

A RENTAL SPECIFICATION — OVERVIEW OF MACHINERY & EQUIPMENT REQUIREMENTS

TABLE A1: BLAST MACHINERY & EQUIPMENT REQUIREMENTS

FEE	ID	QTY	IDENTIFIER	MINIMUM CAPACITIES	TRANSITION(S)	REMARKS / NOTES / COMMENTS
A	B01 B02	2 EA	DDC [2 DRUM]-N <u>PRIMARY UNIT</u>	FL#1: ≥12K cfm @ 10" WG FL#2: ≥10K cfm @ 14" WG Motor: ≥40 hp & Low Speed Duct: 16"Ø ID x <u>100'</u> [special]	Air: 16"Ø x 2 inlet Wye: 16"Ø : 8"Øx2 @ Qty 2 each	REMARK B1: FILTRATION REMARK B2: DISCHARGE REMARK B3: NOISE ABATEMENT REMARK B4: ELECTRIC ≤60A / LPA
B	B03 B04	2 EA	VRU [QUIET]-N	Suct: ≥2300 cfm @ 27" Hg Motor: ≥150 hp & Low Speed Noise: ≤85 dB[A] @ 5 feet Filter: HEPA ≥99.97η @ 0.3 μm	Air: 6"Ø x 1 inlet (suction)	
C	B05 B06 B07	3 EA	BMR [3 DRUM]-2	Blst: #5 ≈ 250cfm x 2 nozzle Vac: ≥700 cfm @ 20" Hg Vol: V ₁ ≥ 23 ft ³ / V ₂ ≥ 15 ft ³ Fltr: 4 ea @ 1.5:1 air/cloth	Air: double outlet Size: ≤ 9' x ≤ 5'	REMARK B5: THOMPSON VALVE® II REMARK B6: NO EXTRA HARDWARE REMARK B7: LPA [CFM] / 110 VAC
D	B08 B09	2 EA	BMR [1 DRUM]-1	Blst: #5 ≈ 250cfm x 1 nozzle Vac: ~440 cfm @ 20" Hg Vol: V ₁ ≥ 6½ ft ³ / V ₂ ≥ 3½ ft ³ Fltr: # ea @ #.#:1 air/cloth	Air: single outlet Pmp: 440 cfm noz Size: ≤ 7' x ≤ 4'	REMARK B5: THOMPSON VALVE® II REMARK B6: NO EXTRA HARDWARE REMARK B7: LPA [CFM] ONLY COMMENT I: REQ NEW #5 NOZZLES
E	B10 B11 B12 B13	4 EA	PWU [HP/HTM]-N			

TABLE A2: SAND BLAST MACHINERY ABBREVIATIONS (PER MIL-STD-12D)

SAND BLAST (BLAST OR B) MACHINES / SYSTEM:		SAND BLAST MACHINERY TYPE:	
[# DRUM]	Drum(s); i.e. the quantity that the unit is designed to accept below the hopper.	[ELEC]	Electric
BMR [#]	Blast (B) / Media (M) classification / vacuum Recovery (R) combined machine. [#] minimum quantity for actual or nominal drum capacity for unit operation.	[L&H]	Lifting and Handling
DDC	Dry Dust Collector (for industrial vacuuming and dust collection).	[EXH-C]	Clean Air Exhaust
HS LS	High Speed (motor i.e. ~3500 rpm) Low Speed (motor i.e. ~1750 rpm).	[EXH-D]	Dirty Air Exhaust
HP/HTM	High Pressure [3,000 psig] & High Temperature [Hot Water or Steam].	[EXH-F]	Fume Exhaust
PWU	Pressure Washer Unit.	[EXH-P]	Particulate Exhaust
TANK	separate funding SWLIN for TDD of the Main Ballast and Interior Tanks.	[STK]	Stacking Capability
TILE	separate funding SWLIN for TDD for repair of a submarine's exterior surface.	[SxS]	Side-by-Side
TBLST	Temporary Blast (type) Systems that support Blast & Paint operations.	Aft	Aftwards (to the back)
TVAC	Temporary Vacuum (type) Systems that support Blast & Paint operations.	Fwd	Forwards (to the front)
VRU	Vacuum Recovery Unit	platf	platform
		port	port (to the left)
		stbd	starboard (to the right)
		DD Flr	Drydock Floor
Capacity Identifier: -G: Gigantic : -X: Extra Large : -L: Large : -N: Normal : -M: Medium : -S: Small : B: 11-5			
Location Identifier: PNS: Portsmouth Naval Shipyard, NH : NLON: New London, CT : NBPL: Naval Base Point Loma, CA			

NOTES (per Machine Fee):

- A & B** Each electrically powered high voltage machine (i.e. 460 VAC) shall include at least fifty feet (50') for each phase plus ground of appropriately rated **ELECTRICAL CABLE**. Electrical cable shall be in fifty-foot lengths.
- A – E** **MACHINERY QUALITY CHECKLIST:** A Quality Checklist unique for each type of machine shall be developed, complied with as part of the operational check, and a copy submitted.

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B RENTAL SPECIFICATION — CONTRACTUAL REQUIREMENTS

1. **ACCESS:** To be allowed onto a government Shipyard, personnel must be US citizens and in possession of appropriate personal identification. Proof of US citizenship may be necessary and can be required for access to the drydock environs. Allowable documentation of US citizenship is an official government issued Certificate of Birth or Naturalization (w/ raised seal & not a photocopy) or a US passport (can be expired). Vehicular access requires a non-expired personal Driver's License and appropriate vehicle identification or registration. The transport vehicle must have the company's name / logo prominently displayed. Normal commercial delivery access to NBPL-SDGO (x####) is from 5:30 am to 5:00 pm Monday thru Friday (excludes Federal Holidays). To gain access to the drydock environs, personnel must be escorted and possess / wear their own personal safety gear which includes: safety glasses w/ side protection, hard hat, safety shoes with an ANSI approved reinforced toe box, and, as posted, adequate hearing protection (i.e. ≥ 20 dB[A] reduction from ear plugs and/or ear muffs).
2. **DELIVERY:** The machinery shall be in a fully-charged, fully-assembled, ready-to-use, and in a first-class-operating condition. All disposable type filters shall be replaced and permanent (metal) filters shall be cleaned prior to delivery. The machinery with its support equipment shall be delivered to the site on or prior to the requested date. It is absolutely incumbent and the responsibility of the Contractor to either confirm or to coordinate the date and time of delivery prior to each shipment via the Project Liaison or his/her designate with the Technical Liaison only as back-up. The Government can provide forklift services for removing the equipment from the vendor's transport during work hours (NBPL: 6 am to 3 pm). Required documentation shall be provided upon delivery.
Machines shall be functionally tested to include performance of the Quality Checklist prior to its delivery.
3. **LITERATURE:** If not previously examined by the Technical Liaison (C270.3), the Bidder shall submit synopsis literature describing the proposed machinery, i.e. an Equipment Data Sheet (EDS), with its bid to Contracting for review by the Technical Liaison so as to confirm that the proposal indeed satisfies the technical requirements.
4. **PROPOSALS:** As a standardized format for price comparisons between potential Vendors, the Contractor shall quote to the Contracting office the weekly lease rate for each machine or manifold type and capacity based on a minimum lease duration of **twelve (12)** consecutive weeks with the option to extend thereafter. Daily extensions for each machine / manifold with its associated ancillary equipment shall be billed at no greater than one-seventh ($1/7^{\text{th}}$) of the stated recurring weekly lease rate. The Contractor's proposal shall provide credit for any down time beyond forty-eight (48) hours (two days). The cost of **shipping (round trip)**, hook-up, start-up, initial operation, and training shall be included in the lease rate. If an unforeseen circumstance that is not the fault of the Contractor results in the rental period for a particular Item being less than the aforementioned minimum lease duration, then the Government's obligation shall be either for its minimum lease duration or the lease rate for the actual rental period plus due consideration of the transport company's actual shipping fee(s), whichever is less. Bid comparisons shall be based on the Government's best estimate as to the entire duration of the lease period for all items to include the Initial (INI) period plus any Optional (OPT) period multiplied by the Bidder's proposed rate.
5. **REPAIR:** The Contractor shall formally (in writing) inform the Contracting Officer (PNS Code 530: 207.438-3853) or applicable Contract Specialist (207.438-####); the Contracting Officer's Representative (NBPL: Execution PEPM 619.921-6913); and the ship's Temporary Services Zone Manager (PNS Code 311: 207.451-7336) as well as display on each machine a point of contact and a telephone number for requesting repair. The equipment will be operating around-the-clock under a **rigorous off-site deployment** schedule. Within **twelve (12) hours (half-day)** of initial notification of the need for repair, the Contractor shall have a knowledgeable and equipped technician on the job-site fully prepared to repair the rental equipment. The defective unit(s) shall be repaired within **twenty-four (24) hours (full day)** of initial notification or, if the original defective unit(s) cannot be made operational, replaced within **forty-eight (48) hours (two days)** of initial notification. If the equipment failure is not the fault of the Government, the Contractor shall bear all costs associated with its repair and/or replacement.
6. **RETURN:** The Government will dismantle the equipment and provide a temporary storage location convenient for Contractor pick-up. The Government will notify the Contractor as well as the Contracting Office as to when the rental Item has been released and is available for pick-up. The last day of the rental period shall be the next normal workday after the Contractor has been so notified. The Contractor shall be responsible for shipping. The Government can provide forklift services during work hours for placing the equipment onto the vendor's transport.
7. **SERVICE:** Except for daily surveillance checks only such as liquid levels, the Contractor shall be responsible for and perform all routine maintenance (e.g. refrigerant charging, oil changes, **replacing filters**, lubrication, coolant replacement, topping off liquid levels, etc.) for the entire duration of the rental period.
8. **START-UP:** If requested by the Project, the Vendor shall: (i) start and run the equipment to verify its operability; (ii) confirm that a set of operating instructions was previously delivered; and/or (iii) instruct designated Shipyard personnel on how to properly run the equipment to include its operation, control, daily checks, & service contacts. For multiple sets of comparable equipment with essentially similar operation, the orientation given to a specific Project on a particular type and/or capacity of machine can be accomplished just once regardless of delivery.

RENTAL SPECIFICATION FOR TEMPORARY BLAST (TBLAST)

C RENTAL SPECIFICATION — GENERAL MACHINERY & EQUIPMENT REQUIREMENTS

1. **CONSTRUCTION:** Except as noted for a particular machine type, units shall be a single integrated framed structure manufactured as a complete entity to include all devices, accessories, and fittings necessary to perform the function for which it was designed. Each unit shall be capable of continuous, year-round, outdoor, unmanned operation even at minimal loading while exposed from inclement (NBPL) to extremely harsh (PNS & NLON) weather (e.g. deep snow, strong & gusty winds, and/or heavy rain) and varied ambient conditions (-10 to +110°F & 0 to 100% RH). Machines shall meet State and federal requirements for its type such as the National Electrical Code (NEC) for electrical devices / components and the American Society of Mechanical Engineers (ASME) for pressurized vessels / components. **For emission producing machinery as required by the State, the Contractor shall obtain permits for the duration of the lease and affix them onto the units.** Machines shall be modular in design so as to act as a stand-alone unit; compact so as to fit in the tight confines of a drydock; portable so as to be transported by forklift and then lifted by crane; and ruggedly constructed so as to endure a marine industrial environment. **Multiple machines of the same type and capacity shall be of similar design and construction. Machines shall be newly manufactured / completely refurbished and factory tested within ten (10) years.**
2. **DOCUMENTATION:** Documentation will be located within a water proof case affixed to each machine. Minimally, the documentation shall consist of: (i) Technical Instructions (TIs) such as an Operations & Maintenance Manual, Controls Manual, and/or Electrical Manual with Schematics; (ii) instructions and a diagram on Lifting & Handling the equipment with its padeye(s) Certification; (iii) government Contract Number to include the cover sheet to the rental Contract; (iv) an Equipment Data Sheet (EDS), preferably on a single sheet of paper (can be double-sided), of the quintessential aspects of the rental machine to include a fan curve for machines with built-in air-handlers; (v) simple Operating Instructions, if not in the TIs; (vi) points of contact with telephone numbers for requesting emergency repair regardless of the time or type of day; and (vii) **a copy of the Quality Checklist.**
3. **ELECTRICAL:** All electrical components shall conform to a NEMA standard (e.g. NEMA 3) that will allow for unsheltered outdoor use of the machine. Each machine shall require only one type / source of electrical power of either $115 \pm 5\%$ volt AC / single phase / 60 hertz or $460 \pm 5\%$ volt AC / 3 phase / 60 hertz. The type of electrical power required by a machine (voltage & amperage) must be clearly indicated on the outside of the equipment, readily detected, and collocated with all other electrical information. If not included in the synopsis EDS, the Vendor shall provide the Project Technical Liaison with the following details: (i) electrical power type (i.e. voltage & amperage); (ii) electrical connection size (e.g. for 460 volt machines – specify whether equivalent to Duraline E-1016 or E-1023); (iii) breaker type/size or recommended capacity for the electrical source; and (iv) whether or not the equipment is furnished with over-current protection. Three phase powered (i.e. 460 VAC) machines shall have panel-mounted male camlock connectors equivalent to a Duraline E-1016 for 200 amps or below and to a Duraline E-1023 for between 200 and 600 amps. Only if stipulated, the Contractor shall provide electrical cables in such lengths and quantities as dictated in the RENTAL SPECIFICATION — OVERVIEW OF MACHINERY REQUIREMENTS. High voltage (i.e. 460 VAC) electrical cables furnished by the Contractor shall have ends that are compatible to the machine's panel-mounted camlock connectors. There shall not be a separate fee for electrical cables so furnished. The Shipyard will install and electrically connect the rental equipment to the appropriate power source.
4. **LIFTING & HANDLING:** Unless exempted otherwise, each machine shall be firmly attached to a single rigid steel frame with both multiple slots for forklift handling and lifting padeye(s), preferably welded, to permit safe single point lift operation using an overhead crane without special lifting or handling gear. The design safety factor for each lifting padeye shall be at least six (6) times the load based on ultimate strength. For equipment with two (2) or three (3) padeyes evenly spaced, the machine's weight can be considered equally distributed among the padeyes. For equipment with four (4) padeyes, the loading on the padeye shall be as if each padeye would lift half of the machine's weight. The preference is for multiple padeyes to be aligned in the plane of the lift (i.e. padeyes point towards the center) and to be located above the machine's Center of Gravity (CG). If the padeyes are located below the CG, then the machine's CG shall be accurately indicated as to its elevation and position. The Contractor shall provide certification that the lifting points meet the criteria described above by design (6 to 1 ultimate strength & 3 to 1 minimum yield) or by load test (2 to 1 w/ no yield). Such certification to include a Lifting Schematic along with any other lifting data shall be included with the documentation attached to the machine. **NOTE: The precise weight of each machine to include its base support shall be prominently displayed.**
5. **NOISE:** When operating at full speed, noise levels must not be over 105 dB[A] (assumes hearing protection of 20 dB[A]) and preferably, 85 dB[A] or less (threshold for hearing protection) at six feet from the unit or frame **unless a quieter noise level is specified.** A hearing protection safety placard shall be posted on each machine generating more than 85 dB[A] **at the unit's edge or frame.** For equating noise ratings of a particular unit, noise intensity (energy) is cut in half, i.e. reduced by 3 dB[A], as the distance is doubled. Hence, a noise rating of 88 dB[A] at 3 feet and conversely, a noise rating of 82 dB[A] at 12 feet is equivalent to a noise intensity of 85 dB[A] at 6 feet.
6. **PROHIBITIONS:** Being a nuclear shipyard with radiological controls, the colors yellow and magenta are specifically prohibited and such colors will neither be painted nor displayed on either machinery or associated equipment.

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D RENTAL SPECIFICATION — SPECIFIC MACHINERY REQUIREMENTS I.E. BY MACHINE TYPE

1. DRY DUST COLLECTOR (DDC): DDC [2 DRUM]–N

- a. **Description:** The machine shall be designed for the relatively lighter-duty collection (i.e. suction) of air contaminated by airborne dry dust. An equivalent machine meeting the specified performance requirements for the normal capacity (40 Hp) with [extendable legs designed to accept **one or two** each drums at the discharge outlet hopper] Dry Dust Collector (DDC [2 DRUM]–N) is the 12K cfm CYCLONE™ as manufactured by Industrial Vacuum Equipment Corporation® or the 10K cfm M10 Dust Collector as manufactured by ECS.
- b. **Capacity & Utilities:**
- (1) **Airflow:** An integrated blower (air-handler) is required for independent operation of the unit in which the blower shall be a centrifugal type fan and motor. With the blower operating at full speed, the airflow in cubic feet per minute (cfm) combined with either the fan's external Total Static Pressure (TSP) in inches of Water Gauge (WG) and/or the motor's power rating in horsepower shall be as stated in Table A1.
 - (2) **Electricity:** Electrical power shall be 460 volts nominal (440 volts minimum), three phase, 60 hertz. The electric motor for the blower shall be a low speed, high efficiency, industrial type rated for at least forty horsepower (≥40 hp). Because of limited power, the unit shall be designed for protection via no greater than a 60 ampere circuit breaker. Thus, the motor may require soft-start capability.
- c. **Filtration:** The unit shall be outfitted with pre-installed brand new virgin (clean) filters. The filter elements for the Dry Dust Collector shall be a highly efficient excellent moisture resistant media such as a QX grade cellulose or pleated polyester and not paper. The collection efficiency of the filter elements shall be 99.9% or better by weight on uniform flow of particles of one micron in size or larger based on a standard performance test procedure as provided by ASHRAE. The filter housing shall be easily accessed such as via a quick-release type mechanism and the filters shall be of a type that can be readily replaced such as by cartridge elements. To insure **most** dirt and debris is removed upon change-out, **filter elements / cartridges shall be replaced either via top loading or such that they do not pass through the clean air plenum.** The unit shall feature a pulse jet style cleaning system. In the parlance of filtration vis-à-vis "air to cloth ratio", the lower the value for the ratio of the machine's rated airflow in cfm [air] to the equivalent surface area of filtration material in square footage [cloth] the better and shall be no higher than **five** ($[\text{air}] \div [\text{cloth}] \leq 5.0$). The minimum equivalent filtration area for a nominally rated **10K cfm Dry Dust Collector is thus, 2K SF (10K cfm ÷ 5.0).**
- d. **Control:** The unit shall include a permanently mounted control board accessible without opening any panels with pressure gauge(s) and other indicators as necessary for monitoring and control. The unit shall be completely wired for safety, capacity, and operation such as a power/switch system with circuit breakers, manual/automatic controller, motor overload protection, high/low pressure cut-outs, energy control system, and/or other essential components. The unit shall be fully controllable under a wide range of loads even though the diurnal and seasonal ambient temperatures vary greatly. This particular Dry Dust Collector's NEMA 4 instrument panel shall incorporate a soft-start package for the motor so as to diminish the power surge during start-up; **ON-OFF** power switch with indicator light; emergency **STOP** power button; **ON-OFF** air pulse switch; manual outlet dampers; an inlet air regulator; and a magnehelic gauge.
- e. **Design & Construction:** **Preferably**, the bottom of the dust collection bin or hopper shall be an inverted double pyramid shaped structure having a fifty degree slide slope or steeper that dumps directly into two discharge outlets without the need of an auger **and** each of the two outlets shall be complete with an adjustable fifty-five gallon drum cover (manual crank) with an attached flexible hose connecting the hopper to the top of the cover and a manual outlet slide gate or damper with protective screen. **If not as preferred and described above, then a manually operated auger is necessary to push the collected debris to a single drum.** When the Dry Dust Collector legs are extended, the height of the discharge outlet shall allow for easy installation and removal of a standard fifty-five gallon drum on a standard pallet (i.e. ≥40").
- f. **Sound Attenuation:** This particular Vacuum Recovery Unit shall incorporate a sound attenuation package as an integral part of the unit's design. After its original construction, the machine shall have been tested by a firm independent of the manufacturer for sound emission compliance. The test data shall demonstrate that sound levels do not exceed 85dB[A] at a distance of five feet from the skid when the machine is operating under full load at a minimum of five perimeter locations. Sound data must be submitted with the proposal.
- g. **Options:** The Dry Dust Collector shall include four each sixteen inch diameter by twenty-five foot lengths (4 ea: 16"Ø × 25'L) of high suction pressure (≥5"/Hg) w/ wearstrip flexible ducting (i.e. FLEXAUST® FSP Bridge).
- h. **Transition:** The machine's process air inlet and/or outlet piece shall accommodate round flexible ducting to fit onto its external circumference as dimensioned in Table A1. The dimension provided in the table is a nominal size to reflect the inside dimension of the flexible ducting. Actual outside diameter (OD) dimension for the metal transition fitting should be one-quarter inch less ($-\frac{1}{4}$ ") with a one-eighth inch tolerance ($\pm \frac{1}{8}$ ") for sheet metal (e.g. 16" = $15\frac{3}{4}$ " $\pm \frac{1}{8}$ "). For protection / cleanliness, removable weather covers are required.

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D RENTAL SPECIFICATION — SPECIFIC MACHINERY REQUIREMENTS I.E. BY MACHINE TYPE

2. VACUUM RECOVERY UNIT (VRU): VRU [QUIET]–N

- a. **Description:** The machine shall be designed for the heavy-duty recovery (i.e. vacuum) of spent dry or wet blast grit type matériel, whether that be steel shot (typically 237 lb / cubic foot) or "Black Beauty" (e.g. coal or boiler slag), from various surfaces. An equivalent machine meeting the specified performance requirements for the normal capacity (150 Hp) with [sound attenuation] Vacuum Recovery Unit (VRU [QUIET]–N) is the 2350 cfm QUIET CUBE™ as designed & manufactured by Industrial Vacuum Equipment Corporation®.
- b. **Capacity:**
- (1) **Airflow & Vacuum Pressure:** The vacuum portion of the machine shall be capable of producing at least twenty seven inches of mercury or greater (≥ 27 "Hg) as well as producing at least two thousand three hundred cubic feet per minute at that suction pressure ($\geq 2,300$ cfm @ 27"Hg).
 - (2) **Extraction:** The rate of extraction shall be at least six to eight tons per hour (6-8 tn/hr) dependent on the density of the blast matériel.
 - (3) **Distance & Lift:** The minimum conveyance shall be four hundred feet ($\geq 400'$) with a minimum vertical lift to the classifier / recycler or collection tank from the suction end of the hose of seventy feet ($\geq 70'$).
- c. **Utilities:** The machine shall require only two types of utility connections – electricity and pneumatic air.
- (1) **Electricity:** Electrical power shall be 460 volts nominal (440 volts minimum), three phase, 60 hertz. The electric motor for the blower shall be a low speed, high efficiency, industrial type rated for at least one hundred fifty horsepower (≥ 150 hp). Because of limited power, the unit shall be designed for protection via no greater than a 200 ampere circuit breaker. Thus, the motor will require soft-start capability.
 - (2) **Pneumatic Air:** Pneumatic air requirements shall be Low Pressure Air (LPA) no greater than ninety psig (≤ 90 psig) at a relatively low volume for its rate of consumption.
- d. **Filtration:** The unit shall be outfitted with pre-installed brand new virgin (clean) filters. The filter elements for the Vacuum Recovery Unit shall be HEPA type with a MERV rating of 17 or better equivalent to the ASHRAE Standard 52.2 Particle Size Removal Efficiency of equal to or better than 99.97% for a particle size of 0.3 micrometer. This unit shall feature cyclonic separation and a continuous reverse pulse filter cleaning system.
- e. **Control:** The unit shall include a permanently mounted control board accessible without opening any panels with pressure gauge(s) and other indicators as necessary for monitoring and control. The unit shall be completely wired for safety, capacity, and operation such as a power/switch system with circuit breakers, manual/automatic controller, motor overload protection, high/low pressure cut-outs, energy control system, and/or other essential components. The unit shall be fully controllable under a wide range of loads even though the diurnal and seasonal ambient temperatures vary greatly. This particular Vacuum Recovery Unit's NEMA 4 instrument panel shall incorporate a soft-start package for the motor so as to diminish the power surge during start-up; **ON-OFF** power switch with indicator light; emergency **STOP** power button; **ON-OFF** air pulse switch; **ON-OFF** material dump switch; **ON-OFF** vacuum pressure switch; and a disconnect lever.
- f. **Design & Construction:** This particular Vacuum Recovery Unit shall be of a positive displacement design; incorporate an automatic cone vibrator; and include a manhole (typically 10"Ø) for inspecting the loading bin. The unit shall not require liquids of any type either for cooling or for vacuum production. Recycled air will not be used in the vacuum production. Air from the discharge silencer will not be recycled, but rather, vented to atmosphere.
- g. **Sound Attenuation:** This particular Vacuum Recovery Unit shall incorporate a sound attenuation package as an integral part of the unit's design. The unit shall have dual inlet and discharge silencers to include a sound attenuation enclosure. After its original construction, the machine shall have been tested by a firm independent of the manufacturer for sound emission compliance. The test data shall demonstrate that sound levels do not exceed 85dB[A] at a distance of five feet from the skid when the machine is operating under full load at a minimum of five perimeter locations. Sound data must be submitted with the proposal.
- h. **Transition:** The machine's process air inlet and/or outlet piece shall accommodate round flexible ducting to fit onto its external circumference as dimensioned in Table A1. The dimension provided in the table is a nominal size to reflect the inside dimension of the flexible ducting. Actual outside diameter (OD) dimension for the metal transition fitting should be one-quarter inch less ($-\frac{1}{4}$ ") with a one-eighth inch tolerance ($\pm \frac{1}{8}$ ") for sheet metal and three-sixteenths inch tolerance ($\pm \frac{3}{16}$ ") for hard pipe (e.g. 5" nominal pipe \equiv 6" ducting).

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D RENTAL SPECIFICATION — SPECIFIC MACHINERY REQUIREMENTS I.E. BY MACHINE TYPE

3. BLAST, MEDIA CLASSIFIER, & VACUUM RECOVERY (BMR): BMR [3 DRUM]–2 & BMR [1 DRUM]–1

- a. **Description:** The BMR machine is a combined abrasive Blast (B), Media (M) classification, and vacuum Recovery (R) unit a.k.a. "Vacuum & Blast" (VB) or "Blast & Recovery System" (BRS) machines. An equivalent machine meeting the specified performance requirements for the BMR [1.2K]–2 dual outlet (2 person unit) is the VB–1200 as originally designed and manufactured by IPEC Advanced Systems, Inc. and since modified or refurbished and for the BMR [0.5K]–1 single outlet (1 person unit) is the BRS–3.5 as manufactured by Axxiom Manufacturing, Inc.
- b. **Capacity & Utilities:**
 - (1) Pneumatic Air: Pneumatic air requirements shall be Low Pressure Air (LPA) no greater than ninety psig (≤ 90 psig) at a volume for its rate of consumption.
- c. **Control:** The unit shall include a permanently mounted control board accessible without opening any panels with pressure gauge(s) and other indicators as necessary for monitoring and control. The unit shall be completely wired for safety, capacity, and operation such as a power/switch system with circuit breakers, manual/automatic controller, motor overload protection, high/low pressure cut-outs, energy control system, and/or other essential components. The unit shall be fully controllable under a wide range of loads even though the diurnal and seasonal ambient temperatures vary greatly.
- d. **Design & Construction:** The Blast (B) portion of the machine shall be a stacked assembly in which the top volumetric unit (V1) is a Reclaimer Storage Hopper (a.k.a. Storage Hopper or Media Reclaimer). This tank shall process or recycle abrasive "media" such as steel grit via both an air wash system and a turbine vibrator sleeving system resulting in high quality for the reclaimed material. The bottom volumetric unit (V2) of the stacked assembly shall be an ASME coded single "Chamber" pressure "Vessel" a.k.a. "Blast Pot" with outlet(s), quantity as specified, capable of being connected to a deadman type remote via a pneumatic line (deadman remote & pneumatic line NOT REQUIRED). For blasting, the "Vessel" or "Blast Pot" is pressurized. When additional abrasive media is needed, the blast "Chamber" or "Pot" is depressurized via a conveniently positioned "blowdown" type valve and the chamber is then refilled from the "Storage Hopper" above. The Media (M) classification system shall be integrally connected to the Storage Hopper and the vacuum Recovery (R) mechanism. Abrasive to be recycled can be vacuumed into the top of the Media Reclaimer Storage Hopper where it falls onto a vibrating screen. The dust and fine grit particles that remain suspended in the air shall be drawn into a dust collection type mechanism. Reclaimed or "cleaned" abrasive shall fall through the vibrating screen into the Storage Hopper. Debris and paint chips shall be retained by the screen whereupon it may be removed either manually or via the vacuum hose attached to the dust collection type mechanism. The vacuum Recovery (R) mechanism shall use urethane eductor pump(s) to generate a vacuum (negative) pressure with airflow. The filter elements and/or cartridges shall be automatically purged via self-cleaning pulse jets while vacuuming. Additional filter purging shall be accommodated via a switch to engage the dust collector mechanism.
- e. **Options:** The Blast / Media classification / vacuum Recovery (BMR) machines shall meter each outlet with the 1¼" Thompson Valve® II with tungsten carbide sleeve metering valve as designed / manufactured by Schmidt and Axxiom Manufacturing, Inc. The multiple design improvements of this second generation Thompson valve such as a larger aperture allowing for improved media flow into the air stream as well as instant and smooth response to pneumatic deadman controls makes this feature a must for the units. At the outlet(s) to the BMR machine, the Contractor need not provide the vacuum blast gun a.k.a. "head" or "nozzle", nor outer brushes, nor pneumatic hose, nor deadman's switch(es). Such extra hardware will be supplied by the Government.
- f. **Transition:** None.

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D RENTAL SPECIFICATION — SPECIFIC MACHINERY REQUIREMENTS I.E. BY MACHINE TYPE

4. PRESSURE WASHER UNIT (PWU): PWU [HP / HTM]–N

- a. Description:** The machine shall be designed for industrial pressure washing of various surfaces via user choice of hot water or steam. An equivalent machine meeting the specified performance requirements for the normal capacity (4 gpm) with [high pressure & high temperature] Pressure Washer Unit (PWU [HP / HTM]–N) is the GAS POWERED WET STEAM & HOT WATER PRESSURE WASHER W/ HONDA ENGINE™ as designed & manufactured by NorthStar® and technically supported or accessorized by Northern® Tool + Equipment retail store.
- b. Capacity:**
- (1) Flowrate: The spray flowrate shall be at least four gallons per minute (≥4.0 gpm).
 - (2) Temperature: Hot water to steam temperature selection shall be variable from 160°F up to 250°F.
 - (3) Pressure: The pressure shall be adjustable up to a maximum of three thousand psig (3,000 psig).
- c. Utilities:** For portability, the unit shall require a water connection, an automotive battery, and two fuel types.
- (1) Gasoline: A gasoline powered engine will operate the unit's pump. The gasoline tank w/ inlet filter shall have a capacity of at least eight gallons and differentiated from the heating oil tank (i.e. red: gasoline).
 - (2) Heating Oil: A heating oil powered burner will heat the unit's water. The heating oil tank w/ inlet filter shall have a capacity of at least eight gallons and differentiated from the gasoline tank (i.e. yellow: heating oil). Useable heating oil shall be either Diesel #1, Diesel #2, kerosene, or fuel oil.
- d. Control:** The unit shall include a permanently mounted control board accessible without opening any panels with pressure gauge(s) and other indicators as necessary for monitoring and control. The unit shall be completely wired for safety, capacity, and operation such as a power/switch system with circuit breakers, manual/automatic controller, motor overload protection, high/low pressure cut-outs, energy control system, and/or other essential components. The unit shall be fully controllable under a wide range of loads even though the diurnal and seasonal ambient temperatures vary greatly. This particular Pressure Washer Unit's instrument panel shall include temperature and pressure controllers with diagnostic lights to indicate the appropriate temperature and pressure as selected. The START switch shall interrupt pressure build-up during startup. A sight glass will allow for checking pump oil. There shall be an operational flow switch.
- e. Design & Construction:** For this particular Pressure Washer Unit, the heating coil assembly shall be fully encased in a custom-molded ceramic fiber refractory combustion chamber with low thermal conductivity and resistance to thermal shock. The type of insulation used shall be immune to damage from contact from either water, oil, or fuel. The burner heating coil piping shall be extra-heavy Schedule 80. Manifolds shall be forged brass for improved strength vice aluminum. Rubber mounts shall be judiciously positioned to reduce engine vibration.
- f. Standard Equipment:** This particular hot water or steam Pressure Washer Unit shall include one each quick-connect type industrial rear entry gun; one each thirty-six inch split lance with a nozzle quick-connect; one each 5-pack set of quick-connect nozzles: 0°, 15°, 25°, 40°, & SOAP; one each quick-connect steam nozzle; one each chemical injector; and four each fifty foot long (4ea: 50'L) non-marking gray, steel-braided, quick-connect, high pressure rubber hose.
- g. Transition:** The quick-connect type fitting shall be a standard 22 mm size brass fitting.
- h. Miscellaneous:** Gasoline, HP: 11.7, Engine Displacement (cc): 390, Gross Torque: 18.5, Pump: CAT 66DX, Drive: Direct, Orifice Size: 4.5, Coupler Size (in.): 3/8, Cart: 10-gauge steel frame with 1 1/4in. tubing and 14in. pneumatic tires, Dimensions L x W x H (in.): 64 x 33 x 42 1/2