VA 23320	Special version P/T Coupling Co. P/N 25F Male Adapter Special version P/T Coupling Co. P/N 20F Male Adapter Caps for hydro on above
84091-4291	Air Products Co. Rte. 5 Brookwood P'd. Cumming, GA 30132	Hansen Plug ML-2-K16-RW-192 1/4" Plug 316 S/S Hansen Plug ML-3-K21-RW-192 3/8" Plug 316 S/S Hansen Socket ML-2-H16-192 Hansen Socket ML-3-H21-192 Hansen Socket ML-2-H16-192 Hansen Seal #914-3-192 Hansen Seal #902-14-192

APPENDIX A.2

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<u>P. O. No.</u>	<u>Vendor</u>	<u>Service Description</u>
84091-4297	Wallace Manufacturing 1300 W. Diversey St. Chicago, IL 60614	Form tube 0.625" OD x .049" wall. Material furnished by NES Mfg. Form tube 2.25" OD x .065" wall. Material furnished by NES Mfg.
84091-4664	Custom Industries 6106 W. Market St. Greensboro, NC 27409	Mill parts to length. NES Mfg. furnished 2 1/4" O.D. x .065" wall stainless tube
84091-4657	SAC Tool & Die Shop P.O. Box 5777 Greensboro, NC 27403	Machine end cap less turning. NES furnished material.
84091-4642	Custom Industries 6106 W. Market St. Greensboro, NC 27409	Tumble debur baskets, 3/8" wide x 2.75" O.D. x 2.5" I.D. Stainless steel. NES Manufacturing furnished material.
84091-4639	SAC Tool & Die Shop P. O. Box 5777 Greensboro, NC 27403	Square off and cut to length 12" sch. 10 pipe. NES Manufacturing furnished material.
84091-4632	Custom Industries 6106 W. Market St. Greensboro, NC 27409	Machine rib-bottom, lead-in sleeve, and center tube. NES Manufacturing furnished 3/8" x 3/8" random lengths, 1 1/4" sch. 10 pipe, 2.875" O.D. x .312" x random lengths.
84091-4608	Wallace Manufacturing 1300 W. Diversey St. Chicago, IL 60614	Cut and bend tube. NES Manufacturing to furnish 3/4" OD x .035 wall tubing. (101' length)
84091-4607	Custom Industries 6106 W. Market St. Greensboro, NC 27409	Machine bottom plate from 7/8" x 13 3/4" diameter plate, strap from 1" x 16 ga. strip, locating pins from 1" stock, NES Manufacturing furnished material.
84091-4337	K&C Machine 601 Industrial St. Greensboro, NC 27406	Machine top end plugs, bottom end caps, bottom end plugs, support and skirt from stock furnished by NES Manufacturing.

APPENDIX A.2

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<u>P. O. No.</u>	<u>Vendor</u>	<u>Service Description</u>
84091-4681	SAC Tool & Die Shop 802 Lexington Ave. Greensboro, NC 27405	Machine small parts from stock provided by NES Manufacturing.
84091-4467	America GFM 1200 Cavalier Blvd. Chesapeake, VA 23323	Machining parts material for which furnished by NES Manufacturing.
84091-4359	Machinex, Inc. P.O. Box 400 Arden, NC 28704	Machine nipple and bolt from 3/4" bar and 1 1/2" bar furnished by Manufacturing.

APPENDIX B

NONCONFORMANCE NO. 1

Section 2.1.2 of Bechtel Technical Specification 15737-2-M-101A states, in part, "The work by Seller shall also include...Receipt, inspection...of all buyer-supplied material...."

Section 5.5.2 of Specification 15737-2-M-101A states, in part, "The Buyer's quality surveillance activities shall not relieve the Seller of any...responsibilities to perform in accordance with this specification." Section 4.3 of Procedure N-10 of the QAM states, in part, "Unless otherwise provided for in customer...specification, a 100% inspection of all items manufactured...for NES/Selamco shall be imposed."

Section 3.2.10 of NES Procedure Q-12, "Inspection, and Acceptance Tags & Stamps," dated June 6, 1984 states, in part, "Customer furnished material is handled identical to material purchased by NES...."

Contrary to the above, receipt inspection was not performed on the following items purchased by Bechtel and shipped directly to the NES facility in Greensboro, North Carolina: neutron poison shrouds, lower and upper closure heads, bulkheads, filter bundles, recombiner catalyst, and DEOXO-D catalyst.

Cause:

Procedural inadequacy and lack of documentary evidence of receiving inspection activity. Although not documented adequately, receiving inspection was performed consistently for the items furnished and with due consideration of the Bechtel source inspection activity.

The neutron poison shrouds, the filter bundles and the lower closure heads were inspected in the shop by our customer (Bechtel North American Power Corporation) before shipment to NES Manufacturing. The neutron poison shrouds and filter bundles were packaged when received at NES Manufacturing, and receipt inspection was

performed to assure documentation availability and absence of container shipping damage. Receipt inspection on the lower closure heads was performed to assure documentation availability. These heads are dished steel plates with a weld preparation supplied on the perimeter. Dimensional verification was limited to assuring correct size as the weld preparation was to be reworked so as to be suitable for automatic welding.

The upper closure heads and the bulkheads were supplied to NES Manufacturing as raw materials, i.e., slugs. Receiving inspection was performed to assure documentation availability and adequacy.

Receipt inspection of the catalysts was performed to assure availability of documentation.

Remedial Action:

None

Remedial Action Date of Completion:

N/A

Preventive Action:

Revise NES Procedure Q-12 and N-10 to incorporate use of a material receiving report or receiving inspection report to more adequately document the results of receiving inspection and to incorporate requirements allowing appropriate credit to be taken for customer inspection where not precluded by other requirements. Train personnel in revised procedural requirements.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 2

Section 3.2.1 of NES Procedure Q-13, "Documentation and Control of Nonconforming Items and Services," requires that nonconforming items be segregated.

Section 4.4 of NES Procedure N-15 "Nonconforming Items and Services" of the QAM states, in part, "...control of nonconforming items shall be accomplished by tagging...physical segregation shall be used in addition to the tagging...."

Contrary to the above,

- 1) Approximately 10 pieces of 14" diameter nonconforming pipe were not segregated from acceptable pipe in a storage area, and the nonconforming pipe was not marked with a red tag.
- 2) Nonconforming poison tubes were segregated from acceptable tubes on carts in a storage area without tagging the nonconforming items.

Cause:

Paragraph 4.4 of NES Procedure N-15 states in total:

4.4 As a minimum, control of nonconforming items shall be accomplished by tagging, marking, or other means of identification. When practical, physical segregation shall be used in addition to the tagging, marking, etc.

It was not NES Manufacturing's intent to provide segregation in every case, however, in the cases noted by the Inspector, NES Manufacturing did fail to comply with segregation and tagging requirements.

Remedial Action:

The 9 pieces of 14" diameter pipe have been tagged to indicate their nonconforming status and have been placed in a fenced hold area.

The nonconforming poison tubes have been appropriately tagged and segregated. Rework has been done on some of the affected tubes. All other nonconforming items in the plant have been appropriately tagged and, where practical, segregated from acceptable like items.

Remedial Action Date of Completion:

Complete

Preventive Action:

A fenced area has been constructed to provide adequate availability for physical segregation of nonconforming items. Training of Quality Control/Quality Assurance personnel in procedural requirements for segregation and tagging of nonconforming items has been completed.

Preventive Action Date of Completion:

Complete

NONCONFORMANCE NO. 3

Welding procedure WPS-001 "GTAW-Manual/Machine," Revision B, requires that the voltage be 10 to 18 volts.

Contrary to the above, the voltage was not being maintained within the specification limits at the lower head welding station for the filter canister subassembly on five different occasions when a calibrated voltmeter on welding machine S/N 12RT-73449 was reading 8 volts.

Cause:

Welding machine fell out of calibration during calibration interval.

The welding station noted by the Inspector has two voltage meters, one on the base unit and one on the upper head. As part of the investigation of the nonconformance, all welding machines were checked for proper operation of meters. All units except the one in question were found to be reading properly. The lower meter on the machine was defective. The upper head meter was the meter most accessible to the welder during welding and was functioning properly. However, the upper meter was found to be inadvertently omitted from the calibration program and NCR #192 was written to document this condition. Deficiencies in the lower unit voltmeter would have been detected during routine calibration.

Remedial Action:

All welding machine voltmeters are recalibrated. The lower unit meter was replaced.

Remedial Action Date of Completion:

Complete

Preventive Action:

The interval for calibration of welding meters will be revised in NES Procedure Q-01 from 1 year to 6 months.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 4

Section 3.4.3 of NES Procedure No. MC-03, "Purchase Order Preparation, Processing and Placement," dated October 1983 states, in part, "If an approved vendor is required...the Buyer is required to: 1) use only sources who appear on NES/Selamco's current Qualified Source List..."

Contrary to the above, a review of 50 POs, thirty-five (35) for materials and fifteen (15) for services, and the Qualified Source List (QSL) indicated that orders were placed with 13 material vendors and 5 service vendors who were not on the QSL.

Cause:

Lack of procedural direction as to when an approved supplier is required.

It was not the intent of NES Manufacturing to require qualification of suppliers of small parts or catalog items, such as stock bearings, fittings, etc., where the designers specifically called these items out on drawings or in specifications by part number or description. Discretion was left to the requisitioner as to whether or not an approved supplier was required.

Remedial Action:

NES Manufacturing has defined those products which require supply under a qualified QA Program (see Attachment 4.1). Evaluation of the one hundred forty-seven purchase orders using Attachment 4.1, led to the need to post-qualify four vendors (Custom, Cambridge Wire Cloth, Wallace Manufacturing, SAC Tool and Die). All have been satisfactorily qualified except Wallace Manufacturing, which we are in process of qualifying.

Remedial Action Date of Completion:

September 25, 1985

Preventive Action:

Further clarify NES Procedure MC-03 to provide adequate direction of the conditions under which an approved supplier is required (see Attachment 4.1). Train Engineering, Material Control and Quality Assurance personnel to revised procedural requirements.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 5

Section 6.5 of Bechtel Specification 15737-2-M-101A states, in part, "During storage the Seller shall protect all materials from loss, corrosion, damage, and distortion...."

Contrary to the above, items such as boral shrouds, stainless steel, and canisters were observed in outside storage areas without adequate protection from corrosion and damage.

Cause:

All of the items noted are materials which based on specification requirements are suitable for outdoor storage provided that the storage area is not subject to traffic and that the items are placed on dunnage or cribbing. The NES Manufacturing Quality Assurance Manual Section N-13, paragraph 5.1 states that when "necessary for a particular item to have special...storage...conditions..., they are specified by Manufacturing Engineering in the traveler and are reviewed by Quality Assurance, performed by Manufacturing and Material Control and are verified by Quality Control." The storage conditions specified were considered good commercial practice and special surveillance over the material was not included in a traveler.

Remedial Action:

An upgrade of storage conditions was performed during the NRC visit and has been maintained.

Remedial Action Date of Completion:

Complete

Preventive Action:

A weekly surveillance of storage areas has been initiated by Quality Assurance personnel and will continue until such time as it is evident that items are being properly stored, at which time the frequency may be reduced.

Preventive Action Date of Completion:

Initiate surveillance: Complete.

NONCONFORMANCE NO. 6

Section 4.1.4 of NES Procedure N-7, "Control of Purchased Material, Equipment and Services," of the QAM states, in part, "NES/Selamco qualified sources for material and services for construction of items are audited by NES/Selamco Quality Assurance, NES QA, or qualified designees..."

Contrary to the above, orders were placed with 22 material vendors and 10 service vendors, but an audit was not performed on 18 vendors (12 material- A-Jay Metal Supply, Cambridge Wire Cloth, Southern Spring and Stamping, Automotive Fasteners, Charlotte Valve and Fittings, Dixie Bearing, ENSCO, B&W-Advanced Ceramics, Engineered Plastics, B&B Hose and Rubber, Air Products and Advanced Products and 6 service- Wallace Manufacturing, Custom Industries, SAC Tool and Die shop, K&C Machine, Machinex, and Conam Inspection).

Cause:

Unclear QA Manual requirements in combination with lack of an implementing procedure.

Remedial Action:

NES Manufacturing has established an audit frequency definition that will be incorporated in procedures as stated below:

All vendors required to implement an NES approved Quality Assurance Program shall be audited for continued inclusion on the qualified suppliers list at three year intervals (minimum). On orders involving engineered items, i.e., where the ordered item is complex in design or fabrication, an audit shall be performed once within the life of the contract. The Quality Assurance Manager shall determine upon review of the purchase order, those orders requiring audits at less than a 3 year period and shall post those audits on the schedule of audits.

Based on this criteria, NES Manufacturing reviewed the 147 purchase orders issued on the canister work. Six vendors should have been audited who weren't audited.

Cambridge Wire Cloth	-	Post - qualified in July, 1985
K&C Machine	-	Post - qualified in June, 1985
Custom	-	Post - qualified in June, 1985
SAC Tool & Die	-	Post - qualified in June, 1985
Wallace Mfg.	-	To be evaluated by September 25, 1985
Pall Trinity Micro	-	To be evaluated by September 25, 1985

The following vendors were audited/surveyed/reviewed for inclusion on the qualified suppliers list as shown:

<u>Vendor</u>	<u>Last Audit/Survey</u>	<u>Product</u>
Sunox	9/82	Weld Electrode
Keystone	9/84	Stock material supply
Dubose	3/84	Stock material supply
Carolina Steel	12/82	Stock material supply
Ryerson	10/84	Stock material supply
BISCO	9/82	Poison
Jessop	1/84	Stock material supply
A-Jay Metals	8/84 (NES Qualified)	Stock material supply
Brown-Boveri	2/85	Machining
Amer. GFM	5/85	Machining
Pittsburgh Test. Lab.	1/85	NDE
Adv. Refr. Tech.	4/85	Poison
D. S. Miller	6/85	Machining
Wysong	5/85	Machining

Two other vendors should be noted; NES Manufacturing placed purchase orders with Pall Trinity Micro Corporation based on Bechtel supply of items to us from Pall Trinity and all of Conam Inspection's work has been redone and will not be presented for acceptance.

In summary, six vendors were not audited that should have been using the criteria for audits established. Five of those in question were suppliers of machining or bending services, for which a limited material identification and control program would have sufficed for an acceptable quality program. Four of the five have been satisfactorily post-qualified and one is scheduled for evaluation (Wallace). Pall Trinity Micro Corporation who supplied filter discs and plates will be audited by September 25, 1985.

Remedial Action Date of Completion:

September 25, 1985

(Complete Audits of Wallace and Pall Trinity Micro)

Preventive Action:

A procedure will be developed or an existing procedure modified to specify audit frequencies as stated in the Remedial Action above to maintain their qualification as an approved vendor. Training will be provided to affected personnel to enhanced procedural requirements.

Preventive Action of Completion:

September 25, 1985

NONCONFORMANCE NO. 7

Section 7.2 of Bechtel Technical Specification 15737-2-M-101A for Fabrication of Defueling Canisters, dated November 11, 1984 requires NES to have a QA program which meets the applicable requirements of ANSI N45.2.

Section 5 of ANSI N45.2 states, in part, "...procurement documents shall require contractors to provide a Quality Assurance Program consistent with the pertinent requirements of this standard."

Section 4.7 of NES Procedure N-4, "Procurement Document Control," of the QAM states, in part, "...procurement documents shall require contractors or subcontractors to provide a Quality Assurance Program consistent with ANSI N45.2 or Appendix B of 10 CFR 50."

Contrary to the above, a review of 50 POs, thirty-five (35) for material and fifteen (15) for services related to the defueling canister fabrication program, revealed that none of the POs required the vendor (i.e., contractor/subcontractor) to have a QA program consistent with ANSI N45.2 or Appendix B of 10 CFR Part 50.

Cause:

Inadequate procedural direction and failure of Quality Assurance personnel to enforce provisions of NES Procedure MC-03, Purchase Order Preparation, Processing and Placement.

Procedure MC-03 requires a Quality Engineer to review the procurement document and invoke a Quality Assurance Program consistent with the scope of supply, but no guidance is included in the procedure on selecting an appropriate quality program among those listed (MIL-Q-9858, MIL-I-45208, 10 CFR 50, App. B, and NCA-4000).

Remedial Action:

As noted in response to Nonconformance Number 4, NES Manufacturing has established guidance for those items and services required to be supplied with a Quality Assurance Program of a type suitable to the purchase. These requirements will be included in Procedure MC-03 or another suitable procedure. Based on an evaluation of the 147 purchase orders for the canister work, a list of purchase orders by vendor that should have had QA Program requirements imposed follows:

<u>Vendor</u>	<u>P.O.</u>	<u>PRODUCT</u>
Sunox	3854, 4408	Welding electrode, filler metal
Pall Trinity	3936	Filtration equipment, materials
Keystone	3938, 4008, 4279, 4283, 4447	Stock material supply
Dubose	3941	Stock material supply
Carolina Steel	3998, 4282, 4363, 4413, 4790	Stock material supply
Ryerson	4009	Stock material supply
BISCO	4032	Poison
Jessop	4276	Stock material supply
Cambridge Wire Cloth	4280, 4286	Filter screens
Wallace Manufacturing	4297	Bending/Forming
A-Jay Metal	4298	Stock material supply
Brown-Boveri	4326, 4488	Machining
K&C Machine	4337	Machining
American GFM	4467, 5109	Machining
Pittsburgh Test. Lab.	4489, 4462	NDE
Custom	4607, 4632, 4664	Machining
SAC Tool & Die	4639, 4657	Machining
Advanced Refr. Tech.	4789	Poison
D. S. Miller	4852	Machining
Wysong	5108	Machining

All of the above have an NES approved quality program except Wallace Manufacturing whose program will be evaluated by September 25, 1985. NES will obtain a Certificate of Compliance from each of the vendors that the NES approved quality program was implemented during the performance of work on the purchase order.

Remedial Action Date of Completion:

September 25, 1985

Preventive Action:

Revise NES Procedure MC-03 to provide additional guidance on specifying in purchase documents that the NES approved QA Program is to be implemented on work when

required. The procedure will also be amended to include requirements for obtaining documentary evidence of program compliance on documentation accompanying shipment when required to substantiate vendor QA Program implementation. Training will be provided to affected personnel to enhanced procedural requirements.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 8

Section 4.3.2 of Bechtel Specification 15737-2-M-010A states, in part, "All welding...procedures shall be in accordance with Specification 15737-G-300."

Section 11.1.1 of Bechtel Specification 15737-G-300 "General Welding Requirements" dated September 1, 1971 states, in part, "Only those welding procedure specifications...that have been reviewed by the Buyer shall be used for production welding."

Contrary to the above, unapproved welding procedure WPS-002 "GMAW-Short Circuiting Transfer" was used on joint No. 4 of the filter can subassembly for Traveler S/N 4104.

Cause:

Operator error.

The traveler 84091-0004104 clearly states that only WPS-001 and alternatively WPS-004 are allowed to be used.

Remedial Action:

Customer approval has been obtained via NCR/SDDR for the use of the short-arc procedure on a one time basis. A sample of 30 other cannister travelers have been satisfactorily reviewed to assure that the situation is not prevalent.

Remedial Action Date of Completion:

Complete

Preventive Action:

Welder #20 has been trained on the importance of using only traveler identified welding procedures. This training has been documented.

Preventive Action Date:

Complete

NONCONFORMANCE NO. 9

Section 4.3.1.5 of Bechtel Specification 15737-2-M-101A states, in part, "Recombiner elements shall be handled only in a clean work area....Care must be exercised to protect the recombiner from contamination during canister fabrication."

Contrary to the above, it was observed that recombiner elements installed in lower heads were exposed to dirt and grinding particles on the floor of the shop next to the head closure welding operation.

Cause:

The recombiner elements were stored in plastic bags folded under to protect element cleanliness. Although the surfaces of the bags were subject to shop dirt and debris, an inspection of 10% of the wrapped elements revealed no contamination of the interior.

Corrective Action:

As NES Manufacturing does not believe that a nonconformance occurred, no corrective action is proposed.

NONCONFORMANCE NO. 10

Section 3.3 of NES Procedure MC-04, "Identification and Control of Material, Parts and Components," dated June 6, 1984 states, in part, "Material Control is responsible to assure item identification...is maintained and recorded for traceability through fabrication processes...."

Section 4.5 of NES Procedure MC-04 states, in part, "Material Control adjusts the Traveler quantities, identification, traceability entries...."

Section 4.7 of NES Procedure MC-04 states, in part, Quality Control inspectors who complete final inspection operations on a Traveler complete a green Accepted Tag or Label...."

Section 4.9 of NES Procedure MC-04 states, in part, "...minimum traceability information is: 4.9.1 the Purchase Order, Work Order and/or heat number of material appearing on the green Accepted Tag or Label, if no other fabrication operations were required on the item, by Traveler, after receipt at NES/Selamco, or 4.9.2 the preceding Traveler serial number..."

Contrary to the above, material was not properly identified, stored or accounted for as evidenced by:

- 1) Tags or other identifying means were not used or otherwise became separated from material such that the heat numbers and other identification were not maintained.
- 2) Integrity of "lots" identified by single tags or other means of identification was lost by mixing together similar material from different heats.
- 3) Heat numbers were obliterated in the manufacturing processes without the installation and maintenance of effective compensating identification measures.
- 4) Quantities of materials stated on tags and travelers did not match the quantities in the given lots.

Cause:

Overly stringent procedural requirements combined with lack of attention to procedural compliance.

Identification and control of items was lost after initial acceptance of the material.

Remedial Action:

NES Manufacturing has reestablished traceability of those items where possible through the use of vendor marking, dimensional verification, NES marking, etc. Nonconformance Reports have been written where traceability cannot be positively verified.

NES Manufacturing does not stock materials (other than welding electrode, penetrants, etc.) and buys materials specifically for work orders received. All materials received are receipt inspected and traceability was lost after initial acceptance. As a result, traceability in many cases is recoverable by work order marking and dimensions, vendor marking on materials purchased on an order unique to a work order, etc. Using this knowledge, NES Manufacturing has been able to reestablish with confidence the acceptability of materials.

Remedial Action Date of Completion:

Complete

Preventive Action:

Improved material controls will be reflected in NES Procedures. A key element of these controls will be to establish positive marking on materials by traveler number as materials are dedicated to an assembly and posted to travelers. Training will be provided to affected personnel on enhanced procedural requirements.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 11

Section 6.1 of Bechtel Specification 13587-G-400, "Chemical Requirements For Materials Used In Contact With Austenitic Stainless Steel" dated February 22, 1980, states, that "Adhesive backed and pressure sensitive tapes shall have the total halogen and sulfur content each less than 1000 ppm."

Contrary to the above, the tape currently in use in the fabrication area has not been certified as meeting the limits for halogens and sulfur.

Cause:

As noted by the Inspector, NES Manufacturing has attempted to use certified tape however, we have failed to fully restrict use of adhesive tapes to those acceptable for stainless steel.

Remedial Action:

All uncertified tape still on rolls has been confiscated. Any accessible areas where tapes were used will be cleaned with a suitable solvent such as acetone, MEK or Stoddard solution to remove residual adhesive.

Remedial Action Date of Completion:

Complete for confiscation; September 25, 1985 for cleaning.

Preventive Action:

NES Manufacturing will standardize the ordering of tape to a low sulphur/halogen tape suitable for use on all work. Training will be provided to personnel involved with marking or tagging material to assure that unacceptable tapes are not used.

Preventive Action Date of Completion:

Complete

NONCONFORMANCE NO. 12

Section 4.5.2 of NES Procedure Q-10, "Document Control," dated December 12, 1984, states that (1) "Manufacturing Engineering notifies the Engineering Control Clerk to recall drawings when a change is required, by means of the Work Change Notice, (2) Material Control retrieves all controlled copies in the plant and returns them to the Engineering Control Clerk who destroys all copies except one which is stamped 'obsolete' and is filed in the Master Work Order folder for reference."

Contrary to the above,

- 1) One Work Order Change Notice issued a drawing revision for use without specifying that the obsolete drawing should be recalled.
- 2) Eight obsolete drawings were found in the Master Work Order drawing file without the required "obsolete" stamp.

Cause:

Administrative error; failure to comply with procedure by individuals involved.

Additionally with respect to item 1), investigation of the nonconformance indicates that there are no outstanding NES internal Work Order Change Notices. The only Work Order Change Notices outstanding against drawings are those sent to vendors/outside parties who failed to return an obsolete copy. Follow-up does not occur via formal means to enforce return.

Remedial Action:

- 1) Notices have been sent to those vendors/outside parties informing them of their failure to return an obsolete copy of outdated drawings.

- 2) Master Work order drawing files have been reviewed to assure all drawings required to be marked "obsolete" are indeed so marked.

Remedial Action Date of Completion:

Complete

Preventive Action:

- 1) Establish follow-up measure to assure receipt acknowledgment by outside parties. Discontinue practice of requiring return of obsolete prints from outside sources; the vendor/outside party should be responsible for document control.
- 2) Train Manufacturing Engineers on the need to mark prints "obsolete" as they are retired based on later revisions.

Preventive Action Completion Date:

September 25, 1985

NONCONFORMANCE NO. 13

Section 3.1 of NES Procedure N-8, "Identification and Control of Material Parts, and Components," of the QAM states, in part "...measures are established for assuring that only correct and accepted items are used...and relating to an item of production at any stage...to an applicable drawing, specification, or other pertinent technical document.

Contrary to the above, a number of poison tubes covered by Traveler S/N 004096 contained etched identification on the outside diameters while other poison tubes did not contain etched identification. The identification numbers did not relate to applicable documents.

Cause:

The original manufacturing plan for the poison tubes included subcontracting the loading of powdered poison by a contractor, BISCO. BISCO was unable, however, to achieve the density required even by tamping and it was decided to pelletize the poison to achieve the loading density required. Part of BISCO's in-house process included etching identification on the poison tubes traceable to the poison lots. Due to the inability to achieve required density, BISCO discontinued work on poison loading and the marking placed on the tube by BISCO was not removed. The numbers relate only to the BISCO operation.

NES Manufacturing maintains traceability of poison lots by etched marking on the poison tube caps. Advanced Refractory Technologies, the pellet supplier, provides NES Manufacturing with a batch number (poison lot number) and "tray" number (quantity sufficient to fill one poison tube) for each quantity of poison. As NES Manufacturing completes a tube, each end cap is marked with the batch and "tray" number.

Corrective Action:

As NES Manufacturing does not believe a nonconformance occurred, no corrective action is proposed.

NONCONFORMANCE NO. 14:

Section 5.7 of NES Procedure N-7, "Control of Purchased Material, Equipment, and Services," of the QAM states, "Received material shall be inspected by Quality Control to ensure supplier compliance to purchase order requirements."

Section 5.5 of NES procedure N-7 states, in part, "Results of each receipt inspection are recorded in the Supplier Quality History Log."

Section 4.3 of NES Procedure N-10, "Inspection," of the QAM states, in part, "...a 100% inspection of all items manufactured by and/or for NES/Selamco shall be imposed."

Section 3.2.6 of NES Procedure Q-12, "Inspection and Acceptance Tags & Stamps," dated June 6, 1984 requires that receipt inspection be performed to assure that dimensions are within the limits of acceptance on drawings.

Contrary to the above, there was inadequate documentation to show that receipt inspection was performed on certain items and drawings could not be located to determine whether or not the required dimensional check was performed on items machined or formed by vendors (POs 4297, 4657, 4639, 4607, and 4467). SQHLs were also missing for two material vendors (POs 4404, 4356), and one service vendor (PO 4467).

Cause:

SQHLs were located and are available showing that dimensional inspection was performed on material received on POs 4297, 4356, 4404, 4639, 4607, 4467. The SQHL in each case shows that such a check was performed.

There was no SQHL page for the vendor of PO 4467 at the time of the inspection. This was the first purchase to the vendor. Their first shipment of ten machined parts arrived at NES Manufacturing on June 3, 1985, but was not receipt inspected until July 22, 1985, after the NRC inspection. The dates of arrival and inspection are clearly shown on the receiving inspector's copy of the PO. The SQHL entries are consistent with the PO entries.

Remedial Action:

None required

Remedial Action Date of Completion:

N/A

Preventive Action:

As described in response to Nonconformance Number 1, the receiving inspection procedures will be revised to include a Material Receiving Report or Receiving Inspection Report form which will present all of the documentation of the inspection in one place. The Supplier Quality History Log system and the source inspection system will also be reviewed for possible revision.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 15:

Section 5.5 on NES Procedure N-7, "Control of Purchased Material, Equipment and Services," of the QAM states, in part, "Results of each receipt inspection are recorded in the Supplier Quality History Log."

Section 4.1 of NES Procedure N-10, "Inspection," of the QAM states, in part, "Inspection...records shall, as a minimum, identify...the inspector...the type of observation, the results..."

Section 4.1 of NES Procedure N-17, "Quality Assurance Records," of the QAM states, in part, "Inspection...records shall contain...A description of the type of observation...Inspector or Data Recorder identification..."

Contrary to the above, a review of Supplier Quality History Logs (SQHL) for receipt inspection activities of material and services purchased by NES indicated that none of the SQHLs described the type of observation, identified the inspector, or documented the results of the inspection.

Cause:

Poor receiving inspection documentation practices. By themselves, the Supplier Quality History Logs (SQHLs) do not meet all of the requirements for documentation of an inspection. The total documentation of a receiving inspection does not consist

solely of the SQHL, it consists of the SQHL and the receiving inspection copy of the Purchase Order.

The SQHL does indicate the type of observation in that "dimensional" or "cleanliness" are circled on the SQHL.

The inspector performing the receiving inspection stamps the receiving inspection copy of the Purchase Order. Stamps are valid as signatures under the NES Manufacturing program.

The results of the receiving inspection are documented on the SQHL in the three columns headed "QTY REC'D", "QTY ACC", and "QTY REJ".

While not presented in clear, precise, simple terms on a single piece of paper, the required elements for documentation of an inspection are present.

Remedial Action:

None proposed

Remedial Action Date of Completion:

N/A

Preventive Action:

As described in response to Nonconformance Number 1, a Material Receiving Report or Receiving Inspection Report will be initiated by procedure. This report will present all of the required elements of documentation of a receipt inspection on a single report.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 16:

Section 3.2.9 of NES Procedure Q-12, "Inspection and Acceptance Tags & Stamps," dated June 6, 1984 requires Quality Assurance to file completed copies of certified material test reports (CMTR) and certificates of conformance (CC) for NES purchased items.

Section 5.2 of NES Procedure N-17, "Quality Assurance Records," of the QAM states, "Quality Assurance shall ensure that records are maintained as specified throughout manufacturing and storage.

Contrary to the above, a review of QA records indicated that CMTRs and/or CCs from material suppliers/manufacturers were missing for items on POs 4302, 4298, 4639, 5103, and 4467.

Cause:

Poor receiving inspection documentation practices.

A review of the purchase orders noted by the inspector was performed:

P.O. 004302 - Certificates located and filed.

P.O. 004298 - Certificates for 5 of 6 materials located and filed.

P.O. 004639 - Certificates on file for base material.

CC for machining not received.

P.O. 005103 - Attempting to obtain Certification since June 14, 1985

P.O. 004467 - Certificates on file for base metal.

C of C for machining not received.

As material is received, CMTRs/C of Cs are transmitted to Quality Assurance for filing by the work order number. As material is issued and dedicated to a particular canister, a traveler entry is made to document the material. When a data package is assembled at the end of the work, a material takeoff is performed of the travelers and material certifications are collected for the package.

Remedial Action:

Locate items still missing. Prior to the data packages being completed all CMTRs/C of Cs applicable to the material will be collected and if some remain missing, new certificates will be obtained from the vendor.

Remedial Action Date of Completion:

Consistent with completion of canister data packages.

Preventive Action:

A Material Receiving Report or Receiving Inspection Report will be instituted by procedure and as described in response to Nonconformance Number 1. This record will provide documentation of the verification that CMTRs/C of Cs are received as required by procurement documents. Training will be provided to the enhanced controls.

Preventive Action Date of Completion:

September 25, 1985

NONCONFORMANCE NO. 17

Section 3.3 of NES Procedure N-5, "Instruction, Procedures, and Drawings," of the QAM states, "The verification responsibility for instructions, specifications, sketches, procedures and standards is that of the Quality Assurance Department."

Contrary to the above, a note was attached to Traveler S/N 004096 which had not been approved by the NES QA Department and which provided instructions for identifying poison tube assemblies with lot and tray numbers was not approved by the QA Department [sic].

Cause:

Personnel error.

Remedial Action:

The subject traveler has been revised to incorporate identification requirements. This condition was an isolated instance.

Remedial Action Date of Completion:

Complete

Preventive Action:

None. This condition was evaluated as an isolated instance.

Preventive Action Date of Completion:

N/A

NONCONFORMANCE NO. 18

Criterion I of Appendix B to 10 CFR 50 states, in part: "The authority and duties of persons and organizations performing activities affecting the safety-related functions of structures, systems, and components shall be clearly established and delineated in writing."

Contrary to the above, the NES QAM, Revision 0, dated April 1984 does not, in all cases, contain the current information with respect to the authority and duties of persons performing activities affecting quality as indicated by the following examples:

- 1) The NES QAM was not prepared or approved by the present QA Manager and not approved by the present General Manager.
- 2) The organization chart in the NES QAM does not reflect a recent reorganization.

Cause:

NES Manufacturing is a corporate business entity and individuals within the organization change. Item 1) suggests that at each change in a management position, where an individual in that position has signed a procedure or manual, a new approval be obtained by the new employee. Positions are reflected in procedures and manuals for responsibility assignments. Procedures and manuals are valid in terms of being "approved for release by authorized personnel" if they are signed by individuals occupying the position with approval responsibility at the time of approval.

With respect to item 2), two recent organizational changes have been made. The first a change in title from "Vice President NES Manufacturing" to "General Manager of NES Manufacturing" was addressed by memorandum dated April 18, 1985, to all holders of the Quality Assurance Manual with notice that the Manual would be revised shortly. The second change, the change in reporting responsibility for the Quality Assurance Manager from the General Manager - NES Manufacturing to the Quality Assurance Manager NES Division was affected between the two NRC inspections. Both changes should have been instituted via a Manual change prior to implementation, but as both were enhancements of the Quality Assurance Program, NES Manufacturing considered it desirable to affect the changes prior to revising the Manual. This practice will be discontinued on major organizational changes.

Remedial Action:

Revise the QA Manual to reflect organizational changes.

Remedial Action Date of Completion:

September 25, 1985

Preventive Action:

The Manual will be revised to define "significant organization changes" and to require QA Manual revision prior to implementation of such changes.

Preventive Action Date of Completion:

September 25, 1985.

NONCONFORMANCE NO. 19:

Section 3.1 of NES Procedure N-6, "Document Control," of the Quality Assurance Manual (QAM), dated April 1984, states, in part, "Policy/Procedure Q-10 controls...documents...which prescribe activities affecting quality."

Contrary to the above, NES Policy/Procedure Q-10 "Documental Control," dated March 30, 1984 did not contain measures to assure that current procedures are retained in manuals, as evidenced by a review of the "Bechtel Canister Program Procedures -84091" manual. A review of copies of this manual in two fabrication areas revealed that a copy of Procedure 15737-2-M101A-00031-02 "Packaging and Shipping" dated January 2, 1985 was missing; and superseded copies of weld procedure WPS0001 "GTAW," dated December 15, 1981 and February 7, 1985, were in both manuals.

Cause:

Misguided attempt to keep shop personnel aware of procedural requirements and not maintaining the controls necessary to implement such an effort.

Books of procedures were developed and placed directly in shop work areas but inadequate controls were applied to assure that revisions to procedures were incorporated.

Remedial Action:

Inadequately controlled books were removed from use. Controlled books were issued to shop supervision to assure accessibility to shop personnel for procedural direction.

Remedial Action Date of Completion:

Complete.

Preventive Action:

None proposed as this is an isolated instance.

Preventive Action Date of Completion:

N/A

NONCONFORMANCE NO. 20:

Section 5.1.1 of Bechtel Technical Specification 15737-2-M-101A states, in part, "Nondestructive examination personnel shall be qualified in accordance with SNT-TC-1A (1980)."

Section 5.6 of NES Procedure N-2, "Quality Assurance Program," of the QAM states, in part, "...qualification and certification of nondestructive examination personnel...is in accordance with the written practice of the American Society of Nondestructive Testing SNT-TC-1A."

Section 9.5 of SNT-TC-1A requires that the employer who purchases outside NDE services be responsible for assuring that training and examination services are in accordance with the employer's written practices.

Section 3.2.5.4 of NES Procedure No. Q-11, "Control of Special Processes" dated June 6, 1984 states, in part, "The requirements for sub-contracted operations shall be the same as those for NES/Selamco, including the obtaining of a copy of their written practices."

Contrary to the above, there was no documented evidence that NES had copies of the written practices of Conam Inspection (CI) or Pittsburgh Testing Laboratory (PTL) for all phases of certification of NDE personnel, or that NES had approved the two written practices.

Cause:

All Conam performed work has been redone and no work performed by Conam will be presented to the customer for acceptance. The failure to have a copy of Pittsburgh Testing Laboratory's written NDE practice was an administrative oversight.

Remedial Action:

A copy of PTL's written practice was obtained during the inspection and has been reviewed and approved by NES Manufacturing.

Remedial Action Date of Completion:

Complete.

Preventive Action:

The NES Division QA Manager has written a memorandum to the NES Manufacturing QA Manager reminding him of procedural requirements for obtaining written practices of NDE subcontractors.

Preventive Action Date of Completion:

Complete

NONCONFORMANCE NO. 21

Section 3.2.5.4 of NES Procedure Q-11 "Control of Special Processes," dated June 6, 1984 states, in part, "NES/Selamco shall approve...subcontractors Level III status in that area of NDE..."

Contrary to the above, there was no documented evidence that NES had approved the Level III status of a PTL employee and a Conam employee who had certified two Level II examiners in April and July 1985. One Level II performed RT on weldments on four occasions from April through June 1985, and the other performed RT on weldments on seven occasions in May 1985.

Cause:

All Conam performed work has been redone and no work performed by Conam will be presented to the customer for acceptance.

In qualifying PTL for supply of NDE services, evaluation was provided as to the adequacy of PTL's local Level III qualification and copies of his certification/qualifications were on file at the time of the inspection. The Level III located in Pittsburgh certified a Level II RT person located in Greensboro who was involved in NES Manufacturing work. The Pittsburgh office Level III certification was not on file. The Level II RT person did not interpret any radiographs for NES Manufacturing.

Remedial Action:

A copy of PTL's Level III qualifications have been obtained for NES Manufacturing's files. There are no other Level III personnel involved in NES Manufacturing's work whose certifications are not approved or on file.

Remedial Action Date of Completion:

Complete.

Preventive Action:

The NES Division QA Manager has written a memorandum to the NES Manufacturing QA Manager reminding him of the procedural requirements for approval of subcontractor Level III personnel.

Preventive Action Date of Completion:

Complete.

NONCONFORMANCE NO. 22

Section 2.2 of NES Procedure Q-04, "Qualification of Inspection, Examination, and Testing Personnel," dated October 2, 1981 states, in part, "This procedure applies to all Quality Personnel...who perform inspections, examinations, and tests during fabrication...."

Section 4.5.1 of NES Procedure Q-04 states, in part, "The Qualification of Personnel shall be certified in writing on the form NES/Selamco Certification of Qualification for Inspection, Examination, and Test Personnel..."

Contrary to the above, it was noted that the QA Manager and four QC Inspectors had passed a written examination for certification, but the certification form had not been completed.

Cause:

Poor follow-up on completion of documentation.

Remedial Action:

The certification files for all inspectors currently certified by NES Manufacturing have been reviewed and brought into conformance with the requirements. No other examples of missing certification forms were noted.

The certification files for inspectors certified by NES Manufacturing who worked in the plant within the past year will be reviewed and brought into conformance with the certification procedure.

Remedial Action Date of Completion:

For current inspectors - complete.

For inspectors no longer employed - September 25, 1985.

Preventive Action:

The NES Division Quality Assurance Manager has written a letter to the NES Manufacturing QA Manager reminding him of the need to complete certifications prior to using personnel on work requiring certification.

Preventive Action Date of Completion:

Complete.

ATTACHMENT 4.1

The need for obtaining items and services from a qualified source shall be based on the following. The following is not intended to be all inclusive and job requirements may alter this direction.

1. The following items shall be purchased from a vendor listed on the Qualified Suppliers List:

- Engineered items such as pumps, valves, piping components, filter elements, hose, strainers, motors, etc.
- Machining and forming services (Quality Assurance Program may be limited to material identification and control program).*
- NDF Services.
- Services including welding or heat treatment in the scope of supply.
- Painting or coating services subject to nuclear coating requirements.
- Calibration services.
- Material supply for sizes other than those specified in 2. below.
- Material supply of welding electrode, filler metals.
- Shielding materials other than lead.
- Engineering Services including design, engineering evaluations.

* Machining of products excluded by 2. or 3. is also excluded from being supplied from a QSL listed vendor.

** When calibration services is included in purchase the service must be from an approved vendor.

*** Care should be exercised with respect to items coming into contact with materials sensitive to halogens/sulphur.^{4.1-1}

2. The following items need not be purchased from a vendor on the Qualified Suppliers List but shall be furnished with a Certificate of Compliance. In the case of pressure-retaining materials, the Certificate of Compliance shall list material specification, grade, class and heat treated condition:

- Fasteners of 1" nominal diameter and less, including cap screws, machine screw fasteners, bolts, nuts, washers, studs, dowels, pins, etc.
- Piping components 2" nominal pipe size and less, including nipples, tees, couplings, reducers, elbows, straight lengths of pipe, tubing, tubing fittings, compression fittings, etc.
- Fittings greater than 2" nominal pipe size when specified on customer drawings/specifications by manufacturer's part number or catalog number.
- Gasket and sealing materials, including compression gaskets, "O" rings, "C" rings, etc.
- Structural materials 2 sq. in. in cross sectional area and less, including structural shapes, plate, strip and other forms when used as structural members.
- Machine elements such as bushings, springs, gears, racks, tolerance rings, bearings, etc. when specified on customer drawings/specifications by manufacturer's part number or catalog number.
- Chemicals including thread seals and lubricants.
- Lead and rubber.
- Paint, coatings (not subject to nuclear coating requirements)
- Temperature indicating crayons.
- Welder qualification coupons, welding gases and purges.

- Pumps and valves 2" nominal pipe size and less when specified on customer drawings/specifications by manufacturer's part, catalog or serial number.
 - Electrical components when specified on customer drawings/specifications by manufacturer's part, catalog or serial number.
3. The following materials need not be purchased from a vendor listed on the Qualified Suppliers List:
- Measuring and test equipment.**
 - Rentals of tools and equipment.
 - Concrete, lumber, scaffolding, packaging materials***, walkways.
 - Tooling and tools.
 - Handling components
 - Hydrotest/testing materials and components**, ***
 - Nameplates.