



State of Ohio Environmental Protection Agency

Southeast District Office

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Logan, Ohio 43138

TELE: (740) 385-8501 FAX: (740) 385-6490
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Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

December 23, 2010

Re: Pretreatment
Belmont Correctional Institution
Compliance Inspection
Fox Shannon WWTP
OPD00057*AP

Mr. Kevin Wade, Project Manager
Bureau of Construction Activation Maintenance
Ohio Department of Rehabilitation and Correction
770 West Broad Street
Columbus, Ohio 43222

Dear Mr. Wade:

On November 29, 2010, I inspected Belmont Correctional Institution. The inspection was conducted to evaluate the facility's compliance with federal and state pretreatment regulations and its Indirect Discharge Permit (IDP). Ed Burke, Maintenance Superintendent, and Kevin Wade, Project Manager, represented Belmont Correctional Institution during the inspection.

General Facility Description:

Belmont Correctional Institution (BeCI) is a minimum and medium security state prison which houses approximately 2700 inmates and employs roughly 475 staff. Wastewaters are generated from sanitary facilities, a large kitchen for meal preparation which includes a garbage grinder, dishwasher, and cafeteria, a small honors camp kitchen, and laundry facilities. No manufacturing or other inmate assembly or trade services are performed on site.

Pretreatment System:

Plans for the prison's sewage collection and treatment facility were approved by Ohio EPA in November 1993 PTI Number 06-3728. The plans include a mechanical screen, two aerated equalization tanks, and a pumping station. BeCI replaced the original mechanical screen with a 0.25 inch mesh mechanical auger screen in January 2010. Float level controls are currently set to pump the wastewater without equalization. Water levels are maintained below the diffusers so the blowers are not used. Only one of the equalization basins is in service. The cafeteria is served by a 1500 gallon grease interceptor.

All wastewaters at the prison are routed to the pretreatment system. Effluent from the system is pumped to BCSSD's Fox Shannon wastewater treatment plant (WWTP). The

pumping station utilizes two four inch PVC force mains which enter the Belmont County Sanitary Sewer District (BCSSD) gravity sewer near SR 331. Review of flow totalizer readings showed daily flows from the prison average roughly 180,000 gallons.

Required Actions:

1. Part 1.B, Schedule of Compliance, Paragraph 1.A of BeCI's Indirect Discharge Permit requires BeCI to restore the equalization system to operation. However, BCSSD has stated that higher than expected ammonia concentrations in BeCI's effluent is adversely affecting the Fox Shannon POTW. BCSSD reported violations of its NPDES permit ammonia limits during the months of July, August, and September 2010. BCSSD's influent ammonia concentrations are higher than the range found in typical sewage.

Additional information is needed to determine the likely affects of restoring equalization at BeCI's treatment works on the ammonia levels in the discharge. It is possible that storage of the wastewater in the equalization basins may cause ammonia levels to increase under some operating conditions. In a letter dated December 6, 2010, ODRC committed to conducting a study of ammonia in the influent and effluent of its treatment works. The study will involve collecting seven daily 24 hour composite samples of wastewater at the influent and effluent of the treatment works. It is recommended BeCI obtain assistance from a contract lab and/or a qualified wastewater consulting firm experienced in wastewater sampling methods to ensure the samples are properly collected, preserved and maintained during transport to the lab. All samples should be analyzed for ammonia nitrogen, total Kjeldahl nitrogen, nitrate and nitrite. Field pH, DO and temperature measurements should be taken and recorded each day at both sample locations.

The information from the study will be used to evaluate the affects of the current method of operating the system on ammonia effluent concentrations, to examine ammonia concentrations in the raw wastewater, and evaluate the trade offs of restoring equalization to the discharge. After review of the sampling results, an additional week of testing may be requested to determine the effect of storing and aerating the wastewater on the ammonia levels. Based upon the results of the study(s), Ohio EPA may request further evaluation of alternative methods of operating the system.

BeCI should complete the ammonia study as soon as possible in efforts to comply with the terms of the compliance schedule contained in the Indirect Discharge Permit, Part 1.B, Paragraph 1.A. Please provide a date for completion of the 7 day influent and effluent ammonia sampling study.

2. Part III, Paragraph 3 of BeCI's IDP requires submission of effluent monitoring reports semi-annually, using Ohio EPA 4519 Discharge Monitoring Report (DMR) forms and the electronic internet application e-DMR, unless there is a demonstrated hardship. The e-DMR system allows permitted facilities to enter, sign, and submit DMRs on the internet. BeCI has submitted monthly monitoring information; however, BeCI

does not use Ohio EPA Form 4519 or e-DMR. BeCI's current method of reporting does not include flow information or the required signature of a Responsible Official, the Warden in this case, and does not allow for loading into Ohio EPA's monitoring database. BeCI should begin submitting electronic 4519 forms not later than January 2011. Additional information on e-DMR and how to obtain a Personal Identification Number (PIN) are available at the web sites below:

<http://www.epa.ohio.gov/dsw/edmr/eDMR.aspx>

<http://www.epa.ohio.gov/dsw/edmr/eDMRpin.aspx>

3. Part I.A. of BeCI's IDP requires collection of composite samples for several pollutant parameters. BeCI collects two grab samples for these parameters, which does not appear adequate to ensure a representative sample. BeCI has proposed purchase of a composite sampler to collect samples at the wet well of the pumping station. BeCI should proceed with purchase and use of the composite sampler or arrange with a contract service to collect 24 hour composite samples. BeCI should begin collecting composite samples no later than 90 days from the date of this letter.
4. Part II Paragraph 4 of BeCI's IDP requires BeCI to maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems...necessary to ensure compatibility of wastewater discharges with the Fox Shannon WWTP. BeCI should remove the accumulated trash and debris in the equalization tanks, especially the larger items which are wrapped around the diffusers. These items could become dislodged and interfere with the pumping controls and/or pumps. Please notify Ohio EPA when the trash has been removed from the diffusers.

Recommended Actions:

1. The grease interceptor serving the cafeteria is undersized and utilizes an inferior design. The interceptor's performance is inadequate. BeCI currently manually removes grease from the equalization tanks and the wet well of the pumping station using a pool skimmer. This manual operation will be required at regular intervals to avoid problems with grease interfering with pump controls and/or obstructing the pump impellers. Installation of a larger grease interceptor, designed specifically for grease removal, is strongly recommended to reduce labor requirements and ensure reliable pumping. Ohio EPA provided ODRC with recommendations for grease interceptor sizing on May 7, 2010.
2. A high level alarm is strongly recommended for the influent channel to detect failure of the mechanical auger screen. A screen failure would result in an overflow of the wastewater into the equalization system through the channel, allowing trash to enter

the system. Trash in the equalization tanks would affect the reliability of the pumping system and/or add significant labor and cleanout costs for trash removal. In order to bring the manual screen online during a failure of the mechanical screen the screening channels have to be manually switched over. Rapid detection of screen failure would be extremely beneficial to prevent the re-introduction of trash into the equalization tanks.

Comments:

1. Part I, Paragraph B.2. of the IDP requires BeCI to develop an Operation and maintenance (O and M) manual for Ohio EPA review. BeCI submitted a draft O and M manual on September 23, 2010. Ohio EPA provided comments to BeCI on September 27, 2010, and BCSSD provided additional comments on October 4, 2010. BeCI revised the manual and resubmitted it on November 29, 2010. Ohio EPA will provide additional comments on the manual in a separate communication. Please respond to Ohio EPA's comments in accordance with Part I.B, Paragraph 2.B. when they are received.
2. Ohio EPA, BeCI and BCSSD performed an investigation of the force main system during the summer months of 2010. The investigation revealed that the pumping station is equipped with two four inch force mains, each with two air release valves, which extend to the receiving manhole at BCSSD. One line enters at the bottom of the manhole, while the second enters along the side, several feet from the bottom. Results of the pumping test summary prepared by BCSSD are attached.

Please respond to this letter in writing within 45 days. You may contact me at (740) 380-5423 with any questions.

Sincerely,



Fred J. Snell
Pretreatment Coordinator
Division of Surface Water

FJS/jg

Enclosure

c: Michele Miller, Warden, BeCI, PO Box 540, St. Clairsville, OH 43950
Mark Esposito, BCSSD, PO Box 457, St. Clairsville, OH 43950
Ed Burke, Maintenance Superintendent, BeCI, PO Box 540, St. Clairsville,
OH 43950
Pretreatment Unit, DSW, CO
Abbot Stevenson, DSW, SEDO

PRETREATMENT Compliance Inspection Report

A. NATIONAL DATA SYSTEM CODING

Permit No. ODP00057*AP	NPDES No. OHP000244	Date November 29, 2010	Inspection Type 3	Inspector S	Facility Type 2
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B. FACILITY DATA

Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Ohio Department of Rehabilitation and Correction Belmont Correctional Institution 68518 Bannock Road, SR 331, PO Box 540 St. Clairsville, Ohio 43950	10:00 am	February 1, 2010
	Exit Time	Permit Expiration Date
	12:30 pm	January 31, 2015

Name(s) and Title(s) of On-Site Representative(s)	Phone Number(s)
Ed Burke, Maintenance Superintendent Kevin Wade, Project Manager	(740) 695-5169 Ext 2236 (614) 313-1273, (614) 995-0632
Name, Address and Title of Responsible Official	Phone Number
Michele Miller, Warden	(740) 695-5169 Ext 2000

C. AREAS EVALUATED DURING INSPECTION

S = Satisfactory
M = Marginal
U = Unsatisfactory
N = Not Evaluated

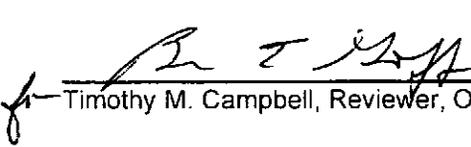
<u>M</u> Permit	<u>S</u> Flow Measurement	<u>S</u> Pretreatment
<u>M</u> Records/Reports	<u>S</u> Laboratory	<u>S</u> Compliance Schedules
<u>M</u> Operations & Maintenance	<u>S</u> Effluent/Receiving Waters	<u>M</u> Self-Monitoring Program
<u>S</u> Facility Site Review	<u>NA</u> Sludge Storage/Disposal	<u> </u> Other
<u>S</u> Collection System		

D. SUMMARY OF FINDINGS/COMMENTS (attach additional sheets if necessary)

See attached letter.


 Fred J. Snell, Inspector, Ohio EPA, Southeast District Office

 Date 12/23/10


 Timothy M. Campbell, Reviewer, Ohio EPA, Southeast District Office

 Date 12/27/10

BELMONT CORRECTIONAL INSTITUTION

Flow test results at BeCi performed on August 17, 2010.

Belmont County employees present; Mark Esposito, Dan Walls, Dale Jendrusik
BeCi employees; Ed Burke, Bob Maleski.

The new 4" force main built in 1993 will be labeled line A.

The original 4" force main built in 1990 will be labeled line B

4" force main valve on line A located along SR 331.

Essco Pumps; 250 gpm @ 182 feet of head, 13" impellers, 1750 rpm.

Two pumps CAN run at the same time in the hand position!

Pump # 2 out of service.

Test #1

Line A open/ Line B closed

Pump #1 Amps 69/70/70

Pump #3 Amps 55/57/57

Flow from line A and B at manhole.

Test #2

Line A closed/ Line B open

Pump #1 Amps; Pump tripped out due to check valve limit switch

Pump #3 Amps 56/57/58

Flow from line A and B from manhole

Test #3

Line A open/Line B closed/4" valve 331 closed

Pump #1 Amps 64/64/65

Pump #3 Amps 50/51/51

Flow from Line B at manhole/ No flow from Line A

Test #4

Line A open/Line B open/4" valve 331 closed

Pump #1 Amps 65/66/65

Pump #3 Amps 52/52/52

Flow from Line B at manhole/ No flow from line A

Test #5

Line A open/Line B open/4" valve 331 open

Pump #1 Amps 70/70/71

Pump #3 Amps 56/56/57

Flow from Line A and B at manhole

Test #6

Line A open/Line B open/4" valve 331 open

Pump #1 and Pump #3 on

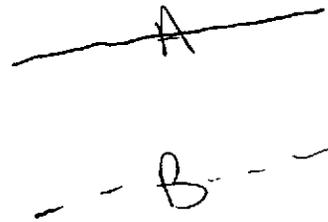
BELMONT CORRECTIONAL INSTITUTION

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The new 4" force main built in 1993 will be labeled line A.
The original 4" force main built in 1990 will be labeled line B
4" force main valve on line A located along SR 331.
Essco Pumps; 250 gpm @ 182 feet of head, 13" impellers, 1750 rpm.
Two pumps CAN run at the same time in the hand position!
Pump # 2 out of service.

Test #1

Line A open/ Line B closed
Pump #1 Amps 69/70/70
Pump #3 Amps 55/57/57
Flow from line A and B at manhole.



Test #2

Line A closed/ Line B open
Pump #1 Amps; Pump tripped out due to check valve limit switch
Pump #3 Amps 56/57/58
Flow from line A and B from manhole

Test #3

Line A open/Line B closed/4" valve 331 closed
Pump #1 Amps 64/64/65
Pump #3 Amps 50/51/51
Flow from Line B at manhole/ No flow from Line A

Test #4

Line A open/Line B open/4" valve 331 closed
Pump #1 Amps 65/66/65
Pump #3 Amps 52/52/52
Flow from Line B at manhole/ No flow from line A

Test #5

Line A open/Line B open/4" valve 331 open
Pump #1 Amps 70/70/71
Pump #3 Amps 56/56/57
Flow from Line A and B at manhole

Same

Test #6

Line A open/Line B open/4" valve 331 open
Pump #1 and Pump #3 on

Pump #1 Amps 64/63/62
Pump #3 Amps 51/51/51
Flow from Line A and B at manhole.