



SNM-42, CHAPTER 10

SNM-42

CHAPTER 10

DECOMMISSIONING

Date: 11/14/07



CHAPTER 10
 DECOMMISSIONING
 TABLE OF CONTENTS

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
10.0	Introduction	10-1
10.1	Performance Objective	10-1
10.2	Plan	10-1
	10.2.1 General Considerations	10-2
	10.2.2 Procedure	10-3
	10.2.3 Final Report and Release	10-5
10.3	Financial Assurance	10-6
	10.3.1 Financial Assurance for [REDACTED] Areas	10-6
	10.3.2 Financial Assurance for RTRT Areas	10-6
	10.3.3 Financial Assurance for LTC	10-7
	10.3.4 Financial Assurance for Downblending Areas	10-7
	10.3.5 Standby Trust Agreement	10-7
10.4	Cost Estimates	10-7
Appendix	10-1 Financial Assurance for Decommissioning through [REDACTED] Contract with DOE	10-8
Appendix	10-2 Letter of Attestation Between B&W and DOE	10-13
Appendix	10-3 Financial Assurance for Decommissioning through RTRT Contract with Battelle Energy Alliance, LLC	10-17
Appendix -	10-4 Financial Assurance for Decommissioning through RTRT Contract with UT Battelle, LLC	10-21
Appendix	10-5 Decommissioning Cost Estimate for Downblending Areas	10-26
Appendix	10-6 Decommissioning Cost Estimate for Research Test Reactor and Targets (RTRT) Facility	10-32
Appendix	10-7 Decommissioning Cost Estimate for the Lynchburg Technology Center	10-42

Research Test Reactor and Targets (RTRT)

- [REDACTED] Manufacturing Areas

Lynchburg Technology Center (LTC)

- Building [REDACTED]
- Building [REDACTED] Facilities
- [REDACTED] Facilities
- [REDACTED]

Downblending Areas

- [REDACTED]
- [REDACTED]
- [REDACTED]

Additionally, radioactive materials have been buried on site in accordance with the requirements of 10 CFR 20.304 in an NRC (AEC) approved burial ground.

Accordingly, the procedures specified in this plan will be applied only to those areas where survey results indicate the presence of residual radioactive material in concentrations exceeding the limits specified by NRC at the time of decommissioning. The remaining areas at the NOG site will not require decontamination, and therefore, are not affected or covered by this plan.

10.2.1 General Considerations

- 10.2.1.1 Decontamination will be to levels not to exceed those specified by NRC at the time of decommissioning. In addition, a reasonable effort will be made to further reduce contamination to as low as reasonably achievable (ALARA).
- 10.2.1.2 A detailed survey plan shall be submitted to the NRC specifying the number, location, and type of samples to be analyzed to determine affected and unaffected areas. Affected areas will be remediated.
- 10.2.1.3 No covering will be applied to radioactive surfaces (e.g., paint, plating, etc.) until it is known that contamination levels are below those specified by NRC and until it is known that reasonable efforts have been made to further reduce contamination below said levels.
- 10.2.1.4 The radioactivity of interior surfaces of pipes, ductwork, etc., will be determined by taking measurements at all traps and other appropriate access points, provided contamination at these locations is likely to be representative of interior contamination. If such access locations are not

likely to be representative, or if interior surfaces are inaccessible, then such interior surfaces shall be assumed to be contaminated in excess of levels specified by NRC.

- 10.2.1.5 Security consistent with the provisions of the facility's physical security plan currently incorporated in License SNM-42 will be maintained until [REDACTED] special nuclear material in excess of [REDACTED] has been removed from the licensed areas. Thereafter, access control shall be maintained to preclude unrestricted access to contaminated areas pending release for unrestricted use under 10.2.3 below.

10.2.2 Procedure

- 10.2.2.1 This procedure shall apply after all readily removable sources and special nuclear material has been removed from the NOG site.
- 10.2.2.2 A radiological survey will be made to determine affected areas and unaffected areas. This survey will be reviewed with NRC and will include:
- a. floor core samples
 - b. core samples of earth beneath the floor
 - c. roof smear samples
 - d. block and concrete wall samples at a depth of 1/8 inch or more.
 - e. smears of sheet metal and ceramic walls both on and below paint
 - f. smears of glass and plastic windows
 - g. smears of roof trusses and supports
 - h. core samples of earth beneath and adjacent to underground sewer lines.

Records and drawings of sample locations and results will be maintained.

- 10.2.2.3 Contaminated equipment will be disposed of at an NRC licensed or DOE disposal facility. Equipment disposed of by burial will not be decontaminated; rather, the equipment will be cleaned in a manner comparable to the cleaning performed in preparation for a physical inventory.

Contaminated equipment may be sold for use at another fuel cycle facility. In such instances, all exterior surfaces will be cleaned to levels

permissible for restricted areas. The equipment will be packaged and transported in accordance with DOT and NRC regulations.

Equipment may be sold for use at non-nuclear facilities. In such instances, all surfaces (interior and exterior) will be decontaminated to levels not to exceed those specified by NRC.

- 10.2.2.4 Roof trusses, walls, pipes, floors, and non-process equipment will be wet-cleaned to remove loose surface contamination following disposal of process equipment.
- 10.2.2.5 Removal of surface contamination from walls will then follow. Material removed will be disposed of by burial.
- 10.2.2.6 All contaminated tanks in the liquid effluent system will then be removed and disposed of by burial or resale. Underground contaminated sewer lines will be excavated and removed for burial. If sampling indicates contaminated soil above NRC limits, removal and burial of soil will also be performed.

In addition, the cold pickle acid system shall be removed from the premises to an authorized hazardous waste disposal site to ensure compliance with Resource Conservation and Recovery Act regulations.

- 10.2.2.7 Decontamination of floors will follow. Depending upon the extent of contamination, surface cleaning, surface removal, or removal of entire section of the floor may be required. In the case of the Recovery area, it is anticipated that removal of the entire floor and even some of the earth below may be required.
- 10.2.2.8 The contaminated area ventilation system will remain intact until all of the above steps have been completed. It will then be removed and buried.
- 10.2.2.9 In the event that it is necessary to raze an area or part of an area, then one of two courses of action will be followed:
 - a. The area or part thereof may be wholly decontaminated as outlined above and then leveled. In this case the walls and roof may be disposed of by sanitary landfill.

- b. Surface cleaning, rather than surface removal and/or decontamination of walls may be performed, in which case the walls will be disposed of by burial.

10.2.2.10 The above events may not necessarily proceed one upon the completion of another. For example, it may be beneficial to retain scrap recovery equipment until the cleaning of roof trusses, walls, pipes, etc. has been completed. Alternatively, two efforts may proceed simultaneously, such as removal of source and special nuclear materials and radiological survey. In general, however, decontamination of the areas identified above will follow this outline.

10.2.2.11 Disposition of sites on NOG property where radioactive material was previously buried will be in accordance with current NRC regulations at the time of decommissioning.

10.2.3 Final Report and Release

10.2.3.1 Upon completion of the decontamination of NOG, comprehensive radiological surveys will be made. If necessary, additional decontamination will be performed.

10.2.3.2 When it has been finally established that residual contamination is within the limits specified by NRC at the time of decommissioning, a final survey report will be filed with the Director, Office of Nuclear Materials Safety and Safeguards, and a copy of the survey report will be sent the Director of Region II. The survey report will:

- a. Identify the premises;
- b. Show that a reasonable effort has been made to reduce residual contamination below the levels specified by NRC;
- c. Describe the scope of the survey and the general procedures followed, and;
- d. State the results of the final survey in units specified by NRC.

10.2.3.3 Release to unrestricted use is anticipated upon prompt approval by NRC.

10.3 Financial Assurance

Overall financial assurance for B&W NOG is summarized in the following table.

Table 10.3

Area	Cost Estimate	Assurance
[REDACTED]	Exempt	Contract
RTRT		
Research & Test Reactors	[REDACTED]	Contract
Targets	[REDACTED]	B&W NOG Letter of Credit
Downblend	[REDACTED]	B&W NOG Letter of Credit
LTC	[REDACTED]	B&W NOG Letter of Credit

Total Letter of Credit Assurance = \$24,531,906

10.3.1 Financial Assurance for [REDACTED] Areas

Financial assurance to cover the cost of decommissioning equipment and facilities used in the production of components for the [REDACTED] program shall be provided through provisions in contracts with the Department of Energy (Appendix 10-1). This financial assurance is attested to by letter dated February 17, 1993, and signed by J. A. Conner for The Babcock & Wilcox Company, and C. K. Gaddis for the U. S. Department of Energy (Appendix 10-2).

10.3.2 Financial Assurance for RTRT Areas

The decommissioning costs for the RTRT (Research Test Reactor and Targets) are covered in two ways. The costs for the traditional research and test reactor operations are covered with a contract. The costs for the targets operations are covered through a B&W NOG Letters of Credit, referenced in Table 10.3 above. Financial assurance to cover the cost of decommissioning equipment and facilities used in the production of components for the RTRT program shall be provided through provisions in subcontracts with Battelle Energy Alliance, LLC (Appendix 10-3) and UT Battelle, LLC. (Appendix 10-4).

10.3.3 Financial Assurance for LTC

Funding assurance to cover the cost of decommissioning the facilities and equipment at the Lynchburg Technology Center shall be provided through Letters of Credit (LOC). LOCs exist that cover the total decommissioning liability.

10.3.4 Financial Assurance for Downblending Area

Funding assurance to cover the cost of decommissioning of facilities and equipment associated with the performance of downblending projects shall be provided through Letters of Credit referenced in Table 10.3, above.

10.3.5 Standby Trust Agreement

Standby Trust Agreement, dated July 1, 1997, as amended establishes a fund for decommissioning funding assurance.

10.4 Cost Estimates

The cost estimates to be used for the purpose of determining the amount of financial assurance required shall be based on currently available cost and technical information. Burial volume estimates and cost projections may be based on reasonable assumptions with respect to the technological advances and alternatives to disposal. Disposal will be accomplished at a licensed burial within the Southeast Compact or at another site available to licensees within the Southeast Compact.

10.4.1 In Amendment No. 40, dated June 17, 1999, BWX Technologies was granted an exemption from providing cost estimates for [REDACTED] areas.

10.4.2 The cost estimate for decommissioning the facilities and equipment associated with the performance of downblending projects is presented in Appendix 10-7.

10.4.3 The cost estimate for decommissioning the RTRT facility is presented in Appendix 10-8.

10.4.4 The cost estimate for decommissioning the facilities and equipment at LTC is presented in Appendix 10-9.

NOG will update the cost estimates every three years.

APPENDIX 10-1

Financial Assurance for
Decommissioning through NR Contract with DOE

PAC 194 A19
DE-AC11-03PN38222 Contract

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)	RATING: DC-A-3	PAGE OF PAGES: 1 119			
2. CONTRACT (Proc. Inst. Ident.) NO. DE-AC11-03PN38222		3. EFFECTIVE DATE SEE BLOCK 20C.	4. REQUISITION/PURCHASE REQUEST/PROJECT NO.				
5. ISSUED BY U.S. Department of Energy Pittsburgh Naval Reactors Office P.O. Box 109 West Mifflin, PA 15122-0109 PHONE: (Area Code) (412) 476-7270		CODE AC11	6. ADMINISTERED BY (If other than item 5) CODE cc: SC Boileau Estimating E Gunter/BJ Burch Doc. Systems JB Carter PNR Resident GW Gilliam				
7. NAME AND ADDRESS OF CONTRACTOR (Name, street, city, county, State and ZIP Code) BWX Technologies, Incorporated Nuclear Products Division P.O. Box 785 Lynchburg, VA 24505-0785 TIN NO.: 54-1845387 DUNS NO.: 11-124-2293		8. DELIVERY <input checked="" type="checkbox"/> FOB ORIGIN <input type="checkbox"/> OTHER (See below)					
11. SHIP TO/MARK FOR F.O.B. Contractor's Plant Lynchburg, Virginia in accordance with the Requirements of this contract		12. PAYMENT WILL BE MADE BY Accounts Payable Division U.S. Department of Energy, Germantown, MD 20874-0500					
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304(c)(1) <input checked="" type="checkbox"/> 41 U.S.C. 253(c)(1)		14. ACCOUNTING AND APPROPRIATION DATA					
15A. ITEM NO.	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE			
Furnish and deliver the items listed in the Continuation Sheets included in Part I, Section B, Policies or Services and Prices/Costs, of this contract.							
15G. AMOUNT OF CONTRACT > \$							
16. TABLE OF CONTENTS							
(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
X	A	SOLICITATION/CONTRACT FORM	1	X	X	CONTRACT CLAUSES	34
X	B	SUPPLIES OR SERVICES AND PRICES/COST	6	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.			
X	C	DESCRIPTION/SPEC./WORK STATEMENT	31	X	J	LIST OF ATTACHMENTS	12
X	D	PACKAGING AND MARKING	1	PART IV - REPRESENTATIONS AND INSTRUCTIONS			
X	E	INSPECTION AND ACCEPTANCE	1	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS			
X	F	DELIVERIES OR PERFORMANCE	3				
X	G	CONTRACT ADMINISTRATION DATA	1				
X	H	SPECIAL CONTRACT REQUIREMENTS	11				
CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE							
17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 2 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract; (b) the solicitation, if any; and (c) such provisions, representations, certifications, as are attached or incorporated by reference herein. (Attachments are final binds)			18. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you with conditions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award encompasses the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.				
19A. NAME AND TITLE OF SIGNER (Type or Print) H. E. Preble Manager, Contract Services			20A. NAME OF CONTRACTING OFFICER H. A. Cardinali, Contracting Officer Manager, Pittsburgh Naval Reactors Office				
19B. NAME OF CONTRACTOR BY <i>H. E. Preble</i> (Signature of person authorized to sign)		19C. DATE SIGNED 12/19/02	20B. UNITED STATES OF AMERICA BY <i>H. A. Cardinali</i> (Signature of Contracting Officer)				
20C. DATE SIGNED 12/25/02							

RECEIVED
JAN 03 2003
CONTRACT SERVICES

RECEIVED
DEC 13 2002
CONTRACT SERVICES

UNCLASSIFIED

1222 CONTRACT

Page 3

6. COST OF FACILITIES CAPITAL PROVISIONS

a. Facilities Capital Cost of Money

- (1) Facilities capital cost of money will be an allowable cost under the contemplated contract, but only if the prospective Contractor elects to claim it below. If the prospective Contractor elects to claim this cost, the Waiver of Facilities Capital Cost of Money will be excluded from the contract. If the prospective Contractor does not elect to claim this cost, the contract will include the Waiver of Facilities Capital Cost of Money.
- (2) By including an item of proposed allowable cost in response to the solicitation, the prospective Contractor will be deemed to have elected to claim facilities capital cost of money.

b. Waiver of Facilities Capital Cost of Money

If the Contractor did not include facilities capital cost of money as a proposed allowable cost, it shall be deemed that the Contractor waives the right to claim it under this contract.

7. BASIC AGREEMENT AND LETTER AGREEMENT

a. Basic Agreement

Basic Agreement No. DE-AA11-90PN38188 is hereby made a part of this contract. The provisions of Basic Agreement No. DE-AA11-90PN38188 shall be fully binding on the Contractor separately from the provisions or requirements of this contract and any default under this contract will be actionable only in accordance with the provisions and requirements of this contract.

b. Letter Agreement

Letter Agreement No. DE-GM11-96PN38202 is hereby made a part of this contract. The provisions of Letter Agreement No. DE-GM11-96PN38202 shall be fully binding on the Contractor separately from the provisions or requirements of this contract and any default under this contract will be actionable only in accordance with the provisions and requirements of this contract.

8. CLEANUP EXPENSES

The price of this contract does not include any amounts for costs that may be incurred for any investigation or remediation with respect to disposal sites for low level radioactive wastes disposed of by Contractor under this contract. In the event that costs applicable to the foregoing are found to be allocable to this contract and Contractor has taken reasonable efforts to reduce such costs, and subject to the availability of appropriated funds, an equitable adjustment to the price of this contract, exclusive of profit, shall be made for such allocable costs. Provided however, nothing may be construed as implying that Congress will, at a later date, appropriate funds sufficient to meet deficiencies.

UNCLASSIFIED

UNCLASSIFIED

212 CONTRACT

Page 4

9. DECOMMISSIONING EXPENSES

- a. As part of the consideration for the manufacture and delivery of all items under this contract, the Government hereby assumes the obligation to pay the expenses incurred in decommissioning of Contractor's facilities as set forth in paragraph c. of this clause, and as required by Contractor's license with the Nuclear Regulatory Commission (NRC). The Government's liability for said expenses is subject to the availability of appropriated funds at the time a contingency occurs. When said event occurs, the DOE will pursue the necessary funding, however, nothing in this contract shall be construed as implying that the Congress will, at a later date, appropriate funds sufficient to meet said deficiencies.
- b. Payment of decommissioning expenses shall only be made for decommissioning activities that have been approved by NRC. Payments will be made on a progressive basis, however, they will only be made after the Contractor has taken all reasonable efforts to reduce such decommissioning costs. This maximum liability is subject to the "Compliance with Laws and Regulations" provisions and all other provisions of this contract. Any disagreement between the parties concerning this maximum liability provision shall be considered a dispute within the terms of the "Disputes" clause of this contract.
- c. Memorandum of Understanding Concerning Decommissioning of the BWX Technologies, Inc., Nuclear Products Division

The BWX Technologies, Inc., Naval Nuclear Products Division (NPD) and the Pittsburgh Naval Reactors Office (PNR) agree to the following clarifications with regard to the financial responsibilities related to future decommissioning activities of BWX Technologies at its NPD facilities pursuant to this clause:

- (1) The Naval Nuclear Propulsion Program (NNPP) is not obligated and shall not be liable for expenses related to:
 - (i) Decommissioning any NPD facilities which are acquired or added to the site and which are utilized solely for non-Naval Reactors activities.
 - (ii) Decommissioning any currently non-contaminated portion of the NPD site where non-Naval Reactors activities occurring after June 12, 1997 give rise to the need for decommissioning.
- (2) In the event:
 - (i) Necessary appropriated funds are available to decommission the NPD site in accordance with this clause; and
 - (ii) BWXT elects to continue utilizing a particular portion of the NPD site for non-Naval Reactors purposes; and
 - (iii) Such use would delay the decommissioning activities; then, the parties will negotiate in good faith to determine NNPP's specific liability for the decommissioning costs for that portion of the NPD site.
- (3) In the event:
 - (i) BWXT uses the NPD site, or portions thereof for non-Naval Reactors purposes; and
 - (ii) NNPP is otherwise responsible for decommissioning the site in

UNCLASSIFIED

UNCLASSIFIED

222 CONTRACT

Page 5

- (iii) accordance with this clause; and
Such work by BWX increases the scope of the decommissioning work; then, the parties will negotiate in good faith to determine what NNPP's specific liability for decommissioning would have been absent BWXT-NPD's subsequent use of the NPD site, or portion thereof.
- d. This provision shall survive the completion of the contract and shall continue until decommissioning is completed as determined by the NRC and any successor agency, or until alternative arrangements are agreed by the parties, in separate contracts, or otherwise.

10. GOVERNMENT-SUPPLIED PROPERTY

- a. Components and equipment, in the form and quantities specified in Part I, Section C, Description/Specifications/Work Statement, of this contract, shall be delivered F.O.B. Contractor's Plant; and shall be held in accordance with the provisions of the clause, Government Property (Fixed-Price Contracts), included in Part II, Section I, Contract Clauses, of this contract.
- b. When the Contractor is authorized by the Government under this contract to work on Government property and the Government considers any item of work to be the responsibility of a third party by reason of a warranty in favor of the Government or otherwise, the Government shall so inform the Contractor. In each such case the Contractor agrees to obtain compensation for the performance of such work from such third party and agrees that such compensation shall be in lieu of an equitable adjustment in the price of the contract as provided herein. If the Contractor is unable to obtain compensation for any such item from such third party, he shall so inform the Government together with the reason therefor, so that the Government may protect its interest directly against such third party and the Contractor may present a written request for an equitable adjustment and the Government shall not be liable for damages or loss of profit.

11. SHIPMENTS OF STRATEGIC QUANTITIES OF SPECIAL NUCLEAR MATERIAL

- a. All shipments of strategic quantities of special nuclear material made in performance of subject contract shall be made by the U.S. Department of Energy (DOE). Shipments, as referred to herein, shall include all movements of strategic quantities of special nuclear material to, from, and between facilities of DOE, the Contractor, and/or subcontractors.
- b. Contractors and subcontractors shall provide a written notice 3 weeks in advance of any required shipment date to the following:
 - U.S. Department of Energy
 - Albuquerque Operations Office
 - Director, Transportation Safeguards Division
 - Attention: Chief, Shipping Planning Branch
- c. Each written notice provided for above shall be made in accordance with and shall include all data, as set forth in the document Transportation Services Request, dated October 1, 1993, revised April 4, 1995, included in Part III, Section J, List of Attachments, of this contract.

UNCLASSIFIED

PROP

Appendices 10- 2 through 10-7 contain Proprietary Information therefore, they are withheld under 10 CFR 2.390