



**Environmental  
Protection Agency**

**Ted Strickland**, Governor  
**Lee Fisher**, Lt. Governor  
**Chris Korteski**, Director



**\*1B0001120090623\***

CLERMONT DUKE ENERGY OHIO INC-WILLIAM H. ZIMMER ZIMMERMAN, MICH . 2009/06/23  
STATION



State of Ohio Environmental Protection Agency

**Southwest District Office**

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Ted Strickland, Governor  
Lee Fisher, Lieutenant Governor  
Chris Korleski, Director

June 23, 2009

Mr. Jim Stieritz  
Duke Energy Corporation  
P.O. Box 960  
Cincinnati, Ohio 45201

**Re: Duke Energy, William H. Zimmer Station; Clermont County  
NPDES Permit No. 1IB00011\*JD; OH0048836  
NPDES Compliance Inspection**

Dear Mr. Stieritz:

On May 28, 2009 I conducted a National Pollutant Discharge Elimination System (NPDES) permit compliance inspection at the above referenced facility. Jim Stieritz, Principal Environmental Scientist, Tom Patt, Environmental Coordinator, Joe Miller, Station Manager, and Dan Horn, Senior Engineer, represented the company during the inspection (Keith, lab manager, and Bill, an intern, were also present). The purpose of the inspection was to evaluate the operation and performance of the facility's wastewater treatment systems and to determine compliance with the NPDES permit.

All aspects of plant operation and permit compliance evaluated during the inspection received satisfactory ratings. A few NPDES permit final effluent limitation violations were identified from reviewing the Discharge Monitoring Reports from January, 2005, to the present. These are detailed in the attached report. Duke Energy had previously reported these violations; no further explanation is needed. One maintenance issue discussed was the vegetation (primarily grass) growing in the north sand filter at the main sanitary WWTP. These slow sand filters must remain free of vegetation for proper operation. You indicated the filter would be cleaned as soon as possible. Also briefly discussed during the inspection was the need for better management of the coal barge unloading area to minimize coal spillage. As with the new NPDES permits for the Miami Fort and Beckjord Stations, a compliance schedule for a coal spillage minimization plan will be included in the Zimmer Station permit when it is renewed (expires January 31, 2010).

A copy of the inspection report is attached. If you have any questions, don't hesitate to contact me at (937) 285-6102.

Sincerely,

Michael W. Zimmerman  
Permits Group  
Division of Surface Water

ec: Joseph Miller and Tom Patt, Duke Energy, Zimmer Station



State of Ohio Environmental Protection Agency  
Southwest District Office

NPDES Compliance Inspection Report

| Section A: National Data System Coding |           |                |                 |           |               |
|--|-----------|----------------|-----------------|-----------|---------------|
| Permit #                               | NPDES#    | Month/Day/Year | Inspection Type | Inspector | Facility Type |
| 1IB00011*JD                            | OH0048836 | 5/28/2009      | C               | S         | 2             |

| Section B: Facility Data  |  |                        |
|---|--|------------------------|
| Name and Location of Facility Inspected   | Entry Time   | Permit Effective Date  |
| Duke Energy Ohio, Inc., William H. Zimmer Station<br>1781 US Route 52<br>Moscow, Ohio 45153<br><br>Mailing: P.O. Box 960<br>Cincinnati 45201    | 10:05 am   | 3/1/2009               |
|   | Exit Time  | Permit Expiration Date |
|   | 1:05 pm  | 1/31/2010              |
| Name(s) and Title(s) of On-Site Representatives   | Phone Number(s)  |                        |
| Jim Stieritz, Senior Environmental Scientist<br>Joe Miller, Station Manager<br>Tom Patt, Environmental Coordinator<br>Dan Horn, Senior Engineer | (513) 287-2269<br>(513) 467-5212<br>(513) 467-5212<br>(513) 467-5245 |                        |
| Name, Address and Title of Responsible Official   | Phone Number   |                        |
| Jim Stieritz, Environmental, Health, and Safety   | (513) 287-2269   |                        |

| Section C: Areas Evaluated During Inspection                            |                          |   |                           |   |                         |
|---|--------------------------|---|---------------------------|---|-------------------------|
| (S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated) |                          |   |                           |   |                         |
| S   | Permit                   | S | Flow Measurement          | N | Pretreatment            |
| S   | Records/Reports          | N | Laboratory                | S | Compliance Schedule     |
| S   | Operations & Maintenance | S | Effluent/Receiving Waters | S | Self-Monitoring Program |
| S   | Facility Site Review     | S | Sludge Storage/Disposal   | N | Other                   |
| N   | Collection System        |   |                           |   |                         |

| Section D: Summary of Findings (Attach additional sheets if necessary)  |  |
|---|--|
| <p>Inspection findings indicate the Duke Energy, William H. Zimmer Station is generally in compliance with the terms and conditions of its NPDES permit. All wastewater treatment systems, including the two sanitary WWTPs and the wastewater treatment system for Outfall 005, are being properly operated and maintained. One area requiring maintenance (vegetation removal) was the north sand filter at the main sanitary WWTP (outfall 601). Review of discharge monitoring reports from January, 2005 to the present revealed four effluent limitation violations, three associated with an oil &amp; grease exceedance in April, 2006, and one chlorination /bromination duration exceedance at Outfall 021 in December, 2005.</p> <p>***Refer to attached sheets for additional findings and information.</p> |  |
| Inspector   | Reviewer   |
| Michael W. Zimmerman<br>Division of Surface Water<br>Southwest District Office  | Martyn Burt<br>Compliance & Enforcement Supervisor<br>Division of Surface Water<br>Southwest District Office |
| Date  | Date   |

Sections E thru K: Complete on all inspections as appropriate  
Y – Yes, N – No, N/A – Not Applicable, N/E – Not Evaluated

**Section E: Permit Verification**

Inspection observations verify the permit

- (a) Correct name and mailing address of permittee ..... Y
- (b) Correct name and location of receiving waters..... Y
- (c) Product(s) and production rates conform with permit application (Industries)..... Y
- (d) Flows and loadings conform with NPDES permit..... Y
- (e) Treatment processes are as described in permit application... Y
- (f) New treatment process(es) added since last inspection..... Y
- (g) Notification given to State of new, different or increased discharges..... Y
- (h) All discharges are permitted..... N/A
- (i) Number and location of discharge points are as described in permit..... Y

Comments/Status:

**Section F: Permit Compliance**

- (a) Any significant violations since the last inspection..... Y
- (b) Permittee is taking actions to resolve violations..... Y
- (c) Permittee has a compliance schedule..... N
- (d) Compliance schedule contained in
- (e) Permittee is meeting compliance schedule..... N/A

Comments/Status:

*Final effluent violations:*  
Outfall 021: Cl /Br Duration – 12/6/2005 – 150 min. (limit is 120 min. - daily max.)  
Outfall 005: O&G – 4/1/2006 – 19 mg/l (limit is 15 mg/l – monthly avg.)  
Outfall 005: O&G – 4/17/2006 – 893.4 kg/day (limit is 719.2 kg/day – daily max.)  
Outfall 005: O&G – 4/1/2006 – 893.4 kg/day (limit is 539.4 kg/day – monthly avg.)

**Section G: Operation & Maintenance**

**Treatment Works:**

Treatment facility properly operated and maintained

- (a) Standby power available.....generator  or dual feed ..... Y
- (b) Adequate alarm system available for power or equipment failures.. Y
- (c) All treatment units in service other than backup units..... Y
- (d) Wastewater Treatment Works classification (OAC 3745-7)..... I
- (e) Operator of Record holds unexpired license of class required by permit..... Y  
 Class: I - Winelco, Inc. – contract operator
- (f) Copy of certificate of Operator of Record displayed on-site..... N
- (g) Minimum operator staffing requirements fulfilled (OAC 3745-7)... Y
- (h) Routine and preventative maintenance scheduled/performed... Y
- (i) Any major equipment breakdown since last inspection..... N
- (j) Operation and maintenance manual provided and maintained..... Y
- (k) Any plant bypasses since last inspection..... N
- (l) Regulatory agency notified of bypasses..... N/A  
 On MORs  and/or Spill Hotline (1-800-282-9378)
- (m) Any hydraulic and/or organic overloads since last inspection..... N

**Record Keeping:**

- (a) Log book provided..... Y
- (b) Format of log book (i.e. computer log, hard bound book)  

*Daily bench sheets and computer logs.*
- (c) Log book(s) kept onsite (in an area protected from weather)..... Y
- (d) Log book contains the following:
  - I. Identification of treatment works..... Y
  - II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... Y
  - III. Daily record of operation and maintenance activities (including preventative maintenance, repairs and request for repairs)..... Y
  - IV. Laboratory results (unless documented on bench sheets)... Y
  - V. Identification of person making log entries..... Y
- (d) Has the operator of record submitted written notification to the permittee, Ohio EPA and (if applicable) any local environmental agencies when a collection system overflow, treatment plant bypass or effluent limit violation has occurred..... Y

**Section G: Operation & Maintenance (con't)**

**Collection System:**

- (a) Percent combined system: 0%
- (b) Any collection system overflows since last inspection..... N  
(CSO  and/or SSO )
- (c) Regulatory agency notified of overflows (SSOs)..... N/A
- (d) CSO O&M plan provided and implemented..... N/A
- (e) CSOs monitored and reported in accordance with permit..... N/A
- (f) Portable pumps used to relieve system..... N/A
- (g) Lift station alarms provided and maintained..... N/A
- (h) Are lift stations equipped with permanent standby power  
or equivalent..... N/A
- (i) Is there an inflow/infiltration problem (separate sewer system),  
or were there any major repairs to collection system since  
last inspection..... N
- (j) Any complaints received since last inspection of basement flooding N
- (k) Are any portions of the sewer system at or near capacity..... N

Comments/Status:

*Referred to attached sheets.*

**Section H: Sludge Management**

- (a) Sludge management plan (SMP)  
Submitted date:      Approval #:      Not submitted       N/A
- (b) Sludge management plan current..... Y  
(c) Sludge adequately disposed..... Y  
(Method: *Beneficial reuse* )  
(d) If sludge is incinerated, where is ash disposed of  
(e) Is sludge disposal contracted..... Y  
(Name: *Winelco – sewage sludge; Utter Construction – Zimmer landfill*)  
(f) Has amount of sludge generated changed significantly since  
last inspection..... N  
(g) Adequate sludge storage provided at plant..... Y  
(h) Land application sites monitored and inspected per SMP..... N/A  
(i) Records kept in accordance with State and Federal law..... N/E  
(j) Any complaints received in last year regarding sludge..... N  
(k) Is sludge adequately processed (digestion, pathogen control)..... Y

**Comments/Status:**

*The contract operator for sewage sludge disposal is Winelco Inc.  
Zimmer Residual Waste Landfill – contract operator – Utter Construction*

**Section I: Self-Monitoring Program**

**Flow Measurement: for Clearwater Pond discharge (Outfall 005)**

- (a) Primary flow measuring device operated and maintained..... Y  
Type of device: Ultrasonic & Parshall flume  Ultrasonic & Weir  Weir   
Calculated from influent  Other  Specify: )
- (b) Calibration frequency adequate ..... Y  
(Date of last calibration: )  
(c) Secondary instruments operated and maintained..... Y  
(d) Flow measurement equipment adequate to handle full range  
of flows..... Y  
(e) Actual flow discharged is measured..... Y  
(f) Flow measuring equipment inspection frequency  
 Daily  Weekly  monthly  other

**Comments/Status:**

*Flow measurement at outfalls 601 and 602 is estimated using elapsed time meters on the blowers.  
Flow reading at 005 @ 12:15pm was 393 gpm (equates to 565,920 gpd)*

**Section I: Self-Monitoring Program (con't)**

**Sampling:**

- (a) Sampling location(s) are as specified by permit..... Y
- (b) Parameters and sampling frequency agree with permit..... Y
- (c) Permittee uses required sampling method..... Y
- (d) Sample collection procedures are adequate..... Y
  - (i) Samples refrigerated during compositing..... Y
  - (ii) Proper preservation techniques used..... Y
  - (iii) Containers and sample holding times prior to analysis conform with 40 CFR 136.3..... Y
- (e) Monitoring records (i.e., flow, pH, DO) maintained for a minimum of three years including all original strip chart recordings (i.e, continuous monitoring instrumentation, calibration and maintenance records)..... Y
- (f) Adequate records maintained of sampling date, time, location, etc.. Y

**Laboratory:**

General:

- (a) EPA approved analytical testing procedures used (40 CFR 136.3).. Y
- (b) If alternate analytical procedures are used, proper approval has been obtained..... N/A
- (c) Analyses being performed more frequently than required by permit. N
- (d) If (c) is yes, are results in permittee's self-monitoring report..... N/A
- (e) Commercial laboratory used..... Y  
Parameters analyzed by commercial lab: *see below*  
Lab name: *Test America*

Quality Control/Quality Assurance:

- (f) Quality assurance manual provided and maintained..... Y
- (g) Satisfactory calibration and maintenance of instruments/equipment. Y
- (h) Adequate records maintained..... Y
- (i) Results of latest USEPA quality assurance performance sampling program:  Satisfactory     Marginal     Unsatisfactory  
Date: 2008

**Comments/Status:**

*Plant lab personnel perform daily inspections at the wastewater treatment systems. At outfalls 601 and 602, daily observations for color, odor, and turbidity are recorded. Temperature, pH, TSS, TRC, TRO, fecal coliform, and hardness are measured at plant lab. Test America analyzes for metals and O&G. Winelco analyses the CBOD<sub>5</sub>.*

**Section J: Effluent/Receiving Water Observations**

| Outfall Number                | Oil sheen | Grease | Turbidity | Visible Foam | Visible Floating Solids | Color         | Other |
|-------------------------------|-----------|--------|-----------|--------------|-------------------------|---------------|-------|
| 005 Clearwater Pond           | none      | none   | slight    | none         | none                    | grayish brown |       |
| 021 (cooling water)           | submerged |        |           |              |                         |               |       |
| 601 & 602 (sanitary)          | none      | none   | clear     | none         | none                    | clear         |       |
| Numerous storm water outfalls |           |        |           |              |                         |               |       |
|                               |           |        |           |              |                         |               |       |
|                               |           |        |           |              |                         |               |       |
|                               |           |        |           |              |                         |               |       |

**Comments/Status:**

*Refer to attached sheet.*

**Section K: Multimedia Observations**

- (a) Are there indications of sloppy housekeeping or poor maintenance in work and storage areas or laboratories..... N
- (b) Do you notice staining or discoloration of soils, pavement or floors.. N
- (c) Do you notice distressed (unhealthy, discolored, dead) vegetation.. N
- (d) Do you see unidentified dark smoke or dust clouds coming from sources other than smokestacks..... N
- (e) Do you notice any unusual odors or strong chemical smells..... N
- (f) Do you see any open or unmarked drums, unsecured liquids, or damaged containment facilities..... N

If any of the above are observed, ask the following questions:

- (1) What is the cause of the condition?
- (2) Is the observed condition or source a waste product?
- (3) Where is the suspected contaminant normally disposed?
- (4) Is this disposal permitted?
- (5) How long has the condition existed and when did it begin?

**Comments/Status:**

### **Section D: Summary of Findings (con't):**

Duke Energy William H. Zimmer Station currently has one coal-fired electric generating unit of 1300 megawatts. Zimmer is the only one of the 22 Duke plants that handles bottom ash as dry material. The gypsum produced by the flue gas desulfurization process is sold to a company (Lafarge) which uses it in drywall manufacturing.

The station has numerous final and internal wastewater outfalls that discharge process, sanitary, cooling water, and storm water to the Ohio River, Little Indian Creek, and Maple Creek. There is an Ohio River surface water intake (801) used for once through cooling water and two sanitary wastewater treatment sludge monitoring stations (588 and 589). The residual waste landfill has 23 permitted stormwater outfalls (050, 053 – 074).

Notes regarding specific treatment systems and outfalls:

*Outfall 003:*

- sanitary wwtp effluent (602) and storm water runoff
- inspected at the 602 sampling station – effluent was clear
- flow rate estimated based on elapsed time meters

*Outfall 004:*

- sanitary wwtp effluent (601) and storm water runoff
- inspected at the 601 sampling station – effluent was clear
- flow rate estimated based on elapsed time meters

*Outfall 005:*

- Clearwater Pond discharge
- flow rate measured by ultrasonic flow meter at a parshall flume
- effluent was slightly turbid with a grayish color
- pilot project in progress – injecting CO<sub>2</sub> to help control the pH (Dan Horn)
- results from March, 2009 toxicity bioassays conducted by Duke's contract laboratory (Alloway) indicated no acute toxicity

*Outfall 021:*

- Service Water (once through cooling water) prior to combining with cooling tower blowdown (outfall 614)
- Outfall 099 is a calculated outfall representing the sum of loadings from outfalls 021 and 614
- due to a NPDES pH exceedance in February, 2009 caused by a problem with the sulfuric acid feed system, Zimmer has installed four pH probes which control the blowdown valve and pump

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NPDES #: OH0048836

*Outfalls 008, 011 – 016, and 020:*

- plant storm water outfalls
- outfalls 011 and 012 discharge to the Ohio River; outfall 013 discharges to Little Indian Creek – no flow observed
- the other plant storm water stations were not observed

*Outfalls 050, 053 – 074:*

- residual waste landfill storm water outfalls
- noted locations on some of them; actually discharges not observed
- wastewater from the landfill is pumped to the plant Wastewater Pond and subsequently to the Clearwater Pond

*Sampling Station 801:*

- Ohio River intake
- the intake pipe extends out into the river approx. 30 feet; has wedge-wire screens