



Restoration Management Corporation

(now renamed Fluor Daniel Fernald)
P. O. Box 538704 Cincinnati, Ohio 45253-8704 (513) 648-3000

September 3, 1997

Fernald Environmental Management Project
Letter No. C:SWP:97-0021

Mr. Thomas A. Winston, District Chief
Southwest District Office
Ohio Environmental Protection Agency
401 East Fifth Street
Dayton, OH 45402-2911

Dear Mr. Winston:

REQUEST FOR NPDES PERMIT MODIFICATION - NPDES PERMIT NO. 1100004*ED - FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) SEWAGE TREATMENT PLANT RELOCATION PROJECT

A completed copy of the above referenced NPDES permit modification is attached for your review and approval. A check in the amount of \$100.00 is also attached to cover the cost of application and processing fees.

As explained in the attached package, modification of our existing NPDES Permit (Ohio EPA NPDES Permit No. 1100004*ED) is required to reflect the reconfiguration and relocation of the existing Bionitrification-Effluent Treatment System (BDN-ETS) for purposes of treating sanitary wastewaters. Use of the BDN-ETS for this purpose is required because the existing Sewage Treatment Plan (STP) will be decommissioned and dismantled to support construction of the On-site Disposal Facility required under the site's CERCLA Records of Decision. As part of this modification, we are requesting a 60 day interim monitoring only requirement for discharges from the new STP (relocated BDN-ETS) during the initial startup of the plant. In accordance with the provisions of OAC 3745-33, this application has been submitted 180 days in advance of the planned discharge from the new STP. Based on our current schedule, discharges from the relocated BDN-ETS are anticipated to commence in late March, 1998.

If you have any questions or comments regarding this submittal, please contact Douglas J. Abbott of my staff at (513) 648-5287.

Sincerely,

A handwritten signature in cursive script that reads "Dennis J. Carr".

Dennis J. Carr
Vice President, Soil & Water Projects

DJC:DJA
Enclosures



Ohio Environmental Protection Agency
Letter No. C:SWP:97-0021
Page 2

c: J. Bartoszek, OEPA-SWDO
D. J. Brettschneider, Fluor Daniel Fernald, MS 52-5
M. W. Griffin, Fluor Daniel Fernald, MS 52-5
N. Haffein, EM-423, QO
J. S. Hartman, Fluor Daniel Fernald, MS65-2
E. H. Henry, Fluor Daniel Fernald, MS52-5
W. A. Hertel, Fluor Daniel Fernald, MS 52-5
J. R. Hughes, Fluor Daniel Fernald, MS52-5
F. L. Johnston, Fluor Daniel Fernald, MS 52-2
J. D. Kappa, DOE-FEMP, MS 45
R. W. Kneip, Fluor Daniel Fernald, MS52-5
T. J. Walsh, Fluor Daniel Fernald, MS 65-2
M. Ware, OEPA-SWDO
AR Coordinator, MS 78
EDC File No. 52700

Ohio Environmental Protection Agency
Application for Modification of Ohio NPDES
Permit

For Agency Use _____
Application Number _____

Date Received _____

Year _____ Month _____ Day _____

1. Number of permit for which modification is being requested 11000004*ED
2. Name of organization responsible for facility U.S. Department of Energy
3. Address, location, and telephone number of facility producing discharge:

A. Name Fernald Environmental Management Project

B. Mailing Address:

1. Street Address P.O. Box 538704
2. City Cincinnati
3. State OH 4. Zip Code 45253-8704

C. Location:

1. Street 7400 Wiley Road
2. City Fernald 3. County Butler/Hamilton

D. Telephone No. (513) 648-3000

4. Describe in detail the provision(s) of the permit the applicant wishes to modify.
 - (A) Revise Permit Part II, A. "Sampling Station, Description of Location"; Sampling Station 11000044601 to read as follows: "Final Effluent from Sewage Treatment Plan, after UV disinfection, prior to discharge to Outfall 001". This modification is requested to reflect change in treatment from existing Sewage Treatment Plant (STP) facility to new STP facility comprised of former Bionitrification-Effluent Treatment System (BDN-ETS) activated sludge plant and Ultraviolet (UV) disinfection system re-located from the existing STP facility.
 - (B) Establish a monitoring only requirement for re-located outfall 110000044601 for a period of 60 days from the date of start-up. Effluent limitations for TSS and CBOD₅ would be suspended during the 60-day period. Monitoring would be conducted weekly for TSS and CBOD₅ (flow weighted composite samples). Monitoring for flow rate and pH will continue as currently described.
 - (C) At completion of 60-day period, re-establish existing outfall 11000004601 limits (as shown in current version of NPDES Permit 11000004*ED at re-located outfall *4601.

Note: Sludge from the Sludge Thickeners at the new STP will be managed at the existing Slurry De-watering Facility in accordance with the terms and conditions currently specified for NPDES Outfall 11000004*4589.

5. Describe in detail the reason a modification is desired. (See Regulation OAC 3745-33-06 for grounds for modification.

The existing STP will be decommissioned and dismantled to support construction of the

On-site Disposal Facility (OSDF) in accordance with the selected remedies established under the site's CERCLA Records of Decision. The existing BDN-ETS system (previously installed under Ohio EPA PTI No. 05-3879, effective September 27, 1989) and the existing UV disinfection system (previously installed under Ohio EPA PTI No. 05-0944, effective June 28, 1984) will be dismantled and re-installed near the Advanced Wastewater Treatment Facility (AWWT) to provide treatment for sanitary wastewaters at the site.

The NPDES permit modifications described in 4. above are required to support the startup and operation of these re-located facilities. Treated effluent from the new STP facility will be discharged to a common line shared with the AWWT facility; from where it will be combined with other site wastewaters prior to ultimate discharge to the Great Miami River via outfall 11000004001. Sludge generated from the Sludge Thickeners at the new STP facility will continue to be managed in accordance with the existing terms and conditions specified for NPDES Outfall 110000044589.

6. Name of receiving water or waters Great Miami River
7. Describe requested modification in sufficient detail to allow Ohio Environmental Protection Agency personnel to process your request. If a Permit to Install is required under Regulation OAC 3745-31 attach a completed application for a Permit to Install and make no other entries in this section. If a Permit to Install is not required and additional space is need, provide the additional information on 8-1/2 by 11 bond paper and mark item 7 continued in the upper left hand corner of each extra sheet.

As part of a CERCLA response action (see 5. above), the STP Relocation Project is exempt from the requirement to obtain formal permit approval pursuant to Section 121(e) of CERCLA and 40 CFR Part 300, provided the project is conducted in accordance with all applicable substantive requirements of any permits that would have been required in absence of the CERCLA 121(e) permitting exemption. The attachment to this form is provided to document the manner in which the project will comply with applicable substantive permitting requirements. A vicinity map depicting the location of the new STP facility and a simplified process flow diagram are also provided to facilitate agency review.

[This application must be signed by the person who applied for the orginal permit or some other person eligible under OAC 3745-33-03].

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate.

Mr. Dennis Carr
Printed Name of Person Signing

Vice President, Soil & Water Projects
Title

9-3-97
Date Application Signed

Dennis Carr
Signature of Applicant

Mail or take this form to the Ohio EPA District Office to which you send monitoring reports.

**ATTACHMENT
DEMONSTRATION OF COMPLIANCE
SUBSTANTIVE PERMITTING REQUIREMENTS
FEMP SEWAGE TREATMENT RELOCATION PROJECT**

Decommissioning and dismantling of the existing FEMP Sewage Treatment Plant (STP) and subsequent re-location of the existing Bionitrification Effluent Treatment System (BDN-ETS) and STP Ultraviolet (UV) disinfection system for purposes of treating sanitary sewage is required to support construction of the On-site Disposal Facility (OSDF) in accordance with the selected remedies established under the site's CERCLA Records of Decision. As part of a CERCLA remedial action, the STP Relocation Project is exempt from the requirement to obtain formal permit approval pursuant to Section 121(e) of CERCLA and 40 CFR Part 300, provided the project is conducted in accordance with all applicable substantive requirements of any permits that would have been required in the absence of the CERCLA 121(e) permit exemption.

Pursuant to a OAC 3745-31, a permit to install would have been required for the project in absence of the CERCLA 121(e) permit exemption described above. The attached table identifies the manner in which the new STP facility meets applicable design based standards.

**ATTACHMENT
FEMP SEWAGE TREATMENT PLANT RELOCATION PROJECT
SUMMARY OF DESIGN CRITERIA/BASIS**

Key Component	Design Criteria ¹	Design Basis ²
Influent Pumping Station	Influent pumping facilities shall be capable of pumping the peak influent rate with the largest pump out of service.	Two influent pumps with influent pumping rates of 250 gpm per pump will be provided. These exceed the anticipated peak influent rate of 212 gpm.
Pre-Treatment Devices	Pre-treatment shall be provided to reduce particle size and/or remove trash and large debris. Comminutors shall be designed to handle peak influent flow rates.	A trash trap (100 gal. capacity) and comminutor with ½" trash rack will be provided. Design capacity for comminutor (250 gal./min.) is based on peak influent rate of 212 gpm.
Flow Diversion Devices.	Flow diversion required for parallel aeration units.	A passive splitter box will be provided to split influent stream between the two aeration vessels when flow exceeds 125 gpm.
Aeration Tanks - Volume and Detention Time	Aeration volume to be sized on basis of 80 cu. ft./lb. of BOD ₅ . Minimum detention time to be based on average daily design flow.	Two parallel aeration tanks will be provided. Anticipated design BOD ₅ load at 196 lbs. BOD ₅ /day. Aeration volume of 180,000 gallons exceeds minimal required aeration volume of 117,300 gallons. Based on 180,000 gal. aeration volume and assumed average daily design flow of 156,000 gpd, aeration detention time of 28 hours will be provided.
Aeration Tanks - Blowers	Blower capacity shall be based on 2600 cu. ft./lb. of BOD ₅ /day.	Based on anticipated design BOD ₅ load of 196 lbs./day, minimum air supply required is 354 cu. ft./min. Actual supply of 750 cu. ft./min. exceeds minimum requirement with largest blower out of service.
Clarifiers	Dimensions and proportions of clarifiers shall be designed to prevent channeling and to maintain velocities sufficient to prevent re-suspension of solids.	Two 52,000 gallon units provided (one per parallel treatment train). Based on 52,000 gal. capacity and average daily design flow of 156,000 gal./day, detention time will be 8 hours per chamber with surface settling rate of 208 gpm/sq. ft.
Weirs	Effluent weirs shall be design to be easily adjustable by mechanical means and shall be sized based on the design peak flow rate.	Total weir length provided (both treatment trains) equals 24 ft. Based on average daily design flow average weir loading rate will equal 6500 gpd/lin. ft. Peak flow rate will equal 15,000 gpd/lin. ft.

Key Component	Design Criteria ¹	Design Basis ²
Skimmers and sludge hoppers	Full surface mechanical scum collection and removal facilities, including baffling, shall be provided for all settling tanks. Scum shall be discharged with sludge.	New full surface skimmers will be provided on both clarifiers. Baffles will be provided at the inlet and within six inches of the outlet to prevent turbulence and short circuiting. Sludge hoppers will be equipped with individually valved withdrawal line that wastes to sludge thickeners (3" diameter). Side walls of hoppers will have minimum slope of 2:1. Hopper bottom dimensions at 24' by 2'.
Sludge Thickeners	Tank volumes shall be based on the sustained average BOD ₅ loading assuming 3 cu. ft. of capacity per 0.167 lbs. of BOD ₅ .	Based on sustained average BOD ₅ load of 80 lbs./day, minimum tank volume of 10,800 gallons is required. Actual volume supplied (16,000 gal.) exceeds minimum. Based on actual tank volume of 16,000 gal. minimum aeration required is 43 cu.ft./min. Actual volume to be supplied with largest blower out of service is 100 cu. ft./min.
UV Disinfection	Treated effluent shall be disinfected prior to final discharge in accordance with the terms and conditions of existing NPDES Permit No. 11O00004*ED.	The UV disinfection system from the existing STP will be re-installed at the new STP facility. The UV disinfection system consists of submerged ultraviolet disinfection unit that was previous approved under OEPA PTI No. 05-0944, effective June 28, 1984.
Effluent Tank	The effluent tank shall be equipped with motorized pumps designed to convey the peak influent rate.	Two motorized pumps will be provided, each capable of pumping 250 gpm. Surge capacity of 3000 gallons is also provided.
Flow Monitoring	Continuous flow monitoring shall be provided in accordance with the terms and conditions of the existing NPDES Permit No. 11O00004*ED.	A flow monitoring station will be install to collect continuous flow data on treated effluent discharges from the new STP facility.

¹ Design criteria based on Recommended Standards for Wastewater Facilities - Ten States Standards

² Average Daily Design Flow: 0.156 mgd
 Design BOD₅ loading: 196 lbs. BOD₅/day
 Peak Influent Flow Rate: 212 gpm

Note: Seed sludge for the new STP facility will be obtained from the existing FEMP STP and/or other local municipalities.

