

1. Component NAVY	FY 2005 MILITARY CONSTRUCTION PROGRAM	2. Date 13 JAN 2004
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3. Installation and Location/UIC: N00174 NAVAL SURFACE WARFARE DIV INDIAN HEAD INDIAN HEAD, MARYLAND	4. Project Title AGILE CHEMICAL FACILITY
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5. Program Element 0703676N	6. Category Code 22665	7. Project Number P161	8. Project Cost (\$000) 13,900
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9. COST ESTIMATES

Item	UM	Quantity	Unit Cost	Cost(\$000)
AGILE CHEMICAL FACILITY (8,730 SF)	m2	811		6450
CONTROL BUILDING (960 SF)	m2	89.2	5,871.45	(520)
NITRATION PROCESS (3,520 SF)	m2	327	2,670.70	(870)
WASTEWATER AND MATERIAL HANDLING (1,200 SF)	m2	111.5	530.06	(60)
SPENT ACID PROCESSING (2,000 SF)	m2	185.8	4,097.78	(760)
SAMPLING SYSTEM (89 SF)	m2	8.3	3,093.47	(30)
MATERIAL STORAGE, PREP AND PRODUCTION FAC	LS			(2160)
UPGRADES				
DIAGNOSTICS LABORATORY (960 SF)	m2	89.2	5,653.31	(500)
BUILT-IN EQUIPMENT	LS			(770)
TECHNICAL OPERATING MANUALS	LS			(130)
INFORMATION SYSTEMS	LS			(550)
ANTI-TERRORISM/FORCE PROTECTION	LS			(100)
SUPPORTING FACILITIES				6040
SPECIAL CONSTRUCTION FEATURES	LS			(360)
ELECTRICAL UTILITIES	LS			(1310)
MECHANICAL UTILITIES	LS			(740)
PAVING AND SITE IMPROVEMENTS	LS			(60)
DEMOLITION	LS			(1850)
ENVIRONMENTAL MITIGATION	LS			(1720)
SUBTOTAL				12490
CONTINGENCY (5%)				620
TOTAL CONTRACT COST				13110
SIOH (6%)				790
SUBTOTAL				13900
TOTAL REQUEST ROUNDED				13900
TOTAL REQUEST				13900
EQUIPMENT FROM OTHER APPROPRIATIONS (NON ADD)				(5200)

10. Description of Proposed Construction

Construct an Agile Chemical Facility (ACF) at NSWC-Indian Head Division (IHDIV) to manufacture nitrate esters. Construct new buildings (including a new control building for remote process operation), tanks, containment structures, and other supporting equipment and facilities, stairways, platforms, and electrically conductive floors. Upgrade storage and delivery facilities for chemicals and raw materials; product manufacturing, handling, and transfer facilities; a wastewater treatment system; and a spent acid processing system. Install a central control system with an uninterrupted power supply to allow for remote monitoring and control of major ACF components.

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<p>Information Systems and Technical Operating Manuals will accompany all primary system components. The project complies with Department of Defense (DoD) anti-terrorism construction standards. Sustainable principles will be integrated into the design, development, and construction of the project in accordance with Executive Order 13123 and other laws and Executive Orders. This project will include the demolition of 17 Moser manufacturing buildings and 7 substandard buildings at the existing Biazzi manufacturing plant (1,584 square meters; 5,197 square feet).</p> <p>IHDIV will provide government-furnished equipment (GFE) for installation with MILCON funding (e.g., newly modified nitration process equipment, sulfuric acid concentrator (SAC), and spent acid thermal destructor) at the ACF. Built-in Equipment includes pollution control equipment and process control equipment. Special construction features include soil samples and commissioning.</p>				
<p>11. Requirement: <u>811m2</u> Adequate: <u>0m2</u> Substandard: <u>0m2</u></p> <p>PROJECT: This project consolidates the capabilities of two nitration plants into one plant (the Biazzi Plant) by replacing antiquated existing nitration facilities and modernizing others to provide flexible, variable quantity production of propellants and explosives vital to joint National Defense Programs and programs for Allied Forces. (Current Mission)</p> <p>REQUIREMENT: The project supports the existing mission to manufacture nitrate esters used in fleet weapons systems. This mission requires the consolidation of two aged and substandard nitration plants into one adequate and efficiently configured plant with state-of-the-art controls and equipment for the efficient, versatile, and safe production of nitrate esters. The project incorporates features that will allow for a 50-percent reduction in the amount of wastewater generated by the production process. The new facility will reduce maintenance costs while improving production flexibility and efficiency. The project will reduce the hazards associated with the manufacture of nitrate esters. Specifically, the new facility will enhance worker safety by allowing for remote operation and by reducing the amount of detonable material in the process by 300 percent at any given time. The Chemicals area of IHDIV presently has two nitration facilities. These facilities are the Biazzi and Moser Plants. The Biazzi Plant has a maximum capacity of 1,000 kg/hr and the capability to manufacture Otto Fuel (torpedo fuel, Propylene Glycol Dinitrate (PGDN)) and nitroglycerine (NG). The Moser Plant has a maximum capacity of 300 kg/hr and the capability to manufacture Trimethylolethane Trinitrate (TMETN), Triethylene Glycol Dinitrate (TEGDN), Diethylene Glycol Dinitrate</p>				

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<p>(DEGDN), Butanetriol Trinitrate (BTTN), and Butyl Nitrate Ester Nitramine (BuNENA). IHDIV provides these chemicals to joint military forces and allied nations; IHDIV is the only producer of Otto Fuel (torpedo fuel) in the world.</p> <p>CURRENT SITUATION: Neither nitration facility is "all inclusive" in the manufacture of nitrate esters. Certain processes of the Moser Plant are automated while the Biazzi Plant is still manually controlled. The Moser Plant is limited in its available real estate, explosives limits, and its ability to expand. The Biazzi Plant has a larger range of support facilities to complete the manufacture of different nitrate ester products within safety and environmental regulations.</p> <p>With today's improving technology, the amount of explosives in the nitration process at any given time can be greatly reduced by using a centrifugal separator in the process. Both the Moser and Biazzi Plants rely on older static separators. The static separator nitration process cannot be "turned down" to a rate lower than 50 percent of the design capacity. However, a nitration process with a centrifugal separator can be "turned down" to 10 percent of its design capacity. This technology allows a 1,000-kg/hr process to be "turned down" to a rate as low as 100 kg/hr, thereby providing greater flexibility in the development and manufacture of unique nitrated chemicals.</p> <p>The designer and manufacturer of the Moser Plant is no longer in business; therefore, IHDIV cannot obtain any professional support or spare parts for this plant. When a component of the Moser Plant fails and IHDIV does not have a spare part on site, the component must be custom-built. Some components at the Moser Plant cannot be replaced by any means; if these components fail, the Moser Plant will close indefinitely, halting the mission-critical production of several types of energetic materials.</p> <p>While the Moser Plant is partially automated and operated in partially attended mode, the Biazzi Plant is operated in manual mode. This type of operation severely limits IHDIV's ability to reduce personnel exposure during Otto Fuel (Propylene Glycol Dinitrate (PGDN)) and nitroglycerine (NG) manufacturing. Also, the processes as currently configured do not lend themselves to effective waste minimization modifications.</p> <p>The above issues combine to increase nitrate ester costs for U.S. and Allied forces. They also create a poor quality of life in the workplace. Plant personnel must conduct purely reactive--not preventive--maintenance of failing plant components. Chemicals personnel currently maintain several deteriorating facilities and equipment contaminated with lead, asbestos, and hazardous chemicals at both plants. IHDIV personnel also</p>				

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<p>currently operate several duplicative and inefficient industrial waste systems that were installed only as temporary fixes to environmental contamination issues. The existing plants have several safety deficiencies such as lead and asbestos, operators in hazardous environment.</p> <p>IMPACT IF NOT PROVIDED: If this project is not provided, IHDIV will continue to marginally fulfill its mission to manufacture nitrate ester propellants and explosives for U.S. joint and Allied forces. IHDIV will also be affected by the following specific impacts:</p> <p>1.) The existing Moser and Biazzi manufacturing plants are beyond cost effective repair. The net present value of life-cycle upkeep of the status-quo deteriorating systems will cost \$36 million more than the net present value of the "new construction" alternative.</p> <p>2.) The deteriorated and antiquated Moser and Biazzi plants will continue to require an inordinate amount of IHDIV resources to maintain and operate, severely limiting the type and quantity of nitrate esters that IHDIV can produce, resulting in increased costs for propellants and explosives to U.S. joint and Allied forces.</p> <p>3.) IHDIV will be unable to improve workplace safety conditions by reducing the amount of detonable material in the process. IHDIV will also be unable to correct safety deficiencies.</p> <p>4.) IHDIV will be unable to reduce the amount of industrial wastewater generated from nitrate ester production. In addition, IHDIV will continue to treat industrial wastewater using duplicative, inefficient, and "temporary-fix" systems.</p> <p>5.) The quality of life in the workplace and associated personnel morale will remain low while operators dedicate their resources to conducting emergency repairs of equipment and facilities. In addition, IHDIV will be unable to demolish deteriorating buildings, many of which are contaminated with lead, asbestos, and nitrate ester product.</p>				
12. Supplemental Data:				
A. Estimated Design Data:				
1. Status:				
(A) Date Design Start				082002
(B) Date Design 35% Complete				012004
(C) Date Design Completed				092004
(D) Percent Completed as of	SEPTEMBER 2003			2%
(E) Percent Completed as of	JANUARY 2004			35%
(F) Type of Design Contract				Design Bid Build

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<p>(G) Parametric Estimate used to develop cost Yes</p> <p>(H) Energy study/Life cycle analysis performed Yes</p> <p>2. Basis:</p> <p>(A) Standard or Definitive Design: No</p> <p>(B) Where Design Was Most Recently Used: N/A</p> <p>3. Total Cost (C) = (A) + (B) = (D) + (E) : \$1,000</p> <p>(A) Production of Plans and Specifications \$750</p> <p>(B) All other Design Costs \$250</p> <p>(C) Total \$1,000</p> <p>(D) Contract \$625</p> <p>(E) In-House \$375</p> <p>4. Contract Award 112004</p> <p>5. Construction Start 122004</p> <p>6. Construction Complete 042006</p> <p>B. Equipment associated with this project which will be provided from other appropriations:</p> <table border="1"> <thead> <tr> <th><u>Equipment</u> <u>Nomenclature</u></th> <th><u>Procuring</u> <u>Appropriation</u></th> <th><u>Fiscal Year</u> <u>Appropriated</u> <u>Or Requested</u></th> <th><u>Cost</u> <u>(\$000)</u></th> </tr> </thead> <tbody> <tr> <td>Process Equipment (2003)</td> <td>NWCF</td> <td>2005</td> <td>1,700</td> </tr> <tr> <td>Process Equipment (2004)</td> <td>NWCF</td> <td>2005</td> <td>1,500</td> </tr> <tr> <td>Process Equipment (2005)</td> <td>NWCF</td> <td>2005</td> <td>2,000</td> </tr> </tbody> </table> <p>JOINT USE CERTIFICATION:</p> <p>The Regional Commander certifies that this project has been considered for joint use potential. Unilateral Construction is recommended. The products produced by this facility can be used by other components, but the facility is being designed for and will be operated by Navy personnel.</p> <p>Activity POC: LCDR MARKO MEDVED Phone No: (301)-744-4286</p>				<u>Equipment</u> <u>Nomenclature</u>	<u>Procuring</u> <u>Appropriation</u>	<u>Fiscal Year</u> <u>Appropriated</u> <u>Or Requested</u>	<u>Cost</u> <u>(\$000)</u>	Process Equipment (2003)	NWCF	2005	1,700	Process Equipment (2004)	NWCF	2005	1,500	Process Equipment (2005)	NWCF	2005	2,000
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