

**HARPER**  
**CORPORATION**  
General Contractors  
Environmental Systems Division

NCDENR

512 N. Salisbury St

Raleigh, NC 27604

Attn: Tony Evans

Re: Muddy Creek WWTP Power Generation Upgrade

Harper Corporation would like to formally submit a waiver for the following item(s) in reference to the Muddy Creek WWTP Power Generation Upgrade:

3" Pressure Reducing Valve – Mk No. PV-1448

Harper Corporation has not been successful in sourcing a domestic valve that meets the performance specifications of the project. Harper would like to submit a waiver for the use of Emerson Fisher valve (valve model noted in specifications).

Please let me know if you have any questions or concerns.

Thank you,



Paul Laughlin

## General

- Waiver request includes the following information:

- Description of the foreign and domestic construction materials

*100% Import*

- Unit of measure

*One Valve*

- Quantity

*One Valve*

- Price

*\$20,990.00*

- *Time of delivery or availability*

*12-14 Weeks*

- Location of the construction project

*Muddy Creek WWTP*

*4651 Cooper Rd*

*Winston Salem, NC 27127*

- Name and address of the proposed supplier

*Emerson Electric Co.*

*8000 West Florissant Avenue, P.O. Box 4100*

*St. Louis MO 63136*

*United States*

*Phone: +1 314 553 2000*

- A detailed justification for the use of foreign construction materials

*No suitable equal meeting performance specifications was able to be sourced that is produced domestically.*

- Waiver request was submitted according to the instructions in the memorandum
- Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in

requests for proposals, contracts, and communications with the prime contractor

#### Cost Waiver Requests

- Waiver request includes the following information:
  - Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products

*Not applicable*

— Relevant excerpts from the bid documents used by the contractors to complete the comparison

*Not applicable*

— Supporting documentation indicating that the contractor made a reasonable survey of the market, such as a description of the process for identifying suppliers and a list of contacted suppliers

*Not applicable*

#### Availability Waiver Requests

- Waiver request includes the following supporting documentation necessary to demonstrate the availability, quantity, and/or quality of the materials for which the waiver is requested:

*Stainless Steel, see specifications attached for additional information*

— Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials

*See emails attached below for soliciting to vendors for valve*

— Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers.

*See emails attached below for soliciting to vendors for valve*

— Project schedule

*See attached note that Items A1919, A1920, and A1930 are not possible without the valve onsite and installed*

— Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction materials

*Project specifications are attached below.*

- Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought

Language located in letterhead

- Has the State received other waiver requests for the materials described in this waiver request, for comparable projects?

See Attached for additional information.

PRESSURE REDUCING VALVES

PART 1 – GENERAL

1-1. SCOPE. This section covers the furnishing of pressure reducing valves as specified herein.

Piping, pipe supports, insulation, and accessories which are not an integral part of the valves or are not specified herein are covered in other sections.

1-2. GENERAL.

1-2.01. General Equipment Stipulations. The General Equipment Stipulations shall apply to all equipment and materials provided under this section. If requirements in this specification differ from those in the General Equipment Stipulations, the requirements specified herein shall take precedence.

1-2.02. Identification. Valves specified herein shall be identified in accordance with the Equipment and Valve Identification section.

1-3. SUBMITTALS.

1-3.01. Drawings and Data. Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories forming a part of the equipment furnished, shall be submitted in accordance with the Submittals Procedures section. The data and specifications for each unit shall include, but shall not be limited to, the following:

Name of manufacturer.

Type and model.

Construction materials and finishes.

Unit dimensions.

Performance curves indicating flow capacity versus pressure drop.

1-3.02. Operation and Maintenance Data and Manuals. Adequate operation and maintenance information shall be supplied as required in the Submittals Procedures section. Operation and maintenance manuals shall be submitted in accordance with the Submittals Procedures section. The operation and

maintenance manuals shall be in addition to any instructions or parts lists packed with or attached to the equipment when delivered.

## PART 2 - PRODUCTS

2-1. PERFORMANCE AND DESIGN REQUIREMENTS. Pressure reducing valves shall be designed to meet the service requirements as indicated herein and in the Pressure Reducing Valves Schedule on the Drawings.

Each pressure reducing valve shall be designed to provide tight shutoff under conditions of no flow and shall not "hunt" under ordinary flow conditions. Pressure reducing valves shall be selected and sized as recommended by the valve manufacturer. Valve pressure setpoint shall be adjustable to at least 20 percent above and below the reduced pressure setpoint.

2-2. ACCEPTABLE MANUFACTURERS. Acceptable manufacturers and specific products are listed in the Construction paragraph.

2-3. MATERIALS. Valve materials shall be as indicated below and in the Construction paragraph.

### Shop Coatings

|  |  |
|--|--|
| Epoxy Enamel, NSF certified (Liquid Service) | Ameron "Amerlock 400 High-Solids Epoxy Coating", Carboline "Carboguard 891", or Tnemec "Series N140 Pota-Pox Plus"; immersion service. |
| Epoxy Enamel (Gas and Air Service)           | Ameron "Amercoat 385 Epoxy", Carboline "Carboguard 890", or Tnemec "Series N69 Hi-Build Epoxoline II".                                 |

2-4. CONSTRUCTION.

2-4.01. Water Service. Not used.

2-4.02. Gas Service. Pressure reducing valves for digester gas service shall be suitable for gas with specific gravity of 0.8 to 0.9. Digester gas pressure reducing valves shall be pilot-operated type with stainless steel bodies, stainless steel trim, viton diaphragm, and stainless steel pilot. Valves shall be Fisher Controls "1098-EGR Series".

2-5. SAFETY VALVES FOR AIR SERVICE. Not used.

2-6. SHOP PAINTING. All ferrous metal surfaces of valves and accessories, both interior and exterior, shall be shop painted for corrosion protection in accordance with the following list. The valve manufacturer's standard coating will be acceptable, provided it is functionally equivalent to the specified coating and is compatible with the field painting specified in the Protective Coatings section.

Interior Surfaces

Liquid Service

Epoxy (NSF certified).

Gas and Air Service

Epoxy.

Exterior Surfaces

Universal primer with epoxy finish coat.

PART 3 - EXECUTION

3-1. INSTALLATION. Materials furnished under this section will be installed in accordance with the Valve Installation section.

End of Section





## Pressure Reducing Valves Schedule

| <b>Performance and Design Requirements</b>   |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Valve Tag Number                             | PRV-1448                  |  |  |  |  |
| Location                                     | Digester Control Building |  |  |  |  |
| Type of Service (1)                          | DG                        |  |  |  |  |
| Type (2)                                     | PO                        |  |  |  |  |
| Maximum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 80                        |  |  |  |  |
| Minimum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 50                        |  |  |  |  |
| Reduced Pressure Setting                     |                           |  |  |  |  |
| psig   | 5                         |  |  |  |  |
| Maximum Flow (3)                             |                           |  |  |  |  |
| cfh  | 10,500                    |  |  |  |  |
| Ordinary Flow                                |                           |  |  |  |  |
| cfh  | 9,000                     |  |  |  |  |
| Minimum Controlled Flow                      |                           |  |  |  |  |
| cfh  | 6,000                     |  |  |  |  |
| Minimum Permissible Pressure at Maximum Flow |                           |  |  |  |  |
| psig   | 3.5                       |  |  |  |  |
| <b>Remarks</b>                               |                           |  |  |  |  |

Notes:

(1) Abbreviations for types of service are as follows:

DG      Digester Gas

(2) Abbreviations for pressure reducing valve type are as follows:

PO      Pilot-operated

(3) Units of flow are as follows:

Gas Service      cubic feet per hour (cfh)

End of Schedule

## Laughlin, Paul

---

**From:** Wes.Cain@Ferguson.com  
**Sent:** Tuesday, October 10, 2017 10:26 AM  
**To:** Laughlin, Paul  
**Cc:** Housman, David; Odom, Mike  
**Subject:** RE: Muddy Creek PRV Waiver Info  
**Attachments:** RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS; RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS; RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS; RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS; RE: Muddy Creek Power Gen - 3" PRV - AIS Project

**Importance:** High

Paul,

See below responses in [RED](#) for each comment. Call me with any questions or if you need anything else on this. If I need to present in a different way I can do that too. Just let me know whatever you need brotha.

Thanks,

**Wes Cain**  
**Sales Representative**  
**Ferguson Waterworks, NC/SC Plant Division**  
10039 Industrial Drive, Pineville, NC 28134 USA  
Mobile: (704) 264-5571  
E-Mail: [wes.cain@ferguson.com](mailto:wes.cain@ferguson.com)

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**From:** Laughlin, Paul [mailto:[plaughlin@HarperCorp.com](mailto:plaughlin@HarperCorp.com)]  
**Sent:** Tuesday, October 03, 2017 2:46 PM  
**To:** Cain IV, Wes [Ferguson] - 1638 Charlotte <[Wes.Cain@Ferguson.com](mailto:Wes.Cain@Ferguson.com)>  
**Cc:** Housman, David <[DHousman@HarperCorp.com](mailto:DHousman@HarperCorp.com)>; Odom, Mike <[modom@HarperCorp.com](mailto:modom@HarperCorp.com)>  
**Subject:** RE: Muddy Creek PRV Waiver Info

Wes,

Have you had any luck on this?

Thanks man!

Respectfully,

**Paul Laughlin**  
Environmental Systems Division  
Project Manager

**Harper Corporation General Contractors**

(M) 864.640.6892 | (D) 864.672.8849 | (C) 864.527.2500

[www.HarperCorp.com](http://www.HarperCorp.com)

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**From:** Laughlin, Paul

**Sent:** Wednesday, September 27, 2017 1:12 PM

**To:** [Wes.Cain@Ferguson.com](mailto:Wes.Cain@Ferguson.com)

**Cc:** Housman, David <[DHousman@HarperCorp.com](mailto:DHousman@HarperCorp.com)>; Odom, Mike <[MOdom@HarperCorp.com](mailto:MOdom@HarperCorp.com)>

**Subject:** Muddy Creek PRV Waiver Info

Wes,

Thanks for helping out with this. Per our phone conversation these are the items I need your help compiling for the waiver.

Description of the foreign and domestic construction materials: **Per Emerson Fisher, valve is 100% import**

Price: **\$20,990**

Time of delivery or availability: **12-14 Weeks**

Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery

date for construction materials: **I have not been able to find another MFG that can supply what is in the spec's other than Emerson Fisher. We were close with Jordan Valve, but they could not meet the set point as depicted in the specs.**

– Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process

for identifying suppliers and a list of contacted suppliers: **Attached is email documentation of me trying to obtain this valve from other valve vendors that could meet spec / AIS requirements. There were a few other vendors that I spoke with verbally that could not do this either. I was not successful in finding anyone who could do this.**

Thanks!!

Respectfully,

**Paul Laughlin**

Project Manager

Environmental Systems Division

35 West Court Street, Suite 400  
Greenville, SC 29601  
(M) 864.640.6892 | (D) 864.672.8849 | (C) 864.527.2500  
[www.HarperCorp.com](http://www.HarperCorp.com)

# HARPER CORPORATION

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## General Contractors



## Laughlin, Paul

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**From:** andy@atlantic-valve.com  
**Sent:** Wednesday, March 15, 2017 7:32 AM  
**To:** Wes.Cain@Ferguson.com  
**Subject:** RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS

Morning captain - - I checked around a lot on this one. Not anything I can really help you with

Sorry

---

**From:** Wes.Cain@Ferguson.com [mailto:Wes.Cain@Ferguson.com]  
**Sent:** Monday, March 06, 2017 2:07 PM  
**To:** andy@atlantic-valve.com  
**Subject:** Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS  
**Importance:** High

Andy,

You got anything you can offer for the below?

Below is what I'm looking for. I've also attached specs for actuators. Below is all the spec info provided on the valves themselves. This is an AIS job. Not really concerned about AIS at this point though. If you have any other recommendations on who else I could try that would be awesome. Let me know ya thoughts.

**4" Diverter/Mixing Valve w/ EMO Tag VTW-1550** (if you can't quote this valve, can you quote the cheapest actuator possible for this valve?)

2-4.02.05. Three Way Valves.

|   |                         |  |
|---|-------------------------|--|
| Heating water service<br><br>1 through 16 inch pipe | Rating                  | Class 150  |
|   | Type                    | Three-way, top guided skirt, mixing or diverting as required |
|   | Body/Bonnet             | Carbon steel   |
|   | Trim                    |  |
|   | Plug                    | Linear, V-port, 316 stainless steel                          |
|   | Seat Ring               | 316 stainless steel  |
|   | Stem                    | Manufacturer's standard                                      |
|   | Bonnet Gasket           | Manufacturer's standard                                      |
|   | Stem Packing            | Flanged  |
|   | End Connection          | 0 to 250°F   |
|   | Temp. Limitations       | Electric as specified in Valve and Gate Actuators section    |
| Valve Operator                                      | Nor'east "Series 1601". |  |
| Manufacturers                                       |                         |  |

| Three-Way Valve Schedule |              |              |                  |                            |                         |
|--------------------------|--------------|--------------|------------------|----------------------------|-------------------------|
| Tag Number               | Size, inches | Service Type | Design Flow, gpm | Temperature control system | Temperature Setpoint, F |
| VTW-1550                 | 4            | Diverting    | 160              | Yes                        | 186                     |

**3" PRV Tag PRV-1448**

2-4.02. Gas Service. Pressure reducing valves for digester gas service shall be suitable for gas with specific gravity of 0.8 to 0.9. Digester gas pressure reducing valves shall be pilot-operated type with stainless steel bodies, stainless steel trim, viton diaphragm, and stainless steel pilot. Valves shall be Fisher Controls "1098-EGR Series".

Pressure Reducing Valves Schedule

| Performance and Design Requirements          |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Valve Tag Number                             | PRV-1448                  |  |  |  |  |
| Location                                     | Digester Control Building |  |  |  |  |
| Type of Service (1)                          | DG                        |  |  |  |  |
| Type (2)                                     | PO                        |  |  |  |  |
| Maximum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 80                        |  |  |  |  |
| Minimum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 50                        |  |  |  |  |
| Reduced Pressure Setting                     |                           |  |  |  |  |
| psig   | 5                         |  |  |  |  |
| Maximum Flow (3)                             |                           |  |  |  |  |
| cfh  | 10,500                    |  |  |  |  |
| Ordinary Flow                                |                           |  |  |  |  |
| cfh  | 9,000                     |  |  |  |  |
| Minimum Controlled Flow                      |                           |  |  |  |  |
| cfh  | 6,000                     |  |  |  |  |
| Minimum Permissible Pressure at Maximum Flow |                           |  |  |  |  |
| psig   | 3.5                       |  |  |  |  |
| <b>Remarks</b>                               |                           |  |  |  |  |

Thanks,

**Wes Cain**

**Sales Representative**

**Ferguson Waterworks, NC/SC Plant Division**

10039 Industrial Drive, Pineville, NC 28134 USA

T: (704) 554-0383 C: (704) 264-5571 F:(704) 554-0874

E: [wes.cain@ferguson.com](mailto:wes.cain@ferguson.com) [www.ferguson.com](http://www.ferguson.com)



The banner features a central image of a catalog cover for Ferguson Waterworks, titled "UTILITY CONTRACTOR TOOLS & SUPPLIES". The cover shows two workers in safety gear at a construction site. To the right of the cover is a list of product categories:

- Rain Apparel
- Respirators
- Safety Apparel
- Safety Glasses & Accessories
- Thirst Quenchers
- Traffic Safety Barricades & Cones
- Traffic Signs & Accessories

Below the list is a prominent blue button that reads "VIEW THE CATALOG >". At the bottom right, there is a section titled "Class 3 Safety Jackets" with a small image of a yellow safety jacket and the logo for "RODINE".

## Laughlin, Paul

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**From:** jjones@cla-val.com  
**Sent:** Thursday, March 2, 2017 1:17 PM  
**To:** Wes.Cain@Ferguson.com  
**Subject:** RE: Muddy Creek Power Gen - 3" PRV - AIS Project  
**Attachments:** image001.png; image002.png; image003.jpg

We don't have anything for air or gas

Jonathan Jones Area Manager NC, SC & GA

CLA-VAL AUTOMATIC CONTROL VALVES

CHARLOTTE, NC

704-681-2017 OFFICE

703-721-1927 FAX

jjones@cla-val.com<mailto:jjones@cla-val.com>

[https://urldefense.proofpoint.com/v2/url?u=http-3A\\_\\_www.cla-2Dval.com&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A\\_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM\\_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=fOyA3CphPf65jazNj1rtVUVTwjglCcZRQQ3JrbGGXFA&e=<https://urldefense.proofpoint.com/v2/url?u=http-3A\\_\\_www.cla-2Dval.com\\_&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A\\_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM\\_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=bncCcRmA6zncHMuuAi6sjS\\_xiDtElcEniuEGMZaS3HE&e=>](https://urldefense.proofpoint.com/v2/url?u=http-3A__www.cla-2Dval.com&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=fOyA3CphPf65jazNj1rtVUVTwjglCcZRQQ3JrbGGXFA&e=<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.cla-2Dval.com_&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=bncCcRmA6zncHMuuAi6sjS_xiDtElcEniuEGMZaS3HE&e=>)

Cla-Val products comply with the Consolidated Appropriations Act. January 17 2014 Iron and Steel Act (AIS) Requirements.

Cla-Val Control valves meet the requirements of the "Buy American" provisions in the American Recovery and Reinvestment Act of 2009 ("ARRA")

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From: Wes.Cain@Ferguson.com [Wes.Cain@Ferguson.com]

Sent: Thursday, March 02, 2017 1:15 PM  
To: Jonathan Jones  
Subject: Muddy Creek Power Gen - 3" PRV - AIS Project

Jonathan,

Hope all is well.

Can you quote an "equal" to the below PRV? If can't, do you have any recommendations on who could?

3" PRV Tag PRV-1448

[cid:image007.png@01D29356.7F4DC780]

[cid:image008.png@01D29356.7F4DC780]

Thanks,

Wes Cain  
Sales Representative  
Ferguson Waterworks, NC/SC Plant Division  
10039 Industrial Drive, Pineville, NC 28134 USA  
T: (704) 554-0383 C: (704) 264-5571 F:(704) 554-0874  
E: wes.cain@ferguson.com<mailto:joel.everett@ferguson.com>  
[https://urldefense.proofpoint.com/v2/url?u=http-3A\\_\\_www.ferguson.com&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A\\_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM\\_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=6D5zA\\_8\\_cytPSuBM7Rc\\_I8YFG\\_AVMBBlpP2PaqmkECI&e=<https://urldefense.proofpoint.com/v2/url?u=http-3A\\_\\_www.ferguson.com\\_&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A\\_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM\\_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=rtZMVZx86tXUofYxLdpx1H7dMmYPMUdLsI9Sy229yBw&e=>](https://urldefense.proofpoint.com/v2/url?u=http-3A__www.ferguson.com&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=6D5zA_8_cytPSuBM7Rc_I8YFG_AVMBBlpP2PaqmkECI&e=<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.ferguson.com_&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=rtZMVZx86tXUofYxLdpx1H7dMmYPMUdLsI9Sy229yBw&e=>)

[View the Catalog]<[https://urldefense.proofpoint.com/v2/url?u=http-3A\\_\\_links.mkt3954.com\\_ctt-3Fkn-3D5-26ms-3DMTM1MjIzMTcS1-26r-3DMjE0MDI4NTU5NjAS1-26b-3D0-26j-3DNzAxMzQ3OTM0S0-26mt-3D1-26rt-3D0&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A\\_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM\\_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=xX23u4ed6fBI4I\\_9NDYBnKlJwZeDFDLLtTgqdsmsHs&e=>](https://urldefense.proofpoint.com/v2/url?u=http-3A__links.mkt3954.com_ctt-3Fkn-3D5-26ms-3DMTM1MjIzMTcS1-26r-3DMjE0MDI4NTU5NjAS1-26b-3D0-26j-3DNzAxMzQ3OTM0S0-26mt-3D1-26rt-3D0&d=DwIF-g&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=jrI0110ltwX23y8BdF5BR9HWBDGM_I8G7HDWEIQpjEw&m=3ISFfmqq6oQ6PiLUczBDjSu rCHXntGsieN5uyDTe-U8&s=xX23u4ed6fBI4I_9NDYBnKlJwZeDFDLLtTgqdsmsHs&e=>)>

## Laughlin, Paul

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**From:** acarpen@FCxPerformance.com  
**Sent:** Tuesday, March 7, 2017 10:49 AM  
**To:** Wes.Cain@Ferguson.com  
**Cc:** bmartin@FCxPerformance.com  
**Subject:** RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS

Hey Wes,

Thanks for the opportunity but we will no bid this. After doing some digging and research we wouldn't be able offer any suitable products to match the specifics.

Best regards,



**ANDREW CARPENTER** / Inside Technical Sales  
acarpen@fcxperformance.com : 704-527-6920 ext. 2148 f: 704-527-8406  
FCX Performance: 10525-C Granite Street, Charlotte NC 28273

---

**From:** [Wes.Cain@Ferguson.com](mailto:Wes.Cain@Ferguson.com) [<mailto:Wes.Cain@Ferguson.com>]  
**Sent:** Thursday, March 02, 2017 1:46 PM  
**To:** Roberta Robbins <[rrobbins@FCxPerformance.com](mailto:rrobbins@FCxPerformance.com)>  
**Subject:** FW: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS  
**Importance:** High

Roberta,

You got any "equals" you could quote on the below or recommend? Jamesbury?

Below is what I'm looking for. I've also attached specs for actuators. Below is all the spec info provided on the valves themselves. Remember this is an AIS job. If you have any other recommendations on who else I could try that would be awesome. Let me know ya thoughts.

4" Diverter/Mixing Valve w/ EMO Tag VTW-1550 (if you can't quote this valve, can you quote the cheapest actuator possible for this valve?)

2-4.02.05. Three Way Valves.

|   |   |  |
|---|---|--|
| Heating water service<br><br>1 through 16 inch pipe | Rating  | Class 150  |
|   | Type  | Three-way, top guided skirt, mixing or diverting as required |
|   | Body/Bonnet   | Carbon steel   |
|   | Trim  |  |
|   | Plug  | Linear, V-port, 316 stainless steel<br>316 stainless steel   |
|   | Seat Ring   | Manufacturer's standard                                      |
|   | Stem  | Manufacturer's standard                                      |
|   | Bonnet Gasket   | Manufacturer's standard                                      |
|   | Stem Packing  | Flanged  |
|   | End Connection  | 0 to 250°F   |
| Temp. Limitations                                   | Electric as specified in Valve and Gate Actuators section |  |
| Valve Operator                                      | Nor'east "Series 1601".                                   |  |
| Manufacturers                                       |   |  |

| Three-Way Valve Schedule |              |              |                  |                            |                         |
|--------------------------|--------------|--------------|------------------|----------------------------|-------------------------|
| Tag Number               | Size, inches | Service Type | Design Flow, gpm | Temperature control system | Temperature Setpoint, F |
| VTW-1550                 | 4            | Diverting    | 160              | Yes                        | 186                     |

3" PRV Tag PRV-1448

2-4.02. Gas Service. Pressure reducing valves for digester gas service shall be suitable for gas with specific gravity of 0.8 to 0.9. Digester gas pressure reducing valves shall be pilot-operated type with stainless steel bodies, stainless steel trim, viton diaphragm, and stainless steel pilot. Valves shall be Fisher Controls "1098-EGR Series".

Pressure Reducing Valves Schedule

| Performance and Design Requirements          |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Valve Tag Number                             | PRV-1448                  |  |  |  |  |
| Location                                     | Digester Control Building |  |  |  |  |
| Type of Service (1)                          | DG                        |  |  |  |  |
| Type (2)                                     | PO                        |  |  |  |  |
| Maximum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 80                        |  |  |  |  |
| Minimum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 50                        |  |  |  |  |
| Reduced Pressure Setting                     |                           |  |  |  |  |
| psig   | 5                         |  |  |  |  |
| Maximum Flow (3)                             |                           |  |  |  |  |
| cfh  | 10,500                    |  |  |  |  |
| Ordinary Flow                                |                           |  |  |  |  |
| cfh  | 9,000                     |  |  |  |  |
| Minimum Controlled Flow                      |                           |  |  |  |  |
| cfh  | 6,000                     |  |  |  |  |
| Minimum Permissible Pressure at Maximum Flow |                           |  |  |  |  |
| psig   | 3.5                       |  |  |  |  |
| <b>Remarks</b>                               |                           |  |  |  |  |

Thanks,

**Wes Cain**

**Sales Representative**

**Ferguson Waterworks, NC/SC Plant Division**

10039 Industrial Drive, Pineville, NC 28134 USA

T: (704) 554-0383 C: (704) 264-5571 F:(704) 554-0874

E: [wes.cain@ferguson.com](mailto:wes.cain@ferguson.com) [www.ferguson.com](http://www.ferguson.com)

The banner features a central image of two workers in safety gear. Surrounding this are logos for brands including ALLEGRO, RAPTOR, STIHL, UVEK, RIVER CITY, and 3M. A list of product categories is provided on the right side of the banner:

- Rain Apparel
- Respirators
- Safety Apparel
- Safety Glasses & Accessories
- Thirst Quenchers
- Traffic Safety Barricades & Cones
- Traffic Signs & Accessories

**VIEW THE CATALOG >**

Below the main banner, there is a section for **Class 3 Safety Jackets** featuring a ROBIN brand logo.

---

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## Laughlin, Paul

---

**From:** Rob.Bertram@carotek.com  
**Sent:** Thursday, March 2, 2017 2:00 PM  
**To:** Wes.Cain@Ferguson.com  
**Subject:** RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS

On the PRV I can't offer anything that complies with AIS. Singer is made in Canada, just like Velan.

Best regards,

**Rob Bertram** | Municipal Project Estimating/Inside Sales | Carotek

**CAROTEK**<sup>®</sup>

*The Power of Solutions*

E: [rob.bertram@carotek.com](mailto:rob.bertram@carotek.com) | O: 704-844-1175 | F: 704-841-8821  
PO Box 1395 | 700 Sam Newell Rd. | Matthews, NC 28105

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---

**From:** Wes.Cain@Ferguson.com [mailto:Wes.Cain@Ferguson.com]  
**Sent:** Thursday, March 02, 2017 1:12 PM  
**To:** Bertram, Robert <Rob.Bertram@carotek.com>  
**Subject:** Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS  
**Importance:** High

Rob,

Below is what I'm looking for. I've also attached specs for actuators. Below is all the spec info provided on the valves themselves. Remember this is an AIS job. If you have any other recommendations on who else I could try that would be awesome. Let me know ya thoughts.

4" Diverter/Mixing Valve w/ EMO Tag VTW-1550 (if you can't quote this valve, can you quote the cheapest actuator possible for this valve?)



2-4.02.05. Three Way Valves.

|   |   |  |
|---|---|--|
| Heating water service<br><br>1 through 16 inch pipe | Rating  | Class 150  |
|   | Type  | Three-way, top guided skirt, mixing or diverting as required |
|   | Body/Bonnet   | Carbon steel   |
|   | Trim  |  |
|   | Plug  | Linear, V-port, 316 stainless steel<br>316 stainless steel   |
|   | Seat Ring   | Manufacturer's standard                                      |
|   | Stem  | Manufacturer's standard                                      |
|   | Bonnet Gasket   | Manufacturer's standard                                      |
|   | Stem Packing  | Flanged  |
|   | End Connection  | 0 to 250°F   |
| Temp. Limitations                                   | Electric as specified in Valve and Gate Actuators section |  |
| Valve Operator                                      | Nor'east "Series 1601".                                   |  |
| Manufacturers                                       |   |  |

| Three-Way Valve Schedule |              |              |                  |                            |                         |
|--------------------------|--------------|--------------|------------------|----------------------------|-------------------------|
| Tag Number               | Size, inches | Service Type | Design Flow, gpm | Temperature control system | Temperature Setpoint, F |
| VTW-1550                 | 4            | Diverting    | 160              | Yes                        | 186                     |

3" PRV Tag PRV-1448

2-4.02. Gas Service. Pressure reducing valves for digester gas service shall be suitable for gas with specific gravity of 0.8 to 0.9. Digester gas pressure reducing valves shall be pilot-operated type with stainless steel bodies, stainless steel trim, viton diaphragm, and stainless steel pilot. Valves shall be Fisher Controls "1098-EGR Series".

Pressure Reducing Valves Schedule

| Performance and Design Requirements          |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Valve Tag Number                             | PRV-1448                  |  |  |  |  |
| Location                                     | Digester Control Building |  |  |  |  |
| Type of Service (1)                          | DG                        |  |  |  |  |
| Type (2)                                     | PO                        |  |  |  |  |
| Maximum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 80                        |  |  |  |  |
| Minimum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 50                        |  |  |  |  |
| Reduced Pressure Setting                     |                           |  |  |  |  |
| psig   | 5                         |  |  |  |  |
| Maximum Flow (3)                             |                           |  |  |  |  |
| cfh  | 10,500                    |  |  |  |  |
| Ordinary Flow                                |                           |  |  |  |  |
| cfh  | 9,000                     |  |  |  |  |
| Minimum Controlled Flow                      |                           |  |  |  |  |
| cfh  | 6,000                     |  |  |  |  |
| Minimum Permissible Pressure at Maximum Flow |                           |  |  |  |  |
| psig   | 3.5                       |  |  |  |  |
| <b>Remarks</b>                               |                           |  |  |  |  |

Thanks,

**Wes Cain**

**Sales Representative**

**Ferguson Waterworks, NC/SC Plant Division**

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T: (704) 554-0383 C: (704) 264-5571 F:(704) 554-0874

E: [wes.cain@ferguson.com](mailto:wes.cain@ferguson.com) [www.ferguson.com](http://www.ferguson.com)

The banner features a central image of a catalog cover for Ferguson Waterworks, titled "UTILITY CONTRACTOR TOOLS & SUPPLIES". The cover shows two workers in safety gear at a construction site. To the right of the cover is a list of product categories:

- Rain Apparel
- Respirators
- Safety Apparel
- Safety Glasses & Accessories
- Thirst Quenchers
- Traffic Safety Barricades & Cones
- Traffic Signs & Accessories

Below the list is a prominent blue button that reads "VIEW THE CATALOG >".

At the bottom right, there is a section titled "Class 3 Safety Jackets" with a small image of a yellow safety jacket and the logo for "RODINE".

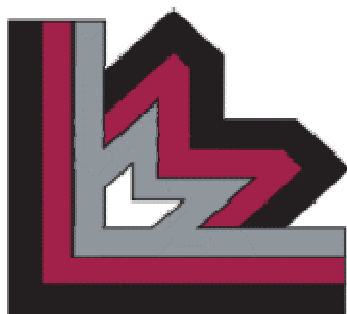
Logos for various brands are visible in the background, including ALLEGRO, RAPTOR, STIHL, UVEK, RIVER CITY, and 3M.

## Laughlin, Paul

---

**From:** Bob.Buddo@lewismarketinginc.com  
**Sent:** Monday, March 6, 2017 2:34 PM  
**To:** Wes.Cain@Ferguson.com  
**Subject:** RE: Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS

Wes,  
There is nothing we can quote, thanks



**Bob Buddo**

Sales Manager / Engineering Products  
Email: [Bob.Buddo@lewismarketinginc.com](mailto:Bob.Buddo@lewismarketinginc.com)  
**Extension: 173**  
Mobile: 704.607.7163

---

**Lewis Marketing Inc. | 704.376.0262**  
1511 Ameron Drive | Charlotte, NC 28206

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---

**From:** Wes.Cain@Ferguson.com [mailto:Wes.Cain@Ferguson.com]  
**Sent:** Monday, March 6, 2017 2:10 PM  
**To:** Bob Buddo <Bob.Buddo@lewismarketinginc.com>  
**Subject:** Muddy Creek Power Gen - 4" Diverter Mixing Valve & 3" PRV - AIS  
**Importance:** High

Bob,

You got anything you can offer for the below valves from Flowmatic or anyone else?

Below is what I'm looking for. I've also attached specs for actuators. Below is all the spec info provided on the valves themselves. This is an AIS job. Not really concerned about AIS at this point though. If you have any other recommendations on who else I could try that would be awesome. Let me know your thoughts.

**4" Diverter/Mixing Valve w/ EMO Tag VTW-1550** (if you can't quote this valve, can you quote the cheapest actuator possible for this valve?)

2-4.02.05. Three Way Valves.

|   |   |  |
|---|---|--|
| Heating water service<br><br>1 through 16 inch pipe | Rating  | Class 150  |
|   | Type  | Three-way, top guided skirt, mixing or diverting as required |
|   | Body/Bonnet   | Carbon steel   |
|   | Trim  |  |
|   | Plug  | Linear, V-port, 316 stainless steel                          |
|   | Seat Ring   | 316 stainless steel  |
|   | Stem  | Manufacturer's standard                                      |
|   | Bonnet Gasket   | Manufacturer's standard                                      |
|   | Stem Packing  | Flanged  |
|   | End Connection  | 0 to 250°F   |
| Temp. Limitations                                   | Electric as specified in Valve and Gate Actuators section |  |
| Valve Operator                                      | Nor'east "Series 1601".                                   |  |
| Manufacturers                                       |   |  |

| Three-Way Valve Schedule |              |              |                  |                            |                         |
|--------------------------|--------------|--------------|------------------|----------------------------|-------------------------|
| Tag Number               | Size, inches | Service Type | Design Flow, gpm | Temperature control system | Temperature Setpoint, F |
| VTW-1550                 | 4            | Diverting    | 160              | Yes                        | 186                     |

**3" PRV Tag PRV-1448**

2-4.02. Gas Service. Pressure reducing valves for digester gas service shall be suitable for gas with specific gravity of 0.8 to 0.9. Digester gas pressure reducing valves shall be pilot-operated type with stainless steel bodies, stainless steel trim, viton diaphragm, and stainless steel pilot. Valves shall be Fisher Controls "1098-EGR Series".

Pressure Reducing Valves Schedule

| Performance and Design Requirements          |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Valve Tag Number                             | PRV-1448                  |  |  |  |  |
| Location                                     | Digester Control Building |  |  |  |  |
| Type of Service (1)                          | DG                        |  |  |  |  |
| Type (2)                                     | PO                        |  |  |  |  |
| Maximum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 80                        |  |  |  |  |
| Minimum Inlet Pressure                       |                           |  |  |  |  |
| psig   | 50                        |  |  |  |  |
| Reduced Pressure Setting                     |                           |  |  |  |  |
| psig   | 5                         |  |  |  |  |
| Maximum Flow (3)                             |                           |  |  |  |  |
| cfh  | 10,500                    |  |  |  |  |
| Ordinary Flow                                |                           |  |  |  |  |
| cfh  | 9,000                     |  |  |  |  |
| Minimum Controlled Flow                      |                           |  |  |  |  |
| cfh  | 6,000                     |  |  |  |  |
| Minimum Permissible Pressure at Maximum Flow |                           |  |  |  |  |
| psig   | 3.5                       |  |  |  |  |
| <b>Remarks</b>                               |                           |  |  |  |  |

Thanks,

**Wes Cain**

**Sales Representative**

**Ferguson Waterworks, NC/SC Plant Division**

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E: [wes.cain@ferguson.com](mailto:wes.cain@ferguson.com) [www.ferguson.com](http://www.ferguson.com)

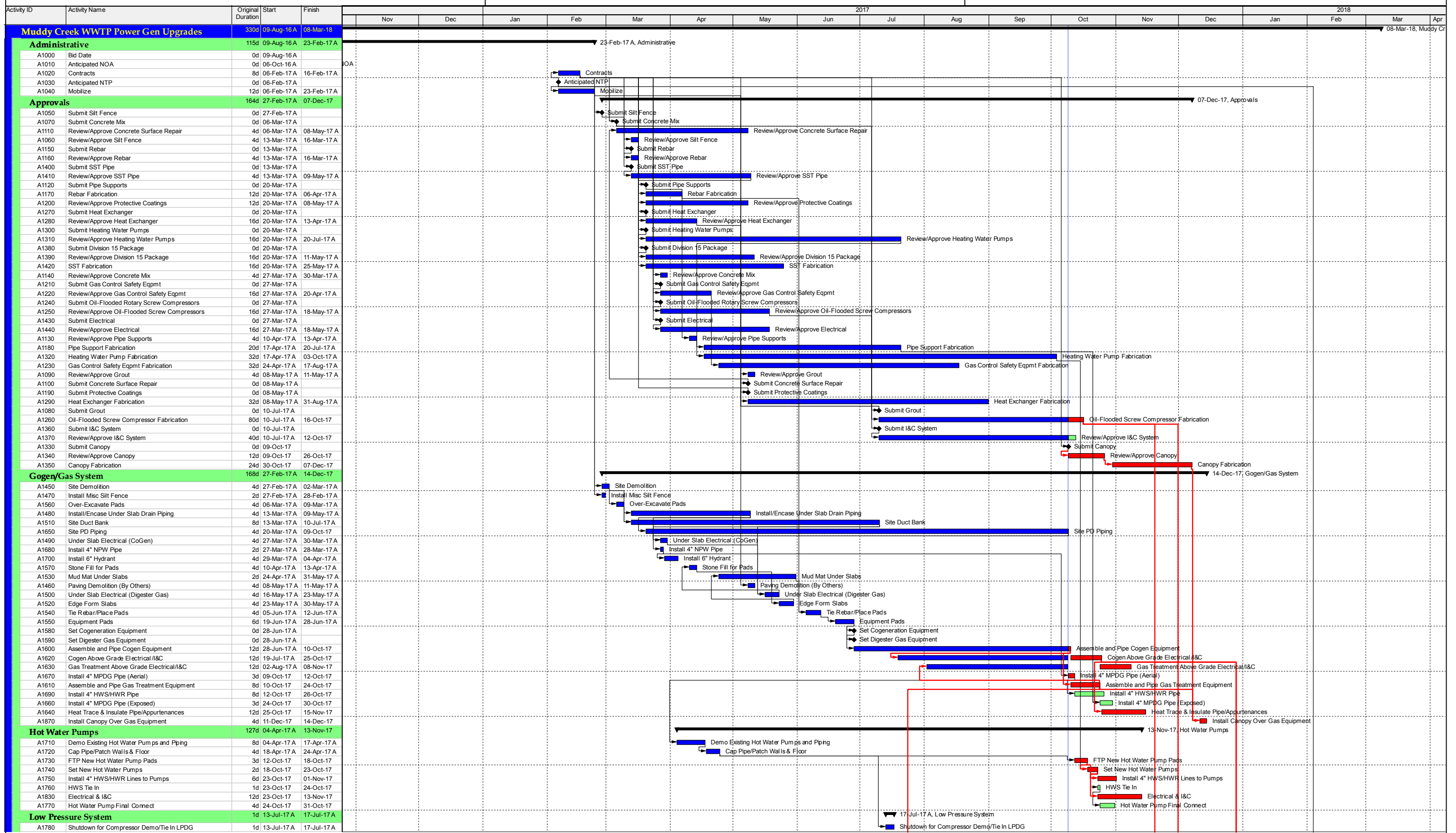
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- Safety Apparel
- Safety Glasses & Accessories
- Thirst Quenchers
- Traffic Safety Barricades & Cones
- Traffic Signs & Accessories

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Logos for various brands are visible in the background, including ALLEGRO, RAPTOR, STIHL, UVEK, RIVER CITY, and 3M.



█ Actual Work   
 █ Critical Remaining Work   
 █ Remaining Work   
 ◆ Milestone   
 ▶ Summary



| Activity ID                 | Activity Name                                   | Original Duration | Start       | Finish     | 2017  |     |     |     |     |     |     |     |     |     |     |     | 2018 |     |     |     |     |     |  |
|-----------------------------|---|-------------------|-------------|------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--|
|                             |   |                   |             |            | Nov   | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov  | Dec | Jan | Feb | Mar | Apr |  |
| <b>High Pressure System</b> |   |                   |             |            | 30-Jan-18, High Pressure System               |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1790                       | Install High Pressure Gas & Condensate Lines    | 20d               | 27-Jul-17 A | 23-Nov-17  | [Gantt bar from Jul to Nov 2017]              |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1810                       | Demo Existing High Pressure System              | 4d                | 09-Oct-17 A | 28-Nov-17  | [Gantt bar from Oct to Nov 2017]              |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1820                       | Patch Floor/FTP New Pads                        | 6d                | 16-Oct-17 A | 04-Dec-17  | [Gantt bar from Oct to Dec 2017]              |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1800                       | Begin Milestone 1                               | 0d                | 23-Nov-17   | 23-Nov-17  | [Milestone diamond at Nov 23, 2017]           |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1840                       | Set New Compressors                             | 6d                | 04-Dec-17   | 13-Dec-17  | [Gantt bar from Dec 4 to Dec 13, 2017]        |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1850                       | Final Pipe Connections & Testing to Compressors | 8d                | 13-Dec-17   | 27-Dec-17  | [Gantt bar from Dec 13 to Dec 27, 2017]       |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1860                       | Electrical and I&C                              | 16d               | 13-Dec-17   | 10-Jan-18  | [Gantt bar from Dec 13, 2017 to Jan 10, 2018] |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1880                       | End Milestone #1                                | 0d                | 30-Jan-18   | 30-Jan-18  | [Milestone diamond at Jan 30, 2018]           |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| <b>Start Ups</b>            |   |                   |             |            | 07-Feb-18, Start Ups                          |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1890                       | Energize Switchgear/Power Available             | 0d                | 01-Jan-18*  | 01-Jan-18* | [Milestone diamond at Jan 1, 2018]            |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1900                       | Hot Water System Checks/Start Up                | 4d                | 01-Jan-18*  | 04-Jan-18  | [Gantt bar from Jan 1 to Jan 4, 2018]         |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1910                       | Preliminary Checks for Cogen/Gas Treatment      | 4d                | 01-Jan-18*  | 04-Jan-18  | [Gantt bar from Jan 1 to Jan 4, 2018]         |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1920                       | High Pressure Gas System Start Up               | 4d                | 10-Jan-18   | 17-Jan-18  | [Gantt bar from Jan 10 to Jan 17, 2018]       |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1930                       | Cogen/Gas Treatment Start Up                    | 12d               | 17-Jan-18   | 07-Feb-18  | [Gantt bar from Jan 17, 2018 to Feb 7, 2018]  |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| <b>Completion</b>           |   |                   |             |            | 08-Mar-18, Completion                         |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1940                       | Substantial Completion                          | 0d                | 07-Feb-18   | 07-Feb-18  | [Milestone diamond at Feb 7, 2018]            |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1950                       | Gravel Paving                                   | 4d                | 07-Feb-18   | 14-Feb-18  | [Gantt bar from Feb 7 to Feb 14, 2018]        |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1980                       | Paving/C&G Patches                              | 4d                | 07-Feb-18   | 14-Feb-18  | [Gantt bar from Feb 7 to Feb 14, 2018]        |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1960                       | Grassing  | 4d                | 14-Feb-18   | 21-Feb-18  | [Gantt bar from Feb 14 to Feb 21, 2018]       |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |
| A1970                       | Final Completion                                | 0d                | 08-Mar-18   | 08-Mar-18  | [Milestone diamond at Mar 8, 2018]            |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |  |

Actual Work    
  Critical Remaining Work    
 ▶ Summary  
 Remaining Work    
 ◆ Milestone

# Submittal

## Muddy Creek WWTP Power Gen Upgrade

4/4/17

**CUSTOMER:**  
**Harper Corporation**

**SALES CONTACT:**  
**Wes Cain**

**Emerson Fisher**  
**Pressure Reducing Valve (Gas)**  
**Valve Tag: VTW-1448**  
**Spec: 15099-2, 2-4.02**

 **FERGUSON**<sup>®</sup>

*Nobody expects more from us than we do*<sup>®</sup>

Quote: 033-BC-170221-0106816

Date Last Modified: 02/21/2017

| Item | Rev | Qty | Description/Tags                |
|------|-----|-----|---------------------------------|
| 1    | 1   |     | NPS 3 1098-EGR<br>Tag: PRV-1448 |

Pilot Operated Regulator: EGR-1136-3987671

Valve Size: NPS 3

Body Material: CF8M SST

Rating: CL150

End Connection: RF Flg

BWE Schedule: Not App

Body Flange Material: CF8M SST/ENC

NACE: No

Trim Type: Linear

Trim Material: S31600 SST

Cage Material: CF8M SST

Disk/Seat Material: FKM

Flow Capacity: 100%

Main Spring: 0 to 60 psig

Actuator Size: 40

Actuator Material: 304 SST

Diaphragm Material: FKM

Travel Indicator: No

Pilot Type: 6353

Pilot Body Material: SST

Pilot Spring Range: 3 to 40 psig

Pilot Trim: FKM/SST

Pilot Filter: 252 (SST, Std lgth, w/ Drain)

Pilot Gain: Standard

Pressure Loaded Pilot: No

Restrictor: None

Working Monitor Pilot Type: None

Working Monitor Pilot Spring Range: None

Stand-by Pilot Type: None

System Control Range: Not App

Pilot Tubing & Fitting Material: SST/SST

Type 662 Remote Control: No

Power Supply: Not App

ATEX for Regulators: No

Customer Special 1098-EGR: Not App

Type: 1098-EGR

Main Valve Actuator: 1098

Spring Part Number: 16A5503 (Inconel)

Orifice/Port: 3 3/8

Travel Stop: No

Pilot Spring Number: 1E3925

Pilot Spring Color: Yellow

Pilot Spring Case Material: SST

Pilot Spring Case Vent Tapped: 1/4 NPT

Pilot Spring Adjustment: Adjusting Screw

Pilot Diaphragm Material: FKM

Working Monitor Pilot Body Material: None

Working Monitor Pilot Spring Case Material: None

Working Monitor Pilot Spring Number: None

Working Monitor Pilot Spring Color: Not App

Working Monitor Pilot Diaphragm Material: Not App

Working Monitor Pilot Trim: None

Stand-by Pilot Spring Range: Not App

Pilot Supply Regulator: No

Min Diff Pressure: 4 psid

Max Diff Pressure: 60 psid

Max Operating Inlet Pressure: 100 psig

Max Operating Outlet Pressure: 40 psig

Approximate Shipping Weight(each): 130 lbs (59 kg)

Supplemental Attribute: Not App

Pressure:

Temperature:

Flowing Drop:

Shutoff Drop: