



# Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110

Phone: (303) 789-4111 FAX: (303) 789-4310

## SUBMITTAL TRANSMITTAL

March 23, 2012

Submittal No: 11314-002

PROJECT: **Harold Thompson Regional WRF**  
Birdsall Rd.  
Fountain, CO 80817  
Job No. 2908

ENGINEER: **GMS, Inc.**  
611 No. Weber St., #300  
Colorado Springs, CO 80903  
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan  
Sewage Disposal District**  
901 S. Santa Fe Ave.  
Fountain, CO 80817  
719-382-5303 James Heckman

CONTRACTOR: **Schloss Engineered Equipment, Inc.**  
10555 E. Dartmouth Ave., Suite 230  
Aurora, CO 80014  
303-695-4500 Linda Wood

SUBJECT: For Information Only – Factory Test Curves for Recessed Impeller Grit Pumps

SPEC SECTION: 11314 - Recessed Impeller Pumps

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: \_\_\_ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Engineer's Stamp:

Date: March 23, 2012

Reviewed by: John Jacob

( ) Reviewed Without Comments

(x) Reviewed With Comments

ENGINEER'S  
COMMENTS:



**Project: HDTWRF Project**

**Location: Fountain, CO**

**Supplier: Schloss Engineered Equipment**

**Date: 3/23/12**

**Submittal 11314-1.D. Recessed Impeller Pumps by Essco for Grit Pumps – Factory Pump Curves.**

**Additional Submittal Review Comments:**

- 1. Schloss is providing factory pump curves for grit pumps GP-1 and GP-2. WCM has noted that the specifications do not require copies nor approval of factory test curves by the Contractor, and do require field test reports. WCM is providing these curves for information only.**
- 2. The attached curves have been compared to the curves submitted in submittal 11314-001 dated 8/8/11, and they appear to be in general conformance related to TDH, GPM, RPM. Please respond should GMS find issues contrary to the specifications. Field Test reports will be submitted at later date.**



*Certified Test*  
*From the Desk of*  
*Brian Brokenbough*  
*Phone {323} 261-2181*  
*Fax {323} 261-1523*  
*E-mail brianb@esscopumps.com*

To: Schloss Engineered Equipment

Attn: Chuck Schloss  
Ref: P.O. No. EA1-1757C

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March 22, 2012

Attached are the certified test results for the ***Fountain Colorado Grit Pumps: GP-1 & GP-2***. Please forward the curves to the engineer for approval or if there is not an engineer for the job, you could approve them as well. Once the curves are approved, please forward a copy of the engineers or your approval and fax or email them back to me.

After the curves are approved, we will be able to ship the pumps out to you. The pumps will be ready for will call or available to ship, after receipt of the approved curves.

These are the 4x16 7.5 horsepower pumps. Your purchase order number **EA1-1757C**.

Sincerely,  
**Brian Brokenbough**

**ESSCO Pump & Controls**

Test Date: 3/21/2012

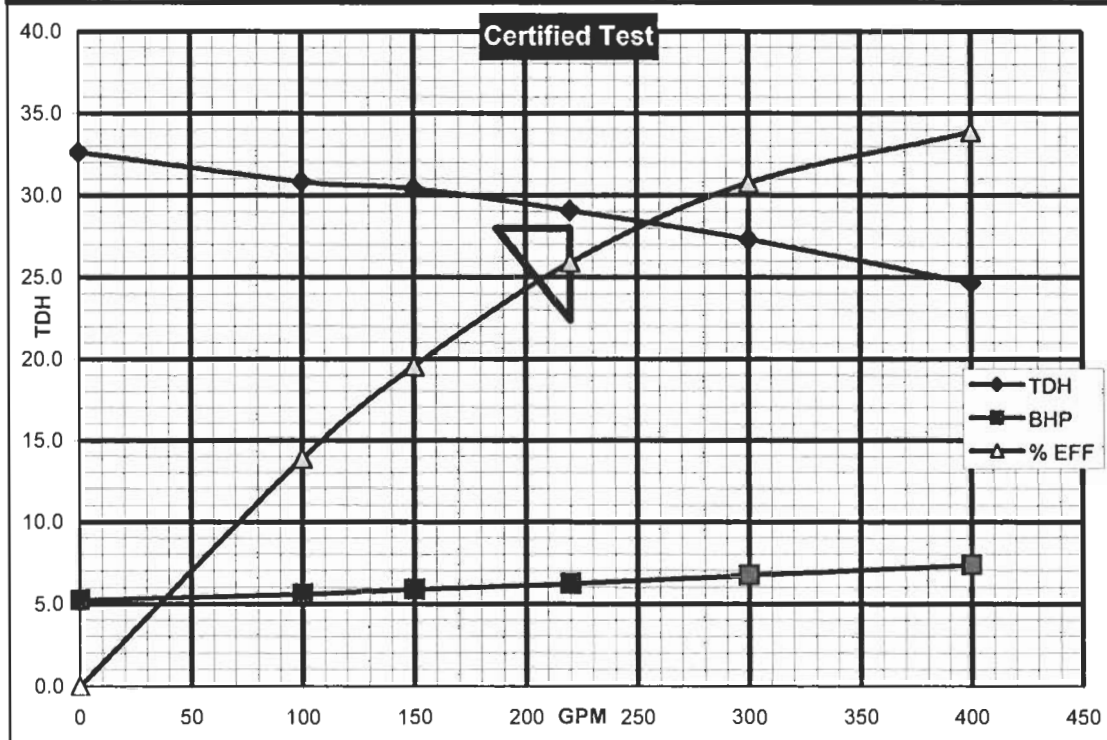
# ESSCO Pumps

Member of Hydraulic Institute

|                  |     |            |      |                                    |       |       |
|------------------|-----|------------|------|------------------------------------|-------|-------|
| Pump Model: 4x16 |     |            |      | Pump Type: HDPL                    |       |       |
| GPM              | TDH | Tested By: |      | Pump Serial #: 11143-1             |       |       |
| 220              | 28  | Audel      |      | Volute Style: Centerline Discharge |       |       |
| Pump RPM         |     | 770        |      | Test Number: 8522                  |       |       |
| Motor Info:      | BHP | RPM        | FLA  | Test Voltage/Phase                 | TRIM  | Vanes |
|                  | 7.5 | 1150       | 10.7 | 460                                | 16.00 | 7     |

|                     |       |       |       |       |       |       |
|---------------------|-------|-------|-------|-------|-------|-------|
| Reading No.         | 1     | 2     | 3     | 4     | 5     | 6     |
| GPM                 | 400   | 300   | 220   | 150   | 100   | 0     |
| PSI                 | 10.1  | 11.3  | 12.1  | 12.7  | 12.9  | 13.7  |
| Feet                | 23.33 | 26.10 | 27.95 | 29.34 | 29.80 | 31.65 |
| Water to CL of Gage | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Hf Header           | 0.28  | 0.17  | 0.09  | 0.05  | 0.02  | 0.00  |
| Vel Head            | 0.07  | 0.05  | 0.04  | 0.03  | 0.02  | 0.00  |
| TDH                 | 24.68 | 27.32 | 29.08 | 30.41 | 30.84 | 32.65 |
| Volts               | 456   | 457   | 457   | 457   | 457   | 459   |
| Amps                | 10.5  | 9.6   | 8.9   | 8.4   | 8.0   | 7.5   |
| KW Reading          | 5.6   | 4.9   | 4.2   | 4.1   | 3.7   | 3     |
| Power Factor        | 0.208 | 0.167 | 0.147 | 0.138 | 0.135 | 0.105 |

|       |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|
| GPM   | 0    | 100  | 150  | 220  | 300  | 400  |
| TDH   | 32.6 | 30.8 | 30.4 | 29.1 | 27.3 | 24.7 |
| BHP   | 5.26 | 5.61 | 5.89 | 6.24 | 6.73 | 7.36 |
| % EFF | 0    | 14   | 20   | 26   | 31   | 34   |
|       | +    |      |      |      |      |      |



|                                  |               |
|----------------------------------|---------------|
| Witnessed By:                    | Date:         |
| Certified By: <i>[Signature]</i> | Date: 3/22/12 |

Test Date: 3/22/2012

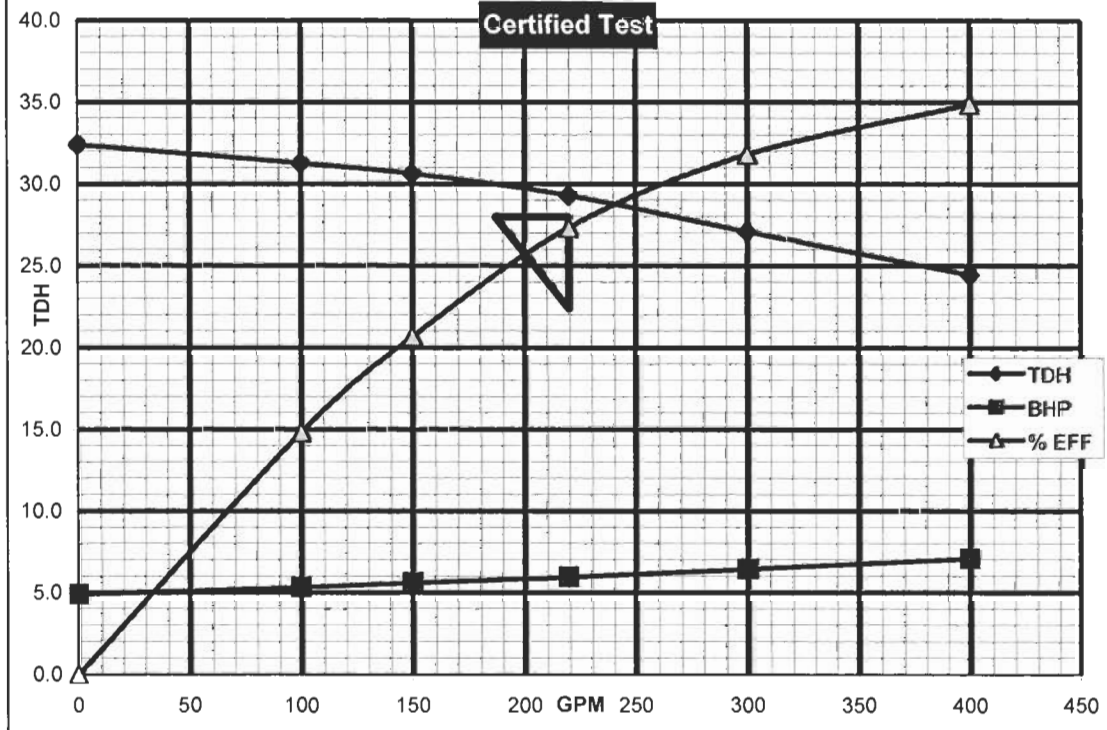
# ESSCO Pumps

Member of Hydraulic Institute

|                  |     |                   |      |                                    |       |       |
|------------------|-----|-------------------|------|------------------------------------|-------|-------|
| Pump Model: 4x16 |     |                   |      | Pump Type: HDPL                    |       |       |
| GPM              | TDH | Tested By:        |      | Pump Serial #: 11143-2             |       |       |
| 220              | 28  | Audel             |      | Volute Style: Centerline Discharge |       |       |
| Pump RPM         | 770 | Test Number: 8523 |      |                                    |       |       |
| Motor Info:      | BHP | RPM               | FLA  | Test Voltage/Phase                 | TRIM  | Vanes |
|                  | 7.5 | 1150              | 10.7 | 460                                | 16.00 | 7     |

|                     |       |       |       |       |       |       |
|---------------------|-------|-------|-------|-------|-------|-------|
| Reading No.         | 1     | 2     | 3     | 4     | 5     | 6     |
| GPM                 | 400   | 300   | 220   | 150   | 100   | 0     |
| PSI                 | 10    | 11.2  | 12.2  | 12.8  | 13.1  | 13.6  |
| Feet                | 23.10 | 25.87 | 28.18 | 29.57 | 30.26 | 31.42 |
| Water to CL of Gage | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Hf Header           | 0.28  | 0.17  | 0.09  | 0.05  | 0.02  | 0.00  |
| Vel Head            | 0.07  | 0.05  | 0.04  | 0.03  | 0.02  | 0.00  |
| TDH                 | 24.45 | 27.09 | 29.31 | 30.64 | 31.30 | 32.42 |
| Volts               | 452   | 455   | 455   | 455   | 455   | 460   |
| Amps                | 10.1  | 9.2   | 8.5   | 8.0   | 7.6   | 7.0   |
| KW Reading          | 5.5   | 4.6   | 4.5   | 3.6   | 3.4   | 2.8   |
| Power Factor        | 0.196 | 0.156 | 0.144 | 0.115 | 0.105 | 0.084 |

|       |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|
| GPM   | 0    | 100  | 150  | 220  | 300  | 400  |
| TDH   | 32.4 | 31.3 | 30.6 | 29.3 | 27.1 | 24.5 |
| BHP   | 4.91 | 5.33 | 5.61 | 5.96 | 6.45 | 7.08 |
| % EFF | 0    | 15   | 21   | 27   | 32   | 35   |
|       | +    |      |      |      |      |      |



|                                  |               |
|----------------------------------|---------------|
| Witnessed By:                    | Date:         |
| Certified By: <i>[Signature]</i> | Date: 3/22/12 |