



IOWA DNR: NPDES FORM 4 FOR INDUSTRIAL FACILITIES
NEW FACILITIES THAT DISCHARGE PROCESS WASTEWATER

Permit Number _____ Facility Name _____

1. Sources of Pollution

For each outfall, provide descriptions of:

1. The route of flow to the first named stream.
2. All operations contributing wastewater to the discharge including process wastewater, cooling water, stormwater, etc.
3. The monthly average and daily maximum flow contributed by each operation.
4. The frequency and duration of the discharge from each operation except stormwater.

Outfall No. _____ Route of Flow: _____

Latitude: Degrees _____ Minutes _____ Seconds _____

Longitude: Degrees _____ Minutes _____ Seconds _____

Operation	Flow (MGD)		Frequency		Duration (in days)
	Avg.	Max.	Days/week	Months/year	

Outfall No. _____ Route of Flow: _____

Latitude: Degrees _____ Minutes _____ Seconds _____

Longitude: Degrees _____ Minutes _____ Seconds _____

Operation	Flow (MGD)		Frequency		Duration (in days)
	Avg.	Max.	Days/week	Months/year	

Outfall No. _____ Route of Flow: _____

Latitude: Degrees _____ Minutes _____ Seconds _____

Longitude: Degrees _____ Minutes _____ Seconds _____

Operation	Flow (MGD)		Frequency		Duration (in days)
	Avg.	Max.	Days/week	Months/year	



2. Production

A. Is this facility subject to a federal effluent guideline in 40 CFR Subchapter N? (see Table 1 of instructions)
 Yes No Unknown If yes, list 40 CFR part number, if known _____

B. If you answered “yes” to 2.A., are the applicable effluent guidelines expressed in terms of production? (See Table 1 of instructions).
 Yes No Not applicable

C. If you answered “yes” to 2.B, list the quantity or quantities that represent your actual production. Attach additional sheets if necessary.

Operational Process	Quantity per Day	Units

3. Treatment System

Briefly describe any wastewater treatment system(s) planned to be used to treat process wastewater. If there is any technical evaluation concerning your proposed wastewater treatment, including pilot plant studies, list the title and date of the report and state whether a copy has been submitted for review.

4. Other Facilities

Provide the name and location of any existing plant(s) which, to the best of your knowledge, resemble this production facility with respect to production processes, wastewater constituents, or wastewater treatment system. The facilities need not be in Iowa.

Name	Location

5. Chemical Additives

If you add any chemicals that may be present in the discharge, complete the following table. Additives may include boiler water treatments, cooling tower treatments, water treatment products, etc. You must include a copy of the safety data sheet (SDS).

Manufacturer	Product Name	Estimated Discharge Concentration	LC50*	SDS Included?
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>

* This is the LC50 for the most sensitive warm-water fish or plankton.
Attach additional sheets if necessary.



Outfall Number: _____

6. Effluent Characteristics

Complete Part 6 for each process wastewater outfall.

Part A.

All applicants must provide estimates or data for every pollutant in Part A. Use the codes in the table at the bottom of the page to describe the source of your estimate.

Pollutant	Concentration			Mass			Source of Estimate (Code)
	Average	Maximum	Units	Average	Maximum	Units	
a. Biochemical Oxygen Demand (BOD)							
b. Chemical Oxygen Demand (COD)							
c. Total Organic Carbon (TOC)							
d. Total Suspended Solids (TSS)							
e. Ammonia (as N)							

Parameter	Maximum Daily Value	Average Daily Value	Minimum Daily Value	Source of Estimate (Code)	Units
f. Flow					million gallons per day
g. Temperature (October - March)					degrees Fahrenheit
h. Temperature (April – September)					degrees Fahrenheit
i. pH					Standard Units

Codes for Source of Estimate

Source of Estimate	Code	Source of Estimate	Code
Engineering study	1	Data from other similar plant(s)	4
Actual data from pilot plant(s)	2	Best professional estimates	5
Estimates from other engineering studies	3	Other	Specify on form



FORM 4 INSTRUCTIONS
DO NOT SUBMIT – FOR APPLICANT USE ONLY

1. Sources of Pollution

- List all sources of wastewater discharged through each outfall.
- Operations may be described in general terms (for example, “dye-making reactor” or “distillation tower”).
- You may estimate the flow contributed by each source if no data are available.

2. Production

- A. Industries with effluent guidelines are shown in Table 1 of these instructions. A guideline applies to your facility if your industry is listed in the table and you have process wastewater.
- B. An effluent guideline is expressed in terms of production if the limitation is expressed as mass of pollutant per operational parameter. For example, “pounds BOD per cubic foot of logs from which bark is removed.” Industries with production-based limits are indicated in Table 1.
- C. Complete this item only if you checked “yes” for Item 2.B. Report quantities in the units of measurement used in the applicable effluent guideline. Production figures must be based on actual daily production and not on design capacity or future operation. More information on ELGs can be found at <https://www.epa.gov/eg/industrial-effluent-guidelines>.

3. Treatment System

- For each outfall, briefly describe any planned treatment of wastewaters prior to discharge or provide a reference to a previously submitted engineering report.
- Describe the ultimate disposal of any solid or liquid wastes not discharged.

4. Other Facilities

- Report the name and location of any existing plant(s) which (to the best of your knowledge) resembles your planned operation with respect to items produced, production process, wastewater constituents, or wastewater treatment.
- No studies need to be conducted to respond to this item. Only data which are already available need be submitted.

5. Chemical Additives

- If you add any chemicals, complete the table.
- Additives may include boiler water treatments, cooling tower treatments, water treatment products, etc.
- Values for LC₅₀ can usually be found in the “Ecological Information” section of an SDS.
- You must include a copy of the safety data sheet (SDS).

6. Effluent Characteristics

- You must complete Parts A – C for each outfall that discharges processes wastewater. For outfalls that discharge non-processes wastewater, complete Form 2. For outfalls that discharge stormwater, complete Form 2F.
- Each part of this item requires you to provide an estimated maximum daily and average daily value for each pollutant or parameter listed. The source of each estimate is also required.
- For Parts A through C, base your determination of whether a pollutant will be present in your discharge on your knowledge of the proposed facility’s raw materials, maintenance chemicals, intermediate and final products, byproducts, and any analyses of your effluent or of any similar effluent. You may also provide the determination and the estimates based on available in-house or contractor’s engineering reports or any other studies performed on the proposed facility (see Item 4 of the form). If you expect a pollutant to be present solely as a result of its presence in your intake water, please state this information on the form.
- All estimated pollutant or parameter levels must be reported as concentration and total mass, except for discharge flow, temperature, and pH. Total mass is the total weight of pollutants or parameters discharged over a day.



- **Mass Calculation:** The formula for mass of a pollutant discharged is: Concentration * Flow * 8.34 = Mass. (Concentration in mg/L, flow in MGD, mass in lb/day)
- When providing the estimates, use the codes in the following table to indicate the source of such information in the “Source of Estimate (Code)” column in 6.A, 6.B, and 6.C.

Source of Estimate	Code	Source of Estimate	Code
Engineering study	1	Data from other similar plant(s)	4
Actual data from pilot plant(s)	2	Best professional estimates	5
Estimates from other engineering studies	3	Other	Specify on form

- 6.A.**
- All applicants must provide estimates for all pollutants in this table.
- 6.B.**
- Review Table 2 of the instructions for a list of pollutants.
 - List every pollutant from Table 2 that you expect to be in your effluent.
 - Provide concentration and mass estimates for each pollutant you list, along with the source of the estimate.
 - You must report estimates for all pollutants that are limited by an effluent limitation guideline or new source performance standard. For more information on ELGs, see <http://water.epa.gov/scitech/wastetech/guide/industry.cfm>.
 - You must report that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) may be discharged if you know or have reason to believe that TCCD may be present, or if you will use or manufacture any of the following compounds:
 - 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) (CAS # 93-765);
 - 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5TP) (CAS # 93-72-1);
 - 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon) (CAS # 136-25-4);
 - 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (Ronnell) (CAS # 299-84-3);
 - 2,4,5-trichlorophenol (TCP) (CAS #95-95-5);
 - Hexachlorophene (HCP) (CAS # 70-30-4).
- 6.C.**
- List any pollutants in Table 3 of these instructions that you believe will be present in any outfalls Attach a separate page briefly explaining why you believe they will be present.
 - Provide estimates based on any existing quantitative data.
 - Estimates of pollutant quantities are not required if data do not exist.

**TABLE 1: EFFLUENT LIMITATION GUIDELINES INDUSTRIES AND REQUIRED TESTING**

(All industries in this table are subject to an effluent limitation guideline)

40 CFR Part Number	Industry Category	Production Based Guideline
456	Adhesives and sealants	
467	Aluminum forming	Yes
444	Auto and other laundries	
461	Battery manufacturing	Yes
465	Coil coating	
468	Copper forming	
469	Electrical and electronic components	
413	Electroplating	
457	Explosives manufacturing	
433	Metal finishing	
464	Metal molding and casting	Yes
454	Gum and wood chemical manufacturing (Except subparts D and F)	
	Subpart D - tall oil rosin	
	Subpart F - rosin-based derivatives	
415	Inorganic chemicals manufacturing	
420	Iron and steel manufacturing	Yes
425	Leather tanning and finishing	Yes
471	Nonferrous metals forming	
440	Ore mining and dressing	
414	Organic chemicals, plastics and synthetic fibers	
447	Paint formulating	
446	Ink formulating	
455	Pesticide chemicals	Yes
419	Petroleum refining	
439	Pharmaceutical preparations	
459	Photographic equipment and supplies	
463	Plastics molding and forming	
448	Printing and publishing	
430	Pulp, paper and paperboard	
428	Rubber processing	
417	Soap and detergent manufacturing	
423	Steam electric power plants	Yes
410	Textile mills (except Subpart C)	
429	Timber products processing	

**TABLE 2: POLLUTANT LIST FOR PART B****Volatiles**

Acrolein	Acrylonitrile	Benzene	Bromoform
Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane
2-chloroethylvinyl ether	Chloroform	Dichlorobromomethane	1,1-dichloroethane
1,2-dichloroethane	1,1-dichloroethylene	1,2-dichloropropane	1,3-dichloropropylene
Ethylbenzene	Methyl bromide	Methyl chloride	Methylene chloride
1,1,2,2-tetrachloroethane	Tetrachloroethylene	Toluene	1,2-trans-dichloroethylene
1,1,1-trichloroethane	1,1,2-trichloroethane	Trichloroethylene	Vinyl chloride

Base/Neutral

Acenaphthene	bis(2-ethylhexyl)phthalate	Dimethyl phthalate	Hexachloroethane
Acenaphthylene	4-bromophenyl phenyl ether	di-n-butyl phthalate	Indeno(1,2,3-cd)pyrene
Anthracene	Butylbenzyl phthalate	2,4-dinitrotoluene	Isophorone
Benzidine	2-chloronaphthalene	2,6-dinitrotoluene	Naphthalene
Benzo(a)anthracene	4-chlorophenyl phenyl ether	di-n-octyl phthalate	Nitrobenzene
Benzo(a)pyrene	Chrysene	1,2-diphenylhydrazine (as asobenzene)	N-nitrosodimethylamine
3,4-benzofluoranthene	Dibenzo(a,h)anthracene	fluoroanthene	N-nitrosodi-n-propylamine
Benzo(ghi)perylene	1,2-dichlorobenzene	fluorene	N-nitrosodiphenylamine
Benzo(k)fluoranthene	1,3-dichlorobenzene	hexachlorobenzene	Phenanthrene
bis(2-chloroethoxy)methane	1,4-dichlorobenzene	hexachlorobutadiene	Pyrene
bis(2-chloroethyl)ether	3,3'-dichlorobenzidine	hexachlorocyclopentadiene	1,2,4-trichlorobenzene
bis(2-chloroisopropyl)ether	Diethyl phthalate		

Metals, Cyanide, and Total Phenols

Antimony, total	Chromium, total	Nickel, total	Zinc, total
Arsenic, total	Copper, total	Selenium, total	Cyanide, total
Beryllium, total	Lead, total	Silver, total	Phenols, total
cadmium, total	Mercury, total	Thallium, total	

Acids

2-chlorophenol	4,6-dinitro-o-cresol	4-nitrophenol	Phenol
2,4-dichlorophenol	2,4-dinitrophenol	p-chloro-m-cresol	2,4,6-trichlorophenol
2,4-dimethylphenol	2-nitrophenol	Pentachlorophenol	

Pesticides

Aldrin	4,4'-DDE	Endrin	PCB-1221
alpha-BHC	4,4'-DDD	Endrin aldehyde	PCB-1232
beta-BHC	Dieldrin	Heptachlor	PCB-1248
gamma-BHC	alpha-endosulfan	Heptachlor epoxide	PCB-1260
delta-BHC	beta-endosulfan	PCB-1242	PCB-1016
Chlordane	Endosulfan sulfate	PCB-1254	Toxaphene
4,4'-DDT			



TABLE 3 - HAZARDOUS SUBSTANCES

(Pollutant list for Part C)

- | | | |
|---|---|--|
| 1. Acetaldehyde | 29. Dinitrobenzene | 57. Parathion |
| 2. Allyl alcohol | 30. Diquat | 58. Phenolsulfate |
| 3. Allyl chloride | 31. Disulfoton | 59. Phosgene |
| 4. Amyl acetate | 32. Diuron | 60. Propargite |
| 5. Aniline | 33. Epichlorohydrin | 61. Propylene oxide |
| 6. Asbestos | 34. Ethion | 62. Pyrethrins |
| 7. Benzonitrile | 35. Ethylenediamine | 63. Quinoline |
| 8. Benzoyl chloride | 36. Ethylene dibromide | 64. Resorcinol |
| 9. Butylacetate | 37. Formaldehyde | 65. Strontium |
| 10. Butylamine | 38. Furfural | 66. Strychnine |
| 11. Captan | 39. Guthion | 67. Styrene |
| 12. Carbaryl | 40. Isoprene | 68. 2,4,5-T acid (2,4,5-
Trichlorophenoxyacetic acid) |
| 13. Carbofuran | 41. Isopropanolamine
dodecylbenzenesulfonate | 69. 2,4,5-TP acid (2,4,5-
Trichlorophenoxy propanoic
acid) |
| 14. Carbon disulfide | 42. Kelthane | 70. TDE (Tetrachlorodiphenyl
ethane) |
| 15. Chlorpyrifos | 43. Kepone | 71. Trichlorofan |
| 16. Coumaphos | 44. Malathion | 72. Triethanolamine
dodecylbenzenesulfonate |
| 17. Cresol | 45. Mercaptodimethur | 73. Triethylamine |
| 18. Crotonaldehyde | 46. Methoxychlor | 74. Trimethylamine |
| 19. Cyclohexane | 47. Methyl mercaptan | 75. Uranium |
| 20. 2,4-D acid (2,4-
Dichlorophenoxyacetic acid) | 48. Methyl methacrylate | 76. Vanadium |
| 21. Diazanon | 49. Methyl parathion | 77. Vinyl acetate |
| 22. Dicamba | 50. Mevinphos | 78. Xylene |
| 23. Dichlobenil | 51. Mexacarbate | 79. Xylenol |
| 24. Dichlone | 52. Monoethylamine | 80. Zirconium |
| 25. 2,2-Dichloropropionic acid | 53. Monomethylamine | |
| 26. Dichlorvos | 54. Naled | |
| 27. Diethylamine | 55. Napthenic acid | |
| 28. Dimethylamine | 56. Nitrotoluene | |