

City of Lynchburg  
Procurement Division  
900 Church Street  
Lynchburg, Virginia 24504  
Telephone No.: (434) 455-3970  
Fax No.: (434) 845-0711

**Addendum for Request for Proposal  
Dewatering Centrifuge Control Panel and Back Drive Upgrade**

**15-931**

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Date: 09/03/2014  
From: Lisa Moss, Buyer VCA  
RE: Addendum No. 1

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This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Offeror shall indicate receipt of this Addendum and all previously issued Addenda on the Title Page.

1. Can you please advise the dimensions and manufacturer of the panel enclosures?  
**Overall dimensions are approximately 72" W x 25" D x 90" H. Each door measures approximately 35" W x 80" H. The manufacture was Saginaw Controls and Engineering. Attached below are photos of the control panel and the name plate.**
  
2. Are copies of the existing electrical panel available? This would allow us to duplicate the wire numbers etc. and assure easier integration/reference to the remaining sub-systems.  
**Yes, drawings are available and are attached to this addendum. However, please note that several vendors have made changes over the years, so these drawings shall be deemed "to the best of our knowledge".**
  
3. Please clarify if an 1800 RPM motor can be used on this project?  
**Yes, the correct RPM on the proposal should be 1800 RPM Main Motor. The centrifuges are operating at 2500 RPM via belt drive. The existing Main Motor nameplate data is included in this correspondence.**
  
4. Revision made to the following specifications  
  
**Control System (Page 3): PLC. Revision as follows:**
  1. Shall be Allen Bradley, Control Logix or Compact Logix, Firmware Version 21 or newer.  
**Control System (Page 4): HMI. Revision as follows:**
  1. Shall be Allen Bradley PanelView Plus series (minimum 15 inch screen) capable of running FactoryTalk ME version 7  
**There shall be no splicing of control wires**
  
5. Crane Operator for this project is to be pre-approved by the City of Lynchburg Department of Water Resources Safety Manager prior to commencement of work.
  
6. Are there ancillary controls?  
**None during this scope of work other than Sludge and Polymer Feed Controls shall be provided via Ethernet connection.**

7. What are the plans for the existing enclosures?

**The enclosures may be reused and retrofitted with new doors and new components or the Contractor may supply new enclosures and remove the existing equipment**

8. Are there any corrosion risks? Is there a specification for control panel to avoid corrosion risk?

**Existing panels show some signs of corrosion due to Hydrogen Sulfide gases present in the building. There is no current provision to eliminate the potential of continuing corrosion.**

9. Can a sequence of operation be provided?

**Yes, it is attached to this addendum.**

10. Is there any vibration concerns?

**The Contractor shall be responsible for proper mounting and alignment of new equipment. Vibration concerns outside the scope of this project will be addressed at a later date.**

11. **Clarification of Proposal Preparation Section H (page 12): Proposer shall provide documentation of active registration or current application for registration with the Virginia State Corporation Commission.**

12. **The existing motor has no VFD drive, just Wye-Delta start.**

13. **The Centrifuge was purchased in 1997.**

14. **Training schedule will be reliant on working around multiple shifts and completion within 2 days. The training schedule to be set up and approved by the project manager.**

15. At the pre-bid it was suggested that the motor nameplate info. for both motors would be sent to everyone. Is that going to happen?

**Information for the motor nameplate and control system drawing are included in this addendum.**

16. Can someone tell me the length of time it takes the centrifuge to come up to full speed?

**10 – 15 minutes**

17. In addition for properly sizing and selecting components we request information on the existing bowl drive and back drive sheave ratios and the centrifuge gearbox ratio and torque limits.

**The existing bowl drive and back drive sheave ratios, centrifuge gearbox ratio and torque limits are included in the specifications attached to this addendum.**

18. For the control panel door replacement- instead of complete door replacement we have found that providing a cover plate on the existing door with mounting studs and gasket that will cover the abandoned holes and will contain cutout for the OIT can save cost and meet panel enclosure integrity. Will this option be acceptable?

**No. New doors and/or enclosures are required. If availability becomes an issue, we may reconsider after other options are exhausted.**

19. AC 2500 RPM TEFC Motor. We would like to clarify that a standard base speed motor of 1200, 1800 or 3600 RPM will be used and the speed adjustment through the back drive VFD will be set in a range to meet the centrifuge performance requirements.

**See response to Question #3.**

20. The use of VFD's and/or soft starts may require additional panel cooling. If required can closed loop air conditioners be top mounted to the existing enclosures?

**There should be ample space available to install additional top mounted cooling.**

21. Once bowl motor nameplate information is provided it may be determined that the existing bowl motor can operate with a bowl drive VFD. Will this option be allowed instead of replacing the bowl motor with the VFD option?

**No. We required an Inverter Rated Motor.**

22. **Revision/Additions to General Terms and Conditions as listed below:**

***OWNER'S RIGHT TO STOP WORK***

If the Contractor fails to correct defective Work as required herein or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner, by a written order, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

***CONTRACTOR'S REPRESENTATIONS***

By entering into this Contract with the Owner, the Contractor represents and warrants the following, together with all other representations and warranties in the Contract Documents

That he is experienced in and competent to perform the type of work required and to furnish the plant, materials, supplies or equipment to be so performed or furnished by him;

That he is financially solvent, able to pay his debts as they mature, and possessed of sufficient working capital to initiate and complete the Work required by the Contract Documents;

That he is familiar with all federal, state, and local government laws, ordinances, permits, regulations and resolutions that may in any way affect the Work or those employed therein;

That such temporary and permanent Work required by the Contract Documents which is to be done by him will be satisfactorily constructed and fit for use for its intended purpose and that such construction will not injure any person, or damage any property;

That he has carefully examined the Contract Documents and the site of the Project and the Work and that from his own investigations, he has satisfied himself and made himself familiar with: (1) the nature and location of the Work, (2) the character, quality and quantity of materials likely to be encountered, including, but not limited to, all structures and obstructions on or at the project site, both natural and man-made; (3) the character of equipment and other facilities needed for the performance of the Work, (4) the general and local conditions, including without limitation its climatic conditions, the availability and cost of labor and the availability and cost of materials, tools and equipment; (5) the quality and quantity of all materials, supplies, tools, equipment, labor and professional services necessary to complete the Work in the manner required by the Contract Documents; and (6) all other matters or things which could in any manner affect the performance of the Work;

That he will fully comply with all requirements of the Contract Documents;

That he will perform the Work consistent with good workmanship, sound business practice, and in the most expeditious and economical manner consistent with the best interests of the Owner;

That he will furnish efficient business administration, an experienced superintendent, and an adequate supply of workmen, equipment, tools and materials at all times;

That he will complete the Work within the Contract Time;

That his Contract Sum is based upon the labor, materials, systems and equipment required by the Contract Documents, without exception; and

That he has satisfied himself as to the feasibility and correctness of the Contract Documents for the construction of the Work.

### ***SUPERVISION AND CONSTRUCTION PROCEDURES***

The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract; subject, however, to the Owner's right to reject means and methods proposed by the Contractor which are unsafe or otherwise not in compliance with the Contract Documents.

The Contractor shall be responsible to the Owner for the acts and omissions of Contractor's employees, Subcontractors and sub-subcontractors, suppliers, their agents and their employees, and of any other persons providing any of the Work through Contractor, and for their compliance with each and every requirement of the Contract Documents, in the same manner as if they were directly employed by the Contractor.

Before starting a section of the Work, the Contractor shall carefully examine all preparatory work that has been executed by others to receive his Work to see that it has been completed. He shall check carefully, by whatever means are required, to ensure that his Work and adjacent, related work will finish to proper quality, contours, planes, and levels.

The Contractor understands and agrees that the Owner will not have any liability for or any responsibility to exercise any control over construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and they will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Owner will not have any liability for or any responsibility to exercise any control over the acts or omissions of the Contractor, Subcontractors, sub-subcontractors or any of their agents or employees, or any other persons performing any of the Work.

The Contractor shall use no plant, equipment, materials, or persons for this Work to which the Owner objects.

The Contractor shall not remove any portion of the Work or stored materials from the site of the Project without the Owner's prior, written approval.

### ***LABOR, MATERIALS AND EQUIPMENT***

The Contractor shall furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for, or incidental to, the Work, and will perform all other obligations imposed on him by the Contract Documents. Final payment will not be made until the Work is so completed.

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

Work, materials, and equipment which are necessary in the construction but which are not specifically referred to in the specifications or shown in the drawings but implied by the Contract Documents shall be furnished by the Contractor at his own cost and expense.

The Contractor shall at all times enforce strict discipline, safety and good order among all persons providing any of the Work through him and shall not cause or allow to be used for the Work any unfit person or anyone not skilled in the task assigned to him. If any person providing any of the Work through the Contractor shall appear to the Owner to be incompetent or to act in a disorderly or

improper manner, such person shall be removed immediately, at the request of the Owner, and shall not provide any of the Work except on written consent of the Owner.

No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage, or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the Work.

The Contractor shall provide approved and adequate sanitary accommodations. All wastes shall be covered, disinfected, incinerated or otherwise disposed of legally.

All equipment, apparatus and/or devices of any kind to be incorporated into the Work that are shown or indicated on the drawings or called for in the specifications or required for the completion of the Work shall be entirely satisfactory to the Owner as regards operation, capacity and/or performance. No approval, either written or verbal, of any drawings, descriptive data or samples of such equipment, apparatus, and/or device shall relieve the Contractor of his responsibility to turn over the same in good working order for its intended purpose at the completion of the Work in complete accordance with the Contract Documents. Any equipment, apparatus and/or device not fulfilling these requirements shall be removed and replaced by Contractor with proper and acceptable equipment, apparatus, and/or device, or put in good working order satisfactory to the Owner by Contractor without additional cost to the Owner.

#### ***WARRANTY***

The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all workmanship will be of first class quality, free from faults and defects and in conformance with the Contract Documents and all other warranties and guaranties specified therein. Where no standard is specified for such workmanship or materials, they shall be the best of their respective kinds. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

The Work included in this Contract is specified in the Contract Documents. The Contractor shall be required to complete the Work specified and to provide all items needed for construction of the Work, complete and in good order.

#### ***COMPLIANCE***

All demolition and excavation shall comply with all laws, ordinances, rules and regulations, and lawful orders of public authority, including without limitation, those for the prevention of accidents as issued by the Department of Labor and Industry of the Commonwealth of Virginia.

To the extent of the Work indicated in the Contract Documents, the Contractor shall comply and the construction shall conform with all applicable and current editions or revisions of the following codes, specifications and standards. In case of conflict, the order of precedence shall be as hereinafter listed:

- .1 Lynchburg Public Procurement Code;
- .2 Contract Documents;
- .3 The Virginia Uniform Statewide Building Code ("USBC"), as amended including, without limitation, The International Building Code ("IBC") and other codes incorporated by the USBC and IBC); and

Should the Contractor fail to seek such a clarification thereof immediately upon the discovery of the need therefor, prior to the time the said Work is performed, the Contractor thereby assumes all risk of loss related to such error, inconsistency, ambiguity, discrepancy, conflict or variance which the Contractor (and any person in contract with Contractor relating to the Work) knew or should have known, using a normal, professional standard of care, existed prior to the time the Work was performed.

If the Contractor performs any Work contrary to any law, code, ordinance, regulation, publication, standard, permit, rule, regulation or resolution, he shall assume full responsibility therefore and shall bear all costs attributable thereto.

### ***RESPONSIBILITY FOR COMPLETION***

The Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to ensure the performance of the Work within the Milestone and Completion dates specified in the Contract. If the Owner notifies the Contractor that it has become apparent that the Work will not be completed within required Milestone or Completion Dates and such is not due solely to circumstances for which Contractor has established entitlement to an extension to the Contract Time, the Contractor agrees that it will assume full responsibility to take some or all of the following actions, at no additional cost to the Owner (except for circumstances beyond the Contractors' control), in order to ensure, in the opinion of the Owner, that the Contractor will comply with all Milestone and Completion Date requirements:

- .1 Increase manpower, materials, crafts, equipment and facilities;
- .2 Increase the number of working hours per shift, shifts per working day, working days per week, or any combination of the foregoing; and
- .3 Reschedule activities to achieve maximum practical concurrency of accomplishment of activities.

Failure of the Owner to notify the Contractor of the apparent delay shall not relieve Contractor of the obligation to finish the Work within the required Milestone or Completion date.

If the actions taken by the Contractor to remedy delays not due solely to circumstances for which Contractor has established entitlement to a time extension are not satisfactory, the Owner may direct the Contractor to take any and all actions necessary to ensure completion within the required Milestone and Completion Dates, without additional cost to the Owner. In such event, the Contractor shall continue to assume responsibility for his performance and for completion within the required dates.

if, in the opinion of the Owner, the actions taken by the Contractor pursuant to this Article or the progress or sequence of Work are not accurately reflected on the Construction Schedule, the Contractor shall revise such schedule to accurately reflect the actual progress and sequence of Work.

The Owner may, at its sole discretion and for any reason, require the Contractor to accelerate the Construction Schedule by providing overtime, Saturday, Sunday and/or holiday work and/or by having all or any subcontractors designated by the Owner provide overtime, Saturday, Sunday, and/or holiday work. If the Owner requires overtime, Saturday, Sunday or holiday work by the Contractor's or his Subcontractor's own forces, and such requirement is not related in any way to the

Contractor's apparent inability to comply with Milestone and Completion Date requirements, the Owner shall reimburse the Contractor for the direct cost to the Contractor of the premium time for all labor utilized by the Contractor in such overtime, Saturday, Sunday or holiday work (but not for the straight time costs of such labor), together with any Social Security and State or Federal unemployment insurance taxes in connection with such premium time. However, no overhead supervision costs, commissions, profit or other costs and expenses shall be payable in connection therewith.

This provision does not eliminate the Contractor's responsibility to comply with the City's noise ordinances, all VDOT permit requirements, and all other applicable laws, regulations, rules, ordinances, resolutions, and permit requirements.

#### ***SITE CLEAN UP***

The Contractor at all times shall keep the Project site and adjacent areas free from accumulation of waste materials or rubbish caused by his operations. Before final payment is made, the Contractor shall remove all of his waste materials, rubbish, scrap materials, debris, tools, construction equipment, machinery, surplus materials, falsework, temporary structures, including foundations thereof and plant of any description, from the Project site and put the site in a neat, orderly condition.

If the Contractor fails to clean up as required herein at any time during the performance of the Work or at the completion of the Work, the Owner may, upon 24 hours notification, clean up the site at the Contractor's expense.

#### ***OWNER'S RIGHT TO CLEAN UP***

If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by Article 4, Contractor, the Owner may clean up and charge the cost thereof to the contractor responsible as the Owner shall determine to be just.

### **INSURANCE FOR CONTRACTS**

#### ***CONTRACTOR'S INSURANCE***

During the term of this Contract, the Contractor shall procure and maintain insurance coverages with insurance companies rated by A. M. Best Company as A – VIII or better. The company(ies) shall be authorized to do business under the laws of the Commonwealth of Virginia and be acceptable to the City of Lynchburg and shall provide the following minimum types of insurance:

- a. **Commercial General Liability Insurance** – This will cover claims for Bodily Injury, Property Damage, Personal and Advertising Injury, Products and Completed Operations, which may arise from operations under the Contract, whether such operations be performed by the Contractor or by any Subcontractor or Independent Contractor, or by anyone directly or indirectly employed by any of them. Such insurance shall include coverages "X", "C" and "U" for explosion, collapse of other structures and underground utilities, as well as Contractual Liability Insurance covering the requirements outlined in the General Conditions. This insurance shall name the City, the City Council and its employees as additional insureds **by endorsement** to the Commercial General Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract. If endorsements to the Commercial General Liability insurance policies cannot be made, then separate policies providing such protection shall be purchased by the Contractor.

1. The Policy shall have the following **minimum** limits:

\$1,000,000 Each Occurrence Limit  
\$1,000,000 General Aggregate Limit  
\$1,000,000 Personal and Advertising Injury Limit

\$1,000,000 Products and Completed Operations Aggregate Limit  
\$5,000 Medical Expense Limit

This insurance shall include the following provisions and /or endorsements:

- 1) The General Aggregate limit shall apply on a “per project” and on a “per location” basis;
- 2) Coverage shall apply to all liability arising from all premises and operations conducted by the Contractor, Subcontractors and independent contractors;
- 3) The Contractor agrees that liability arising from Products and Completed Operations will be covered. Such liability coverage will be maintained for two years after completion of the Work.
- 4) The Contractor shall require each of his Subcontractors to procure and maintain Commercial General Liability Insurance of the type specified in these Contract Documents in the minimum amounts required by the Owner and the Contractor (which shall be the amounts required by this paragraph 11.1.1. of Contractor unless otherwise agreed in writing by Owner), during the term of their subcontracts.

b. **Worker's Compensation and Employer's Liability Insurance** for the Contractor's employees engaged in the Work under this Contract, in accordance with statutory requirements of the Commonwealth of Virginia. The Contractor shall require each of his Subcontractors to provide Worker's Compensation and Employer's Liability Insurance for all of the Subcontractor's employees engaged on such subcontracts. If any class of employees engaged on Work under the Contract is not protected under the Worker's Compensation statute, the Contractor shall provide similar protection for these employees in amounts not less than the legal requirements. The amount of Employer's Liability Insurance for the Contractor and each of his Subcontractors shall be not less than:

\$100,000 per employee for Bodily Injury.  
\$100,000 per employee for disease  
\$500,000 per policy for disease

The Worker's Compensation and Employer's Liability Insurance policy shall include an "all states" or "other states" endorsement.

c. **Commercial Automobile Liability Insurance**, including coverage for owned, hired, non owned and borrowed vehicles used in the work with *minimum* limits of \$1,000,000 Combined Single Limit per occurrence. This insurance shall name the City, the City Council and its employees as additional insureds *by endorsement* to the Commercial Automobile Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract.

d. **Umbrella Liability or Excess Liability** Insurance with the following minimum limits of:

\$5,000,000 Each Occurrence  
\$5,000,000 Annual Aggregate

The following policies shall be scheduled as underlying policies:

Commercial General Liability  
Commercial Automobile Liability  
Employers Liability

This insurance shall name the City, the City Council and its employees as additional insureds *by endorsement* to the Umbrella or Excess Liability policy. Such policy shall not have a restriction on

the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract.

Proof of insurance for each type of coverage listed herein shall be provided within 10 days after issuance of the award letter for the Contract, and no Work shall proceed unless all such insurance is in effect. The Contractor shall not allow any Subcontractor to commence work on his subcontract until all such insurance of the Subcontractor has been so obtained and approved by the Contractor and found to be in accordance with the requirements set forth herein. The Contractor certifies by commencement of the Work that his insurance and that of Subcontractors is in effect and meets the requirements set forth herein.

The Contractor shall purchase and maintain required liability and all other insurance as is appropriate for the Work being performed and furnished. The insurance shall provide protection from claims which may arise out of or result from Contractor's performance and furnishing of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

- a. claims under Worker's Compensation, Employers Liability, disability benefits, and other similar employee benefit acts;
- b. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
- c. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
- d. claims for damages insured by personal injury liability coverage which are sustained: (1) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor; or (2) by any other person for any other reason;
- e. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
- f. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.

The insurance required to be purchased and maintained by the Contractor shall:

- a. include completed operations insurance;
- b. with respect to any other insurance coverage written on a claims-made basis, remain in effect for at least 2 years after final payment (and Contractor shall furnish the City and A/E evidence satisfactory to the City of continuation of such insurance at final payment and 1 year thereafter);
- c. contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance.

All of the aforesaid insurance policies must be endorsed to provide that the insurance company **shall give 30 days written notice to the City** if the policies are to be terminated or if any changes are made during the Contract period which will affect in any way the insurance provided pursuant

to such policy. Before starting the Work, the Contractor shall provide the City with a copy of each policy that he and each of his Subcontractors is required to carry in accordance with this Article 11, together with receipted bills evidencing proof of premium payment. These policies shall contain endorsements to the policies naming the City of Lynchburg as an additional insured as required.

Nothing contained herein shall effect, or shall be deemed to affect, a waiver of the City's sovereign immunity under law.

23. Will the City permit the addition of a limitation of liability section into the terms and conditions of bid and contract?

**This will not be permitted due to the fact that there will be on-site work to be performed for this project. Revised Terms and Conditions are listed above.**

24. Will the City consider the use of motors other than the specified Reliance Motors?

**We are requesting the specified motors due to performance history and compatibility. An alternate proposal price may be included for consideration for the Marathon motor.**

25. Are the existing 300 HP Wye-Delta main drive motors VFD rated?

**The existing motors are not VFD rated. Therefore, if VFD option is chosen, new motors will be required.**

26. Will the City consider the use of TEBC backdrive motors instead of the specified TEFC?

**No, only TEFC backdrive motors are currently being considered. An alternate proposal price may be included for consideration for the TEBC motor.**

27. Page 5 of 18 Materials? A new AC 2500 rpm TEFC centrifuge duty back drive motor shall also be provided for each centrifuge. We assume this must be an oversight as a squirrel-cage AC motor is not available at 2500 RPM base speed. Will an addendum be issued to correct this oversight?

**See response to Question #3**

28. Will a status of "application in process" be grounds for disqualification of our bid?

**This is not grounds for disqualification as long as the application is approved and Virginia State Corporation Commission registration is complete prior to award of RFP.**

Main Drive Motor – WYE / Delta start / running operation:

Horsepower: 300	Voltage: 460v 3 ph 60 hz	Frame: 4491
Type: P	Design: A	R.P.M. 1780
Amps.: 338	S.F.: 1.15	Code: A
Amb.: 40 deg. C	Duty: Cont.	Enclosure: TEFC
Insulation: F		

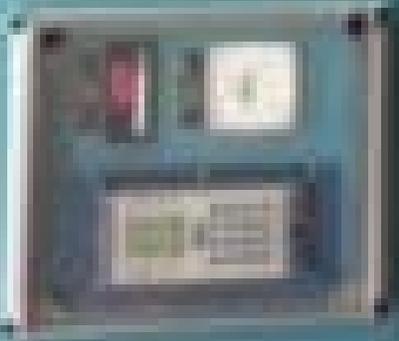
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**SAGINAW CONTROL & ENGINEERING, INC.  
95 MIDLAND ROAD  
SAGINAW, MICHIGAN 48603**

**517-799-6871 FAX 517-799-4524**

# பெரிய செய்தி



CENTRIFUGES

8/28/2014

SHARPLES CENTRIFUGES #1

MODEL-DS-706

S.N. #97-DS706-032

SHARPLES CENTRIFUGE #2

MODEL-DS-706

S.N. #97-DS706-076

BOWL DRIVE {MAIN DRIVE}

MOTOR-300 HP- 1780RPM

MOTOR SHEAVE-PART#8EU38G SIZE-18.4"O.D

CENTRIFUGE SHEAVE-PART#6142211901 SIZE-12.5" O.D.

SHEAVE RATIO-1.472 TO 1

BACK DRIVE

MOTOR-100HP-2500/2900RPM

MOTOR SHEAVE-PART#F48-14M 85E SIZE-8.375

GEARBOX SHEAVE-SAME

SHEAVE RATIO-1 TO 1

GEARBOX

MODEL#M220/95

S.N. #97-M220/95-076

TORQUE-220,000 IN/LBS 24.85 KNM

RATIO-95 TO 1

EXISTING PARTS , SIZES AND MODEL NUMBERS

### **III. OPERATING SEQUENCE**

#### **A. Startup**

- 1. Start the lube pump to establish oil flow to the centrifuge pillowblock bearings then reset all the alarm circuits by depressing the reset pushbutton. If all the alarm interlocks are satisfied, then the centrifuge can be started.**
- 2. Start the centrifuge. The backdrive motor is interlocked with the centrifuge and will also start. Initially, it will run at minimum speed (approximately 200 RPM). After the centrifuge bowl reaches the operating speed, the backdrive will be switched to the running speed (approximately 200 RPM less than bowl speed). The transition timer determines when the backdrive will switch from the minimum speed to the running speed.**

#### **RE-START CAUTIONS**

The centrifuge can have two successive cold starts, with coasting to rest between starts or one cold and one hot start. After two starts, the motor must coast to a stop and then you must wait one hour for the motor to cool, before starting again.

#### **NOTE**

Vibration, caused by uneven distribution of solids which remained in the bowl from prior running, is sometimes encountered during startup of centrifuge. It can occur during acceleration or after the machine is up to full speed. Normally, filling the bowl with water after the machine reaches full speed reduces vibration to an acceptable level. If not, the centrifuge should be shutdown. (CIP) may be required.

When the centrifuge has accelerated to operating speed, the transition timer will time out and the feed solenoid valve will open. At operating speed, the DC backdrive forward/reverse and speed increase/decrease pushbuttons are operational.

#### **B. Clean-In-Place (CIP) Operation**

The CIP cycle requires lube pump operation. CIP may operate anytime before a centrifuge start, after centrifuge acceleration transition and during centrifuge deceleration (until lube pump shutdown occurs). The Clean-In-Place feature is locally operated at the centrifuge control panel. By depressing CIP start, the DC backdrive rotates in the reverse direction and then in a forward direction repeating a preset timed cycle until the overall CIP time halts the CIP cycle. The D.C. backdrive speeds and CIP time periods are preselected. During the entire cycle, the flush water valve is open. Flush water should be (50-75 GPM). *Flush water valve is controlled manually during normal operation.*

### NOTE

Overall (CIP) time and flush water rate are best determined by experience.

### C. Shutdown

Anytime the centrifuge is shutdown, whether it be by an alarm condition or by depressing the stop pushbutton, the feed valve will automatically close and the flush water valve will open for a pre-determined length of time. However, the following manual procedure is recommended for a planned shutdown:

1. Manually shutoff feed.
2. Shut polymer off.
3. Manually introduce flush water while operating at full speed and with conveyor/bowl differential set to maximum. Continue this flush for approximately 10 minutes.
4. Depress the centrifuge stop pushbutton. The centrifuge drive motor will shutdown. The backdrive RPM will automatically decrease to minimum RPM to scroll remaining solids from the bowl. The lube oil pump shutdown timer will be energized. This allows the lube pump to run as long as it takes for the centrifuge to coast to a stop. The required time is preset on timer. At the time of lube pump shutdown, the backdrive will shutdown.

### NOTE

The lube pump stop pushbutton is locked out to prevent pump shutdown before centrifuge shutdown.

5. Maintain a flush water.
6. When the centrifuge has coasted down to approximately 500 RPM (~~or approximately when the flush water rejects out the pulley of the centrifuge~~), then they reduce flush water to ~~approximately 50~~ 0 GPM.
7. ~~When flush water again rejects out of the pulley, flush water should be shutoff. Do this by proper setting on flush water timer.~~
8. If the centrifuge is to be shutdown for longer than one hour, it is suggested the centrifuge be run through a clean-in-place (CIP) cycle.
9. If the centrifuge is shutdown overnight, it is good practice to run the centrifuge through a CIP cycle before starting.
10. Shutdown timer will shutoff lube oil system and backdrive.

Horsepower: 100	Type CD409AT	Field Volts 300
RPM 2500/2900	Power Supply Code C	Wound Shunt
ARM. Volts 500	Ins. Class F	
ARM. Amps 158	Duty Cont.	
	Max AMB. 40 C	

Existing Backdrive Motor information