INDIANA MICHIGAN POWER

Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106
aep.com

May 28, 2008

AEP:NRC:2401-19

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, D.C. 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
NOTIFICATION OF APPLICATION FOR RENEWAL OF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT, MI0005827

In a letter dated April 2, 2008, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, submitted an application for renewal of National Pollutant Discharge Elimination System (NPDES) permit number MI0005827 to the Michigan Department of Environmental Quality (MDEQ). In addition, a supplement was required because I&M's contracted lab was unable to meet the required quantification levels for Silver, Selenium, and Arsenic for Outfall 00B. The reanalysis of these parameters at the required quantification levels was transmitted to MDEQ in a letter dated May 27, 2008.

Section 3.2 of Part II of Appendix B of the Environmental Technical Specifications (ETS) for CNP requires that the Nuclear Regulatory Commission (NRC) be provided a copy of the application for renewal of the NPDES permit at the same time the application is submitted to the permitting agency.

A copy of the application for renewal of the NPDES Permit, as described above, was not previously provided to the NRC as required by ETS 3.2. Enclosure 1 to this letter provides a copy of that application as required by ETS 3.2. Enclosure 2 is the supplemental data that was transmitted to the MDEQ. The late transmittal of the application for renewal of CNP's NPDES Permit to the NRC has been entered into CNP's Corrective Action Program.

This letter contains no new commitments.

C001

NRR

Should you have any questions or concerns regarding this notification, please contact Mr. Jon H. Harner, Environmental Manager, at (269) 465-5901, extension 2102.

Sincerely,

Mark A. Peifer
Site Vice President

JEN/rdw

Enclosures

c: w/o enclosures
J. L. Caldwell, NRC Region III
K. D. Curry, AEP Ft. Wayne
J. T. King, MPSC
MDEQ – WHMD/RPS
NRC Resident Inspector
P. S. Tam, NRC Washington, DC

ENCLOSURE 1 TO AEP:NRC:2401-19

APPLICATION FOR RENEWAL OF NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

INDIANA MICHIGAN POWER®
A unit of American Electric Power

Indiana Michigan Power
One Cook Place
Bridgman, MI 49106
IndianaMichiganPower.com

April 2, 2008

CC 2008-245

Michigan Department of Environmental Quality
Cashier's Office
WB-NP2
5th Floor South, Constitution Hall
525 West Allegan
Lansing, MI 48933

Subject: Cook Nuclear Plant
NPDES Permit MI0005827 Application

Dear Sir or Madam:

Indiana Michigan Power Company (I&M) is hereby submitting an Industrial and Commercial Wastewater Discharge Application for renewal of the Donald C. Cook Nuclear Plant National Pollutant Discharge Elimination System (NPDES) Permit. The enclosed application is being submitted on or before April 4, 2008, as required by the current permit.

By letter dated January 24, 2008 (enclosed), the Michigan Department of Environmental Quality (MI DEQ) notified I&M to reapply for NPDES Permit, MI0005827. This letter stated that the January 2008 revision of the permit application was required to be used and was available electronically on the internet. I&M obtained a copy of the application from the internet in January 2008. A review of the completed application revealed that it contained an erroneous revision date in the footer of the application of 11/2007. In a telephone conversation on March 26, 2008, between I&M staff and MI DEQ staff, it was determined that the application dated November 2007 is the January 2008 revision and should be considered as such. MI DEQ staff indicated that since the initial internet posting of the January 2008 revision, typographical corrections have been made to the revision including the revision date in the footer of the document.

By letter dated February 21, 2007 (enclosed), I&M requested to use, in the permit application submittal, data from representative outfalls to characterize effluent characteristics for similar outfalls. By letter dated February 12, 2008 (enclosed), MI DEQ granted permission of this request. The enclosed application permit reflects this allowance for the outfall data.

The NPDES Permit Application, General Provisions, step 5, discusses requirements for quantification levels of select parameters identified in the Appendix, Table 7. I&M's contracted lab was unable to meet the required quantification levels for Silver, Selenium, and Arsenic for Outfall 00B. In telephone

conversations in February between I&M staff and MI DEQ staff, MI DEQ staff stated that completion of the application with the current analyzed values and/or a value of less than the quantification level achieved would be acceptable to consider the application complete. MI DEQ still requires these parameters to be analyzed at the required quantification levels and agreed to accept the analysis results for the application at a later date. I&M has re-sampled these parameters and will submit the analysis data, using the specified quantification levels, to MI DEQ by May 31, 2008.

By letter dated February 27, 2007 (enclosed), I&M notified MI DEQ that the signature authority for NPDES and groundwater related issues includes, Jon H. Harner, Environmental Manager.

In accordance with Michigan Act 451, please find an enclosed check for the Application Fee of $750. Should you have any questions, please contact me at (269) 465-5901, extension 2102, or Blair Zordell at (269) 465-5901, extension 2006.

Sincerely,

Jon H. Harner

Jon H. Harner
Environmental Manager

HLE/rdw

Enclosures

c: Mr. John Vollmer, MDEQ – Kalamazoo, w/o enclosures

INDIANA MICHIGAN POWER

Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106

Mr. Greg Danneffel
Michigan Department of Environmental Quality
7953 Adobe Road
Kalamazoo, MI 49009-5026

February 27, 2007

Subject: Signatory Authority

Dear Mr. Danneffel:

This letter identifies that Jon H. Harner, Environmental Manager, has signatory authority for NPDES and groundwater related issues. Signatory authority is based on job function as permitted by regulatory requirements. The objective in establishing signatory authority by position was to identify a broad class of job families so that as process improvements are made, managers who are most familiar with the work will have the appropriate signatory authority to meet environmental regulatory requirements for permits, licenses and reports.

> For Nuclear Generation Facilities: 1)the Manager of Site Operations (Plant Manager); 2)the AEP Nuclear Generation Group Manager(Site Vice President); and 3) the AEP Manager of Environmental Services (Environmental Manager).

The persons holding all of the above named positions have the necessary responsibility and authority to ensure that accurate permit and license application and/or report are prepared and appropriate corporate resources are dedicated to achieve compliance with the permits for their respective functional areas.

Sincerely,

Joseph N. Jensen
Site Vice President

c: NDM (2007-191)

INDIANA MICHIGAN POWER

Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106

Mr. Greg Danneffel
Surface Water Quality Division
Michigan Department of Environmental Quality
7953 Adobe Road
Kalamazoo, MI 49009

February 21, 2007

Dear Mr. Danneffel:

Subject: Donald C. Cook Nuclear Plant
NPDES Permit No. MI0005827

We are currently preparing the Wastewater Discharge Permit Application to renew our current NPDES operating permit. As noted in Section IIIB - Industrial and Commercial Wastewater, Part B. Outfall Information Item B.3, paragraph 5 contains instructions to request permission to use a single sample for similar outfalls.

We request that Outfall 001 be used as a representative sample for Outfalls 002 (Unit Two Noncontact Cooling Water) and Outfall 003 (De-icing Mode). Outfalls 002 and 003 are identical to Outfall 001, the source of these Outfalls is Lake Michigan, similar waste streams enter each Outfall prior to discharge.

In addition, we are requesting Outfall 00B (Unit Two Steam Generator Blowdown) to be used as a representative sample for Outfall 00A (Unit One Steam Generator Blowdown), and Outfall 00C (Plant Heating Boiler Blowdown). Outfall 00A and Outfall 00B are identical discharges, with the exception that Outfall 00A originates from the Unit One Steam Generators, and Outfall 00B originates from the Unit Two Steam Generators. Outfall 00C is boiler blowdown, the supply water is from the same source. The treatment chemicals/ranges in the three systems are hydrazine/(0-400 ppm), ethanolamine/(0-100 ppm), carbohydrazide/(0-40 ppm). The current auxiliary boiler on the site is undergoing repairs and will be unavailable for sampling in the upcoming year.

If you have any questions, please contact me at (269) 465-5901, ext. 1153.

Sincerely,

John P. Carlson
Environmental Manager

c: Jon Vollmer - MDEQ Plainwell
Sylvia Heaton - MDEQ Lansing

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this and all attached documents, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

J. P. Carlson
Environmental Manager

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

January 24, 2008

Indiana Michigan Power Company
One Cook Place
Bridgman, MI 49106

Dear Permittee:

SUBJECT: Notification to Reapply for National Pollutant Discharge Elimination System (NPDES) Permit, **MI0005827**

Our records indicate that American Electric Power Company, Donald C. Cook Nuclear Plant was issued an NPDES discharge permit, Permit No. MI0005827, on 9/24/2004, pursuant to Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). This authorization to discharge will expire on 10/1/2008. In order to retain the authorization to discharge beyond the expiration date, Indiana Michigan Power Company shall submit the information and forms required by the Department of Environment Quality (DEQ) to the Water Bureau no later than 180 days prior to the expiration date noted above.

To fulfill the reapplication requirements, you need to complete a State of Michigan NPDES Permit Application form with a revision date of January 2008. The Application and Appendix may be downloaded from the internet at www.michigan.gov/deq. In the left column click on **water**, then **surface water**. In the right column, click on **How to Apply for an NPDES Permit**. To access the documents, click on **Permit Application for Surface Water Discharge** and/or **Permit Application Appendix**. If you do not have access to the internet, please contact the Permits Section at 517-241-1346, and an Application form and Appendix will be sent to you. You must complete all the items on the form that are applicable to your discharge. An incomplete application does not fulfill the reapplication provisions of your permit.

Act 451 requires an Application fee when submitting an Application for reissuance of an NPDES permit. The fee for your facility is **$750**. **This fee must accompany the Application in order for the DEQ to consider the Application complete. Please make sure that the facility's NPDES Permit number and the designation "WB-NP2" appear on the check.**

Please complete the required forms and submit them to our office with the Application fee by **April 4, 2008**.

If you have any questions regarding this letter, please contact me at 517-335-4129.

Sincerely,

Kevin C. Cook

Kevin Cook
Permits Section
Water Bureau
cookk@michigan.gov

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
KALAMAZOO DISTRICT OFFICE

NIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

February 12, 2008

Mr. Blaire Zordell
Cook Nuclear Plant
One Cook Plaza
Bridgman, Michigan 49106

Dear Mr. Zordell:

SUBJECT: Application Renewal for NPDES Permit
National Pollutant Discharge Elimination System (NPDES) No. MI0005827
Designated Name: American Elec Power–Cook Plt, Berrien County

We have reviewed the information provided in your letter of February 21, 2007. In that letter, you requested that the data from representative outfalls be used in the permit application submittal to characterize effluent characteristics for similar outfalls. We approve your request as follows:

1. Effluent from Outfall 001 will be considered representative of outfalls 001, 002, and 003.

2. Effluent from Outfall 00B will be considered representative of Outfalls 00A, 00B, and 00C.

Please feel free to contact me if you have any questions.

Sincerely,

John Vollmer
Environmental Quality Analyst
Kalamazoo District Office
Field Operations Division
Water Bureau
269-567-3576

jv/dms

cc: Mr. Dan Dell, DEQ
Mr. Michael Walterhouse, DEQ

2008-158

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

Section I shall be completed by all permit applicants. Instructions for completing Section I, Pages 1 and 2, are on Page 2 of the Appendix. To submit additional information, see Page ii, Item 3.

Water Bureau Use Only	Cashier Use Only: 37000-40535-9412-481000-00
Receipt #:	
Permit ID #:	

PLEASE TYPE OR PRINT

1. NPDES PERMIT NUMBER
MI 0005827

2. APPLICANT

Applicant Name
Indiana Michigan Power Company

Address	Address 2 or P.O. Box
One Cook Place	NA

City	State	ZIP Code
Bridgman	MI	49106

Telephone (with area code)	FAX (with area code)	Applicant Web Address
(269) 465-5901	(269) 466-2550	http://www.aep.com/

3. FACILITY

Facility Name 1
Donald C. Cook Nuclear Plant

Facility Name 2
NA

Facility Name 3
NA

Street Address (do not use a P.O. Box Number)
One Cook Place

City	State	ZIP Code
Bridgman	MI	49106

Telephone (with area code)	FAX (with area code)	Facility Web Address
(269) 465-5901	(269) 466-2550	http://www.aep.com/

4. CONTACTS

☐ Application Contact
☒ Facility Contact
☒ Discharge Monitoring Reports
☒ Storm Water Billing
☐ Biosolids Billing
☐ NPDES Annual Billing

First Name	Last Name
Jon	Harner
Title	**Business**
Environmental Manager	NA
Address 1	**Address 2**
One Cook Place	Environmental Department 5A

City	State	ZIP Code
Bridgman	MI	49106

Telephone (with area code)	FAX (with area code)	e-mail address
(269) 465-5901 x 2102	(269) 466-2550	jhharner@aep.com

☒ Application Contact
☐ Facility Contact
☐ Discharge Monitoring Reports
☐ Storm Water Billing
☐ Biosolids Billing
☐ NPDES Annual Billing

First Name	Last Name
Blair	Zordell
Title	**Business**
Environmental Specialist	NA
Address 1	**Address 2**
One Cook Place	Environmental Department 5A

City	State	City
Bridgman	MI	49106

Telephone (with area code)	FAX (with area code)	e-mail address
(269) 465-5901 x 2006	(269) 466-2550	bkzordell@aep.com

☐ Application Contact
☐ Facility Contact
☐ Discharge Monitoring Reports
☐ Storm Water Billing
☐ Biosolids Billing
☐ NPDES Annual Billing

First Name	Last Name
NA	NA
Title	**Business**
NA	NA
Address 1	**Address 2**
NA	NA

City	State	City
NA	NA	NA

Telephone (with area code)	FAX (with area code)	e-mail address
NA	NA	NA

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER
Donald C. Cook Nuclear Plant	MI0005827

5. PERMIT ACTION REQUESTED (Check one box only) - Instructions for this item are on Page 2 of the Appendix.

- ☐ **NEW USE** A proposed discharge.
- ☐ **EXISTING DISCHARGE** that is currently unpermitted.
- ☒ **REISSUANCE** of current permit.
- ☐ **MODIFICATION** of current permit. Attach a description of the proposed modification.

Note: Applications for **New Use** discharges, **Existing Discharges** that are currently unpermitted and applications for either **Reissuance** or **Modification** that include an increased loading of pollutants to the receiving water are required to submit a Rule 98 Demonstration with the Application. See Item 6.

6. RULE 98 - ANTIDEGRADATION REQUIREMENTS - Instructions for this item are on Page 2 of the Appendix.

In accordance with Rule 323.1098 of the Michigan Water Quality Standards, the applicant is required to submit an Antidegradation Demonstration for any new or increased loading of pollutants to the surface waters of the state. An Antidegradation Demonstration must contain the information specified in Rule 1098, outlined in the Antidegradation section of the Appendix. For assistance in completing this item, contact the Permits Section.

Will this discharge be an increased loading of pollutants to the surface waters of the state? ☐ Yes, continue below. ☒ No.

☐ Antidegradation Demonstration provided. ☐ Increased loading of pollutants is exempt from Antidegradation Demonstration as indicated below:

- ☐ A short-term (weeks to months) or temporary lowering of water quality.
- ☐ Bypasses that are not prohibited by regulations set forth in 40 CFR §122.41(m).
- ☐ Response actions undertaken to alleviate a release of pollutants into the environment that may pose an imminent and substantial danger to the public health or welfare.
- ☐ Discharges of pollutant quantities from the intake water at a facility if the intake and discharge are to the same body of water.
- ☐ Increases in flow, if the increase is within the design flow of the facility, it is not specifically authorized in the current permit, and there is no significant change expected in the characteristics of the wastewater collected.
- ☐ Intermittent increased loading related to wet-weather conditions.
- ☐ New or increased loading due to MDEQ-approved controls related to wet-weather conditions.
- ☐ Discharges authorized by certificates of coverage and notices of coverage.
- ☐ Increased loadings within the authorized levels of a limit in an existing control document, except those loadings that result from actions by the permittee that would otherwise require submittal of an increased use request.
- ☐ Increased loadings of a pollutant which do not involve a Bioaccumulative Chemicals of Concern (BCC) and which use less than 10 percent of the unused loading capacity that exists at the time of the request.

7 ADDITIONAL FACILITY LOCATION INFORMATION - Instructions for this item are on Page 2 of the Appendix. ☐ **No Change From Last Application**

A	Local Unit of Government (LUG) Lake Township				LUG e-mail address laketwp@wmis.net	
B	County Berrien				Township Lake	
C.	Town O6S	Range 19W	Section 06	¼ NW	¼, ¼ SW	Private (French) Land Claim
D.	Latitude 41 58' 32.07"				Longitude -86 33' 54.87"	

8. CERTIFIED OPERATOR ☐ **No Change From Last Application**

Does the facility have an MDEQ certified operator? ☒ Yes ☐ No Instructions for this item are on Page 2 of the Appendix.

First Name Blair		Last Name Zordell	
Certification Number 4537		Certification Classification(s) A-1d, A-1h, A-2e, B-1b, B-2a, C-2e	
Address 1 One Cook Place		Address 2 Environmental Department 5A	
City Bridgman		State MI	Zip Code 49106
Telephone Number (269) 465-5901 x 2006	Fax Number (269) 466-2550	e-mail address bkzordell@aep.com	

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

PLEASE TYPE OR PRINT

..ITY NAME	NPDES PERMIT NUMBER
Donald C. Cook Nuclear Plant	MI0005827

9. OTHER ENVIRONMENTAL PERMITS ☐ No Change From Last Application

Provide the information requested below for any other federal, state, or local environmental permits in effect or applied for at the time of submittal of this Application Form; including, but not limited to, permits issued under any of the following programs: Air Pollution Control, Hazardous Waste Management, Wetlands Protection, Soil Erosion and Sedimentation Control, and other NPDES permits. To submit additional information, see Page ii, Item 3.

Issuing Agency	Permit or COC Number	Permit Type
MDEQ -WMD	GW1810102	Groundwater Discharge
USACE -	LRE-2001-561367-N07	Excavation on Lake Bottom
Berrien County Drain Commission	5753	Soil and Erosion
MDEQ Geological and Land Management Divison	94-BR-321-C	Crit Dunes
MDEQ Geological and Land ManagementDivision	03-11-0127-P	Part 325 Submerged Land
USACE	69-056-004-7	Dept of Army Permit
MDEQ- Air quality Division	460-93,34-05,260-03,	Air use permits

10. WATER FLOW DIAGRAM AND NARRATIVE DESCRIPTION ☐ No Change From Last Application

Provide a flow diagram **(using 8½" x 11" paper if possible)** showing the wastewater flow through the facility (from intake through discharge), including all processes, treatment units (identify treatment units that operate intermittently), and bypass piping, and include a narrative description that explains the diagram. Show all operations contributing wastewater and the locations of flow meters, chemical feeds, and monitoring and discharge points. The water balance shall show the daily average flow rates at the intake and discharge points, and approximate daily flow rates between treatment units, including influent and treatment rates. Use actual measurements whenever available, otherwise use the best estimate. Show all significant losses of water to products, atmosphere, and discharge. In addition, provide a flow diagram for any storm water discharges from secondary structures that are required by state or federal law, and for storm water runoff from any Site of Environmental Contamination, pursuant to Part 201 of the Michigan Act. **Do not send blueprints.**

Do the treatment facility processes described above include any lagoons or ponds used for wastewater treatment or storage? ☒ Yes ☐ No
If yes, include the ponds or lagoons in the flow diagram.

Municipal Facilities - Include a narrative that briefly describes the history of the wastewater treatment facility and collection system, including the initial construction, the facility improvements that have been made, future plans for upgrade, the location of all constructed emergency overflows, and other pertinent information.

Industrial and Commercial Facilities - The line diagram shall include all operations contributing wastewater, including process and production areas, sanitary flows, cooling water, and storm water runoff. **Also include a narrative** that provides a brief description of the nature of the business and the manufacturing processes.

ATTACH THIS INFORMATION TO THIS APPLICATION. PLEASE DO NOT BIND THIS INFORMATION.

11. MAP OF FACILITY AND DISCHARGE LOCATION ☐ No Change From Last Application

Provide a detailed map on 8½" x 11" paper showing the location of the existing or proposed facility, wastewater and biosolid treatment system(s), and wastewater monitoring and discharge points into receiving waters (including bypasses). Include the exact location of the wastewater monitoring and discharge point(s) and all areas through which the discharge flows (e.g., wetlands, open drains, storm sewers), if applicable, between the discharge point and the receiving water. If the discharge is to a storm sewer, label the storm sewer and show its flow path to the receiving water. Also include the location of any water supply intakes or wells, and groundwater monitoring wells. This map shall be a United States Geological Survey quadrangle (7.5 minute series) or other map of comparable detail, scale, and quality (which shows surface water bodies, roads, bathing beaches, and other pertinent landmarks). **It is preferred that the minimum area this map shall encompass is approximately one mile beyond the property boundaries.**

ATTACH THIS INFORMATION TO THIS APPLICATION.

Michigan Department Of Environmental Quality-Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

Section 9. OTHER ENVIRONMENTAL PERMITS

Supplemental information

Issuing Agency	Permit or COC Number	Permit Type
USEPA	MID098647621	Hazardous Waste
MDEQ	91084649 PR-0050-05	Above Ground Storage Tank (AOT Generators)
MDEQ	91084649 PR-0367-06	Above Ground Storage Tank (Contingency Boiler)
MDEQ	07-11-0145-P	Part 325 Great Lakes Submerged Lands. (fish avoidance repair)

Section I, Item 1C
MI0005827

Outfall	Description	2006-2007 AVG Flow in MGD
NA	Inlet - Lake Twp Water Source	0.042
001	U-1 Circ. Water	974
002	U-2 Circ. Water	1137
003	De Ice	-
00A	U-1 SG Blowdown	0.118
00B	U-2 SG Blowdown	0.240
00C	Htg Blr Discharge	0.00001
00D	TRS Discharge	0.407
00E	Sewage Treatment Plant	0.020
00G	RO Reject Flow	0.264
00H	TRS Emergency Overflow	0.00008

WASTEWATER FLOW DIAGRAM

DONALD C. COOK NUCLEAR PLANT

DEFINITIONS
NESW-NONESSENTIAL SERVICE WATER
ESW-ESSENTIAL SERVICE WATER
MDT-MISC. DRAIN TANK
Chemical Addition points

OUTFALL 001
U1 CIRCULATING WATER
DISCHARGE 1200' OFFSHORE

OUTFALL 002
U2 CIRCULATING WATER
DISCHARGE 1200' OFFSHORE

OUTFALL 003
INTAKE CRIBS 2250' OFFSHORE

INTAKE CRIBS 2250' OFFSHORE

INTAKE CRIBS 2259' OFFSHORE

LAKE MICHIGAN

UNIT 1 DISCHARGE BAY

UNIT 2 DISCHARGE BAY

INTAKE FOREBAY

INTAKE FOREBAY

ESW 28.8 MGD

NESW 13.0 MGD

ESW 28.8 MGD

NESW 13.0 MGD

UNIT 1 STEAM CONDENSER

UNIT 2 STEAM CONDENSER

DRAINING

CONDENSATE SYSTEM DRAINS

DRAINING

CONDENSATE SYSTEM DRAINS

FROM MAKE-UP WATER PLANT

CONDENSATE SYSTEM

OFFICE BLDG. & RPAC TRANSFORMER CATCHBASIN DRAINS

CONDENSATE STORAGE TANK EMERGENCY DRAINS

SECURITY DIESEL NON-CONTACT COOLING WATER

OUTFALL 00B STORMWATER

Carbohydrazide Ethanolamine addition

ALTERNATE HEATING BOILER

HEATING BOILER

FIRE PROTECTION

LAKE TOWNSHIP POTABLE WATER SUPPLY

LAYUP DRAINS TO TURBINE ROOM SUMP

OUTFALL 00C

NORMAL FLASH TANK

START-UP FLASH-TANK

PLANT SITE SANITARY & KITCHEN WASTE

RADIOGRAPHIC PROCESSING LABORATORY WASTE

PHOTO LAB

TRAINING BUILDING CHEMISTRY LAB WASTE

TRAINING BUILDING HVAC SYSTEM WASTE

LIMESTONE BED AND NEUTRALIZATION TANK

EAST EXTENDED AERATION PLANT

SEQUENCING BATCH REACTOR

OUTFALL 00E

(Seepage Lagoon)

PROCESSED GLYCOL

CLOSED COOLING LOOP SYSTEM DRAINS

MONITOR TANKS

PROCESSED AUXILIARY BLDG WATER

ICEMELT AND BATCHING OPERATIONS

OUTFALL 00A

OUTFALL 00H

OUTFALL 00G

RO SYSTEM REJECT

Sodium Hypochlorite

NONESSENTIAL SERVICE WATER

Sodium Bisulfite Sulfuric Acid addition

MISC. LOADS

4 STORMWATER ROADWAY DRAINS

OUTFALL 00B

DRAINING/MDT OVERBOARDING 0.35MGD

DRAINING/MDT OVERBOARDING 0.35MGD

UNIT 1 STEAM GENERATOR

UNIT 1 COMPONENT COOLING WATER DRAINING

LAYUP DRAINS

Carbohydrazide Ethanolamine addition

EMERGENCY OVERFLOW

MAKE-UP WATER PLANT

NEUTRALIZATION TANK

TURBINE ROOM SUMP

UNIT 2 STEAM GENERATOR

UNIT 2 COMPONENT COOLING WATER DRAINING

IN-PLANT SUMPS MISC. FLOOR DRAINS 0.045 MGD

LAYUP DRAINS

MISC. SECONDARY SYSTEM SAMPLE RACK DRAINS 0.0065 MGD

NON-RADIOLOGICAL CHEMISTRY LAB DRAINS

EMERGENCY DIESEL JACKET WATER DRAINS

Neutralization Chemicals: Sodium Hydroxide and Sulfuric Acid.

OUTFALL 00D

(Seepage Lagoon)

NORMAL FLASH-TANK

START-UP FLASH-TANK

SOUTH SECURITY TRANSFORMER CATCHBASIN DRAINS

CONDENSATE STORAGE TANK EMERGENCY DRAINS

OUTFALL 001 STORMWATER

OUTFALL 002 STORMWATER

OUTFALL 003 STORMWATER

* In addition to Stormwater outfall sources as listed, typical drainage sources such as rooftops, Parking lots, Roadways exist as detailed in the Cook Plant SWPPP.

UNIT 1/UNIT 2 MAIN TRANSFORMER DECK DRAINS (STORMWATER)

UNIT 1/UNIT 2 CATCHBASIN OIL/WATER SEPARATOR

UNIT1/UNIT2 DRY WELLS

GROUNDWATER

Section I, Item 1.J
MI0005827

Outfall	Description	2006-2007 AVG Flow in MGD
NA	Inlet - Lake Twp Water Source	0.042
001	U-1 Circ. Water	974
002	U-2 Circ. Water	1137
003	De Ice	-
00A	U-1 SG Blowdown	0.116
00B	U-2 SG Blowdown	0.240
00C	Htg Blr Discharge	0.00001
00D	TRS Discharge	0.407
00E	Sewage Treatment Plant	0.020
00G	RO Reject Flow	0.264
00H	TRS Emergency Overflow	0.00008

WASTEWATER FLOW DIAGRAM

DONALD C. COOK NUCLEAR PLANT

DEFINITIONS
NESW-NONESSENTIAL SERVICE WATER
ESW-ESSENTIAL SERVICE WATER
MDT-MISC. DRAIN TANK
Chemical Addition points

OUTFALL 001
U1 CIRCULATING WATER
DISCHARGE 1200' OFFSHORE

OUTFALL 002
U2 CIRCULATING WATER
DISCHARGE 1200' OFFSHORE

OUTFALL 003
INTAKE CRIBS 2250' OFFSHORE

INTAKE CRIBS 2250' OFFSHORE

INTAKE CRIBS 2250' OFFSHORE

LAKE MICHIGAN

UNIT 1 DISCHARGE BAY

UNIT 2 DISCHARGE BAY

INTAKE FOREBAY

INTAKE FOREBAY

ESW 28.8 MGD

NESW 13.0 MGD

NESW 13.0 MGD

ESW 28.8 MGD

UNIT 1 STEAM CONDENSER

UNIT 2 STEAM CONDENSER

UNIT 1 STEAM GENERATOR

UNIT 2 STEAM GENERATOR

FLOW METER

FLOW METER

FLOW METER

FLOWMETER

DRAINING

DRAINING/MDT OVERBOARDING 0.35MGD

DRAINING/MDT OVERBOARDING 0.36MGD

DRAINING

CONDENSATE SYSTEM DRAINS

CONDENSATE SYSTEM DRAINS

EMERGENCY OVERFLOW

RO SYSTEM REJECT

NONESSENTIAL SERVICE WATER

LAYUP DRAINS

LAYUP DRAINS

Carbohydrazide Ethanolamine addition

Carbohydrazide Ethanolamine addition

Sodium Hypochlorite

Sodium Bisulfite Sulfuric Acid addition

PROCESSED GLYCOL

CLOSED COOLING LOOP SYSTEM DRAINS

PROCESSED AUXILIARY BLDG WATER

ICEMELT AND BATCHING OPERATIONS

MONITOR TANKS

MISC. LOADS

4 STORMWATER ROADWAY DRAINS

OUTFALL 00A

OUTFALL 00B

OUTFALL 00C

OUTFALL 00E (Seepage Lagoon)

OUTFALL 00G

OUTFALL 00H

OUTFALL 00D (Seepage Lagoon)

FIRE PROTECTION

LAKE TOWNSHIP POTABLE WATER SUPPLY

ALTERNATE HEATING BOILER

HEATING BOILER

LAYUP DRAINS TO TURBINE ROOM SUMP

FROM MAKE-UP WATER PLANT

CONDENSATE SYSTEM

OFFICE BLDG. & RPAC TRANSFORMER CATCHBASIN DRAINS

CONDENSATE STORAGE TANK EMERGENCY DRAINS

SECURITY DIESEL NON-CONTACT COOLING WATER

0015 STORMWATER*

NORMAL FLASH TANK

START-UP FLASH-TANK

NORMAL FLASH-TANK

START-UP FLASH-TANK

PLANT SITE SANITARY & KITCHEN WASTE

RADIOGRAPHIC PROCESSING LABORATORY WASTE

PHOTO LAB

TRAINING BUILDING CHEMISTRY LAB WASTE

TRAINING BUILDING HVAC SYSTEM WASTE

LIMESTONE BED AND NEUTRALIZATION TANK

EAST EXTENDED AERATION PLANT

SEQUENCING BATCH REACTOR

MAKE-UP WATER PLANT

NEUTRALIZATION TANK

TURBINE ROOM SUMP

UNIT 1 COMPONENT COOLING WATER DRAINING

UNIT 2 COMPONENT COOLING WATER DRAINING

MISC. SECONDARY SYSTEM SAMPLE RACK DRAINS 0.0085 MGD

NON-RADIOLOGICAL CHEMISTRY LAB DRAINS

EMERGENCY DIESEL JACKET WATER DRAINS

Neutralization Chemicals: Sodium Hydroxide and Sulfuric Acid.

IN-PLANT SUMPS MISC. FLOOR DRAINS 0.045 MGD

0025 STORMWATER*

0038 STORMWATER*

0048 STORMWATER*

SOUTH SECURITY TRANSFORMER CATCHBASIN DRAINS

CONDENSATE STORAGE TANK EMERGENCY DRAINS

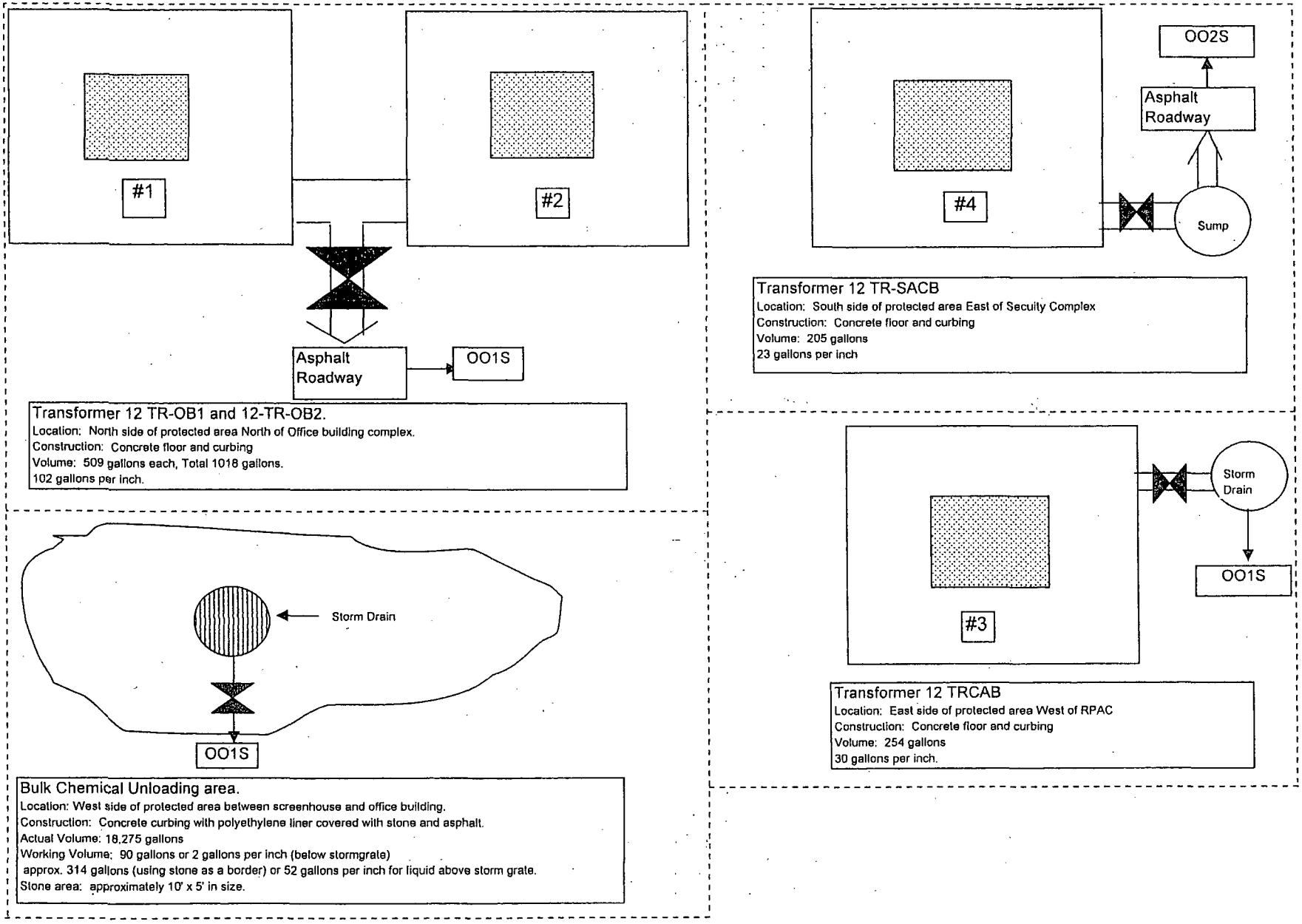
* In addition to Stormwater outfall sources as listed, typical drainage sources such as rooftops, Parking lots, Roadways exist as detailed in the Cook Plant SWPPP.

UNIT 1/UNIT 2 MAIN TRANSFORMER DECK DRAINS (STORMWATER)

UNIT 1/UNIT 2 CATCHBASIN OIL/WATER SEPARATOR

UNIT 1/UNIT 2 DRY WELLS

GROUNDWATER


#1
#2
Asphalt Roadway
OO1S
Transformer 12 TR-OB1 and 12-TR-OB2.
Location: North side of protected area North of Office building complex.
Construction: Concrete floor and curbing
Volume: 509 gallons each, Total 1018 gallons.
102 gallons per inch.
#4
OO2S
Asphalt Roadway
Sump
Transformer 12 TR-SACB
Location: South side of protected area East of Secuity Complex
Construction: Concrete floor and curbing
Volume: 205 gallons
23 gallons per inch
Storm Drain
OO1S
Bulk Chemical Unloading area.
Location: West side of protected area between screenhouse and office building.
Construction: Concrete curbing with polyethylene liner covered with stone and asphalt.
Actual Volume: 18,275 gallons
Working Volume: 90 gallons or 2 gallons per inch (below stormgrate)
approx. 314 gallons (using stone as a border) or 52 gallons per inch for liquid above storm grate.
Stone area: approximately 10' x 5' in size.
#3
Storm Drain
OO1S
Transformer 12 TRCAB
Location: East side of protected area West of RPAC
Construction: Concrete floor and curbing
Volume: 254 gallons
30 gallons per inch.

SECTION I, ITEM 10 Cont'd

NPDES Waste Stream Narrative

This narrative describes all outfalls discharging to Lake Michigan. Flows are based on a review of previous NPDES applications, Plant system descriptions, or previously submitted Discharge Monitoring Reports (DMR). The chemical additives described below may include a manufacturer's name as an example of the type of product used in a specific system. Indiana Michigan Power may substitute vendors of chemical additives provided that the chemical ingredients are similar. Discharge values are based on maximum release rates and volumes, dilution rates are based on a minimum number of pumps running.

OUTFALL 001 - Unit 1 Circulating Water Discharge

Outfall 001 is a non-contact cooling water discharge. The majority of non-contact cooling water (Circulating Water System, ~690,000 GPM) is used to condense the steam exhausting from steam driven turbines. Non-contact cooling water is drawn from Lake Michigan approximately one-half mile from shore through three 16 ft. diameter tunnels. Water enters the tunnels via intake cribs at an approximate velocity of 1.3 feet per second. The water enters to a forebay where it is screened to remove large debris that may be entrained in the water. It is routed through the Unit 1 condensers and then discharged to Lake Michigan through a 16 foot diameter tunnel. The water exits the tunnels through high velocity discharges at a rate of approximately 13 feet per second approximately 1/4 mile from shore. Outfall 001 also includes internal Outfalls (as designated by the Michigan Department of Environmental Quality) Steam Generator Blowdown (00A, 00B), Plant Heating Boiler (00C), Reverse Osmosis Unit (00G), and the Turbine Room Sump Emergency Overflow (00H) described in detail later in this document.

Outfall 001 also may contain the effluent flow from both Units' Essential Service Water (ESW) systems, both Units' Non-Essential Service Water (NESW) system, and monitor tank releases. ESW (~40,000 GPM) is Lake Michigan water taken from the forebay that is used to provide cooling to safety-related equipment. NESW (~18,000 GPM) is also Lake Michigan water taken from the forebay used for

non-contact cooling for various plant systems including oil coolers, a source of water for the demineralized makeup system (MUP), and a water supply for non-safety related equipment. Monitor tank releases (~15,000 to 20,000 gallons per event) are regulated by the NRC and consist of wastewater from various system and equipment leakage that may be generated within the auxiliary building area. Minor leakage from systems containing lube oil, hydrazine, carbohydrazide, ethanolamine or closed-loop cooling systems containing a maximum concentration of gluteraldehyde (100 ppm), methyl (bis) thiocyanate (10 ppm), tolyltriazole (60 ppm), Molybdate (1000 ppm), and nitrite (1200 ppm), may be discharged via monitor tank releases.

The non-contact cooling water for the Circulating Water, the ESW and the NESW, and Miscellaneous Sealing and Cooling Water Systems is treated for biological control using sodium hypochlorite. This same water is periodically treated using a non-oxidizing biocide to eradicate zebra mussels from the cooling systems. The biocides (Betz Spectrus CT-1300, Calgon H-130M, Calgon EVAC and NALCO Macro-Trol 9380) are polyquats, and are used as required to protect plant systems while meeting water quality based effluent limits. The treatments can be directed to various critical plant systems from the intake structures through the entire plant cooling system, including the Circulating Water System, ESW and NESW systems and other non-contact cooling water. The biocide may be added to the systems via a chemical injection pipeline through a ring header located inside the intake crib, or directly applied at a specific system. A chemical injection pipeline may be installed and is designed to feed chemicals from inside the plant. The intake chemical injection header may be stored with chemical inside the pipe to prevent zebra mussel infestation. The header may also be leak checked using approved dyes such as fluorescein, or other indicators such as Nalco Trasar 23299. Non-contact cooling systems biocide treatments are dependent upon zebra mussel infestation. Concentrations and chemical feed points are chosen to minimize the amount of biocide required and to maximize the efficacy on zebra mussels. Bentonite clay may be added to detoxify the biocide prior to discharge. The plant non-contact cooling water systems may be treated concurrently or individually to allow more efficient use of chemicals. Plant systems are treated to assure safe operation of the nuclear generating units.

The piping used to apply chemicals is regularly cleaned of calcium carbonate scale buildup. A small amount of weak acid cleaner such as Betz FerroQuest FQ LP 7200 may be used to remove accumulated carbonate scale deposits. The accumulated deposits will be discharged via Outfalls 001/003. Circulating water will dilute the weak acid prior to discharge to Lake Michigan.

Condensate flushes are performed periodically to purge the plant's secondary water system from layup chemistry specifications during shutdown conditions to startup chemistry specifications prior to startup of the unit. Water containing up to 4 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], 10 ppm carbohydrazide (NALCO 1250 plus, or equivalent), 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), is overboarded to Outfall 001 as required to remove contaminants to meet desired startup secondary Chemistry specifications. This flowrate averages 70 GPM, but may reach 600 GPM for short periods of time. The flowrate is dependent on chemistry specification parameters and makeup water availability. The maximum output from the MUP is approximately 600 GPM or 864,000 GPD. (See Outfalls 00A, 00B for further description.)

Monitor tanks receive treated water from the auxiliary building radioactive waste removal system and other sources such as ice production and removal processes from the ice condenser systems and other radioactively contaminated wastes generated at the facility. This system handles wastes generated from the reactor coolant pump seal leakoffs, the refueling cavity water, equipment leaks, floor drains, valve stem leakoffs, system sampling, and waste sample solutions. It also handles laboratory wastes from the radiochemistry analysis in the hot chemical laboratory, system equipment drains, non-contact cooling water, ice production/removal and decontamination processes and any contaminated liquid waste generated in the auxiliary building area. The wastes are collected in one of several tanks and are treated when enough water is collected. The treatment utilizes a demineralizer system to minimize radioactive contaminants. A small amount of wastewater may bypass the treatment because it cannot be processed by resin.

Other special drains of non-radioactive process water systems such as Component Cooling Water system flushes with biocides such as gluteraldehyde (100 ppm), methyl (bis) thiocyanate (10 ppm), tolyltriazole (60 ppm), Molybdate (1000 ppm) and nitrite (1200 ppm), and borated icemaking/ice removal operations, can be routed directly to the plant's monitor tanks without treatment. For maintenance purposes to prevent microbial growth, Component Cooling Water flushes are performed generating approximately 281,000 gallons per year of flushwater to the monitor tanks.

Borated icemaking/ice removal operations occur for maintenance of the plant's ice condenser systems. This process produces a solution of sodium tetraborate (approximately 2200 ppm as boron) that can be drained to the monitor tanks. This process takes place approximately every 18 months and may produce up to 70,000 gallons of sodium tetraborate solution.

Both the treated wastewater and the special drains are accumulated in the monitor tanks and sampled to ensure the waste meets the radiological requirements prior to being discharged into the Circulating Water System.

Periodically, due to equipment leaks and/or system upsets, a waste stream is generated that contains radioactively contaminated ethylene glycol and water. Incidental amounts of ethylene glycol generated from equipment leaks may be drained directly to the monitor tanks or treated by the radwaste processing system. Small amounts of ethylene glycol may be discharged to outfalls 001, 002, or 003.

Sulfur hexafluoride gas (SF6) is utilized in the non-contact cooling water systems at the plant to detect leaks in various components such as the condensers. The gas is injected in the cooling water stream and discharged to outfalls 001, 002 or 003 at less than 54 ul/l.

Aryl sulfate liquid (NALCO Trasar 23299) is utilized in the non-contact cooling water systems at the plant to determine flow through various parts of the system. The liquid is injected into the service water system to reach a target concentration of approximately 2 mg/l. The service water is discharged to Outfalls 001, 002, or 003, which would, in turn, discharge at less than 0.15 mg/l. The liquid is also injected into the circulating water system to reach a target concentration of approximately 2 mg/l.

Control Room Air Conditioning (CRAC) testing: Approximately 1440 gallons/yr. of CRAC water may mix with ESW and then be discharged to the forebay during a monthly test of the system. CRAC water is demineralized water, and may contain up to: 2000 ppm nitrite [Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 100 ppm gluteraldehyde [from Betz Biotrol 107 (Spectrus NX 1105), Calgon H-300, or equivalent], 60 ppm tolyltriazole [from Calgon LCS-60, Betz AZ8101, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 10 ppm methyl (bis) thiocyanate (from Betz 3610), 1000 ppm molybdate from Betz Corrshield MD 4103, and Betz Ferroquest FQ7101 and FQ7102 for CRAC HX cleaning.

Three roadway storm drains route small amounts of stormwater from a small section of roadway that traverses over the Circulating Water Forebay. The three storm drains are designed to route accumulated stormwater from this small roadway to the forebay below. A small amount of de-icing compound used on this section of road could potentially enter these small (Approximately 8") gratings. Screened material collected from the plant's intakes is also stored in this area in designated trash dumpsters. Fish exudiates are now drained to the forebay as recommended by the MDEQ stormwater and NPDES inspection team (M. Fields and J. Molloy 1997).

During upset conditions it is possible to overflow the contents of the Turbine Room Sump (See Outfall 00H) to Outfalls 001, 002 and/or 003 if the flow path to the on-site absorption pond cannot be used.

OUTFALL 002 - Unit 2 Circulating Water Discharge

Outfall 002 is a non-contact cooling water discharge. The majority of non-contact cooling water (Circulating Water System, ~920,000 GPM) is used to condense the steam exhausting from steam driven turbines. Non-contact cooling water is drawn from Lake Michigan approximately one-half mile from shore through three 16 ft. diameter tunnels. Water enters the tunnels via intake cribs at an approximate velocity of 1.3 feet per second. The water enters to a forebay where it is screened to remove large debris that may be entrained in the water. It is routed through the Unit 2 condensers and then discharged to Lake Michigan through an 18 foot diameter tunnel. The water exits the tunnels through high velocity discharges at a rate of approximately 13 feet per second approximately 1/4 mile from shore. Outfall 002 also includes internal Outfalls (as designated by the Michigan Department of Environmental Quality) Steam Generator Blowdown (00A, 00B), Plant Heating Boiler (00C), Reverse Osmosis Unit (00G), and the Turbine Room Sump Emergency Overflow (00H) described in detail later in this document.

Outfall 002 also may contain the effluent flow from both Units' Essential Service Water (ESW) systems, both Units' Non-Essential Service Water (NESW) system, and monitor tank releases. ESW (~40,000 GPM) is Lake Michigan water taken from the forebay that is used to provide cooling to safety-related equipment. NESW (~18,000 GPM) is also Lake Michigan water taken from the forebay used for

non-contact cooling for various plant systems including oil coolers, a source of water for the demineralized makeup system (MUP), and a water supply for non-safety related equipment. Monitor tank releases (~15,000 to 20,000 gallons per event) are regulated by the NRC and consist of wastewater from various system and equipment leakage that may be generated within the auxiliary building area. Minor leakage from systems containing lube oil, hydrazine, carbohydrazide, ethanolamine or closed-loop cooling systems containing a maximum concentration of gluteraldehyde (100 ppm), methyl (bis) thiocyanate (10 ppm), tolyltriazole (60 ppm), Molybdate (1000 ppm), and nitrite (1200 ppm), may be discharged via monitor tank releases.

The non-contact cooling water for the Circulating Water, the ESW and the NESW, and Miscellaneous Sealing and Cooling Water Systems is treated for biological control using sodium hypochlorite. This same water is periodically treated using a non-oxidizing biocide to eradicate zebra mussels from the cooling systems. The biocides (Betz Spectrus CT-1300, Calgon H-130M, Calgon EVAC and NALCO Macro-Trol 9380) are polyquats, and are used as required to protect plant systems while meeting water quality based effluent limits. The treatments can be directed to various critical plant systems from the intake structures through the entire plant cooling system, including the Circulating Water System, ESW and NESW systems and other non-contact cooling water. The biocide may be added to the systems via a chemical injection pipeline through a ring header located inside the intake crib, or directly applied at a specific system. A chemical injection pipeline may be installed and is designed to feed chemicals from inside the plant. The intake chemical injection header may be stored with chemical inside the pipe to prevent zebra mussel infestation. The header may also be leak checked using approved dyes such as fluorescein, or other indicators such as Nalco Trasar 23299. Non-contact cooling systems biocide treatments are dependent upon zebra mussel infestation. Concentrations and chemical feed points are chosen to minimize the amount of biocide required and to maximize the efficacy on zebra mussels. Bentonite clay may be added to detoxify the biocide prior to discharge. The plant non contact cooling water systems may be treated at the concurrently or individually to allow more efficient use of chemicals. Plant systems are treated to assure safe operation of the nuclear generating units.

The piping used to apply chemicals is regularly cleaned of calcium carbonate scale buildup. A small amount of weak acid cleaner such as Betz FerroQuest FQ LP 7200 may be used to remove accumulated carbonate scale deposits. The accumulated deposits will be discharged via Outfalls 002/003. Circulating water will dilute the weak acid prior to discharge to Lake Michigan.

Condensate flushes are performed periodically to purge the plant's secondary water system from layup chemistry specifications during shutdown conditions to startup chemistry specifications prior to startup of the unit. Water containing up to 4 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], 10 ppm carbohydrazide (NALCO 1250 plus, or equivalent), 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), is overboarded to Outfall 002 as required to remove contaminants to meet desired startup secondary Chemistry specifications. This flowrate averages 70 GPM, but may reach 600 GPM for short periods of time. The flowrate is dependent on chemistry specification parameters and makeup water availability. The maximum output from the MUP is approximately 600 GPM or 864,000 GPD. (See Outfalls 00A, 00B for further description.)

Monitor tanks receive treated water from the auxiliary building radioactive waste removal system and other sources such as ice production and removal processes from the ice condenser systems and other radioactively contaminated wastes generated at the facility. This system handles wastes generated from the reactor coolant pump seal leakoffs, the refueling cavity water, equipment leaks, floor drains, valve stem leakoffs, system sampling, and waste sample solutions. It also handles laboratory wastes from the radiochemistry analysis in the hot chemical laboratory, system equipment drains, non-contact cooling water, ice production/removal and decontamination processes and any contaminated liquid waste generated in the auxiliary building area. The wastes are collected in one of several tanks and are treated when enough water is collected. The treatment utilizes a demineralizer system to minimize radioactive contaminants. A small amount of wastewater may bypass the treatment because it cannot be processed by resin.

Other special drains of non-radioactive process water systems such as Component Cooling Water system flushes with biocides such as gluteraldehyde (100 ppm), methyl (bis) thiocyanate (10 ppm), tolyltriazole (60 ppm), Molybdate (1000 ppm) and nitrite (1200 ppm), and borated icemaking/ice removal operations, can be routed directly to the plant's monitor tanks without treatment. For maintenance purposes to prevent microbial growth, Component Cooling Water flushes are performed generating approximately 281,000 gallons per year of flushwater to the monitor tanks.

Borated icemaking/ice removal operations occur for maintenance of the plant's ice condenser systems. This process produces a solution of sodium tetraborate (approximately 2200 ppm as boron) that can be drained to the monitor tanks. This process takes place approximately every 18 months and may produce up to 70,000 gallons of sodium tetraborate solution.

Both the treated wastewater and the special drains are accumulated in the monitor tanks and sampled to ensure the waste meets the radiological requirements prior to being discharged into the Circulating Water System.

Periodically, due to equipment leaks and/or system upsets, a waste stream is generated that contains radioactively contaminated ethylene glycol and water. Incidental amounts of ethylene glycol generated from equipment leaks may be drained directly to the monitor tanks or treated by the radwaste processing system. Small amounts of ethylene glycol may be discharged to outfalls 001, 002, or 003.

Sulfur hexafluoride gas (SF6) is utilized in the non-contact cooling water systems at the plant to detect leaks in various components such as the condensers. The gas is injected in the cooling water stream and discharged to outfalls 001, 002 or 003 at less than 54 ul/l.

Aryl sulfate liquid (NALCO Trasar 23299) is utilized in the non-contact cooling water systems at the plant to determine flow through various parts of the system. The liquid is injected into the service water system to reach a target concentration of approximately 2 mg/l. The service water is discharged to Outfalls 001, 002, or 003, which would, in turn, discharge at less than 0.15 mg/l. The liquid is also injected into the circulating water system to reach a target concentration of approximately 2 mg/l.

Control Room Air Conditioning (CRAC) testing: Approximately 1440 gallons/yr. of CRAC water may mix with ESW and then be discharged to the forebay during a monthly test of the system. CRAC water is demineralized water, and may contain up to: 2000 ppm nitrite [Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 100 ppm gluteraldehyde [from Betz Biotrol 107 (Spectrus NX 1105), Calgon H-300, or equivalent], 60 ppm tolyltriazole [from Calgon LCS-60, Betz AZ8101, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 10 ppm methyl (bis) thiocyanate (from Betz 3610), 1000 ppm molybdate from Betz Corrshield MD 4103, and Betz Ferroquest FQ7101 and FQ7102 for CRAC HX cleaning.

Three roadway storm drains route small amounts of stormwater from a small section of roadway that traverses over the Circulating Water Forebay. The three storm drains are designed to route accumulated stormwater from this small roadway to the forebay below. A small amount of de-icing compound used on this section of road could potentially enter these small (Approximately 8") gratings. Screened material collected from the plant's intakes is also stored in this area in designated trash dumpsters. Fish exudiates are now drained to the forebay as recommended by the MDEQ stormwater and NPDES inspection team (M. Fields and J. Molloy 1997).

During upset conditions it is possible to overflow the contents of the Turbine Room Sump (See Outfall 00H) to Outfalls 001, 002 and/or 003 if the flow path to the on-site absorption pond cannot be used.

OUTFALL 003 - Deicing Discharge

Outfall 003 is a deicing discharge which is used when water temperatures approach freezing temperatures. A portion of the flow from Outfall 001 and /or Outfall 002 is directed through the center intake tunnel to temper the intake water and prevent ice buildup on the intake structures which could restrict intake flow. The velocity at the other two intake structures during de-icing mode increases to approximately 1.9 feet per second. Discharge velocity will be less that 13 feet per second since a portion of the discharge is routed out the center intake tunnel.

The Essential and Non-Essential Service Water System (ESW and NESW) may be recirculated with a combination of Circulating Water Pumps in service to raise the forebay temperature to prevent frazil ice formation during cold weather periods. During shutdown conditions when normal operating heat addition is not available, portable heat addition units may be placed in the forebay to prevent frazil ice formations that may prevent flow to safety systems in the plant.

OUTFALL 00A - Unit 1 Steam Generator Blowdown

The steam generators (part of the secondary water system) require ultra high purity water for operation. Makeup water used in the steam generators is withdrawn from the intake forebay (or from Lake Township water supply or a blending of both sources) and treated so most natural impurities are removed through sedimentation, filtration, reverse osmosis, and demineralization. Impurities concentrate in the steam generators as the water is turned to steam and must be removed to protect the steam turbines and

heat transfer surfaces of the steam generators. The impurities are removed by continuously draining a portion of the water from the steam generators in a process called "blowdown".

In the steam generator, steam is separated from the water, further heated, and then routed to the turbines. When the steam separates from the water, the impurities remain in the water, concentrating in the steam generator. Blowdown consists of two forms, a liquid portion (700 gpm max) and a wet steam portion, which is exhausted to the atmosphere. The liquid portion of the steam generator blowdown is discharged to the screenhouse forebay either directly (Normal Flash Tank), or after processing through mixed bed demineralizers. Impurities in this discharge may consist of small quantities of insoluble iron and copper or impurities from the Circulating Water System used to cool the condensers should condenser tube leaks occur. Steam generator additives consist of ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for pH adjustment, hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging.

When the units are not operating, the steam generators are placed in wet layup conditions to protect against corrosion during storage. Layup water is periodically discharged through the outfall to the Circulating Water Forebay. The layup water contains a maximum concentration of 400 ppm hydrazine [Betz Powerline Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent), and /or 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001). The waste strength of this discharge is reduced through mixing with Outfalls 001, 002, or 003.

During the **Sludge Lancing Process**, demineralized water or secondary water is used to pressure clean the steam generators during outage periods. The water is recirculated through temporary filters to remove entrained solids. The major constituent of the solids is iron oxide from the steam generators. The water is then returned to the steam generators and can be drained to Outfalls 00A, 00B, to Outfall 001, 002, 003, 00D or 00H. The suspended solids are analyzed for radioactivity prior to disposal.

<u>OUTFALL 00B - Unit 2 Steam Generator Blowdown</u>

The steam generators (part of the secondary water system) require ultra high purity water for operation. Makeup water used in the steam generators is withdrawn from the intake forebay (or from Lake Township water supply or a blending of both sources) and treated so most natural impurities are removed

through sedimentation, filtration, reverse osmosis, and demineralization. Impurities concentrate in the steam generators as the water is turned to steam and must be removed to protect the steam turbines and heat transfer surfaces of the steam generators. The impurities are removed by continuously draining a portion of the water from the steam generators in a process called "blowdown".

In the steam generator, steam is separated from the water, further heated, and then routed to the turbines. When the steam separates from the water, the impurities remain in the water, concentrating in the steam generator. Blowdown consists of two forms, a liquid portion (700 gpm max) and a wet steam portion, which is exhausted to the atmosphere. The liquid portion of the steam generator blowdown is discharged to the screenhouse forebay either directly (Normal Flash Tank), or after processing through mixed bed demineralizers. Impurities in this discharge may consist of small quantities of insoluble iron and copper or impurities from the Circulating Water System used to cool the condensers should condenser tube leaks occur. Steam generator additives consist of ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for pH adjustment, hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging.

When the units are not operating, the steam generators are placed in wet layup conditions to protect against corrosion during storage. Layup water is periodically discharged through the outfall to the Circulating Water Forebay. The layup water contains a maximum concentration of 400 ppm hydrazine [Betz Powerline Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent), and /or 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001). The waste strength of this discharge is reduced through mixing with Outfalls 001, 002, or 003.

During the **Sludge Lancing Process**, demineralized water or secondary water is used to pressure clean the steam generators during outage periods. The water is recirculated through temporary filters to remove entrained solids. The major constituent of the solids is iron oxide from the steam generators. The water is then returned to the steam generators and can be drained to Outfalls 00A, 00B, to Outfall 001, 002, 003, 00D or 00H. The suspended solids are analyzed for radioactivity prior to disposal.

OUTFALL 00C - Plant Heating Boiler

A heating boiler (150,000 lb/hr capacity) operates to supply plant heating and auxiliary steam when Unit 1 and/or Unit 2 are out of service. The boiler is also fired periodically for testing purposes to ensure its availability.

During periods when not in operation, the **heating boiler** may be stored full of treated boiler water containing up to 400 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging and or 50 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for corrosion protection. Prior to use, this "wet lay-up" water is drained to Outfall 00C via blowdown, which discharges to the intake forebay. The volume drained is approximately 600 gallons. This boiler may also be occasionally drained for maintenance activities, approximately 6,000 gallons of treated boiler water would be directed to Outfall 00C or 00D/00H for such purposes.

Impurities from the boiler water consisting primarily of insoluble iron and copper are discharged via blowdown (30 GPM) to the intake forebay during operation as needed for Chemistry control. Boiler water treatment additives consist of up to 15 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for pH adjustment, up to 150 ppb hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or 150 ppb carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging.

Just after boiler shutdown, the boiler may be placed in dry layup. The boiler contents (up to 6,000 gallons) are drained via blowdown to the intake forebay. Boiler water treatment additives consist of up to 3 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for pH adjustment and up to 150 ppb hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or 150 ppb carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging. The boiler is then dried out and stored empty. This process saves on chemicals and prevents unnecessary discharge of wet layup chemicals.

A smaller boiler may be installed to provide back-up heat if the permanent heating boiler was out of service. This back-up boiler may be located outdoors on the West Side of the turbine building. The blowdown line is directed to the Unit One forebay, near the same discharge point as the permanently installed heating boiler.

The same boiler treatment chemistry will be maintained in the back-up boiler as is used in the permanent heating boiler. The back-up boiler treatment additives consist of ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for pH adjustment, and hydrazine [Betz Powerline Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] and/or carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging. This boiler may be occasionally drained for maintenance activities, approximately 6,000 gallons of treated boiler water would be directed to Outfall 00C for such purposes. Impurities from the boiler water consisting primarily of insoluble iron and copper are discharged via blowdown (30 GPM maximum) to the intake forebay during operation as needed for Chemistry control.

OUTFALL 00G - Reverse Osmosis System

The Reverse Osmosis System (RO) is used to assist in the removal of dissolved solids from the lake water prior to demineralization. Reject water flow is directed to the forebay, which leads to Outfalls 001, 002, and 003. Reject water flow rates may reach up to 0.366 MGD. The RO system must maintain very clean membranes to assure efficient operation and purity of water. Several methods are used to maintain this level of cleanliness from scale and biofouling. Hydrochloric acid or sulfuric acid is fed at approximately 1.3 GPH continually when the RO is in service to lower the pH to reduce the scaling tendencies of the water. The reject water from the RO unit consists of concentrated Lake Michigan water and a small amount of acid that inhibits scale buildup in the membranes.

Approximately once per month, a flush is performed using approximately 1,000 gallons of a nominal 0.05% hydrochloric acid solution. This is followed with approximately 1,000 gallons of a nominal 0.1% sodium hydroxide solution. This flush will dissolve any scale that deposits on the membranes. The total amount of flushing solution will average approximately 5,000 gallons per event. Sodium bisulfite is used to preserve the membranes during long-term shutdown periods. Approximately 15 lbs. of sodium bisulfite per year is used in this manner.

The chemical cleaning involves several steps and may contain citric acid, hydrochloric acid, phosphoric acid, sodium hydroxide, and a neutral pH detergent. The periodic cleaning process averages approximately 10,000 gallons per event, diverted either to the Turbine Room Sump (Outfall 00H/00D), through the Neutralization Tank to the Turbine Room Sump (Outfall 00H/00D), or to the Circulating Water Forebay (Outfall 001, 002, or 003).

OUTFALL 00H - Turbine Room Sump Emergency Overflow

Utility wastewater from within the plant is discharged via the turbine room sump (TRS) into an on-site absorption pond (Outfall 00D). The normal disposition of these wastewaters is to an on-site absorption pond, which eventually vents via groundwater to Lake Michigan. In the unlikely event that the normal flow path to the absorption pond is not available, the overflow line (Outfall 00H) will direct the TRS flow to the plant's intake forebay. The wastewaters associated with this Outfall include:

Wastes from the makeup water treatment system.

- **NESW**: (144,000 GPD) The main contributor to this waste stream is the degassifier pump seal water. Non-Essential Service Water (NESW) from Lake Michigan supplies the vacuum degassifier pumps which utilize up to 100 GPM to remove non-condensable gases (primarily carbon dioxide and oxygen) from the makeup plant water and exhausts them to the atmosphere.

- **Pre-filter backwash**: (Estimated 98,000 GPD) Six pre-filters are backwashed with Lake Michigan water to remove the suspended matter captured on the filter media. Alum solution (aluminum sulfate 0.5 lb. per gallon) is added to the pre-filter influent as a flocculent. The alum is added via a coagulant feed pump. Approximately 50 lb./day of alum is used in this process. The alum contained in the backwash is discharged in the form of insoluble aluminum hydroxide.

- **Carbon filter backwash**: (Estimated 42,000 GPD) Carbon filters are periodically backwashed with Lake Michigan water to the TRS. These filters primarily remove organics, chlorine and small amounts of iron.

- **Demineralizer regeneration:** (Estimated 50,000 gallons per regeneration) occurs 2-4 times per month when the RO is in service and more often when it is not in service. Dilute sulfuric acid and sodium hydroxide used by the system to regenerate the resin. Dilute sulfuric acid, sodium hydroxide, and contaminates from the demineralization process is discharged to the neutralization tank or TRS. The pH is then adjusted to between 5.5 and 9.0 with sulfuric acid, or sodium hydroxide prior to discharge.

- **MUP Neutralization Tank** provides a place for demineralization regeneration wastes, and Reverse Osmosis Unit cleaning flushes to be neutralized prior to being discharged to the TRS and ultimately

the absorption pond. When the MUP resin beds are regenerated, up to 50,000 gallons of regeneration chemicals, and backwash waters are processed in the neutralization tank. The Reverse Osmosis cleaning flushes average approximately 5,000 gallons per event. When the water is neutralized, it is pumped to the TRS via a 2,000 GPM neutralization waste pump.

- The **Retention Tank** is periodically blown down, discharging small volumes of solid material removed by settling. The retention tank contains a mixture of Lake Township water and filtered Lake Michigan water waiting further processing by the Makeup Plant.

- **The Reverse Osmosis System (RO) Cleaning**. Normal reject water flow is to Lake Michigan via Outfall 00G. The RO system must maintain very clean membranes to assure efficient operation and purity of water. Several methods are used to maintain this level of cleanliness from scale and biofouling. Hydrochloric acid or sulfuric acid is fed at approximately 1.3 GPH continually when the RO is in service to lower the pH to reduce the scaling tendencies of the water. The reject water from the RO unit consists of concentrated Lake Michigan water and a small amount of acid that inhibits scale buildup in the membranes.

  Approximately once per month, a flush is performed using approximately 1,000 gallons of a nominal 0.05% hydrochloric acid solution. This is followed with approximately 1,000 gallons of a nominal 0.1% sodium hydroxide solution. This flush will dissolve any scale that deposits on the membranes. The total amount of flushing solution will average approximately 5,000 gallons per event. Sodium bisulfite is used to preserve the membranes during long-term shutdown periods. Approximately 15 lbs. of sodium bisulfite per year is used in this manner.

  The chemical cleaning involves several steps and may contain citric acid, hydrochloric acid, phosphoric acid, sodium hydroxide, and a neutral pH detergent. The periodic cleaning process averages approximately 10,000 gallons per event, diverted either to the Turbine Room Sump (Outfall 00H), through the Neutralization Tank to the Turbine Room Sump (Outfall 00H), or to the Circulating Water Forebay (Outfall 001, 002, or 003).

Waste from miscellaneous processes.

- During periods when not in operation, the **heating boiler** may be stored full of treated boiler water containing at most 400 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging and/or 50 ppm

ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for corrosion protection. Prior to use, this "wet lay-up" water is drained to the TRS. The volume drained is approximately 600 gallons.

- The Circulating Water System cooling water contained in the **condensers** during shutdowns are periodically drained to the TRS. (Six condenser halves and 2 feedpump condensers, approximately 37,000 gallons of lake water per half).

- The **Component Cooling Water system** (CCW) is periodically drained to allow for equipment inspection, maintenance or repair. This system uses demineralized water from the makeup plant as its source of makeup water along with a maximum of: 1200 ppm nitrite [from Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 100 ppm gluteraldehyde [from Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole (from Betz AZ8101, Calgon LCS-60, or equivalent)), 1000 ppm molybdate from Betz Corrshield MD 4103. The infrequent drainings release approximately 60,000 gallons of treated water to the TRS per year.

- There are four Emergency Diesel Generators that are each cooled by an **Emergency Diesel Generator cooling jacket water system** (DJW), which employs chemical control for corrosion with a maximum of 2000 ppm nitrite [Calgon LCS 60 or Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203 or equivalent], 100 ppm gluteraldehyde [Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole [Betz AZ8101, Calgon LCS-60, or equivalent]), 1000 ppm molybdate from Betz Corrshield MD 4103.

  This system is drained through the floor drains to the TRS when maintenance is performed. Each system volume is approximately 1000 gallons. Any system leaks would also be directed to the floor drain during normal operations.

- **Control Room Air Conditioning (CRAC)** drains: Approximately 1440 gallons/yr. of CRAC water is drained to the TRS. CRAC Water is demineralized water, and may contain up to: 2000 ppm nitrite [Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203 or equivalent], 100 ppm gluteraldehyde [Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole (Calgon

LCS-60, Betz AZ8101, or equivalent)), 1000 ppm molybdate from Betz Corrshield MD 4103, and Betz Ferroquest FQ7101 and FQ7102 for CRAC HX cleaning. The system may be flushed with demineralized water, and when completed, corrosion control chemicals will be added back to the system. No additions of corrosion controlling chemicals are performed during the demineralized water flush.

- The **Essential Service Water systems** (ESW) and **Non-Essential Service Water systems** (NESW) are also periodically drained to allow for equipment inspection, maintenance, or repair. These drains may discharge Lake Michigan water used for non-contact cooling into the TRS. This water may be chlorinated for zebra mussel control. During some special treatment periods, this water may contain zebra mussel biocides, used as a molluscicide for zebra mussel control. Periodically, components of the ESW or NESW systems may be chemically cleaned to remove iron deposits using vendor supplied cleaning solution such as EDTA (ethylenediaminetetraacetic acid) or ascorbic acid, acetic acid and ammonia. These wastes could either be drained to the TRS or Lake Michigan via Outfall 001, 002, or 003.

- During wet lay-up, the **steam generators** are stored full of water with up to 400 ppm of hydrazine from Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent) and 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) are added for corrosion control. The water may also contain up to 20 ppm boron. This water is normally drained to surface water via NPDES Outfalls 00A or 00B, but may be drained to the TRS in some instances. Drain volume will be approximately 32,000 gallons for each of the unit's four steam generators.

- The **Miscellaneous Drain Tanks** can be aligned to discharge to the TRS. As much as 350,000 gallons per day per unit may be directed to the TRS to control the chemistry limitations on the secondary water systems. Water chemistry is primarily the same as in the steam generators. This type of batch drain occurs in concert with condensate flushing activities, or it may occur during normal operation to adjust system chemistry. The overboarded water is normal secondary water. It may contain a mixture of ethanolamine, hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], or carbohydrazide (NALCO 1250 plus, or equivalent). Maximum flows may approach 240 GPM as makeup plant water supplies can deliver.

- **Condensate flushes** are performed periodically to clean up the plant's secondary system prior to startup, and can be discharged to the TRS. Water containing up to 4 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], 10 ppm carbohydrazide (NALCO 1250 plus, or equivalent), 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), is overboard to the TRS as required to remove contaminants. This flow rate averages 70 GPM, but may reach 600 GPM for short periods of time. The flow rate is dependent on water demands in the plant. Maximum output from the MUP is approximately 600 GPM.

- Around the plant, **miscellaneous sumps** collect an estimated 45,000 GPD of water from various equipment drains (ESW pipe tunnel sump). **Water and condensate leaks from valves and pumps** (Circulating Water condenser pit sumps, ESW pipe tunnel sump, heater drain pump room sump, screen wash pump room sump, acid and caustic room sumps, elevator pit sumps, screenhouse electrical equipment enclosure sump) will also be drained to the TRS. **Steam jet air ejector drains** also are directed to the heater drain pump room sump prior to pumping to the TRS. Betz FerroQuest FQ LP 7200 may be added to this sump to prevent scale buildup.

- **Miscellaneous floor drains** are located throughout the plant to provide a safe working environment by routing spilled or leaked water to the TRS. The major chemical influx into these drains is from general floor cleaning products used to maintain the floors. Also routed to the TRS through the floor drains are fire protection water, chlorinated Lake Township water, drinking water, cooling water (ESW/NESW), and drains from bioboxes used to monitor the zebra mussel control measures and other chemical control monitors. The bioboxes will discharge chlorine and zebra mussel biocides during periods when the Service Water Systems are treated with previously mention biological control agents.

- **Chemical feed tank drains** (drains are limited to emergencies only). There are eight chemical feed tanks that are approximately 200 gallons each that contain hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] at approximately 2%, ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), at approximately 5%, carbohydrazide (NALCO 1250 plus, or equivalent), approximately 2%. Normal process will be to collect these tank volumes to be reused whenever possible.

- **Chemical cleaning tank drains:** During refueling and maintenance outages, the chemical cleaning tank, and or temporary tanks may be used to mix borax (sodium tetraborate @ approximately 2000 ppm as boron) solutions for ice making operations. Small portions of the system may be drained to the TRS. In the unlikely event that a full tank is drained, approximately 3500 gallons will be directed to the TRS.

- **Non-radiological chemical lab** sink and floor drains are routed to the TRS for disposal. The drains carry water and the wastes generated while performing analyses and preparing laboratory standard including those on the attached list. Also discharged will be glassware cleaning and normal laboratory cleaning wastes. The average volume directed to the TRS is estimated to be 500 -1000 GPD.

- **Secondary sample water** from continuous analyzers are routed to drains which discharge to the TRS and/or the miscellaneous drain tank. The analyzers are on the cycles that may contain as much as 150 ppb hydrazine from either a direct feed or (as a breakdown product of carbohydrazide, and 2.5 ppm ethanolamine). The analyzers measure corrosion transport at an average flow of 1440 gallons per day when in operation.

- **Miscellaneous sealing and cooling water (MSCW)** supplies cooling and sealing water to the TRS pumps, Condensate Booster Pumps, Circulating Water Pumps, Vacuum Priming Pumps, Drain Seal Reservoir Tanks, MSCW pump sealing water, screen wash pumps sealing water, and Drain Sample Coolers. The flow per day may reach approximately 576,000 gallons; this water is filtered and chlorinated Lake Michigan water .

- Non-essential service water supplies approximately 53,000 GPD of non-contact cooling water to various **sample coolers** throughout the plant's turbine building.

- Chemical spills that enter the TRS may be neutralized within the sump to prevent a discharge to the environment. The potential for spills to the TRS exists for the following chemicals with the proposed neutralizers listed:

Chemical	Associated Neutralizer
Sulfuric acid	Sodium hydroxide
Sodium hydroxide	Sulfuric acid
Sodium hypochlorite	Sodium thiosulfate
Hydrazine	NESW (lake water), Hydrogen peroxide, sodium hypochlorite.
Ethanolamine	Sodium Hypochlorite, Hydrogen Peroxide, or ozone.
Ethylene glycol	Hydrogen peroxide

Reduction of hydrazine and ETA prior to discharge to the absorption pond may include additions of chemicals such as sodium hypochlorite, hydrogen peroxide, or ozone to the Turbine Room Sump in batches, or to the discharge piping as continuous treatment. A downstream treatment system provided by a vendor may be used to break down the hydrazine and ETA.

ADDITIONAL CHEMICAL LAB ANALYSES

Additional Information
Section I
Item 11
Donald C. Cook Nuclear Plant
Surface Water Permit Application

Plant Chemistry Lab (To Outfall 00H/00D)

Laboratory sink drains from the 633' Turbine lab are directed to the 90,000 gallon Turbine Room Sump. The sump contents are normally directed to the groundwater discharge (outfall 00D). Occasionally the Emergency by-pass may be utilized and the sump's contents will be discharged to the surface water discharge (outfall 00H). The following analyses are performed in the lab. Laboratory wastes from the analyses are discarded in the sink.

Parameter	Analysis Method
Nitrite	HACH DR-2000 Method 373, HACH DR 2010 Method 373
Hydrazine	ASTM D-1385 -88
Oil and Grease	EPA-600-4-79-020 Method 413.1
pH	Standard Methods for the examination of Water and Wastewater, ASTM-1293
Total Phosphorus	EPA-600-4-79-020 Method 365.3
Sulfate	EPA-600-4-79-020 Method 375.4
Total Residual Chlorine	EPA-600-4-79-020 Method 330.5
Ethanolamine (ETA)	Betz Standard Operating Procedure. (Betz proprietary Method adapted from HACH Dr-2000 1,2- Naphthoquinone-4-sulfonic acid Method.)
ICP Metals	Standard Methods for Examination of water and wastewater - 17th ed. 1989, 3120B.
Tolyltriazole	HACH DR-2000 Method 730
Carbohydrazide	HACH DR-2000 Method 732 HACH DR-2010 Method 182
N,N Diethylhyroxylamine (DEHA)	HACH DR-2010 Method 182
Silica	ASTM D 859-88

GROUNDWATER DISCHARGES

OUTFALL 00D - Turbine Room Sump

Utility wastewater from within the plant is discharged via the turbine room sump (TRS) into an on-site absorption pond (Outfall 00D). The normal disposition of these wastewaters is to an on-site absorption pond, which eventually vents via groundwater to Lake Michigan. In the unlikely event that the normal flow path to the absorption pond is not available, the overflow line (Outfall 00H) will direct the TRS flow to the plant's intake forebay. The wastewaters associated with this Outfall include:

Wastes from the makeup water treatment system.

- **NESW**: (144,000 GPD) The main contributor to this waste stream is the degassifier pump seal water. Non-Essential Service Water (NESW) from Lake Michigan supplies the vacuum degassifier pumps which utilize up to 100 GPM to remove non-condensable gases (primarily carbon dioxide and oxygen) from the makeup plant water and exhausts them to the atmosphere.

- **Pre-filter backwash**: (Estimated 98,000 GPD) Six pre-filters are backwashed with Lake Michigan water to remove the suspended matter captured on the filter media. Alum solution (aluminum sulfate 0.5 lb. per gallon) is added to the pre-filter influent as a flocculent. The alum is added via a coagulant feed pump. Approximately 50 lb./day of alum is used in this process. The alum contained in the backwash is discharged in the form of insoluble aluminum hydroxide.

- **Carbon filter backwash**: (Estimated 42,000 GPD) Carbon filters are periodically backwashed with Lake Michigan water to the TRS. These filters primarily remove organics, chlorine and small amounts of iron.

- **Demineralizer regeneration:** (Estimated 50,000 gallons per regeneration) occurs 2-4 times per month when the RO is in service and more often when it is not in service. Dilute sulfuric acid and sodium hydroxide used by the system to regenerate the resin. Dilute sulfuric acid, sodium hydroxide, and contaminates from the demineralization process is discharged to the neutralization tank or TRS. The pH is then adjusted to between 5.5 and 9.0 with sulfuric acid, or sodium hydroxide prior to discharge.

- **MUP Neutralization Tank** provides a place for demineralization regeneration wastes, and Reverse Osmosis Unit cleaning flushes to be neutralized prior to being discharged to the TRS and ultimately the absorption pond. When the MUP resin beds are regenerated, up to 50,000 gallons of regeneration chemicals, and backwash waters are processed in the neutralization tank. The Reverse Osmosis cleaning flushes average approximately 5,000 gallons per event. When the water is neutralized, it is pumped to the TRS via a 2,000 GPM neutralization waste pump.

- The **Retention Tank** is periodically blown down, discharging small volumes of solid material removed by settling. The retention tank contains a mixture of Lake Township water and filtered Lake Michigan water waiting further processing by the Makeup Plant.

- **The Reverse Osmosis System (RO) Cleaning**. Normal reject water flow is to Lake Michigan via Outfall 00G. The RO system must maintain very clean membranes to assure efficient operation and purity of water. Several methods are used to maintain this level of cleanliness from scale and biofouling. Hydrochloric acid or sulfuric acid is fed at approximately 1.3 GPH continually when the RO is in service to lower the pH to reduce the scaling tendencies of the water. The reject water from the RO unit consists of concentrated Lake Michigan water and a small amount of acid that inhibits scale buildup in the membranes.

  Approximately once per month, a flush is performed using approximately 1,000 gallons of a nominal 0.05% hydrochloric acid solution. This is followed with approximately 1,000 gallons of a nominal 0.1% sodium hydroxide solution. This flush will dissolve any scale that deposits on the membranes. The total amount of flushing solution will average approximately 5,000 gallons per event. Sodium bisulfite is used to preserve the membranes during long-term shutdown periods. Approximately 15 lbs. of sodium bisulfite per year is used in this manner.

  The chemical cleaning involves several steps and may contain citric acid, hydrochloric acid, phosphoric acid, sodium hydroxide, and a neutral pH detergent. The periodic cleaning process averages approximately 10,000 gallons per event, diverted either to the Turbine Room Sump (Outfall 00H), through the Neutralization Tank to the Turbine Room Sump (Outfall 00H), or to the Circulating Water Forebay (Outfall 001, 002, or 003).

Waste from miscellaneous processes.

- During periods when not in operation, the **heating boiler** may be stored full of treated boiler water containing at most 400 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent) for oxygen scavenging and/or 50 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) for corrosion protection. Prior to use, this "wet lay-up" water is drained to the TRS. The volume drained is approximately 600 gallons.

- The Circulating Water System cooling water contained in the **condensers** during shutdowns are periodically drained to the TRS. (Six condenser halves and 2 feedpump condensers, approximately 37,000 gallons of lake water per half).

- The **Component Cooling Water system** (CCW) is periodically drained to allow for equipment inspection, maintenance or repair. This system uses demineralized water from the makeup plant as its source of makeup water along with a maximum of: 1200 ppm nitrite [from Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203, or equivalent], 100 ppm gluteraldehyde [from Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole (from Betz AZ8101, Calgon LCS-60, or equivalent)), 1000 ppm molybdate from Betz Corrshield MD 4103. The infrequent drainings release approximately 60,000 gallons of treated water to the TRS per year.

- There are four Emergency Diesel Generators that are each cooled by an **Emergency Diesel Generator cooling jacket water system** (DJW), which employs chemical control for corrosion with a maximum of 2000 ppm nitrite [Calgon LCS 60 or Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203 or equivalent], 100 ppm gluteraldehyde [Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole [Betz AZ8101, Calgon LCS-60, or equivalent]), 1000 ppm molybdate from Betz Corrshield MD 4103.

  This system is drained through the floor drains to the TRS when maintenance is performed. Each system volume is approximately 1000 gallons. Any system leaks would also be directed to the floor drain during normal operations.

- **Control Room Air Conditioning (CRAC)** drains: Approximately 1440 gallons/yr. of CRAC water is drained to the TRS. CRAC Water is demineralized water, and may contain up to: 2000 ppm nitrite [Calgon LCS 60, Betz Corrshield NT 4205, BETZ CORRSHIED NT 4201, Betz Corrshield NT 4203 or equivalent], 100 ppm gluteraldehyde [Betz Spectrus NX 1105, Calgon H-300, or equivalent], methyl (bis) thiocyanate (10 ppm) [from Betz 3610 or equivalent], 60 ppm tolyltriazole (Calgon LCS-60, Betz AZ8101, or equivalent)), 1000 ppm molybdate from Betz Corrshield MD 4103, and Betz Ferroquest FQ7101 and FQ7102 for CRAC HX cleaning. The system may be flushed with demineralized water, and when completed, corrosion control chemicals will be added back to the system. No additions of corrosion controlling chemicals are performed during the demineralized water flush.

- The **Essential Service Water systems** (ESW) and **Non-Essential Service Water systems** (NESW) are also periodically drained to allow for equipment inspection, maintenance, or repair. These drains may discharge Lake Michigan water used for non-contact cooling into the TRS. This water may be chlorinated for zebra mussel control. During some special treatment periods, this water may contain zebra mussel biocides, used as a molluscicide for zebra mussel control. Periodically, components of the ESW or NESW systems may be chemically cleaned to remove iron deposits using vendor supplied cleaning solution such as EDTA (ethylenediaminetetraacetic acid) or ascorbic acid, acetic acid and ammonia. These wastes could either be drained to the TRS or Lake Michigan via Outfall 001, 002, or 003.

- During wet lay-up, the **steam generators** are stored full of water with up to 400 ppm of hydrazine from Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H or 40 ppm carbohydrazide (NALCO 1250 plus, or equivalent) and 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001) are added for corrosion control. The water may also contain up to 20 ppm boron. This water is normally drained to surface water via NPDES Outfalls 00A or 00B, but may be drained to the TRS in some instances. Drain volume will be approximately 32,000 gallons for each of the unit's four steam generators.

- The **Miscellaneous Drain Tanks** can be aligned to discharge to the TRS. As much as 350,000 gallons per day per unit may be directed to the TRS to control the chemistry limitations on the secondary water systems. Water chemistry is primarily the same as in the steam generators. This type of batch drain occurs in concert with condensate flushing activities, or it may occur during normal operation to adjust system chemistry. The overboarded water is normal secondary water. It

may contain a mixture of ethanolamine, hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], or carbohydrazide (NALCO 1250 plus, or equivalent). Maximum flows may approach 240 GPM as makeup plant water supplies can deliver.

- **Condensate flushes** are performed periodically to clean up the plant's secondary system prior to startup, and can be discharged to the TRS. Water containing up to 4 ppm hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H], 10 ppm carbohydrazide (NALCO 1250 plus, or equivalent), 100 ppm ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), is overboard to the TRS as required to remove contaminants. This flow rate averages 70 GPM, but may reach 600 GPM for short periods of time. The flow rate is dependent on water demands in the plant. Maximum output from the MUP is approximately 600 GPM.

- Around the plant, **miscellaneous sumps** collect an estimated 45,000 GPD of water from various equipment drains (ESW pipe tunnel sump). **Water and condensate leaks from valves and pumps** (Circulating Water condenser pit sumps, ESW pipe tunnel sump, heater drain pump room sump, screen wash pump room sump, acid and caustic room sumps, elevator pit sumps, screenhouse electrical equipment enclosure sump) will also be drained to the TRS. **Steam jet air ejector drains** also are directed to the heater drain pump room sump prior to pumping to the TRS. Betz FerroQuest FQ LP 7200 may be added to this sump to prevent scale buildup.

- **Miscellaneous floor drains** are located throughout the plant to provide a safe working environment by routing spilled or leaked water to the TRS. The major chemical influx into these drains is from general floor cleaning products used to maintain the floors. Also routed to the TRS through the floor drains are fire protection water, chlorinated Lake Township water, drinking water, cooling water (ESW/NESW), and drains from bioboxes used to monitor the zebra mussel control measures and other chemical control monitors. The bioboxes will discharge chlorine and zebra mussel biocides during periods when the Service Water Systems are treated with previously mention biological control agents.

- **Chemical feed tank drains** (drains are limited to emergencies only). There are eight chemical feed tanks that are approximately 200 gallons each that contain hydrazine [Betz Cortrol OS5035, Betz Cortrol OS5010, NALCO 19H] at approximately 2%, ethanolamine (Betz Powerline 1440, Betz Powerline 1480, NALCO 92UM001), at approximately 5%, carbohydrazide (NALCO 1250 plus, or

equivalent), approximately 2%. Normal process will be to collect these tank volumes to be reused whenever possible.

- **Chemical cleaning tank drains:** During refueling and maintenance outages, the chemical cleaning tank, and or temporary tanks may be used to mix borax (sodium tetraborate @ approximately 2000 ppm as boron) solutions for ice making operations. Small portions of the system may be drained to the TRS. In the unlikely event that a full tank is drained, approximately 3500 gallons will be directed to the TRS.

- **Non-radiological chemical lab** sink and floor drains are routed to the TRS for disposal. The drains carry water and the wastes generated while performing analyses and preparing laboratory standards including those on the attached list. Also discharged will be glassware cleaning and normal laboratory cleaning wastes. The average volume directed to the TRS is estimated to be 500 -1000 GPD.

- **Secondary sample water** from continuous analyzers are routed to drains which discharge to the TRS and/or the miscellaneous drain tank. The analyzers are on the cycles that may contain as much as 150 ppb hydrazine from either a direct feed or (as a breakdown product of carbohydrazide, and 2.5 ppm ethanolamine). The analyzers measure corrosion transport at an average flow of 1440 gallons per day when in operation.

- **Miscellaneous sealing and cooling water (MSCW)** supplies cooling and sealing water to the TRS pumps, Condensate Booster Pumps, Circulating Water Pumps, Vacuum Priming Pumps, Drain Seal Reservoir Tanks, MSCW pump sealing water, screen wash pumps sealing water, and Drain Sample Coolers. The flow per day may reach approximately 576,000 gallons; this water is filtered and chlorinated Lake Michigan water .

- Non-essential service water supplies approximately 53,000 GPD of non-contact cooling water to various **sample coolers** throughout the plant's turbine building.

- Chemical spills that enter the TRS may be neutralized within the sump to prevent a discharge to the environment. The potential for spills to the TRS exists for the following chemicals with the proposed neutralizers listed:

Chemical	Associated Neutralizer
Sulfuric acid	Sodium hydroxide
Sodium hydroxide	Sulfuric acid
Sodium hypochlorite	Sodium thiosulfate
Hydrazine	NESW (lake water), Hydrogen peroxide, sodium hypochlorite.
Ethanolamine	Sodium Hypochlorite, Hydrogen Peroxide, or ozone.
Ethylene glycol	Hydrogen peroxide

Reduction of hydrazine and ETA prior to discharge to the absorption pond may include additions of chemicals such as sodium hypochlorite, hydrogen peroxide, or ozone to the Turbine Room Sump in batches, or to the discharge piping as continuous treatment. A downstream treatment system provided by a vendor may be used to break down the hydrazine and ETA.

ADDITIONAL CHEMICAL LAB ANALYSES

Additional Information
Section I
Item 11
Donald C. Cook Nuclear Plant
Surface Water Permit Application

Plant Chemistry Lab (To Outfall 00H/00D)

Laboratory sink drains from the 633' Turbine lab are directed to the 90,000 gallon Turbine Room Sump. The sump contents are normally directed to the groundwater discharge (outfall 00D). Occasionally the Emergency by-pass may be utilized and the sump's contents will be discharged to the surface water discharge (outfall 00H). The following analyses are performed in the lab. Laboratory wastes from the analyses are discarded in the sink.

Parameter	Analysis Method
Nitrite	HACH DR-2000 Method 373, HACH DR 2010 Method 373
Hydrazine	ASTM D-1385 -88
Oil and Grease	EPA-600-4-79-020 Method 413.1
pH	Standard Methods for the examination of Water and Wastewater, ASTM-1293
Total Phosphorus	EPA-600-4-79-020 Method 365.3
Sulfate	EPA-600-4-79-020 Method 375.4
Total Residual Chlorine	EPA-600-4-79-020 Method 330.5
Ethanolamine (ETA)	Betz Standard Operating Procedure. (Betz proprietary Method adapted from HACH Dr-2000 1,2- Naphthoquinone-4-sulfonic acid Method).
ICP Metals	Standard Methods for Examination of water and wastewater - 17th ed. 1989, 3120B.
Tolyltriazole	HACH DR-2000 Method 730
Carbohydrazide	HACH DR-2000 Method 732 HACH DR-2010 Method 182
N,N Diethylhyroxylamine (DEHA)	HACH DR-2010 Method 182
Silica	ASTM D 859-88

OUTFALL 00E – Sanitary Waste Discharges

The system operates at a designed flow of 50,000 GPD with a maximum flow capacity of 60,000 GPD. The Sequencing Batch Reactor (SBR) system treats the wastewater and discharges to an effluent tank where it can be filtered prior to discharge to one of two seepage lagoons. The lagoons discharge into the groundwater with the ultimate disposition venting to Lake Michigan. The sludge removed from the digester tank basins is taken to a local POTW (public owned treatment works) for disposal or dewatered and stored as low level radioactive waste, and disposed of as appropriate.

To aid in the settling process, flocculents such as ferric chloride, pH controllers such as magnesium hydroxide, or polymers (such as Axchem AF4500) are added to the process. To selectively enhance biosolids, bioaugmentation nutrients (such as Bioprime Dosfolat) are added to the process. This is a nutrient that encourages the growth of beneficial microbes in the activated sludge. Sodium hypochlorite is added in small amounts to the process to control filamentous bacteria growth if needed. Sodium hypochlorite and detergent are also added to the sand filters to clean them periodically. These are then backwashed into the equalization basin to be reprocessed by the SBR treatment process.

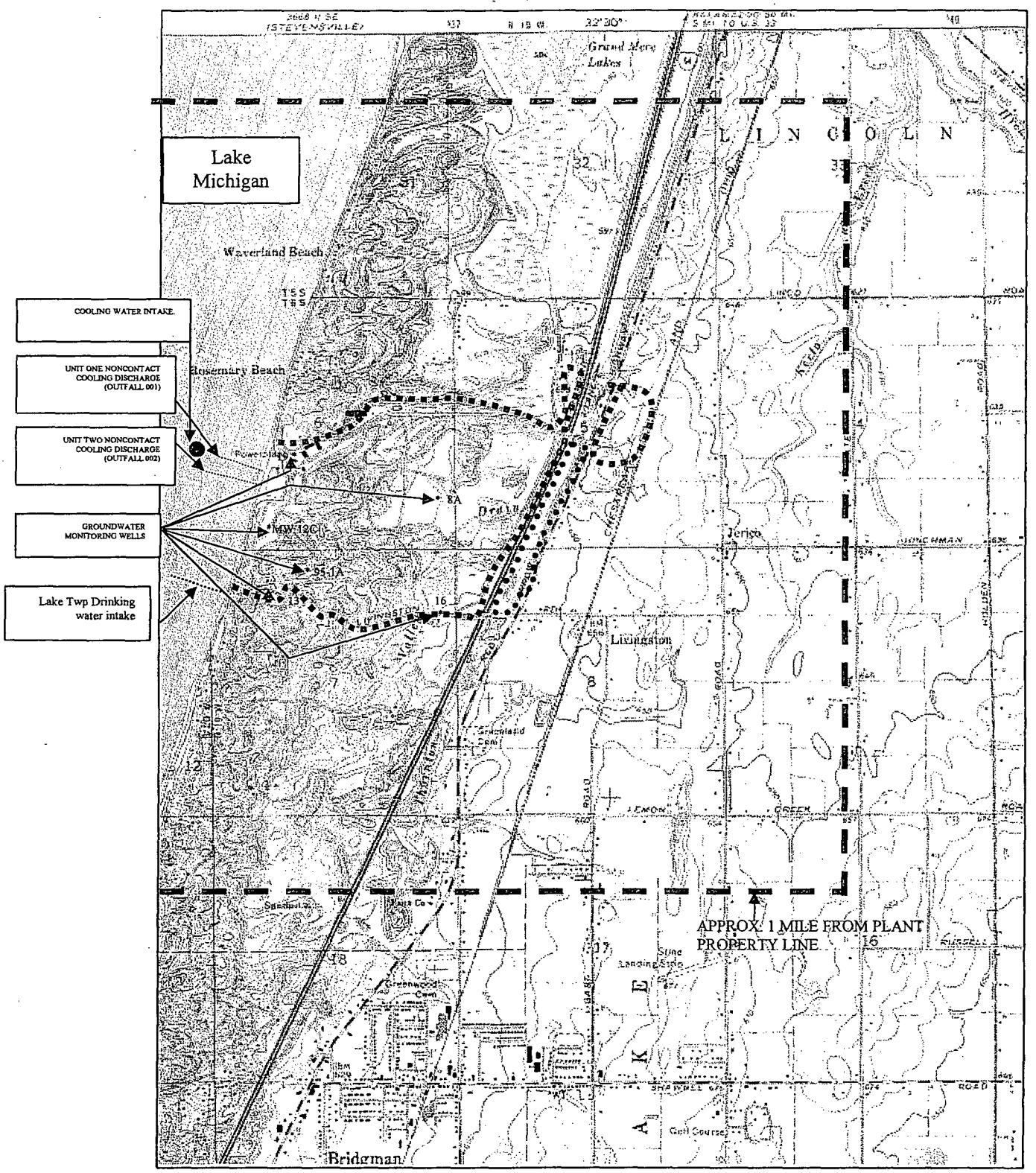
Plant sanitary waste consists of shower and rest room facilities, and janitor washbasins located throughout the Plant's non-radiological property. Kitchen wastes are generated from the plant cafeteria, the Cook Energy Information Center and Training buildings.

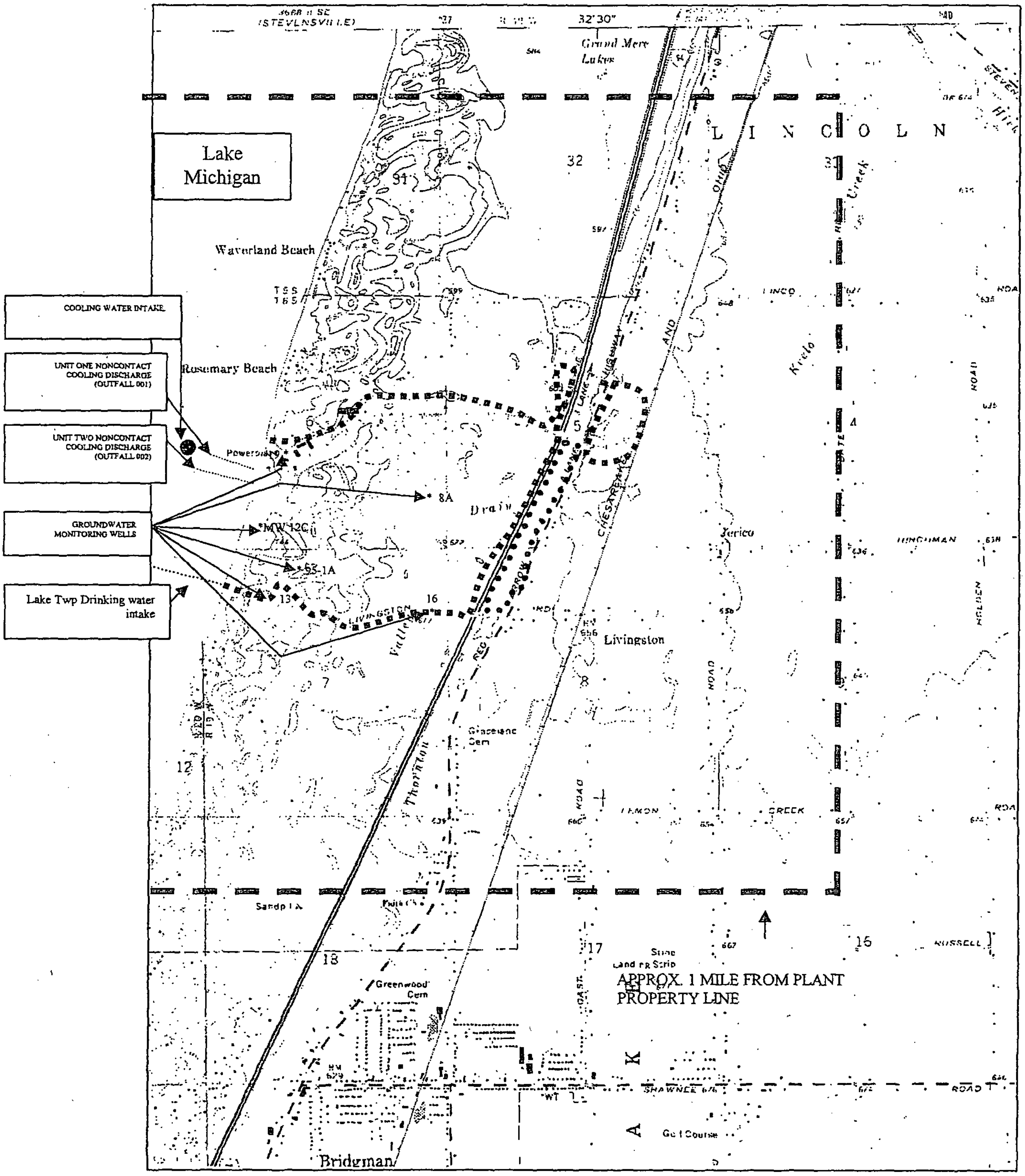
The chemistry training laboratory discharges to the sewage treatment plants through a limestone bed neutralization tank. The chemistry lab is used to train technicians on analyses performed in the plant. The discharge from the lab carries water and wastes generated while performing analyses and preparing laboratory standards including those on the attached list. The training building HVAC system also drains through the limestone bed.

The wastewater treatment plant laboratory discharges to the sewage treatment plants. The discharge from the lab carries water and wastes generated from performing analyses and preparing laboratory standards used for compliance monitoring of the sewage treatment plant under groundwater discharge permit GW1810102.

Portable toilet wastes on the plant site may be collected and discharged to the sewage treatment plants. A biodegradable deodorant is used in the portable toilets. Sludge effluent waste may also be recycled through the plants to decrease the amount of sludge for processing when possible.

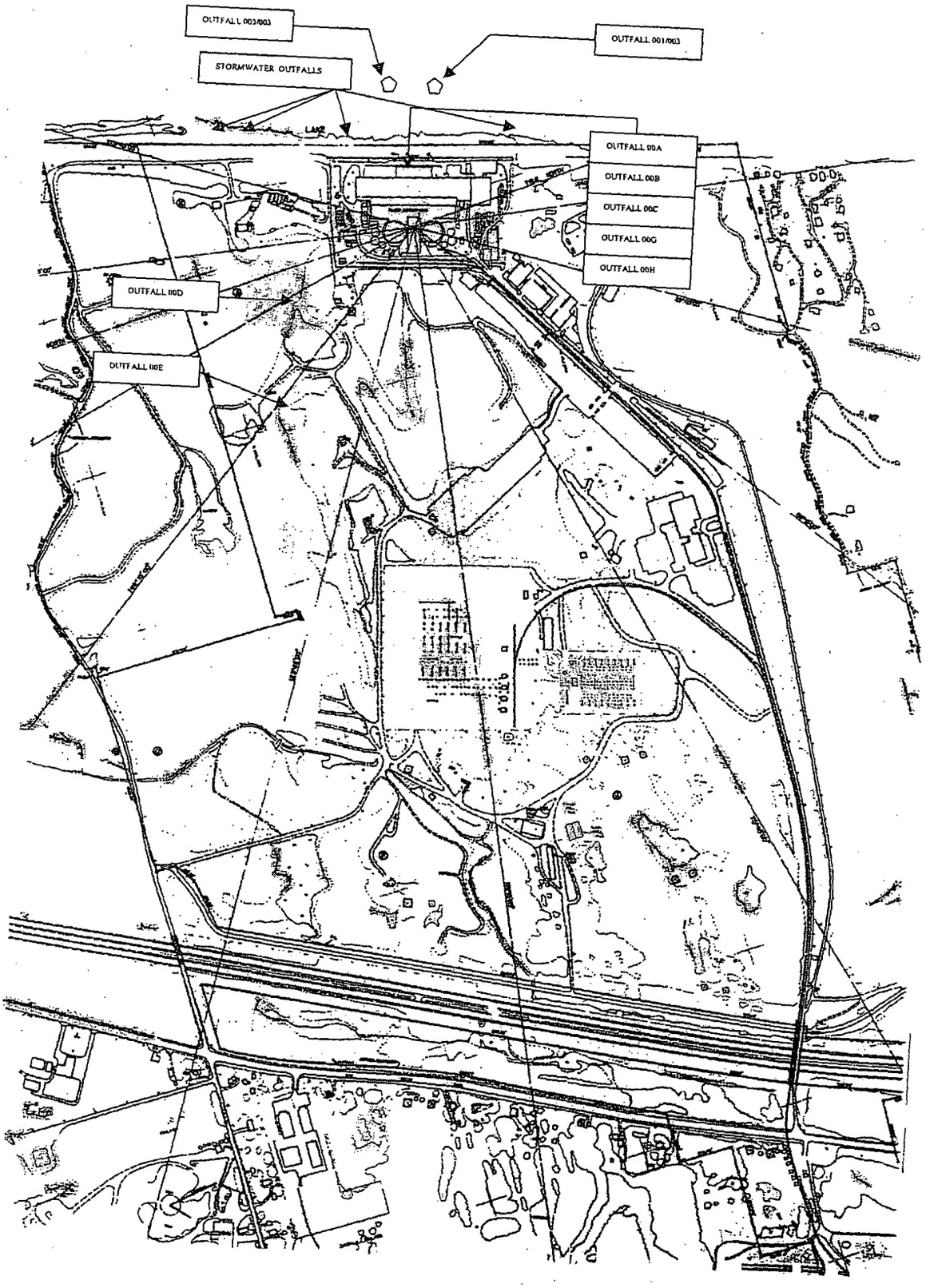
Miscellaneous rinsing of waste receptacles and possible cleaning operations waste, utilizing various detergents, may be rinsed to the sewage treatment plants.


Lake Michigan
COOLING WATER INTAKE
UNIT ONE NONCONTACT COOLING DISCHARGE (OUTFALL 001)
UNIT TWO NONCONTACT COOLING DISCHARGE (OUTFALL 002)
GROUNDWATER MONITORING WELLS
Lake Twp Drinking water intake
Waverland Beach
Rosemary Beach
Jerico
Livingston
Bridgman
APPROX. 1 MILE FROM PLANT PROPERTY LINE
LINCOLN
LAKE


Lake Michigan
Waverland Beach
Rosemary Beach
COOLING WATER INTAKE
UNIT ONE NONCONTACT COOLING DISCHARGE (OUTFALL 001)
UNIT TWO NONCONTACT COOLING DISCHARGE (OUTFALL 002)
GROUNDWATER MONITORING WELLS
Lake Twp Drinking water intake
MW 12C
63-1A
8A
13
L I N C O L N
Grand Mere Lakes
Livingston
Jerico
Greenwood Cem
Bridgman
APPROX. 1 MILE FROM PLANT PROPERTY LINE

Donald C. Cook Nuclear Plant
Part 11

MI0005827



WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER
Donald C. Cook Nuclear Plant	MI 0005827

12. CONTRACT LABORATORIES THAT PROVIDE ANALYTICAL SUPPORT ☐ **No Change From Last Application**

Provide the name and address of each contract laboratory or consulting firm that performed any analyses submitted as part of this Application. To submit additional information, see Page ii, Item 3.

Laboratory Name			Laboratory Name		
John E. Dolan Labs			General Engineering Labs		
Street Address			Street Address		
4001 Bixby Road			2040 Savage Road		
City	State	ZIP Code	City	State	ZIP Code
Groveport	Ohio	43125	Charleston	South Carolina	29407
Telephone (with area code)	Fax (with area code)		Telephone (with area code)	Fax (with area code)	
(614) 836-4215	(614) 836-4168		(843) 556-8171	(843) 766-1178	
Analysis Performed			Analysis Performed		
Oil and Grease, routine DMR compliance analyses			Required Table 2-5 analyses from appendix.		
Laboratory Name			Laboratory Name		
KAR Labs			Cook Nuclear Plant		
Street Address			Street Address		
4425 Manchester Road			1 Cook Place		
City	State	ZIP Code	City	State	ZIP Code
Kalamazoo	Michigan	49001	Bridgman	Michigan	49106
Telephone (with area code)	Fax (with area code)		Telephone (with area code)	Fax (with area code)	
(269) 381-9666	(269) 381-9698		(269) 465-5901x 2006	(269)-466-2550	
Analysis Performed			Analysis Performed		
Total Available Cyanide OIA-1677			Routine DMR compliance analyses.		

13. LIST ADJACENT PROPERTY OWNERS ☐ **No Change From Last Application**

List the names and mailing addresses of all property owners for all properties adjacent to the facility, treatment systems, and discharge locations. For vacant lots or empty buildings, supply the owner's mailing address – NOT the lot or building property address. To submit additional information, see Page ii, Item 3.

Name	Address	City	State	ZIP Code
See attached.				

Michigan Department of Environmental Quality-Surface Water Quality Division

Wastewater Discharge Permit Application

SECTION I - General Information

PLEASE TYPE OR PRINT

ACILITY NAME	NPDES PERMIT OR COC NUMBER
Donald C. Cook Nuclear Plant	MI0005827

13 List adjacent property owners

List the names and addresses of all property owners adjacent to the facility, treatment systems, and discharge locations. List this information in the space provided below or include the information as an attachment on 8 1/2" x 11" paper. If additional space is necessary, copy this blank page and attach this information to this application.

Location	Property Number	Name	Address
NORTH			
Grand Mere State Park	11-11-0006-0002-03-1	Michigan Department of Natural Resources	PO Box 30735 Lansing, MI 48909
Rosemary Beach	11-11-0006-0004-02-5	Rosemary Beach Corp.	C/O Secretary 3415 S. 59 St. Cicero IL 60650
Rosemary Beach	11-11-0006-0004-00-9	Franklin Real Estate	c/o Indiana Michigan Power Co. PO Box 16428 Columbus OH 43216 Attn: Tax section.
Rosemary Beach	11-11-0006-0004-01-7	Caparo, William E. & Oyler, Kathryn E.	122 S. Ellsworth Pl. South Bend, IN 46635
Rosemary Beach	11-11-0006-0004-04-1	Temmel, Edward P.	9617 E. Shore Dr. Oak Lawn IL 60453
Rosemary Beach	11-11-0006-0004-09-2	Mcaloon, Sharon	1707 Dumont Ln Schaumburg, IL 60194
Rosemary Beach	11-11-0006-0004-05-0	West, Kathleen M. Trustee	3423 N. Seminary Ave Chicago, IL 60657
Rosemary Beach	11-11-0006-0004-10	Olofsson, Erik J.	PO Box 74 Stevensville, MI 49127
Rosemary Beach	11-11-0006-0004-11	Olofsson, Harold W.	PO Box 299 Oak Lawn, IL 60454
Rosemary Beach	11-11-0006-0004-12	Addante, Joseph	576 Hawhorne Elmhurst IL 60126-3301
Rosemary Beach	11-11-6800-0026-10	O'Malley, Sean A. + Wyse, Jeffery D.	5025 N. Central Park Chicago, IL 60625
Rosemary Beach	11-11-6800-0026-09	O'Malley, Sean A. + Wyse, Jeffery D.	5025 N. Central Park Chicago, IL 60625
Rosemary Beach	11-11-6800-0027-02-0	Herbert, Rosemary C.	22 S. Archer Ave Mundelein IL 60060
Rosemary Beach	11-11-6800-0028-00-0	Herbert, Rosemary C.	22 S. Archer Ave Mundelein IL 60060
Rosemary Beach	11-11-6800-0028-01-8	Balka, Janet M.	3334 Louise Dr. Lansing, IL 60438
Rosemary Beach	11-11-6800-0030-02-1	Gottschall, Bruce A. & Susan M.	5760 S. Blackstone Chicago, IL 60637
Rosemary Beach	11-11-6800-0032-01-5	Giese Marie E.	4291 Lake Road Stevensville, MI 49127
Rosemary Beach	11-11-6800-0033-00-3	Gilpin, Nancy	714 S Dearborn #8 Chicago, IL 60605
Rosemary Beach	11-11-6800-0036-00-2	Lewis, James G. Jr.	4183 Lake Ct. Stevensville, MI 49127
Rosemary Beach	11-11-6800-0037-00-9	Kobler, Rich +Matthews, Larry.	4155 Lake Road Stevensville, MI 49127
Rosemary Beach	11-11-6800-0037-01-7	Gielniewski, Michael Z. & Teresa B.	1113 Independence Road Bartlett, IL 60103

MI0005827

Location	Property Number	Name	Address
Rosemary Beach	11-11-6800-0037-02-5	Tengerstrom Eric H. Trustee LE & Martin, Holly	7470 Rosemary Rd Stevensville, MI 49127
Rosemary Beach	11-11-6800-0038-00-5	Tengerstrom, Eric H. Trustee LE & Martin, Holly	7470 Rosemary Rd Stevensville, MI 49127
NORTH	11-11-0005-0029-00-3	Technisand, Inc.	PO Box 177 Wedron, IL 60557
NORTH	11-11-0005-0027-00-1	Technisand, Inc.	PO Box 177 Wedron, IL 60557
NORTH	11-11-0005-0036-01-8	Ruff, Timothy W.	7500 Thorton Dr. Stevensville, MI 49127
NORTH	11-11-0005-0036-06-9	Emery, Martin; Hopkins, Elwood J. & Mable N.;	7499 Thorton Dr. Stevensville, MI 49127
NORTH	11-11-0005-0036-02-6	Indiana Michigan Power Company	C/O. PO Box 16428 Columbus OH 43216 Attn: Tax section.
EAST	11-11-0005-0024-00	Marshke, Dale A.	7552 Jericho Road Stevensville MI 49127
EAST	11-11-0005-0016-00	Westlake, Anita	7622 Red Arrow Highway Stevensville, MI 49127
EAST (VISITOR CENTER)	11-11-0005-0002-01-6	Blue Jay Assoc.	C/O. PO Box 16428 Columbus OH 43216 Attn: Tax section.
EAST		Interstate I-94	Michigan Dept of State Highways
SOUTH	11-11-0008-06-00	Indiana Michigan Power Company	C/O. PO Box 16428 Columbus OH 43216 Attn: Tax section.
SOUTH	11-11-0008-0041-00-8	Michigan Dept. of Transportation	Lansing MI 48900
SOUTH	11-11-0008-0009-00-7	Franklin Real Estate	C/O PO Box 16428 Columbus OH 43216 Attn: Tax section..
SOUTH	11-11-0007-0013-00-6	Lake Charter Twp.	Shawnee Rd. Bridgman, MI 49106
SOUTH	11-11-0007-0013-01-4	Lake Charter Twp.	Shawnee Rd. Bridgman, MI 49106
SOUTH	11-11-0007-0006-01-8	Indiana Michigan Power Company	C/O PO Box 16428 Columbus OH 43216 Attn: Tax section.
SOUTH	11-11-0007-0004-01-5	Lake Charter Twp.	Shawnee Rd. Bridgman, MI 49106
SOUTH	11-11-0007-0001-01-6	Lake Charter Twp.	Shawnee Rd. Bridgman, MI 49106
WEST		Lake Michigan	State of Michigan and United States of America

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER
Donald C. Cook Nuclear Plant	MI0005827

14. APPLICATION CERTIFICATION

Rule 323.2114(1-4), promulgated under the Michigan Act, requires that **this Application must be signed as follows:**

A. **For an organization, company, corporation, or authority, by a principal executive office, vice president, or higher.**
B. **For a partnership, by a general partner.**
C. **For a sole proprietor, by the proprietor.**
D. **For a municipal, state, or other public facility, by a principal executive officer or ranking elected official (such as the mayor, village president, city or village manager, or clerk).**

Note: If the signatory is not listed above, but is authorized to sign the Application, please provide documentation of that authorization.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for having knowledge of violations."

The last application for this facility was submitted on: March 28, 2003

I understand that my signature constitutes a legal agreement to comply with the requirements of the NPDES Permit. I certify under penalty of law that I possess full authority on behalf of the legal owner/permittee to sign and submit this application.

Print Name: Jon H. Harner Title: Environmental Manager

Signature: Jon H. Harner Date: 4-2-08

This completes Section I. Publicly-Owned Treatment Works (POTWs) discharging sanitary and industrial wastewater to the surface waters, and privately-owned treatment works discharging sanitary wastewater to the surface waters should complete Section II. Privately-owned treatment works include, but are not limited to, Mobile Home Parks, Campgrounds, Condominiums, Hotels and Motels, Nursing Homes, etc. All other applicants should complete Section III. If assistance is needed to complete this Application, contact the Permits Section.

Permit Application Submittal Checklist

Please confirm the following before submitting the Application Form:

☒ 1. Section I has been completed, including all diagrams, maps, and the treatment process narrative.

☒ 2. The Application has been signed as required above in Section I.14. (A.-D.) or a copy of the letter authorizing the signatory to sign the letter has been included, as appropriate.

☒ 3. Section II or Section III has been completed, including any additional information or submissions.

☒ 4. Section IV has been completed by any facility that discharges storm water.

☒ 5. A check or Money Order for the appropriate Application Fee has been made out to the "State of Michigan" and has been included with the Application submittal.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION II - General Information

PLEASE TYPE OR PRINT

Section II is to be completed by Publicly-Owned Treatment Works discharging treated or untreated sanitary and industrial wastewater to the surface waters. Section II is also to be completed by all privately-owned treatment works discharging treated sanitary wastewater to the surface waters. The privately-owned treatment works include, but are not limited to, Mobile Home Parks, Campgrounds, Condominiums, Hotels and Motels, and Nursing Homes.

A. Facility Information

FACILITY NAME THIS SECTION IS NOT REQUIRED TO BE FILLED OUT	NPDES PERMIT NUMBER

1. WATER SUPPPLY INFORMATION ☐ **No Change From Last Application**

List the source(s) of the water supply in the area served by sewers. Identify groundwater wells and surface water intakes, as well as the name(s) of any surface water(s) from which intake water is drawn.

2. SERVICE AREA INFORMATION ☐ **No Change From Last Application**

Publicly-Owned Treatment Works are required to provide the following information: List the governmental jurisdictions (cities, townships, villages, etc.) that this facility serves (applicants should include themselves). What is the population in each jurisdiction? Is the jurisdiction's collection system separate, combined, or both? If the collection system is both separate and combined, what percentage is combined? To submit additional information, see Page ii, Item 3.

Municipality and E-Mail Address	Type of Collection System	Percent Combined	Population Served
_____	☐ Separate ☐ Combined	_____	_____
_____	☐ Separate ☐ Combined	_____	_____
_____	☐ Separate ☐ Combined	_____	_____
_____	☐ Separate ☐ Combined	_____	_____
_____	☐ Separate ☐ Combined	_____	_____

Total population served by this facility: _____

Privately-Owned Treatment Works are required to provide the following information:

Describe the area served by this facility (mobile home park, condominium, nursing home, etc.).

Provide the number of residential units served by this facility: _____

3. BIOMONITORING FOR ACUTE AND CHRONIC TOXICITY

POTWs meeting one or more of the following criteria are required to submit with this Application the **results of four** Whole Effluent Toxicity (WET) tests for each of the facility's discharge points, excluding combined sewer overflows: 1) POTWs with a design flow rate greater than or equal to one (1) million gallons per day; 2) POTWs with an approved Federal Industrial Pretreatment Program (FIPP); and/or 3) POTWs required to develop a FIPP.

The results of the tests shall be reported using the Acute Toxicity Test Report, *Ceriodaphnia dubia* Chronic Toxicity Test Report and the Fathead Minnow Chronic Toxicity Test Report available in the Appendix. Please do not submit additional forms or paperwork pertaining to WET tests with this Application.

At a minimum, the applicant shall submit the results of quarterly WET testing for a 12-month period prior to this Application, or the results of annual WET tests conducted during the five years prior to this Application. In addition, the applicant shall submit the results of any other WET tests from the past five years. If a WET test in the past 4½ years revealed toxicity, provide all the information on the cause of toxicity or the results of all toxicity reduction evaluations, if any were conducted. The applicant does not need to submit results for previously-submitted WET Tests. **For assistance, see the "Whole Effluent Toxicity Test Guidance and Requirements" section in the Appendix.**

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

Section III is to be completed by all facilities classified as Industrial or Commercial facilities. Industrial and Commercial facilities include, but are not limited to, facilities that discharge or propose to discharge a wastewater generated by a production process, a service provided, or through a remediation project. Municipal and public facilities are not required to complete Section III (unless requesting authorization for discharges other than sanitary wastewater).

A. Facility Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER
Donald C. Cook Nuclear Plant	MI0005827

1. BUSINESS INFORMATION ☐ No Change From Last Application

A. Provide up to four Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) codes, in order of economic importance, which best describe the major products or services provided by this facility.

1. 221113	2. 4911	3.	4.

B. Indicate if this facility is a primary industry (refer to Table 1 of the Appendix to determine if this facility is a primary industry).

☒ Yes. This facility is a primary industry. Indicate the primary industry as identified in Table 1 of the Appendix: Steam Electric

☐ No. This facility is not a primary industry.

C. Is this facility a Concentrated Animal Feeding Operation (CAFO)?

☐ Yes. Continue with Section III.B.11.

☒ No.

2. WATER SUPPLY AND DISCHARGE TYPE ☐ No Change From Last Application

A. Identify all water sources entering the facility and treatment systems, and provide average flows. The volume may be estimated from water supply meter readings, pump capacities, etc. Provide the name of the source where appropriate (i.e., Grand River, Lake Michigan, City of Millpond). To submit additional information, see Page ii, Item 3.

	Name and Location of Source	Average Volume or Flow Rate	Units
Municipal Supply	Lake Township water Plant/ Bridgman MI	0.042	MGD
Surface Water Intake	Lake Michigan	2112.005	MGD
Private Well			
Other: ____			

B. Identify water discharged by the facility and treatment systems, and provide average flows. If water is first used for one purpose and then is subsequently used for another purpose, indicate the type and amount of the last use. For example, if water is initially used for noncontact cooling water and then for process water, indicate the amount of process water. The amount of water from sources should approximate the amount of water usage. If they are different, provide an explanation.

	Average Flow Rate	Units		Average Flow Rate	Units
Process Wastewater	1.027	MGD	Sanitary Wastewater	0.020	MGD
Contact Cooling Water	NA	MGD	Regulated Storm Water	5.169 (calc)	MGD
Noncontact Cooling Water	2111	NA	High Pressure Test Water		
Groundwater Cleanup	NA	NA	Other: ____		

Note: For A and B above, indicate units as MGD (million gallons per day), MGY (million gallons per year), GPD (gallons per day), or other appropriate unit.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this blank section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	INTAKE

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: 41 58.668'				Longitude: -086 34.448'	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☐ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☐ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☒ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) Intake water

F. What is the Maximum Design Flow Rate for this outfall: 2369 MGD ☐ **No Change From Last Application, Items F. – G.**

G. What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers na - intake MGY (Continue with Item H).

Continuous Dischargers na- intake MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? _____ Hours/Day _____ Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	INTAKE

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

PROCESS INFORMATION
A. Name of the process contributing to the discharge: _____
B. SIC or NAICS code: _____
C. Describe the process and provide measures of production:

Michigan Department of Enviro ıtal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	INTAKE

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☐ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Organic Carbon (TOC)			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Ammonia Nitrogen (as N)			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Suspended Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Dissolved Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐		*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine			☐ mg/l ☐ µg/l		Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily	mg/l		☐ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum	Maximum	standard units		☐ Grab ☐ 24 Hr Comp
☐		Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease			mg/l		Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

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B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	INTAKE

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

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ITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
.d C. Cook Nuclear Plant	MI0005827	INTAKE

Submitted via DMR's		SAMPLE DATE →	2/18/08	2/18/08	2/19/08	2/19/08		
	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	Mercury	007439976	0.0013	0.0005	<0.0005	<0.0005	grab	1631
☐	Arsenic (3/24/2008)	7440382	1.3				grab	200.8
☐	Selenium(3/24/2008)	7782492	<0.5				grab	200.8
☐	Silver(3/24/2008)	7440224	<0.05				grab	200.8
☐								
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WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	INTAKE

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☐ Yes.

☐ No. Proceed to Item 10.

B. *Have these water treatment additives been previously approved?*

☐ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this ink section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: 41 58' 37.2282"				Longitude: -086 34' 15.9054"	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☒ Noncontact Cooling Water

☒ *Process Wastewater* ☐ *Sanitary Wastewater* ☐ *Storm Water - not regulated* ☒ *Storm Water - regulated*

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☒ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) Intake Screen Backwash, Floor Drainage water.

F. What is the Maximum Design Flow Rate for this outfall: 2369 MGD ☒ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 1500 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

CILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00A

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00B

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00C

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Auxiliary boiler Blowdown. 0.043 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00G

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Reverse osmosis reject stream 0.366 MGD maximum flow 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00H

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Miscellaneous equipment drains and processes. Maximum flow is 5.2 MGD. 2247 MWE total plant electrical generation. This Outfall is used for emergency purposes only.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Misc Minor Stormwater drains

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

of drains from the screenhouse roof, small roadway gratings above the forebay road.

Michigan Department of Enviro ıtal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - *Instructions for this item are on Page 4 of the Appendix.*
☒ Check this box if additional information is Included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	1.14	1.14	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	31.2	31.2	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.71	3.71	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	<0.030	<0.030	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Suspended Solids	4.8	4.8	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Dissolved Solids	173	173	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☒		Total Residual Chlorine			☐ mg/l ☐ µg/l		Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 7.5	mg/l	1	☒ Grab ☐ 24 Hr Comp
☒		pH (report maximum and minimum of individual samples)	Minimum	Maximum	standard units		☒ Grab ☐ 24 Hr Comp
☒		Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☒		Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	1.00	1.00	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

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FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

Submitted via DMR's	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
		SAMPLE DATE →	3/5/08					
☐	Arsenic	7440382	1.3					
☐	Selenium	7782792	<0.5					
☐	Silver	7440224	<0.05					
☐	Additional data attached							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
Required				
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	1.14 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	31.2 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.71 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	<0.03 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	4.8 mg/l
Temperature Summer (Max July 07)	Cook	SM 2550B	None	EDMR
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	EDMR
pH	Cook	SM 4500-H+B	None	EDMR
Report available data				
Total Dissolved Solids	gel	SM 2540C	None	173 mg/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	EDMR
Dissolved oxygen	COOK	SM 4500-O C	None	7.5 mg/l
Oil and Grease	gel	EPA1664a	None	<4.0 mg/l
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Donald C. Cook Nuclear Plant NPDES Permit MI0005827 Table 1 required analyses

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	<1.00 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<8.93 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<8.93 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<8.93 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<17.9 ug/l
2-Chlorophenol	gel	EPA 625	95578	<8.93 ug/l
2-nitrophenol	gel	EPA 625	88755	<8.93 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<8.93 ug/l
4-Nitrophenol	gel	EPA 625	100027	<8.93 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<8.93 ug/l
Pentachlorophenol	gel	EPA 625	87865	<8.93 ug/l
Phenol	gel	EPA 625	108952	<8.93 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<8.93 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<8.93 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<8.93 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<8.93 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<8.93 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<8.93 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<8.93 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.893 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<8.93 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.893 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<8.93 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<8.93 ug/l
Acenaphthene	gel	EPA 625	83329	<0.893 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.893 ug/l
Anthracene	gel	EPA 625	120127	<0.893 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<8.93 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.893 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.893 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.893 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.893 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<8.93 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<8.93 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<8.93 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<8.93 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<8.93 ug/l
Chrysene	gel	EPA 625	218019	<0.893 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<8.93 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<8.93 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.893 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<8.93 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<8.93 ug/l
Fluoranthene	gel	EPA 625	206440	<0.893 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
Fluorene	gel	EPA 625	86737	<0.893 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<8.93 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<8.93 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<8.93 ug/l
Hexachloroethane	gel	EPA 625	67721	<0.893 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.893 ug/l
Isophorone	gel	EPA 625	78591	<8.93 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<8.93 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<8.93 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<8.93 ug/l
Naphthalene	gel	EPA 625	91203	<0.893 ug/l
Nitrobenzene	gel	EPA 625	98953	<8.93 ug/l
Phenanthrene	gel	EPA 625	85018	<0.893 ug/l
Pyrene	gel	EPA 625	129000	<0.893 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	1.19 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	<2 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	0.996 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
Total Silver	gel	EPA 200.8	7440224	<1 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				
Aluminum, Total	gel	EPA 200.8	7429905	67.9 ug/l
Barium, Total	gel	EPA 200.8	7440393	23.0 ug/l
Boron, Total	gel	EPA 200.8	7440428	26.0 ug/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	0.110 mg/l
Iron, Total	gel	EPA 200.8	none	316 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	12400 ug/l
Manganese, Total	gel	EPA 200.8	7439965	7.27 ug/l
Molybdenum, total	gel	EPA 200.8	7439987	1.26 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	0.446 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	193 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	24.6 mg/l
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 001 *sampled 4/30/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	<0.7
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	<3.0
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.0943 uG/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	324 uS/cm

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	001

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in *Item C., Items 1-8 shall be updated if it has changed since the previous approval.*

☐ No. Continue with Item C.

C. *Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed* below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**001,002,003**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date	Previously permitted Maximum discharge concentrations. As applied for under Part I.6 of the current NPDES permit, "Request for Discharge of Water Treatment Additives." (Based on 2 circ water pumps in operation during discharge event)
Sodium Hypochlorite	5/23/00 NPDES Permit approval 9/28/95	38 ug/l (continuous) 200 ug/l (intermittent)
Betz CT-1300 Formerly called Betz CT-2 (Molluscicide)	NPDES Permit approval 9/28/95, 5/23/00, 2/28/02, 6/13/03	0.07 mg/l
Calgon H-130M (Molluscicide)	8/16/95, 5/23/00	0.012 mg/l
Calgon EVAC (Molluscicide)	8/8/00	0.078 mg/l
Nalco Macrotrol 9380 (Molluscicide)	8/16/95, 5/23/00, 2/28/02	0.01 mg/l (4)
Nalco Macrotrol 9210 (Molluscicide)	8/16/95, 5/23/00, 2/28/02	0.08 mg/l (4)
Nalco TRASAR 23299	5/23/00, 9/17/96	0.146 mg/l (4)
Fluorescein Dye	9/21/98	Per rule 97 for certification of Dyes
Bentonite Clay	5/23/2000, NPDES Permit approval 9/28/95	(5)
Betz Ferroquest FQ LP 7200 (Formerly Called Betz Depositrol 855D)	11/14/94, 5/23/00, 9/17/96, NPDES Permit approval 9/28/95	0.033 mg/l
Sodium Tetraborate (Borax)	5/23/00, 4/16/98	1.5 mg/l (6)
SF6 (Sulphur hexafluoride gas)	NPDES Permit approval 9/28/95	2.5 mg/l
Betz Corrshield NT 4205 (Formerly Powerline 3231) (Nitrite additive.)	6/23/99, 9/17/96	2.6 mg/l (3)
Calgon LCS-60 (Nitrite additive.)	6/23/99, NPDES Permit approval 9/28/95	0.86 mg/l
Betz Corrshield NT4201 (Nitrite additive.)	5/17/02	1.95 mg/l (2)
Betz Corrshield NT 4203 (Nitrite additive.)	9/18/02	1.48 mg/l (1)
Spectrus NX 1105 (Formerly Betz Biotrol 107) (Gluteraldehyde)	6/23/99, 5/23/00	0.083 mg/l
Calgon H-300 (Gluteraldehyde)	6/23/99, 5/23/00	0.065 mg/l
Betz AZ 8103 (Formerly Betz Copper-Trol Cu-1 (Tolyltriazole)	12/18/95, 6/23/99, 5/23/00	0.2 mg/l
Betz 3610 (Methyl (Bis) Thiocyanate)	6/23/99	0.026 mg/l
Betz MD-4103 (MoO_4)	3/26/02	1.65 mg/l
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95	0.029 mg/l
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95	0.01 mg/l
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95	0.1 mg/l
Betz AZ8101	3/31/2005	0.32 mg/l
Betz Ferroquest FQ7101	8/28/2007	0.54 mg/l
Betz Ferroquest FQ7102	8/28/2007	0.27 mg/l
Betz Spectrus DT 1404 (Sodium Bisulfite)	Approved 2/13/08	0.21 mg/l

(1) 3 pumps running for extra dilution: 1.0 mg/l
(2) 3 pumps running for extra dilution: 1.3 mg/l
(3) 3 pumps running for extra dilution: 1.7 mg/l
(4) 6 times per year, 16 hrs per day
(5) Nalco 9380: 9.8 – 14.3 lbs clay: 1 lb of 9380
Betz CT-1300: 7.5 lbs clay: 1 lb of CT-1300
(6) 1 Circ pump minimum dilution

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this ink section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: 41 58' 35.1"				Longitude: -086 34' 16.8"	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☒ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☒ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☒ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) Intake Screen Backwash, Floor Drainage water,

F. What is the Maximum Design Flow Rate for this outfall: 2369 MGD ☒ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 1820 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. *To submit additional information, see Page ii, Item 3.*

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00A

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow 2247 MWE total plant electrical generation ,

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00B

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00C

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Auxiliary boiler Blowdown. 0.043 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00G

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Reverse osmosis reject stream 0.366 MGD maximum flow 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00H

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Miscellaneous equipment drains and processes. Maximum flow is 5.2 MGD. 2247 MWE total plant electrical generation. This Outfall is used for emergency purposes only.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Misc Minor Stormwater drains

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Roof drains from the screenhouse roof, small roadway gratings above the forebay road.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**002**
3. Effluent characteristics Conventional pollutants.		

Water discharged from Outfall 002 is the same as Outfall 001 and 002. Written permission has been obtained from the Kalamazoo District Office on February 12. 2008 to use the Table 1 data from Outfall 001 to characterize this discharge.

Michigan Department of Enviro. ıtal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	1.14	1.14	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	31.2	31.2	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.71	3.71	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	<0.030	<0.030	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Suspended Solids	4.8	4.8	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Dissolved Solids	173	173	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☒		Total Residual Chlorine			☐ mg/l ☐ µg/l		Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 7.5	mg/l	1	☒ Grab ☐ 24 Hr Comp
☒		pH (report maximum and minimum of individual samples)	Minimum	Maximum	standard units		☒ Grab ☐ 24 Hr Comp
☒		Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☒		Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	1.00	1.00	mg/l	1	Grab

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

:ASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

Submitted via DMR's	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
	SAMPLE DATE →		3/5/08					
☐	Arsenic	7440382	1.3					
☐	Selenium	7782792	<0.5					
☐	Silver	7440224	<0.05					
☐	Additional data attached							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
Required				
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	1.14 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	31.2 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.71 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	<0.03 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	4.8 mg/l
Temperature Summer (Max July 07)	Cook	SM 2550B	None	EDMR
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	EDMR
pH	Cook	SM 4500-H+B	None	EDMR
Report available data				
Total Dissolved Solids	gel	SM 2540C	None	173 mg/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	EDMR
Dissolved oxygen	COOK	SM 4500-O C	None	7.5 mg/l
Oil and Grease	gel	EPA1664a	None	<4.0 mg/l
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Donald C. Cook Nuclear Plant NPDES Permit MI0005827 Table 1 required analyses

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	<1.00 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<8.93 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<8.93 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<8.93 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<17.9 ug/l
2-Chlorophenol	gel	EPA 625	95578	<8.93 ug/l
2-nitrophenol	gel	EPA 625	88755	<8.93 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<8.93 ug/l
4-Nitrophenol	gel	EPA 625	100027	<8.93 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<8.93 ug/l
Pentachlorophenol	gel	EPA 625	87865	<8.93 ug/l
Phenol	gel	EPA 625	108952	<8.93 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<8.93 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<8.93 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<8.93 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<8.93 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<8.93 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<8.93 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<8.93 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.893 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<8.93 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.893 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<8.93 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<8.93 ug/l
Acenaphthene	gel	EPA 625	83329	<0.893 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.893 ug/l
Anthracene	gel	EPA 625	120127	<0.893 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<8.93 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.893 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.893 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.893 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.893 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<8.93 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<8.93 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<8.93 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<8.93 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<8.93 ug/l
Chrysene	gel	EPA 625	218019	<0.893 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<8.93 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<8.93 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.893 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<8.93 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<8.93 ug/l
Fluoranthene	gel	EPA 625	206440	<0.893 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
Fluorene	gel	EPA 625	86737	<0.893 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<8.93 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<8.93 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<8.93 ug/l
Hexachloroethane	gel	EPA 625	67721	<0.893 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.893 ug/l
Isophorone	gel	EPA 625	78591	<8.93 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<8.93 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<8.93 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<8.93 ug/l
Naphthalene	gel	EPA 625	91203	<0.893 ug/l
Nitrobenzene	gel	EPA 625	98953	<8.93 ug/l
Phenanthrene	gel	EPA 625	85018	<0.893 ug/l
Pyrene	gel	EPA 625	129000	<0.893 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	1.19 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	<2 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	0.996 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
Total Silver	gel	EPA 200.8	7440224	<1 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				
Aluminum, Total	gel	EPA 200.8	7429905	67.9 ug/l
Barium, Total	gel	EPA 200.8	7440393	23.0 ug/l
Boron, Total	gel	EPA 200.8	7440428	26.0 ug/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	0.110 mg/l
Iron, Total	gel	EPA 200.8	none	316 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	12400 ug/l
Manganese, Total	gel	EPA 200.8	7439965	7.27 ug/l
Molybdenum, total	gel	EPA 200.8	7439987	1.26 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	0.446 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	193 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	24.6 mg/l
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 002 *sampled 4/30/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	<0.7
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	*ASTM D-1385-88*	302012	<3.0
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.0943 uG/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	324 uS/cm

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

EASE TYPE OR PRINT

ACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	002

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**001,002,003**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date	Previously permitted Maximum discharge concentrations. As applied for under Part I.6 of the current NPDES permit, "Request for Discharge of Water Treatment Additives." (Based on 2 circ water pumps in operation during discharge event)
Sodium Hypochlorite	5/23/00 NPDES Permit approval 9/28/95	38 ug/l (continuous) 200 ug/l (intermittent)
Betz CT-1300 Formerly called Betz CT-2 (Molluscicide)	NPDES Permit approval 9/28/95, 5/23/00, 2/28/02, 6/13/03	0.07 mg/l
Calgon H-130M (Molluscicide)	8/16/95, 5/23/00	0.012 mg/l
Calgon EVAC (Molluscicide)	8/8/00	0.078 mg/l
Nalco Macrotrol 9380 (Molluscicide)	8/16/95, 5/23/00, 2/28/02	0.01 mg/l (4)
Nalco Macrotrol 9210 (Molluscicide)	8/16/95, 5/23/00, 2/28/02	0.08 mg/l (4)
Nalco TRASAR 23299	5/23/00, 9/17/96	0.146 mg/l (4)
Fluorescein Dye	9/21/98	Per rule 97 for certification of Dyes
Bentonite Clay	5/23/2000, NPDES Permit approval 9/28/95	(5)
Betz Ferroquest FQ LP 7200 (Formerly Called Betz Depositrol 855D)	11/14/94, 5/23/00, 9/17/96, NPDES Permit approval 9/28/95	0.033 mg/l
Sodium Tetraborate (Borax)	5/23/00, 4/16/98	1.5 mg/l (6)
SF6 (Sulphur hexafluoride gas)	NPDES Permit approval 9/28/95	2.5 mg/l
Betz Corrshield NT 4205 (Formerly Powerline 3231) (Nitrite additive.)	6/23/99, 9/17/96	2.6 mg/l (3)
Calgon LCS-60 (Nitrite additive.)	6/23/99, NPDES Permit approval 9/28/95	0.86 mg/l
Betz Corrshield NT4201 (Nitrite additive.)	5/17/02	1.95 mg/l (2)
Betz Corrshield NT 4203 (Nitrite additive.)	9/18/02	1.48 mg/l (1)
Spectrus NX 1105 (Formerly Betz Biotrol 107) (Gluteraldehyde)	6/23/99, 5/23/00	0.083 mg/l
Calgon H-300 (Gluteraldehyde)	6/23/99, 5/23/00	0.065 mg/l
Betz AZ 8103 (Formerly Betz Copper-Trol Cu-1 (Tolyltriazole)	12/18/95, 6/23/99, 5/23/00	0.2 mg/l
Betz 3610 (Methyl (Bis) Thiocyanate)	6/23/99	0.026 mg/l
Betz MD-4103 (MoO_4)	3/26/02	1.65 mg/l
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95	0.029 mg/l
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95	0.01 mg/l
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95	0.1 mg/l
Betz AZ8101	3/31/2005	0.32 mg/l
Betz Ferroquest FQ7101	8/28/2007	0.54 mg/l
Betz Ferroquest FQ7102	8/28/2007	0.27 mg/l
Betz Spectrus DT 1404 (Sodium Bisulfite)	Approved 2/13/08	0.21 mg/l

(1) 3 pumps running for extra dilution: 1.0 mg/l
(2) 3 pumps running for extra dilution: 1.3 mg/l
(3) 3 pumps running for extra dilution: 1.7 mg/l
(4) 6 times per year, 16 hrs per day
(5) Nalco 9380: 9.8 – 14.3 lbs clay: 1 lb of 9380
Betz CT-1300: 7.5 lbs clay: 1 lb of CT-1300
(6) 1 Circ pump minimum dilution

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this ink section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	003

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water Lake Michigan				Hydrologic Unit Code (HUC) 04040001	
B.	County Berrien				Township Lake	
C.	Town 06S	Range 19W	Section 06	¼ NW	¼, ¼ SW	Private (French) Land Claim)
D.	Latitude 41 58.668'				Longitude -086 34.448'	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☒ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☒ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☒ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) Intake Screen Backwash, Floor Drainage water,

F. What is the Maximum Design Flow Rate for this outfall: 2369 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers _____ MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	003

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00A

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow,2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00B

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00C

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Auxiliary boiler Blowdown. 0.043 MGD maximum flow, 2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00G

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Reverse osmosis reject stream 0.366 MGD maximum flow 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: 00H

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Miscellaneous equipment drains and processes. Maximum flow is 5.2 MGD. 2247 MWE total plant electrical generation. This Outfall is used for emergency purposes only.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Misc Minor Stormwater drains

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Roof drains from the screenhouse roof, small roadway gratings above the forebay road.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**003**
3. Effluent characteristics Conventional pollutants.		

Water discharged from Outfall 003 is the same as Outfall 001 and 002. Permission has been granted to use the Table 1 data from Outfall 001 to characterize this discharge.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
KALAMAZOO DISTRICT OFFICE

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

February 12, 2008

Mr. Blaire Zordell
Cook Nuclear Plant
One Cook Plaza
Bridgman, Michigan 49106

Dear Mr. Zordell:

SUBJECT: Application Renewal for NPDES Permit
National Pollutant Discharge Elimination System (NPDES) No. MI0005827
Designated Name: American Elec Power–Cook Plt, Berrien County

We have reviewed the information provided in your letter of February 21, 2007. In that letter, you requested that the data from representative outfalls be used in the permit application submittal to characterize effluent characteristics for similar outfalls. We approve your request as follows:

1. Effluent from Outfall 001 will be considered representative of outfalls 001, 002, and 003.

2. Effluent from Outfall 00B will be considered representative of Outfalls 00A, 00B, and 00C.

Please feel free to contact me if you have any questions.

Sincerely,

John Vollmer
Environmental Quality Analyst
Kalamazoo District Office
Field Operations Division
Water Bureau
269-567-3576

jv/dms

cc: Mr. Dan Dell, DEQ
Mr. Michael Walterhouse, DEQ

2008-158

Michigan Department of Enviro ntal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	003

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☐ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐	Use Outfall 001 data	Biochemical Oxygen Demand – five day (BOD_5)			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Chemical Oxygen Demand (COD)			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Total Organic Carbon (TOC)			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Ammonia Nitrogen (as N)			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Total Suspended Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Total Dissolved Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Total Phosphorus (as P)			mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Use Outfall 001 data	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐	Use Outfall 001 data	Total Residual Chlorine			☐ mg/l ☐ µg/l		Grab
☐	Use Outfall 001 data	Dissolved Oxygen	~~Do Not Use~~	Minimum daily	mg/l		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	pH (report maximum and minimum of individual samples)	Minimum	Maximum	standard units		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	Use Outfall 001 data	Oil & Grease			mg/l		Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this blank section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00A

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: na - internal outfall				Longitude: na - internal outfall	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☐ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☐ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) _____

F. What is the Maximum Design Flow Rate for this outfall: 1 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 1 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

‾' EASE TYPE OR PRINT

ꞆILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
ɒonald C. Cook Nuclear Plant	MI0005827	00A

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Unit One Steam Generator Blowdown

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow, 2247 mWe total electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00A**
3. Effluent characteristics Conventional pollutants.		

Water Discharged from Outfall 00B is the same as Outfall 00A and Outfall 00C. Written permission has been obtained from the Kalamazoo District Office on February 12. 2008 to use the Table 1 data from Outfall 00B to characterize this discharge. When available, Outfall 00A data has been included in the submittal. In Section III.B.3, pH and Dissolved Oxygen data is from Outfall 00A. Applicable process control data is included electronically as additional data from Outfall 00A.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
KALAMAZOO DISTRICT OFFICE

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

February 12, 2008

Mr. Blaire Zordell
Cook Nuclear Plant
One Cook Plaza
Bridgman, Michigan 49106

Dear Mr. Zordell:

SUBJECT: Application Renewal for NPDES Permit
National Pollutant Discharge Elimination System (NPDES) No. MI0005827
Designated Name: American Elec Power–Cook Plt, Berrien County

We have reviewed the information provided in your letter of February 21, 2007. In that letter, you requested that the data from representative outfalls be used in the permit application submittal to characterize effluent characteristics for similar outfalls. We approve your request as follows:

1. Effluent from Outfall 001 will be considered representative of outfalls 001, 002, and 003.

2. Effluent from Outfall 00B will be considered representative of Outfalls 00A, 00B, and 00C.

Please feel free to contact me if you have any questions.

Sincerely,

John Vollmer
Environmental Quality Analyst
Kalamazoo District Office
Field Operations Division
Water Bureau
269-567-3576

jv/dms

cc: Mr. Dan Dell, DEQ
Mr. Michael Walterhouse, DEQ

2008-158

Michigan Department of Enviro ntal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00A

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	5.24	5.24	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	27.9	27.9	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.62	3.62	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	1.38	1.38	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Suspended Solids	<6.25	<6.25	mg/l	1	☐ Grab ☐ 24 Hr Comp
☐		Total Dissolved Solids	12.0	12.0	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine	<80	<80	☐ mg/l ☒ µg/l	1	Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 0	mg/l	5	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 9.7	Maximum 10.3	standard units	993	☒ Grab ☐ 24 Hr Comp
☐	na- internal outfall	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	na - internal outfall	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	<4.0	<4.0	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00A

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

[PL]EASE TYPE OR PRINT

[F]ACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00A

Submitted via DMR's		SAMPLE DATE →						
	PARAMETER	CAS No.	Conc (µg/l)	Conc (µg/l)	Conc (µg/l)	Conc (µg/l)	Sample Type	Analytical Method
☐	See attached data sheet.							
☐	See attached electronic data.							
☐								
☐								
☐								
☐								
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
Required				*Additional data found in electronic form
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	5.24 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	27.9 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.62 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	1.38 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	<6.25 mg/l
Temperature Summer (Max July 07)	Cook	SM 2550B	None	na- internal outfall
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	na- internal outfall
pH	Cook	SM 4500-H+B	None	From plant data*
Report available data				*Additional data found in electronic form
Total Dissolved Solids	gel	SM 2540C	None	12.0 mg/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	<80 ug/l
Dissolved oxygen	COOK	SM 4500-O C	None	From plant data*
Oil and Grease	gel	EPA1664a	None	<4.0 mg/l
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	<1.00 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<9.62 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<9.62 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<9.62 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<19.2 ug/l
2-Chlorophenol	gel	EPA 625	95578	<9.62 ug/l
2-nitrophenol	gel	EPA 625	88755	<9.62 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<9.62 ug/l
4-Nitrophenol	gel	EPA 625	100027	<9.62 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<9.62 ug/l
Pentachlorophenol	gel	EPA 625	87865	<9.62 ug/l
Phenol	gel	EPA 625	108952	<9.62 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<9.62 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<9.62 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<9.62 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<9.62 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<9.62 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<9.62 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<9.62 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.962 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<9.62 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.962 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<9.62 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<9.62 ug/l
Acenaphthene	gel	EPA 625	83329	<0.962 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.962 ug/l
Anthracene	gel	EPA 625	120127	<0.962 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<9.62 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.962 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.962 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.962 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.962 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<9.62 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<9.62 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<9.62 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<9.62 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<9.62 ug/l
Chrysene	gel	EPA 625	218019	<0.962 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<9.62 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<9.62 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.962 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<9.62 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<9.62 ug/l
Fluoranthene	gel	EPA 625	206440	<0.962 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
Fluorene	gel	EPA 625	86737	<0.962 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<9.62 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<9.62 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<9.62 ug/l
Hexachloroethane	gel	EPA 625	67721	<9.62 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.962 ug/l
Isophorone	gel	EPA 625	78591	<9.62 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<9.62 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<9.62 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<9.62 ug/l
Naphthalene	gel	EPA 625	91203	<0.962 ug/l
Nitrobenzene	gel	EPA 625	98953	<9.62 ug/l
Phenanthrene	gel	EPA 625	85018	<0.962 ug/l
Pyrene	gel	EPA 625	129000	<0.962 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	<1 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	7 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	<0.5 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
Total Silver	gel	EPA 200.8	7440224	<1 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				*Additional data found in electronic form
Aluminum, Total	gel	EPA 200.8	7429905	<15.0 ug/l *
Barium, Total	gel	EPA 200.8	7440393	<2.0 ug/l
Boron, Total	gel	EPA 200.8	7440428	<20 ug/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	<0.1 mg/l *
Iron, Total	gel	EPA 200.8	none	<25.0 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	<15.0 ug/l *
Manganese, Total	gel	EPA 200.8	7439965	<5.00 ug/l *
Molybdenum, total	gel	EPA 200.8	7439987	<0.5 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	<0.05 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	1020 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	<0.400 mg/l *
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00A *sampled 5/01/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				*Additional data found In electronic form
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	1.5 *
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	89.3 *
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.098 ug/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	0.46 uS/cm *

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

EASE TYPE OR PRINT

ACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00A

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION: To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00A**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date	Previously permitted Maximum discharge concentrations. As applied for under Part I.6 of the current NPDES permit, "Request for Discharge of Water Treatment Additives." (Based on 2 circ water pumps in operation during discharge event)
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95	0.029 mg/l
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95	0.01 mg/l
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95	0.1 mg/l

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this blank section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water Lake Michigan				Hydrologic Unit Code (HUC) 04040001	
B.	County Berrien				Township Lake	
C.	Town 06S	Range 19W	Section 06	¼ NW	¼, ¼ SW	Private (French) Land Claim)
D.	Latitude na - internal outfall				Longitude na - internal outfall	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☐ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☐ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) _____

F. What is the Maximum Design Flow Rate for this outfall: 1 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 1 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Unit Two Steam Generator Blowdown.

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Steam Generator Blowdown. 1 MGD maximum flow,2247 MWE total plant electrical generation

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

Michigan Department of Enviror tal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ *Use Escherichia Coli as an indicator of disinfection.* ☐ *Use Fecal Coliform Bacteria as an indicator of disinfection.*

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	5.24	5.24	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	27.9	27.9	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.62	3.62	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	1.38	1.38	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Suspended Solids	<6.25	<6.25	mg/l	1	☐ Grab ☐ 24 Hr Comp
☐		Total Dissolved Solids	12.0	12.0	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine	<80	<80	☐ mg/l ☒ µg/l	1	Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 0.01	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 9.8	Maximum 10.2	standard units	894	☒ Grab ☐ 24 Hr Comp
☐	na- internal outfall	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	na - internal outfall	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	<4.0	<4.0	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. *All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.*

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

Submitted via DMR's	PARAMETER	CAS No.	SAMPLE DATE → Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	See attached data sheet.							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
Required				*Additional data found in electronic form
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	5.24 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	27.9 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.62 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	1.38 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	<6.25 mg/l
Temperature Summer (Max July 07)	Cook	SM 2550B	None	na- internal outfall
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	na- internal outfall
pH	Cook	SM 4500-H+B	None	From plant data*
Report available data				*Additional data found in electronic form
Total Dissolved Solids	gel	SM 2540C	None	12.0 mg/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	<80 ug/l
Dissolved oxygen	COOK	SM 4500-O C	None	0.01 mg/l
Oil and Grease	gel	EPA1664a	None	<4.0 mg/l
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	<1.00 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<9.62 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<9.62 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<9.62 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<19.2 ug/l
2-Chlorophenol	gel	EPA 625	95578	<9.62 ug/l
2-nitrophenol	gel	EPA 625	88755	<9.62 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<9.62 ug/l
4-Nitrophenol	gel	EPA 625	100027	<9.62 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<9.62 ug/l
Pentachlorophenol	gel	EPA 625	87865	<9.62 ug/l
Phenol	gel	EPA 625	108952	<9.62 ug/l
Base/Neutral				

Donald C. Cook Nuclear Plant NPDES Permit MI0005827 Table 1 required analyses

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<9.62 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<9.62 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<9.62 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<9.62 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<9.62 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<9.62 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<9.62 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.962 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<9.62 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.962 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<9.62 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<9.62 ug/l
Acenaphthene	gel	EPA 625	83329	<0.962 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.962 ug/l
Anthracene	gel	EPA 625	120127	<0.962 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<9.62 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.962 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.962 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.962 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.962 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<9.62 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<9.62 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<9.62 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<9.62 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<9.62 ug/l
Chrysene	gel	EPA 625	218019	<0.962 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<9.62 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<9.62 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.962 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<9.62 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<9.62 ug/l
Fluoranthene	gel	EPA 625	206440	<0.962 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
Fluoréne	gel	EPA 625	86737	<0.962 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<9.62 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<9.62 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<9.62 ug/l
Hexachloroethane	gel	EPA 625	67721	<9.62 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.962 ug/l
Isophorone	gel	EPA 625	78591	<9.62 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<9.62 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<9.62 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<9.62 ug/l
Naphthalene	gel	EPA 625	91203	<0.962 ug/l
Nitrobenzene	gel	EPA 625	98953	<9.62 ug/l
Phenanthrene	gel	EPA 625	85018	<0.962 ug/l
Pyrene	gel	EPA 625	129000	<0.962 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	<1 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	7 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	<0.5 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
Total Silver	gel	EPA 200.8	7440224	<1 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				*Additional data found in electronic form
Aluminum, Total	gel	EPA 200.8	7429905	<15.0 ug/l *
Barium, Total	gel	EPA 200.8	7440393	<2.0 ug/l
Boron, Total	gel	EPA 200.8	7440428	<20 ug/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	<0.1 mg/l *
Iron, Total	gel	EPA 200.8	none	<25.0 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	<15.0 ug/l *
Manganese, Total	gel	EPA 200.8	7439965	<5.00 ug/l *
Molybdenum, total	gel	EPA 200.8	7439987	<0.5 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	<0.05 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	1020 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	<0.400 mg/l *
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00B *sampled 5/01/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				*Additional data found In electronic form
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	1.5 *
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	89.3 *
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.098 ug/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	0.46 uS/cm *

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: *The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.*

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. *For additional information, see "CAFO Guidance and Requirements" in the Appendix.*

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00B**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date	Previously permitted Maximum discharge concentrations. As applied for under Part I.6 of the current NPDES permit, "Request for Discharge of Water Treatment Additives." (Based on 2 circ water pumps in operation during discharge event)
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95	0.029 mg/l
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95	0.01 mg/l
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95	0.1 mg/l

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this blank section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00C

1. OUTFALL INFORMATION - *Instructions for this item are on Page 3 of the Appendix.* ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: na - internal outfall				Longitude: na - internal outfall	

E. *Type of Wastewater Discharged (check all that apply to this outfall):* ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☐ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☐ Other – specify (see "Table B - Other Common Types of Wastewater" - in the Appendix) _____

F. What is the Maximum Design Flow Rate for this outfall: 0.043 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 0.043. MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

CILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
›onald C. Cook Nuclear Plant	MI0005827	00C

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Plant heating boiler blowdown

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Plant heating boiler blowdown 0.043 MGD maximum flow. 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00C**
3. Effluent characteristics Conventional pollutants.		

Water Discharged from Outfall 00B is the same as Outfall 00A and Outfall 00C. Written permission has been obtained from the Kalamazoo District Office on February 12. 2008 to use the Table 1 data from Outfall 00B to characterize this discharge. When available, Outfall 00C data has been included in the submittal. In Section III.B.3, pH and Dissolved Oxygen data is from Outfall 00C. Applicable process control data is included electronically as additional data from Outfall 00C.

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
KALAMAZOO DISTRICT OFFICE

ENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

February 12, 2008

Mr. Blaire Zordell
Cook Nuclear Plant
One Cook Plaza
Bridgman, Michigan 49106

Dear Mr. Zordell:

SUBJECT: Application Renewal for NPDES Permit
National Pollutant Discharge Elimination System (NPDES) No. MI0005827
Designated Name: American Elec Power–Cook Plt, Berrien County

We have reviewed the information provided in your letter of February 21, 2007. In that letter, you requested that the data from representative outfalls be used in the permit application submittal to characterize effluent characteristics for similar outfalls. We approve your request as follows:

1. Effluent from Outfall 001 will be considered representative of outfalls 001, 002, and 003.

2. Effluent from Outfall 00B will be considered representative of Outfalls 00A, 00B, and 00C.

Please feel free to contact me if you have any questions.

Sincerely,

John Vollmer
Environmental Quality Analyst
Kalamazoo District Office
Field Operations Division
Water Bureau
269-567-3576

jv/dms

cc: Mr. Dan Dell, DEQ
Mr. Michael Walterhouse, DEQ

2008-158

Michigan Department of Enviro ıtal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

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Donald C. Cook Nuclear Plant	MI0005827	00C

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	5.24	5.24	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	27.9	27.9	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.62	3.62	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	1.38	1.38	mg/l	1	☐ Grab ☒ 24 Hr Comp
☒		Total Suspended Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Dissolved Solids	12.0	12.0	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine	<80	<80	☐ mg/l ☒ µg/l	1	Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 0	mg/l	10	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 8.3	Maximum 9.7	standard units	9	☒ Grab ☐ 24 Hr Comp
☐	na- internal outfall	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	na - internal outfall	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	<4.0	<4.0	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00C

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00C

Submitted via DMR's	SAMPLE DATE →							
	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	See attached data sheet.							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
Required				*Additional data found in electronic form
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	5.24 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	27.9 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.62 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	1.38 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	EDMR
Temperature Summer (Max July 07)	Cook	SM 2550B	None	na- internal outfall
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	na- internal outfall
pH	Cook	SM 4500-H+B	None	From plant data*
Report available data				*Additional data found in electronic form
Total Dissolved Solids	gel	SM 2540C	None	12.0 mg/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	<80 ug/l
Dissolved oxygen	COOK	SM 4500-O C	None	From plant data*
Oil and Grease	gel	EPA1664a	None	<4.0 mg/l
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Donald C. Cook Nuclear Plant NPDES Permit MI0005827 Table 1 required analyses

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	<1.00 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<9.62 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<9.62 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<9.62 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<19.2 ug/l
2-Chlorophenol	gel	EPA 625	95578	<9.62 ug/l
2-nitrophenol	gel	EPA 625	88755	<9.62 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<9.62 ug/l
4-Nitrophenol	gel	EPA 625	100027	<9.62 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<9.62 ug/l
Pentachlorophenol	gel	EPA 625	87865	<9.62 ug/l
Phenol	gel	EPA 625	108952	<9.62 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<9.62 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<9.62 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<9.62 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<9.62 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<9.62 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<9.62 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<9.62 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.962 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<9.62 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.962 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<9.62 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<9.62 ug/l
Acenaphthene	gel	EPA 625	83329	<0.962 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.962 ug/l
Anthracene	gel	EPA 625	120127	<0.962 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<9.62 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.962 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.962 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.962 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.962 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<9.62 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<9.62 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<9.62 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<9.62 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<9.62 ug/l
Chrysene	gel	EPA 625	218019	<0.962 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<9.62 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<9.62 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.962 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<9.62 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<9.62 ug/l
Fluoranthene	gel	EPA 625	206440	<0.962 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
Fluorene	gel	EPA 625	86737	<0.962 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<9.62 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<9.62 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<9.62 ug/l
Hexachloroethane	gel	EPA 625	67721	<9.62 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.962 ug/l
Isophorone	gel	EPA 625	78591	<9.62 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<9.62 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<9.62 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<9.62 ug/l
Naphthalene	gel	EPA 625	91203	<0.962 ug/l
Nitrobenzene	gel	EPA 625	98953	<9.62 ug/l
Phenanthrene	gel	EPA 625	85018	<0.962 ug/l
Pyrene	gel	EPA 625	129000	<0.962 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	<1 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	7 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	<0.5 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
Total Silver	gel	EPA 200.8	7440224	<1 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				*Additional data found in electronic form
Aluminum, Total	gel	EPA 200.8	7429905	<15.0 ug/l
Barium, Total	gel	EPA 200.8	7440393	<2.0 ug/l
Boron, Total	gel	EPA 200.8	7440428	<20 ug/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	<0.1 mg/l
Iron, Total	gel	EPA 200.8	none	<25.0 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	<15.0 ug/l
Manganese, Total	gel	EPA 200.8	7439965	<5.00 ug/l
Molybdenum, total	gel	EPA 200.8	7439987	<0.5 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	<0.05 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	1020 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	<0.400 mg/l
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00C *sampled 5/01/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				*Additional data found in electronic form
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	1.5 *
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	89.3 *
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.098 ug/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	0.46 uS/cm *

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

EASE TYPE OR PRINT

CILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00C

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00C**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date	Previously permitted Maximum discharge concentrations. As applied for under Part I.6 of the current NPDES permit, "Request for Discharge of Water Treatment Additives." (Based on 2 circ water pumps in operation during discharge event)
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95	0.029 mg/l
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95	0.01 mg/l
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95	0.1 mg/l

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this blank section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00G

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water Lake Michigan				Hydrologic Unit Code (HUC) 04040001	
B.	County Berrien				Township Lake	
C.	Town 06S	Range 19W	Section 06	¼ NW	¼, ¼ SW	Private (French) Land Claim)
D.	Latitude na - internal outfall				Longitude na - internal outfall	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☐ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - *not regulated* ☐ Storm Water - *regulated*

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☐ Other – specify (see "Table 8 - Other Common Types of Wastewater" - in the Appendix) _____

F. What is the Maximum Design Flow Rate for this outfall: 0.366 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 0.366 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00G

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Reverse osmosis system reject water.

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Reverse osmosis system reject flow 0.366 MGD maximum flow, 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

Michigan Department of Enviro ıtal Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00G

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	3.44	3.44	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	29.5	29.5	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	4.43	4.43	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	<0.03	<0.03	mg/l	1	☐ Grab ☒ 24 Hr Comp
☒		Total Suspended Solids			mg/l		☐ Grab ☐ 24 Hr Comp
☐		Total Dissolved Solids	519	519	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine	90	100	☐ mg/l ☒ µg/l	2	Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 7.8	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 5.5	Maximum 7.0	standard units	21	☒ Grab ☐ 24 Hr Comp
☐	na- internal outfall	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	na - internal outfall	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	<4.0	<4.0	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

ASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00G

Submitted via DMR's	PARAMETER	CAS No.	Conc (µg/l)	Conc (µg/l)	Conc (µg/l)	Conc (µg/l)	Sample Type	Analytical Method
		SAMPLE DATE →	3/5/08					
☐	Arsenic	7440382	2.6					
☐	Selenium	7782792	<0.5					
☐	Silver	7440224	0.18					
☐	Additional data attached.							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
Required				*Additional data found in electronic form
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	3.44 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	29.5 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	4.43 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	<0.03 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	EDMR
Temperature Summer (Max July 07)	Cook	SM 2550B	None	na- internal outfall
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	na- internal outfall
pH	Cook	SM 4500-H+B	None	From plant data*
Report available data				*Additional data found in electronic form
Total Dissolved Solids	gel	SM 2540C	None	519 ug/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	100 ug/l
Dissolved oxygen	COOK	SM 4500-O C	None	7.8 mg/l
Oil and Grease	gel	EPA1664a	None	<4.0
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Donald C. Cook Nuclear Plant NPDES Permit MI0005827 Table 1 required analyses

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	7.87 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	3.0 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<9.52 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<9.52 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<9.52 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<19.0 ug/l
2-Chlorophenol	gel	EPA 625	95578	<9.52 ug/l
2-nitrophenol	gel	EPA 625	88755	<9.52 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<9.52 ug/l
4-Nitrophenol	gel	EPA 625	100027	<9.52 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<9.52 ug/l
Pentachlorophenol	gel	EPA 625	87865	<9.52 ug/l
Phenol	gel	EPA 625	108952	<9.52 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<9.52 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<9.52 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<9.52 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<9.52 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<9.52 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<9.52 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<9.52 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.952 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<9.52 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.952 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<9.52 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<9.52 ug/l
Acenaphthene	gel	EPA 625	83329	<0.952 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.952 ug/l
Anthracene	gel	EPA 625	120127	<0.952 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<9.52 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.952 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.952 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.952 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.952 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<9.52 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<9.52 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<9.52 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<9.52 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<9.52 ug/l
Chrysene	gel	EPA 625	218019	<0.952 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<9.52 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<9.52 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.952 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<9.52 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<9.52 ug/l
Fluoranthene	gel	EPA 625	206440	<0.952 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
Fluorene	gel	EPA 625	86737	<0.952 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<9.52 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<9.52 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<9.52 ug/l
Hexachloroethane	gel	EPA 625	67721	<9.52 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.952 ug/l
Isophorone	gel	EPA 625	78591	<9.52 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<9.52 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<9.52 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<9.52 ug/l
Naphthalene	gel	EPA 625	91203	<0.952 ug/l
Nitrobenzene	gel	EPA 625	98953	<9.52 ug/l
Phenanthrene	gel	EPA 625	85018	<0.952 ug/l
Pyrene	gel	EPA 625	129000	<0.952 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	1.34 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	<2 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	1.47 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
Total Silver	gel	EPA 200.8	7440224	<5.00 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				*Additional data found in electronic form
Aluminum, Total	gel	EPA 200.8	7429905	78.4 ug/l
Barium, Total	gel	EPA 200.8	7440393	49.1 ug/l
Boron, Total	gel	EPA 200.8	7440428	50.4 mg/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	0.199 mg/l
Iron, Total	gel	EPA 200.8	none	487 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	28300 ug/l
Manganese, Total	gel	EPA 200.8	7439965	<5.00 ug/l
Molybdenum, total	gel	EPA 200.8	7439987	3.13 mg/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	1.12 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	548 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	260 mg/l
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00G *sampled 4/30/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				*Additional data found in electronic form
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	<0.7
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	<3.0
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.0909 ug/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	718 uS/cm

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00G

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. To be completed by CAFOs only

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00G**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date
Hydrochloric Acid (pH control)	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sulfuric Acid (pH control)	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sodium Hydroxide	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sodium Bisulfite	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Citric Acid	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Phosphoric Acid	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Tide Detergent or equivalent	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (Pages 20-25) - for each outfall at the facility. Make copies of this ink section of the Application as necessary for additional outfalls.

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00H

1. OUTFALL INFORMATION - Instructions for this item are on Page 3 of the Appendix. ☐ **No Change From Last Application, Items A. – D.**

A.	Receiving Water: Lake Michigan				Hydrologic Unit Code (HUC): 04040001	
B.	County: Berrien				Township: Lake	
C.	Town: 06S	Range: 19W	Section: 06	¼: NW	¼, ¼: SW	Private (French) Land Claim:
D.	Latitude: na - internal outfall				Longitude: na - internal outfall	

E. Type of Wastewater Discharged (check all that apply to this outfall): ☐ **No Change From Last Application, Item E.**

☐ Contact Cooling ☐ Groundwater Cleanup ☐ Hydrostatic Pressure Test ☒ Noncontact Cooling Water

☒ Process Wastewater ☐ Sanitary Wastewater ☐ Storm Water - not regulated ☐ Storm Water - regulated

☐ Storm water subject to effluent guidelines (indicate under which category): _____

☐ Other – specify (see "Table B - Other Common Types of Wastewater" - in the Appendix) _____

F. What is the Maximum Design Flow Rate for this outfall: 2.6 MGD ☐ **No Change From Last Application, Items F. – G.**

G What is the Maximum Authorized Discharge Flow for this outfall for the next five years?

Seasonal Dischargers _____ MGY (Continue with Item H).

Continuous Dischargers 2.6 MGD (Continue with Item I).

H. Seasonal Discharge:

List the discharge periods (by month) and the volume discharged in the space provided below.

From	Through	Actual Discharge Volume (MGD)	Annual Total
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	
From	Through	Actual Discharge Volume (MGD)	

I. Continuous Discharge:

How often is there a discharge from this outfall (on average)? 24 Hours/Day 365 Days/Year

Batch dischargers are required to provide the following additional information:

Is there effluent flow equalization? ☐ Yes ☐ No

Batch Peak Flow Rate: _____ Number of batches discharged per day: _____

	Minimum	Average	Maximum
Batch Volume (gallons)			
Batch Duration (minutes)			

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

CILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
ᴗonald C. Cook Nuclear Plant	MI0005827	00H

2. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE ☐ **No Change From Last Application**

Federal regulations require that different industries report different information, depending on the type of facility. The information below is used to determine the applicable federal regulations for this facility. An abbreviated list is in the Summary of Information to be reported by Industry Type section of the Appendix. Applicants are required to provide the name and the SIC or the NAICS code for each process at the facility. Facilities with production-based limits must report an estimated annual production rate for the next five years, or the life of the permit. If the wastestream is not regulated under federal categorical standards, the applicant is required to report all pollutants which have the reasonable potential to be present in the discharge. To submit additional information, see Page ii, Item 3.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Steam Electric

B. SIC or NAICS code: SIC - 4911, NAICS 221113

C. Describe the process and provide measures of production:

Misc plant services, see Waste stream diagram and description in section I. 2.6 MGD maximum flow, 2247 MWE total plant electrical generation.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

PROCESS INFORMATION

A. Name of the process contributing to the discharge: _____

B. SIC or NAICS code: _____

C. Describe the process and provide measures of production:

Michigan Department of Enviro ital Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00H

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.
☒ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rational Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)	2.62	2.62	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)	<20.0	<20.0	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Organic Carbon (TOC)	3.13	3.13	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Ammonia Nitrogen (as N)	4.25	4.25	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Suspended Solids	<2.5	<2.5	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐		Total Dissolved Solids	147	147	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		Total Phosphorus (as P)	<0.05	<0.05	mg/l	1	☐ Grab ☒ 24 Hr Comp
☐	Not expected to be present	Fecal Coliform Bacteria (report geometric means)		Maximum-7day	counts/100ml		Grab
☐	Not expected to be present	*Escherichia Coli* (report geometric means)		Maximum-7day	counts/100 ml		Grab
☐		Total Residual Chlorine	<80	<80	☐ mg/l ☒ µg/l	1	Grab
☐		Dissolved Oxygen	~~Do Not Use~~	Minimum daily 7.4	mg/l	1	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 7.0	Maximum 8.9	standard units	118	☒ Grab ☐ 24 Hr Comp
☐	na- internal outfall	Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐	na - internal outfall	Temperature, Winter			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Oil & Grease	<4.0	<4.0	mg/l	1	Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00H

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 24. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

ASE TYPE OR PRINT

FACILITY NAME Donald C. Cook Nuclear Plant			NPDES PERMIT NUMBER MI0005827				OUTFALL NUMBER 00H	
Submitted via DMR's		SAMPLE DATE ➔	3/5/08					
	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	Arsenic	7440382	1.3					
☐	Selenium	7782792	<0.5					
☐	Silver	7440224	<0.05					
☐	Additional data attached.							
☐	See attached electronic data.							
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Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
Required				*Additional data found in electronic form
Biochemical Oxygen Demand (Five day BOD5) (24 hr Comp)	gel	SM 5210B	None	2.62 mg/l
Chemical oxygen Demand (COD) (24 hr Comp)	gel	EPA 410.4	None	<20.0 mg/l
Total organic carbon (TOC) (24 hr Comp)	gel	SM 5310B	None	3.13 mg/l
Ammonia Nitrogen (as N) (24 hr Comp)	gel	EPA 350.1	7664417	4.25 mg/l
Total Suspended Solids (24 hr Comp)	gel	SM 2540D	None	<2.5 mg/l
Temperature Summer (Max July 07)	Cook	SM 2550B	None	na- internal outfall
Temperature Winter (Max Jan 07)	Cook	SM 2550B	None	na- internal outfall
pH	Cook	SM 4500-H+B	None	From plant data*
Report available data				*Additional data found in electronic form
Total Dissolved Solids	gel	SM 2540C	None	147 ug/l
Total Phosphorus (24 hr Comp)	gel	EPA 365.4	7723140	<0.05 mg/l
Total Residual Chlorine	COOK	EPA 330.5 electrode	7782505	<80 ug/l
Dissolved oxygen	COOK	SM 4500-O C	None	7.4 mg/l
Oil and Grease	gel	EPA1664a	None	<4.0
Table 2- Organic Toxic Pollutants (Table II from 40 CFR 122, Appendix D)				
Volatiles				
1,1,1-Trichloroethane	gel	EPA 624	71556	<1.00 ug/l
1,1,2,2-Tetrachloroethane	gel	EPA 624	79345	<1.00 ug/l
1,1,2-Trichloroethane	gel	EPA 624	79005	<1.00 ug/l
1,1-Dichloroethane	gel	EPA 624	75343	<1.00 ug/l
1,1-Dichloroethylene	gel	EPA 624	75354	<1.00 ug/l
1,2-Dichloroethane	gel	EPA 624	107062	<1.00 ug/l
1,2-Dichloropropane	gel	EPA 624	78875	<1.00 ug/l
1,2-Trans-Dichloroethylene	gel	EPA 624	156605	<1.00 ug/l
1,3-Dichloropropylene (Listed in GEL as cis 1,3 Dichloropropylene and Trans 1,3 Dichloropropylene)	gel	EPA 624	542756	<1.00 ug/l
2-Chloroethylvinylether	gel	EPA 624	110758	<5.00 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
Acrolein	gel	EPA 624	107028	<5.00 ug/l
Acrylonitrile	gel	EPA 624	107131	<5.00 ug/l
Benzene	gel	EPA 624	71432	<1.00 ug/l
Bromoform	gel	EPA 624	75252	<1.00 ug/l
Carbon Tetrachloride	gel	EPA 624	56235	<1.00 ug/l
Chlorobenzene	gel	EPA 624	108907	<1.00 ug/l
Chlorodibromomethane (Dibromochloromethane)	gel	EPA 624	124481	<1.00 ug/l
Chloroethane	gel	EPA 624	75003	<1.00 ug/l
Chloroform	gel	EPA 624	67663	1.93 ug/l
Dichlorobromomethane(bromodichloromethane)	gel	EPA 624	75274	<1.00 ug/l
Ethylbenzene	gel	EPA 624	100414	<1.00 ug/l
Methyl Bromide(bromomethane)	gel	EPA 624	74839	<1.00 ug/l
Methyl Chloride (chloromethane)	gel	EPA 624	74873	<1.00 ug/l
Methylene Chloride	gel	EPA 624	75092	<2.00 ug/l
Tetrachloroethylene	gel	EPA 624	127184	<1.00 ug/l
Toluene	gel	EPA 624	108883	<1.00 ug/l
Trichloroethylene	gel	EPA 624	79016	<1.00 ug/l
Vinyl Chloride	gel	EPA 624	750174	<1.00 ug/l
Acid Compounds				
2,4,6-Trichlorophenol	gel	EPA 625	88062	<9.43 ug/l
2,4-Dichlorophenol	gel	EPA 625	120832	<9.43 ug/l
2,4-Dimethylphenol	gel	EPA 625	105679	<9.43 ug/l
2,4-Dinitrophenol	gel	EPA 625	51285	<18.9 ug/l
2-Chlorophenol	gel	EPA 625	95578	<9.43 ug/l
2-nitrophenol	gel	EPA 625	88755	<9.43 ug/l
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	gel	EPA 625	534521	<9.43 ug/l
4-Nitrophenol	gel	EPA 625	100027	<9.43 ug/l
P-Chloro-M-Cresol (4-chloro-3-methylphenol)	gel	EPA 625	none	<9.43 ug/l
Pentachlorophenol	gel	EPA 625	87865	<9.43 ug/l
Phenol	gel	EPA 625	108952	<9.43 ug/l
Base/Neutral				

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
1,2,4-Trichlorobenzene	gel	EPA 625	120821	<9.43 ug/l
1,2-Dichlorobenzene	gel	EPA 625	95501	<9.43 ug/l
1,2-Diphenylhydrazine (As Azobenzene)	gel	EPA 625	122667	<9.43 ug/l
1,3-Dichlorobenzene	gel	EPA 625	541731	<9.43 ug/l
1,4-Dichlorobenzene	gel	EPA 625	106467	<9.43 ug/l
2,4-Dinitrotoluene	gel	EPA 625	121142	<9.43 ug/l
2,6-Dinitrotoluene	gel	EPA 625	606201	<9.43 ug/l
2-Chloronaphthalene	gel	EPA 625	91587	<0.943 ug/l
3,3'-Dichlorobenzidine	gel	EPA 625	91941	<9.43 ug/l
3,4-Benzofluoranthene (Benzo(b)fluoranthene,)	gel	EPA 625	205992	<0.943 ug/l
4-Bromophenylphenylether	gel	EPA 625	101553	<9.43 ug/l
4-Chlorophenyl Phenyl Ether	gel	EPA 625	7005723	<9.43 ug/l
Acenaphthene	gel	EPA 625	83329	<0.943 ug/l
Acenaphthylene	gel	EPA 625	208968	<0.943 ug/l
Anthracene	gel	EPA 625	120127	<0.943 ug/l
Benzidine (benzyl alcohol)	gel	EPA 625	92875	<9.43 ug/l
Benzo (a) Anthracene	gel	EPA 625	56553	<0.943 ug/l
Benzo (a) Pyrene	gel	EPA 625	50328	<0.943 ug/l
Benzo (ghi) Perylene	gel	EPA 625	191242	<0.943 ug/l
Benzo (k) Fluoranthene	gel	EPA 625	207089	<0.943 ug/l
Bis (2-Chloroethoxy) Methane	gel	EPA 625	111911	<9.43 ug/l
Bis (2-Chloroethyl) Ether	gel	EPA 625	111444	<9.43 ug/l
Bis (2-Chloroisopropyl) Ether	gel	EPA 625	108601	<9.43 ug/l
Bis (2-Ethylhexyl) Phthalate	gel	EPA 625	117817	<9.43 ug/l
Butylbenzyl Phthalate	gel	EPA 625	85687	<9.43 ug/l
Chrysene	gel	EPA 625	218019	<0.943 ug/l
Di-N-Butyl Phthalate	gel	EPA 625	84742	<9.43 ug/l
Di-N-Octyl Phthalate	gel	EPA 625	117840	<9.43 ug/l
Dibenzo (a,h) Anthracene	gel	EPA 625	53703	<0.943 ug/l
Diethyl Phthalate	gel	EPA 625	84662	<9.43 ug/l
Dimethyl Phthalate	gel	EPA 625	131113	<9.43 ug/l
Fluoranthene	gel	EPA 625	206440	<0.943 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
Fluorene	gel	EPA 625	86737	<0.943 ug/l
Hexachlorobenzene	gel	EPA 625	118741	<9.43 ug/l
Hexachlorobutadiene	gel	EPA 625	87683	<9.43 ug/l
Hexachlorocyclopentadiene	gel	EPA 625	77474	<9.43 ug/l
Hexachloroethane	gel	EPA 625	67721	<9.43 ug/l
Indeno (1,2,3-cd) Pyrene	gel	EPA 625	193395	<0.943 ug/l
Isophorone	gel	EPA 625	78591	<9.43 ug/l
N-Nitrosodi-N-Propylamine	gel	EPA 625	none	<9.43 ug/l
N-Nitrosodimethylamine (N-methyl-N-nitrosomethylamine)	gel	EPA 625	62759	<9.43 ug/l
N-Nitrosodiphenylamine (Diphenylamine)	gel	EPA 625	86306	<9.43 ug/l
Naphthalene	gel	EPA 625	91203	<0.943 ug/l
Nitrobenzene	gel	EPA 625	98953	<9.43 ug/l
Phenanthrene	gel	EPA 625	85018	<0.943 ug/l
Pyrene	gel	EPA 625	129000	<0.943 ug/l
Table 3 -Other Toxic Pollutants (metals and Cyanide) and Total Phenols. (Table III from 40 CFR 122, Appendix D)				
Total Antimony	gel	EPA 200.8	7440360	<1 ug/l
Total Arsenic	gel	EPA 200.8	7440382	<1.50 ug/l
Total Beryllium	gel	EPA 200.8	7440417	<1 ug/l
Total Cadmium	gel	EPA 200.8	7440439	<0.2 ug/l
Total Chromium	gel	EPA 200.8	7440473	<10 ug/l
Total Copper	gel	EPA 200.8	7440508	12.5 ug/l
Available Cyanide	kar	EPA method OIA-1677	57125	<2 ug/l
Total Lead	gel	EPA 200.8	7439921	<1 ug/l
Total Mercury	gel	EPA method 1631	7439976	1.78 ng/l
Total Nickel	gel	EPA 200.8	7440020	<5 ug/l
Total Phenols	gel	EPA 420.2	none	<5.00 ug/l
Total Selenium	gel	EPA 200.8	7782792	<2.50 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
Total Silver	gel	EPA 200.8	7440224	<1.00 ug/l
Total Thallium	gel	EPA 200.8	7440280	<1 ug/l
Total Zinc	gel	EPA 200.8	7440666	<10 ug/l
Table 4 Conventional and Non-conventional pollutants to be tested by existing discharges if expected to be present in discharge (Table IV from 40CFR 122, Appendix D)				*Additional data found in electronic form
Aluminum, Total	gel	EPA 200.8	7429905	279.0 mg/l
Barium, Total	gel	EPA 200.8	7440393	18.1 ug/l
Boron, Total	gel	EPA 200.8	7440428	30.1 mg/l
Bromide	gel	EPA 300	7726956.0	<0.200 mg/l
Chlorine, Total Residual	COOK	330.5 electrode		
Cobalt, Total	gel	EPA 200.8	62207765	<1.00 ug/l
Fluoride	gel	SM 4500-F B	7782414	<0.100 mg/l
Iron, Total	gel	EPA 200.8	none	267 ug/l
Magnesium, Total	gel	EPA 200.8	7439954	10100 ug/l
Manganese, Total	gel	EPA 200.8	7439965	<5.00 ug/l
Molybdenum, total	gel	EPA 200.8	7439987	5.74 ug/l
Nitrate-Nitrite (as N)	gel	EPA 353.2	none	0.467 mg/l
Nitrogen, total Organic (as N)	gel	EPA 351.2/350.1	none	<500 ug/l
Oil and Grease	gel	EPA 1664A	none	
Phosphorus (as P), total	gel	EPA 365.4		
Radioactivity	gel	EPA 900	none	
Alpha, total	gel	EPA 900	none	<5.00 pCi/l
Beta, total	gel	EPA 900	none	<5.00 pCi/l
Radium, Total	gel	EPA 900	7440144	<1.00 pCi/l
Radium 226, total	gel	EPA 900	7440144	<1.00 pCi/l
Sulfate (as SO4)	gel	EPA 300.0	none	36.5 mg/l *
Sulfide (as S)	gel	SM 4500-S F	18496258	<0.100 mg/l
Sulfite (as SO3)	gel	SM 4500-SO3 B	none	<2.00 mg/l
Tin, Total	gel	EPA 200.8	7440315	<5.0 ug/l

Analysis *(Gray highlite is repeat from previous table)* *All samples are GRAB, unless otherwise noted.*	Sample Received at Lab	Method	CAS number	Outfall 00H *sampled 4/30/07*
Titanium, total	gel	EPA 200.8	7440326	<10 ug/l
Table 5 - Toxic pollutants and hazardous Substances required to be identified by Existing Discharges if Expected to Be present in Discharge (Table V from 40 CFR 122, Appendix D)				*Additional data found in electronic form
Toxic Pollutant				
Hazardous Substances				
Ethanolamine mg/l	COOK	1,2 Napthoquinone-4 sulfonic Acid method	141435	<0.7
Chlorine (elemental cl and hypochlorite salts)	COOK			
Chromium	gel			
Cobalt	gel			
Copper	gel			
Hydrazine ug/l	COOK	ASTM D-1385-88	302012	<3.0
Lead	gel			
Lithium	gel	EPA 200.8	11097691	<96.0 ug/l
Mercury	gel			
Naphthalene	gel			
Nickel	gel			
Polychlorinated biphenyls (PCB)	gel	SW 846 8082	11097691	<0.0952 ug/l
Silver	gel			
Toluene	gel			
Conductivitiy	COOK	120.1	none	286 uS/cm

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00H

9. WATER TREATMENT ADDITIVES

Water treatment additives include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.

Approvals of water treatment additives are authorized by the MDEQ under separate correspondence. The issuance of an NPDES permit does not constitute approval of the water treatment additives that are included in this Application.

A. Are there water treatment additives in the discharge from this facility?

☒ Yes.

☐ No. Proceed to Item 10.

B. Have these water treatment additives been previously approved?

☒ Yes. *Submit a list of the previously-approved water treatment additives and the date on which they were approved. The information listed in* Item C., Items 1-8 shall be updated if it has changed since the previous approval.

☐ No. Continue with Item C.

C. Submit a list of water treatment additives that are or may be discharged from the facility. Applicants are required to submit the information listed below for each additive.

1. The water treatment additive Material Safety Data Sheet.
2. The proposed water treatment additive discharge concentration.
3. The discharge frequency (i.e., number of hours per day, week, etc.).
4. The outfall from which the water treatment additive is to be discharged.
5. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
6. The water treatment additive function (i.e., microbiocide, flocculant, etc.).
7. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.).
8. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

The required toxicity information (described in Items 7 and 8 above) is currently available in the Water Bureau files for the water treatment additives listed on the MDEQ's Internet page. To access that information, go to http://www.michigan.gov/deq, click on "Site Map," at the bottom of the right column under **Water Quality Monitoring,** click on "Assessment of Michigan Waters." Under the **Information** heading, click on the "Water Treatment Additive List." *If you intend to use one of the water treatment additives on this list, only the information in Items 1 through 6 above needs* to be submitted to the Water Bureau.

Note: The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive.

10. WHOLE EFFLUENT TOXICITY (WET) TESTS

Have any acute or chronic WET tests been conducted on any discharges or receiving water(s) in relation to facility discharges within the last three years? If yes, identify the tests and summarize the results on a separate sheet, unless the test has been submitted to the MDEQ in the last three years. For assistance with WET testing, see "Whole Effluent Toxicity Test Guidance and Requirements" in the Appendix.

11. CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) INFORMATION. *To be completed by CAFOs only*

The applicant shall provide: Specific information about the number and type of animals, and type of housing; the type of containment and storage, and the total capacity for CAFO waste storage; CAFO waste storage structure design; the total number of acres under the control of the applicant that is available for land application of CAFO waste; the estimated amounts of CAFO waste generated per year; the estimated amounts of CAFO waste that is transferred to other persons per year; a list and map(s) showing the location of all land application fields; and all potential receiving waters for both the production and all land application areas. For additional information, see "CAFO Guidance and Requirements" in the Appendix.

This completes Section III. Return the completed Application (Sections I, III, and IV and any attachments) to one of the addresses Page ii of this Application. If assistance is needed to complete this Application, contact the Permits Section.

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER	Outfall Number
Donald C. Cook Nuclear Plant	**MI0005827**	**00H**

9. WATER TREATMENT ADDITIVES

Water Treatment Additive	Approval Date
Hydrochloric Acid (pH control)	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sulfuric Acid (pH control)	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sodium Hydroxide	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Sodium Bisulfite	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Citric Acid	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Phosphoric Acid	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Tide Detergent or equivalent	11/14/96 Change of process application, 11/25/96 approval. NPDES Permit application approval 9/28/00, 5/23/00.
Aluminum Sulfate	7/20/94
Carbohydrazide solutions such as: Betz Cortrol OS5613 , Nalco 1250 plus	3/24/94 NPDES application, 4/15/94 approval, NPDES Permit approval 9/28/95
Ethanolamine Betz Steamate 1480N, Nalco 92UM001	5/23/00, NPDES approval 9/28/95
Hydrazine: Betz Cortrol OS5035, OS 5010, Nalco 19H	5/23/00, NPDES approval 9/28/95

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION IV – Storm Water

OR PRINT

NAME	NPDES PERMIT NUMBER
C. Cook Nuclear Plant	MI0005827

STORM WATER DISCHARGES

Facilities that discharge storm water must provide the following information. (Please Note: The following discharges are also covered by storm water authorization, provided they are addressed in the facility's Storm Water Pollution Prevention Plan [SWPPP]): Discharges from fire hydrant flushing; potable water sources, including water line flushing; fire system test water; irrigation drainage; lawn watering; routine building wash down which does not use detergents or other compounds; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

A. Does this facility have a certified industrial storm water operator who supervises the facility's storm water treatment and control measures included in the SWPP?

☒ Yes. Blair Zordell (Storm Water Operator Name) 02351 (Certification Number)

☐ No. **Note: The applicant must complete this program element to receive storm water discharge authorization.**

B. Is any of the storm water discharged from (check all that apply):

☒ Secondary containment structures that are required by state or federal law. On a separate page, provide a list the materials that are stored in this area.

☐ Areas identified on Michigan's list of Sites of Environmental Contamination, pursuant to the Natural Resources and Environmental Protection Act, PA 451 of 1994, Part 201 (formerly 307).

C. The storm water from this facility discharges to the following receiving water(s): Lake Michigan

Please note that applicants should provide any sample data taken of the storm water discharge as an attachment. To submit additional information, see Page ii, Item 3.

STORM WATER CERTIFICATON

Rule 323.2114(1-4), promulgated under the Michigan Act, requires that **this Application must be signed as follows:**

A. **For an organization, company, corporation, or authority, by a principal executive office, vice president or higher.**
B. **For a partnership, by a general partner.**
C. **For a sole proprietor, by the proprietor.**
D. **For a municipal, state, or other public facility, by a principal executive officer or ranking elected official (such as the mayor, village president, city or village manager, or clerk).**

Note: If the signatory is not listed above, but is authorized to sign the Application please provide documentation of that authorization.

I certify that my facility has developed a SWPPP according to the requirements of the Storm Water General Permit.

I certify that my facility has no unauthorized discharges.

I certify that my facility has implemented the nonstructural controls as described in the SWPPP. New facilities shall fulfill this requirement when industrial activity begins.

I certify my facility has completed construction and will put into operation all structural controls as described in the SWPPP. If necessary, new facilities shall fulfill this requirement when industrial activity begins.

I certify, under penalty of law, that this document and all attachments were prepared by me, or under my direction or supervision in accordance with a system to assure qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I understand that my signature constitutes a legal agreement to comply with the requirements of the appropriate NPDES General Storm Water Permit. I certify under penalty of law that I possess full authority on behalf of the legal owner/permittee to sign and submit this Notice of Intent.

Print Name: Jon H. Harner Title: Environmental Manager

Signature: Jon H. Harner Date: 4-2-08

Michigan Department of Environmental Quality-Surface Water Quality Division

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION IV - Stormwater

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES or COC PERMIT NUMBER
Donald C. Cook Nuclear Plant	**MI0005827**

1. Stormwater discharges

C. List of materials that are stored in the site's secondary containment structures that are required by state or federal law.

1. Sodium hypochlorite.
2. Misc. oil-filled electrical transformers (non PCB mineral oil).
3. Fuel oil.
4. Sulfuric acid.
5. Sodium hydroxide (Indoor storage).-
6. Hydrazine (Indoor storage).
7. Misc. lubricating oils (Indoor storage).
8. Chemical unloading areas: (fuel oil, sodium hydroxide, sulfuric acid).
9. Temporary equipment such as diesel generators, or diesel pumps that could reach storm drains.
10. Sodium Bisulfite.
11. Proprietary molluscicides during treatment periods.
12. Bentonite clay during treatment periods.
13. Resin bed regeneration waste (Stored in double walled tank).
14. Misc. paints and solvents (Indoor storage).

ENCLOSURE 2 TO AEP:NRC:2401-19

SUPPLEMENT TO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT RENEWAL APPLICATION

INDIANA MICHIGAN POWER

Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106
aep.com

May 27, 2008

AEP-MDEQ-2008-2

Michigan Department of Environmental Quality
Water Bureau
Attn: Mr. Sean Syts
P. O. Box 30273
Lansing, MI 48909-7773

Subject: Cook Nuclear Plant
Supplement to NPDES Permit MI0005827 Application

Dear Mr. Syts,

On April 2, 2008, Indiana Michigan Power Company (I&M) submitted an Industrial and Commercial Wastewater Discharge Application for renewal of the Cook Nuclear Plant National Pollutant Discharge Elimination System (NPDES) Permit. At the time the application for renewal was submitted, I&M's contracted lab was unable to meet the required quantification levels for Silver, Selenium, and Arsenic for Outfall 00B. In subsequent telephone conversations between I&M staff and Michigan Department of Environmental Quality (MDEQ) staff, MDEQ staff agreed to accept the analysis results for the application at a later date.

Enclosed is the supplemental data for Outfall 00B. This data meets the required quantification levels and completes our submittal of the permit application. Also included for your information are the data sheets for Outfalls 00A and 00C, which are intended only to provide a complete set of data sheets.

Should you have any questions, please contact me at (269) 465-5901, extension 2102, or Blair Zordell at (269) 465-5901, extension 2006.

Sincerely,

Jon H. Harner

Jon H. Harner
Environmental Manager

Enclosures

JEN/rdw

c: Mr. John Vollmer, MDEQ – Kalamazoo w/o enclosures

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME Donald C. Cook Nuclear Plant			NPDES PERMIT NUMBER MI0005827				OUTFALL NUMBER 00A	
Submitted via DMR's		**SAMPLE DATE →**	4/2/2008					
	PARAMETER	**CAS No.**	**Conc. (µg/l)**	**Conc. (µg/l)**	**Conc. (µg/l)**	**Conc. (µg/l)**	**Sample Type**	**Analytical Method**
☐	Arsenic.	7440382	<0.1				Grab	200.8
☐	Selenium	7782492	<0.5				Grab	200.8
☐	Sllver	7440224	<0.05				Grab	200.8
☐	Additional data attached							
☐	See attached electronic data.							
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Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00B

Submitted via DMR's		SAMPLE DATE →	4/2/2008					
	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	Arsenic	7440382	<0.1				Grab	200.8
☐	Selenium	7782492	<0.5				Grab	200.8
☐	Silver	7440224	<0.05				Grab	200.8
☐	Additional data attached							
☐	See attached electronic data.							
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Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Donald C. Cook Nuclear Plant	MI0005827	00C

Submitted via DMR's	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
		SAMPLE DATE →	4/2/2008					
☐	Arsenic	7440382	<0.1				Grab	200.8
☐	Selenium	7782492	<0.5				Grab	200.8
☐	Silver	7440224	<0.05				Grab	200.8
☐	Additional data attached							
☐	See attached electronic data.							
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