



# City of Grand Island

Tuesday, December 18, 2012

Council Session

## Item G14

**#2012-362 - Approving Pre-Selected Grit Systems for Headworks Improvements Project, WWTP-2013-1**

Staff Contact: Terry Brown, Interim Public Works Director

# Council Agenda Memo

**From:** Marvin Strong, Wastewater Plant Engineer

**Meeting:** December 18, 2012

**Subject:** Consideration on Pre-Selected Grit Systems for Headworks Improvements Project, WWTP-2013-1

**Item #'s:** G-14

**Presenter(s):** Terry Brown, Interim Public Works Director

## Background

City staff is requesting City Council consideration for pre-selecting Grit System equipment. This equipment pre-selection will use a single manufacture name brand for bidding purposes in documents for the Headworks Improvements Project, WWTP-2013-1.

In October 2011, the City embarked on development of construction plans for the rehabilitation / replacement of the City's headworks facilities (pumping, flow measurement, screening, and grit collection systems). All of which have been in operation over forty (40) years from the mid-sixties (1960s) to present. City staff in conjunction with consulting engineer; Black & Veatch are in the final development stage of the construction bidding documents for the Headworks Improvements Project, WWTP-2013-1.

The grit collection system is being upgraded and replaced with newer equipment and process technology. A new building will house the cleaning, conveyance, handling and load out system. The new system will collect and remove a higher amount of smaller grit particles from the wastewater flow and decrease the moisture content of the washed grit when compared to the old system. These improvements will benefit other downstream pumping and process equipment at the treatment facility by reducing overall wear and increasing the operating life of such equipment. Additionally, the existing grit tankage and process building will be abandoned, and conditioned in the future to accommodate chemical storage tankage.

## Discussion

All wastewater treatment facilities face the operational challenge of grit removal. Typical rule of thumb is approximately 50 pounds of grit per million gallons of wastewater enters a wastewater plant under average flow conditions. Based on Grand Island's soil characteristic, this value is higher. Under high flows and wet weather conditions the grit load increases exponentially. In Grand Island the challenge is intensified by the amount of fine grit (river, sugar sand) that is contained within the grit load.

Failure to remove the fine grit adequately during normal flow conditions, and grit slugs during peak flow conditions, will slowly decrease the capacity of a treatment plant as grit accumulates in downstream processes. This results in increased plant maintenance to remove the grit from process basins, and increases abrasion and wear on piping, process equipment, and pump impellers. For these reasons, high efficiency grit removal is being recommended for Grand Island's treatment facilities. The design of conventional grit systems cannot effectively meet this grit removal demand.

City staff in conjunction with consulting engineer; Black & Veatch are recommending the exclusive use of high efficiency grit removal technology. One manufacturer offers this technology in today's market; Hydro International, of Hillsboro, Oregon. Hydro International offers the Eutek product line of the Headcell (to separate grit from wastewater), Slurry Cup (to wash organic material from the grit to increase dewaterability and decrease odor potential), and Grit Snail (to dewater the grit) for a packaged grit collection system.

Comparable communities utilizing the Eutek product line of grit collection systems are the Northeast Treatment Facility, Lincoln, Nebraska (2011), Harold Street Treatment Facility, Olathe, Kansas (2004), Cedar Creek Treatment Facility, Olathe, Kansas (2012), Council Bluffs Treatment Facility, Council Bluffs, IA (2004), and numerous other facilities around the country.

Reference calls were made to the above noted facilities, and in all cases the owner was happy with the performance of the equipment, support from the manufacturer, and quality of the equipment. Staff in Lincoln noted that they have standard vortex grit removal at their Theresa Street Facility, and having experience with both, would strongly recommended the Eutek system based on overall performance.

## **Alternatives**

It appears that the Council has the following alternatives concerning the issue at hand. The Council may:

1. Move to approve a resolution specifying Hydro International, of Hillsboro, Oregon; Eutek products, as a single pre-selected brand name for grit collection systems for Headworks Improvements Project, WWTP-2013-1.
2. Refer the issue to a Committee.
3. Postpone the issue to future date.
4. Take no action on the issue.

## **Recommendation**

The result of this Headworks Improvements Project, WWTP-2013-1, will provide placement of pumping, flow measurement, screening, and grit collection systems, which provides the essential infrastructure needed for effective preliminary treatment at the wastewater treatments plant.

City Staff, in conjunction with consulting Engineer Black & Veatch, and City Administration recommends that the Council approve adding the specifying language to the bidding documents for Headworks Improvements Project, WWTP-2013-1, that shall list Hydro International, of Hillsboro, Oregon, Eutek products, as a pre-selected equipment for grit collection systems.

## **Sample Motion**

Move to approve Hydro International of Hillsboro, Oregon, and their Eutek grit removal products, as pre-selected equipment for the grit collection systems associated with the Headworks Improvements Project, WWTP-2013-1.



Headworks Grit Removal Eutek HeadCell® Installations

Location	Contact	Plant Ave/Peak Flow, mgd	Peak Flow Cut Point Performance, µ	Equipment	Engineer
Ambridge, PA	Robert Emmert Chief Operator (724) 266-0790	2.56/9.2	150	(1) 9' (6) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	HRG Engineering
Athens, GA Middle Oconee WRF	Jeff Knight Assistant Director (706)613-3470	10.0/30.0	100	(2) 12' 8 Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Black & Veatch (770) 751-7517
Atlantic, IA	Mark Farrier Superintendent (712) 243-5281	15.0	150	(1) 9' (9) Tray Eutek HeadCell®	Fox Engineering (515) 233-0000
Bethany Beach, DE South Coastal WWTP	Loran George Gary Hall (302) 855-7730	9.0/21.7	150	(2) 9' (7) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Stearns & Wheeler
Bismarck, ND	Bob French (701) 222-6583	9.25/34.0	90	(2) 12' (12) Tray Eutek HeadCell® (2) 24" Eutek SlurryCup™ (2) 1.0 yd³/hr Eutek Grit Snail®	SEH Engineering Mike Zagar (651) 490-1999
Broomfield, CO	Jim Seda Chief Operator (303) 464-5642	9.6/32.0	100	(2) 12' (9) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (2) 2.0 yd³/hr Eutek Grit Snail®	Black & Veatch Joe Morehead (720) 834-4200
Council Bluffs, IA WWTP	Hank Pangelina Superintenenent (712) 328-4642	7.6/35.0	75	(4) 12' (7) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (1) 4.0 yd³/hr Eutek Grit Snail®	FOX Engineering
Deposit, NY WPCF	Brad Hubbard DPW Director (607) 4670-1118	0.5/1.7	150	(1) 4' (5) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.0 yd³/hr Eutek Grit Snail®	Stearns & Wheeler Charles Prior (315) 665-8160
Dousman, WI	Jim Hansen Superintendant (262) 965-3302	3.8	110	(1) 6' (7) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.5 yd Decanter	Ruekert/Mielke (262) 542-5733
El Paso, TX Fred Hervey WRF	Guz Ogaz Owner (915) 594-5723	6.5/20.0	100	(1) 12' (11) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Brown & Caldwell (915) 545-4400
Entiat, WA WWTF	Roger Mickelson Operator (509) 784-1224	0.15/0.48	100	(1) 4' (3) Tray Eutek HeadCell®	Hammond, Collier, Wade & Livingstone Russ Snow (509) 622-1762
Erie, CO North WWTP	Jon Mays (303) 591-0679	1.4/4.2/10.9*	106	(1) 9' (5) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	Burns & McDonnell (303) 721-9292
Estevan, SK WWTP	Kevin Sutter Operator (306) 421-0115	1.6/4.8	150	(1) 6' (6) Tray Eutek HeadCell®	Stantec
Friday Harbor, WA WWTP	Don Reitan Plant Superintendent (360) 378-5400	1.1/3.3	100	(1) 6' (8) Tray Eutek HeadCell®	Brown & Caldwell
Fox Lake, IL NW Regional WRF	Steve Vella Superintenenent (847) 587-3694	9.0/25.0	100	(2) 9' (12) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Clark-Dietz
Fruitland, MD	George Calloway Plant Manager (443) 497-1075	1.0/3.6	110	(1) 9' (4) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (2) 1.5 yd³ Decanter	George, Miles & Buhr
Green Lake, WI WWTP	Glen McCartney (920) 294-6912	0.5/1.75	100	(1) 6' (4) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.5 yd³ Decanter	McMahon Associates (920) 751-4200
Greencastle, IN WWTF	George Russell or Jerry Clark (765) 653-3394	2.8/16.0	100	(2) 9' (8) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (1) 3.0 yd³/hr Eutek Grit Snail®	Advanced Engineering System Hannum, Wagle & Cline
Greenville, NC	Dan Tracy (252) 551-1542	10.0/35.0	150	(2) 12' (8) Tray Eutek HeadCell®	Hazen & Sawyer
Greenwood, SC Wilson Creek WWTP	Steve Pohlman Robert Turner (Lead Op.) (864) 377-1792	16.0/40.0	100	(2) 12' (11) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (2) 1.0 yd³/hr Eutek Grit Snail®	Davis & Floyd Joe Upchurch (864) 229-5211

Location	Contact	Plant Ave/Peak Flow, mgd	Peak Flow Cut Point Performance, $\mu$	Equipment	Engineer
Gwinnett County, GA Yellow River WRF	Ben Bagwell (770) 564-4630	21.0/64.2	130	(2) 12' (12) Tray Eutek HeadCell <sup>®</sup>	JJ&G/CH2M Hill/PPI (678) 318-2400
Hernando County, FL Glen WRF	Landis Legg Supervisor (352) 754-4820	3.0/9.0	106	(1) 12' (5) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek SlurryCup <sup>™</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	AECOM (816) 630-2500
Hoover, AL Riverchase WWTP	Mike McCary Supervisor (205) 408-2629	4.5	100	(1) 9' (5) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Gary L. Owen and Associates Robert Vaughan (205) 982-9806
Indian River County, FL West Regional WWTP	Jim Degraffenreid Chief Plant Operator (772) 770-5045	6.0/18.0	100	(2) 12' (5) Tray Eutek HeadCell <sup>®</sup> (2) 24" Eutek SlurryCup <sup>™</sup> (2) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	PBS&J Raj Singh (407) 647-7275
Kewaskum, WI	James Noren Lead Plant Operator (262) 626-2313	0.75/3.0	150	(1) 6' (5) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.5 yd <sup>3</sup> Decanter	McMahon Associates (920) 751-4200
Kingman, AZ Hilltop WWTP	Robert Norrell (928) 692-3137 rnorrell@cityofkingman.gov	3.0/15.3	200	(1) 9' (7) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek SlurryCup <sup>™</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Brown & Caldwell Nancy Ash (602) 567-4000
Kiln, MS (Hancock Co.) Northern Regional WWTF	Doyle Ladner (228) 467-3702	4.5	106	(1) 9' (5) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Carollo Engineers, P.C. (972) 239-9949
Knollwood, IL	Peter McGee Superintendent (630) 985-7400	8.0/30.0	80	(2) 12' (13) Tray Eutek HeadCell <sup>®</sup> (2) 32" Eutek SlurryCup <sup>™</sup> (2) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Dupage County Kevin Buoy (630) 985-7400
Kuna, ID	Curt Shaw (208) 880-4395	3.0/6.7	100	(1) 12' (4) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Keller Associates Jesse Neilson (208) 288-1991
Larned, KS	John Drew Superintendent (620) 285-8513	1.0/4.0	100	(1) 6' (9) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Bucher, Willis & Ratliff Chad Lawson (785) 827-3603
Lincoln, NE North East WWTP	Doug Stevens (402) 441-7846 Floyd Anderson (402) 309-5339	30.0/40.0	150	(4) 9' 5 Tray Eutek HeadCell <sup>®</sup> (2) 32" Eutek SlurryCup <sup>™</sup> (2) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Black & Veatch Amy Kliever (913) 458-3874
Littleton-Englewood, CO	Chong Woo (303) 762-2600	50.0/100.0	200	(2) 12' (13) Tray Eutek HeadCell <sup>®</sup> (2) 42" Eutek SlurryCup <sup>™</sup> (2) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Brown & Caldwell Renee Paplow (614) 410-6144
Livingston, MT	Steve Briggs Chief Plant Operator (406) 222-3850	1.4/4.6	100	(1) 6' (10) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	CTA Nelson Engineering Brian Rippy (406) 220-0104
Lynden, WA	Tamara Adams Plant Manager (360) 354-0633	2.2/6.8	100	(2) 6' (8) Tray Eutek HeadCell <sup>®</sup> (1) 32" Eutek SlurryCup <sup>™</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	EarthTech
Martinsville, IN	Paul Moore Superintendent (765) 342-3242	2.2/7.0	105	(1) 9' (6) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek SlurryCup <sup>™</sup> (1) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Hannum, Wagle & Cline
Maryville, TN	Steve Law (865) 883-3243	4.0/43.0	100	(2) 12' (12) Tray Eutek HeadCell <sup>®</sup> (2) 32" Eutek SlurryCup <sup>™</sup> (2) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	JR Wauford & Company Kevin Young (865) 984-9638
Mid-Cameron, PA	George Jones Scott Gleelen (814) 486-6581	1.0/3.7	150	(1) 6' (5) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup>	Herbert, Rowland & Grubic, Inc. (814) 238-7117
Millsboro, DE	Richard Buckler Plant Manager (302) 249-9831	3.0/9.5	100	(1) 9' (9) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek SlurryCup <sup>™</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Cabe Associates Steve Lewandowski (302) 674-9279
Mission TX	Emilio Garcia Superintendent (956) 580-8788	9.0/27.0	150 $\mu$	(1) 12' (9) Tray Eutek HeadCell <sup>®</sup> (1) 32" Eutek TeaCup <sup>®</sup>	Melden & Hunt, Inc. (956) 381-0981
Newton, IA Newton South WWTP	Scott Hindman Assistant Mng. Operator (641) 792-3422	1.0/13.0	130	(2) 6' (10) Tray Eutek HeadCell <sup>®</sup> (2) 24" Eutek SlurryCup <sup>™</sup> (1) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	Fox Engineering
North Battleford, SK	Cliff Dyke Operator (306) 441-0515	1.9/3.1	100	(1) 9' (3) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup>	Stantec
North Vernon, IN Jennings NW Regional Utilities	Jeffery Fish Utility Manager (812) 592-0920	0.34/1.7	106	(1) 6' (4) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.5 Decanter	Commonwealth Engineers, Inc. 317-888-1177
Odem, TX Odem South WWTP	Jay Operator (361) 537-6594	0.475/1.7	150 $\mu$	(1) 4' (6) Tray Eutek HeadCell <sup>®</sup> (1) 24" Eutek TeaCup <sup>®</sup> (1) 1.0 yd <sup>3</sup> /hr Eutek Grit Snail <sup>®</sup>	HRM Environmental (218) 343-1991



Location	Contact	Plant Ave/Peak Flow, mgd	Peak Flow Cut Point Performance, $\mu$	Equipment	Engineer
Olathe, KS Harold Street WWTP	Joe Foster Superintendent (913) 971-9041	3.2/25.0	150	(2) 9' (6) Tray Eutek HeadCell® (1) 32" Eutek TeaCup®	CDM
Oneida, NY	Tim Porter Operator (740) 867-8700	10.0	125	(1) 9' (7) Tray Eutek HeadCell®	O'Brien & Gere Bartlomiej Dlugi (315) 437-6100
Ottawa, IL WWTP	Bob Shull Superintendent (815) 433-0245	4.0/8.0	100	(1) 9' (8) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	Crawford, Murphy & Tilley
Ottawa, IL Phase II	Bob Shull Superintendent (815) 433-0246	4.0/8.1	100	(1) 9' (8) Tray Eutek HeadCell®	Crawford, Murphy & Tilley
Parksville/Qualicum, BC French Creek PCC	Harold Halvorson (250) 248-5795	3.4/10.5	100	(1) 9' (10) Tray Eutek HeadCell® (1) 24" Eutek TeaCup®	Associated Engineering Leif Marmolejo (604) 293-1411
Park City, KS Chisholm Creek WWTF	Randall Harris Utility Manager (316) 838-4748	20.5	150	(1) 12' (7) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	BWR (785) 827-3603
Pen Argyl, PA	Jeff Markovitz Superintendent (610) 863-5421	1.35/3.25	100	(1) 6' (7) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.5 yd³ Decanter	ARRO Consulting (610) 3747-5285
Peru, IN WWTP	Mike Dahlquist Superintendent (765) 473-6681	8.0/26.0	100	(2) 9' (12) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (1) 3.0 yd³/hr Eutek Grit Snail®	ATS Engineering
Peru, IN Grissom AFB	Mike Dahlquist Superintendent (765) 473-6681	2.6/9.0	100	(1) 12' (5) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	CMT (317) 298-4500
Plainfield, IN North WWTP	Jason Castetter Superintendent (317) 839-3490	12.0	110	(2) 9' (5) Tray Eutek HeadCell® (2) 24" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Butler, Fairman & Seufert, Inc. (317) 713-4615
Reedy Creek, FL	Charlie Reed Manager (407) 824-7448	20.0/40.0	110	(4) 12' (5) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (2) 2.0 yd³/hr Eutek Grit Snail®	PBS&J
Romeoville, IL	Dan McKay (815) 886-1069	15.0/20.0	100/125	(1) 9' (14) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	Baxter & Woodman
Saginaw, MI	Jeanette Best Plant Manager (989) 759-1630	70.0/100.0	100/125	(4) 12' (11) Tray Eutek HeadCell® (2) 42" Eutek SlurryCup™ (2) 3.0 yd³/hr Eutek Grit Snail®	Hubble, Roth & Clark
Sharon, PA Mercer County WWTP	Todd Carenbauer Superintendent (724) 983-3239	8.66/34.0	170	(4) 6' (10) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	MS Consultants Steve Zappia (330) 744-1791
Spencer, IN	Shelley Edwards Operator (812) 585-0185	0.7/2.8	100	(1) 6' (6) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.5 yd³ Decanter	GRW Engineers, Inc.
St. Bernard Parish, LA Munster WWTP	Steve Lombardo Superintendent (504) 271-1681	14.7/50.0	106	(3) 12' (9) Tray Eutek HeadCell® (3) 32" Eutek SlurryCup™ (3) 2.0 yd³/hr Eutek Grit Snail®	CDM (214) 346-2800
St. Petersburg, FL North West WWTP	John Niles Lead Operator (727) 892-5311	11.0/38.4	100	(2) 12' (10) Tray Eutek HeadCell® (2) 32" Eutek SlurryCup™ (2) 2.0 yd³/hr Eutek Grit Snail®	Parsons Engineering
Surf City, NC	Steve Smith Superintendent (910) 470-5065	1.5/3.75/7.5	110/212	(1) 6' (7) Tray Eutek HeadCell® (1) 24" Eutek TeaCup® (1) 1.5 yd³ Decanter	Cavanaugh & Associates William Simmons (910) 392-4462
Swift Current, Sask., Canada	Tim Cox Superintendent (306) 778-2725	0.16/1.9	100	(1) 9' (2) Tray Eutek HeadCell® (1) 24" Eutek TeaCup®	Stantec
Thomasville, NC Hamby Creek WWTP	Misty Conder (336) 475-4246	6.0/15.0	100	(1) 12' (8) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	J.N. Pease Associates Don Garbrick (614) 410-6144
Three Oaks, FL	Jerry Johnson Lead Operator (239) 267-0387	9.0/22.5	105	(1) 12' (11) Tray Eutek HeadCell® (1) 32" Eutek SlurryCup™ (1) 2.0 yd³/hr Eutek Grit Snail®	Boyle Engineering (407) 513-8205
Union- Rome, OH	Tim Porter Operator (740) 867-8700	2.0/7.0	100	(2) 9' (7) Tray Eutek HeadCell® (1) 24" Eutek SlurryCup™ (1) 1.0 yd³/hr Eutek Grit Snail®	E.L. Robinson Engineering
Willits WWTF, CA	JC England (707) 459-5028 (407) 896-0509	1.0/7.0/10.0	100/125	(1) 9' (7) Tray Eutek HeadCell®	SHN Consulting Engineers Diana Steele (707) 441-8854

Location	Contact	Plant Ave/Peak Flow, mgd	Peak Flow Cut Point Performance, $\mu$	Equipment	Engineer
Wilmington, NC	Roger Colee Chief Operator (910) 332-6563	16.0/40.0	100	(3) 12' (7) Tray Eutek HeadCell® (3) 32" Eutek SlurryCup™ (3) 2.0 yd <sup>3</sup> /hr Eutek Grit Snail®	Hazen & Sawyer David Nailor (919) 833-7152
Wylie, TX South Mesquite Creek Regional WWTP	Don Fisher Sr. Plant Supervisor (972) 442-5405	33.0/82.5	215	(2) 12' (10) Tray Eutek HeadCell® (2) 42" Eutek SlurryCup™ (2) 3.0 yd <sup>3</sup> /hr Eutek Grit Snail®	CDM (214) 346-2800



**REFERENCE CHECKS  
HEADWORKS IMPROVEMENTS  
Eutek Grit Removal Systems**

**WWTP Plant:** Northeast WWTP, Lincoln, Nebraska  
**Contact:** Steve Crisler (402) 441-7966  
**Installation Date:** 2011

Equipment Information:

- Peak flow of 40 mgd
- Four 9' diameter 5 tray Headcell units (95% removal of 150 micron and larger particles at peak flow)
- 200 gpm Fairbanks Morse recessed impeller grit pumps
- Two 32" Slurrycups (50 micron)
- Two 2 cy/hr Grit Snail.
- 3/8" mechanically cleaned bar screens ahead of grit removal

The Headcells were installed into two existing aerated grit basins. Each basin contains two Headcells. Stainless steel channels were constructed to distribute flow to each of the Headcells. Stainless steel slide gates are used to start or stop flow to each Headcell. Fluidizing water is piped to the pump suction line at the bottom of the Headcell. Recessed impeller pumps are used to pump the grit slurry from each Headcell and convey flow to the Slurrycups. Valving and piping connections allow either Slurrycup to be used with either basin in a manual mode. This capability is not used and each basin is allocated to a Slurrycup. Each Slurrycup discharges to a Grit Snail for dewatering. Slurrycups and Grit Snails are located on the upper level allowing for direct discharge into 2 yard grit containers. The containers allow any remaining free water to drain from the grit.

Prior to the design of the system, Black & Veatch, along with City staff, visited multiple installations included Council Bluffs, IA; Greencastle, IN; Newton, IA; and Olathe, KS. In all cases, the owner was happy with the performance of the equipment, support from the manufacturer, and quality of the equipment.

The system was placed into operation in 2011. Overall the system has performed well and the Owner is happy with the performance and overall maintenance is limited. Flows have been relatively low since the system was placed into operation. Average flows are about 4-5 mgd. Under normal flows one basin and one Headcell kept in service. Basins are rotated into service monthly. Headcells are sprayed down when they are taken out of service.

**WWTP Plant:** Harold Street WWTP, Olathe, Kansas  
**Contact:** Joe Foster (913) 971-9041  
**Installation Date:** 2004

Equipment Information:

Peak Flow 25 mgd  
Average flow 3.2 mgd  
Two 9' diameter 6 tray Headcell units (95% removal of 200 micron and larger particles at peak flow)  
Two 200 gpm Hayward Gordon vertical cantilever, recessed impeller grit pumps (vortex/self-priming installation)  
One 32" TeaCup (95% removal of 100 micron and larger particles at design flow)  
Standard Wemco classifier (1.1 cu yd/hr capacity)  
3/8" mechanically cleaned bar screens ahead of grit removal

The Headcells were installed into two existing aerated grit basins to increase hydraulic capacity and overall performance of the system. Each basin contains one Headcell. Vertical cantilever pumps in a self-priming arrangement pump grit slurry from the bottom of the Headcells to one Teacup. The Teacup discharges to a traditional grit classifier with helical screw grit removal. Dewatered grit is discharged into a 2 yard container.

**WWTP Plant:** Cedar Creek WWTP, Olathe, Kansas  
**Contact:** Joe Foster (913) 971-9041  
**Installation Date:** May 2012

Equipment Information:

- Peak Flow 50 mgd
- Two 12' diameter 8 tray Headcell units (95% removal of 160 micron and larger particles at peak flow)
- Two 400 gpm Wemco recessed impeller grit pumps
- Two 42" Slurrycups (95% removal of 50 micron and larger particles at design flow)
- One Grit Snail (4.0 cu yd/hr capacity)
- 3/8" mechanically cleaned bar screens ahead of grit removal

The Owner elected to preselect the Eutek grit removal system based on the performance of their Eutek system at their Harold St. WWTP. At Cedar Creek WWTP, the Headcells were installed in newly constructed concrete basins housing one Headcell each. The basins are installed directly downstream of 3/8" mechanically cleaned bar screens. Each grit basin is isolated by slide gates to start and stop flow. Fluidizing water is provided to the collector of each Headcell. Recessed impeller grit pumps are used to pump grit slurry from each Headcell to the Slurrycups. Both Slurrycups discharge to a single Grit Snail for dewatering. The Slurrycups and Grit Snail are located on an upper floor and discharge approximately 30 feet down to a dumpster. The discharge pipe from the Grit Snail has been provided with an automatic bagging system to reduce odor.

The system was placed into operation in May 2012. When the system was placed into initial operation, the grit for disposal was very wet and sloppy. After startup, Eutek returned to fine-tune the system. Since that visit, the quality of the disposed grit has improved and is less wet. The disposed grit has limited odor. The supply water for the Slurrycups and Grit Snail has had reliability problems with pressure and material in the line which is believed to have contributed to some of the initial operational problems with the grit removal system.

Each Headcell is designed for a peak flow of 25 mgd. Average plant flows are about 4 mgd. Only one Headcell is kept in service at a time. The Owner rotates between Headcells/pumps/Slurrycups weekly. When a Headcell is out of service it is isolated with an inlet slide gate and not dewatered. The Headcell units were design to add four additional trays in the future to increase the total capacity to 75 mgd.

**WWTP Plant:** Council Bluffs, IA  
**Contact:** Hank Pangelina, (712) 328-4642  
**Installation Date:** 2004

Equipment Information:

- Four 12' diameter 7 tray Headcell units (95% removal of 75 micron and larger particles at peak flow)
- 200 gpm Fairbanks Morse recessed impeller grit pumps
- Two 32" Slurrycups
- One 4 cy/hr Grit Snail.
- 3/8" mechanically cleaned bar screens

The Headcells were installed into two existing aerated grit basins. Each basin contains two Headcells. Stainless steel channels were constructed to distribute flow to each of the Headcells. Stainless steel slide gates are used to start or stop flow to each Headcell. Fluidizing water is piped to the pump suction line at the bottom of the Headcell. Recessed impeller pumps are used to pump the grit slurry from each Headcell and convey flow to the Slurrycups. Both Slurrycups discharge to a single Grit Snail for dewatering. Ballcentric valves are used on the grit piping.

The system was placed into operation in 2004 and was the first 12-foot diameter Headcell installation. The initial Headcell trays shipped to site contained voids in the material. Eutek recognized this fabrication deficiency and provided new trays for the project. Overall the system has performed well and the Owner is happy with the performance and overall maintenance is limited. The flooding experienced in 2011 overwhelmed the system with grit and they experienced plugging of the Slurrycups that required manual cleanup. Aside from the challenges associated with the 2011 flood, overall performance has been excellent. Grit product has minimal organic content and limited odor. Average flows are about 7 mgd. Under normal flows one basin is kept in service. Basins are rotated into service quarterly. Headcells are sprayed down when they are taken out of service. Both basins and all four Headcells are placed into operation during wet weather event. System is design for 75 micron removal at 35 mgd.

One of the biggest construction challenges for the Contractor during construction was the concrete cone with concrete fill. It was difficult getting the right shape with little working room.

RESOLUTION 2012-362

WHEREAS, Waste Water Division is specifying Grit Collection Equipment for a construction project entitled the Headwork's Improvements Project, WWTP-2013-1; and

WHEREAS, City Staff in conjunction with, consulting Engineer; Black & Veatch, and City Administration recommends that Hydro International of Hillsboro, Oregon, and their Eutek products, as pre-selected equipment for grit collection systems; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that the City of Grand Island be, and hereby is, authorizing city staff to add the specifying language to the bidding documents for Headworks Improvements Project, WWTP-2013-1, that shall list Hydro International of Hillsboro, Oregon, Eutek equipment, as pre-selected equipment for grit collection systems.

- - -

Adopted by the City Council of the City of Grand Island, Nebraska, December 18, 2012.

\_\_\_\_\_  
Jay Vavricek, Mayor

Attest:

\_\_\_\_\_  
RaNae Edwards, City Clerk

Approved as to Form	☐ _____
December 15, 2012	☐ City Attorney