



IOWA DEPARTMENT OF NATURAL RESOURCES

LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

Industrial Discharges and Treatment Agreements

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Pretreatment

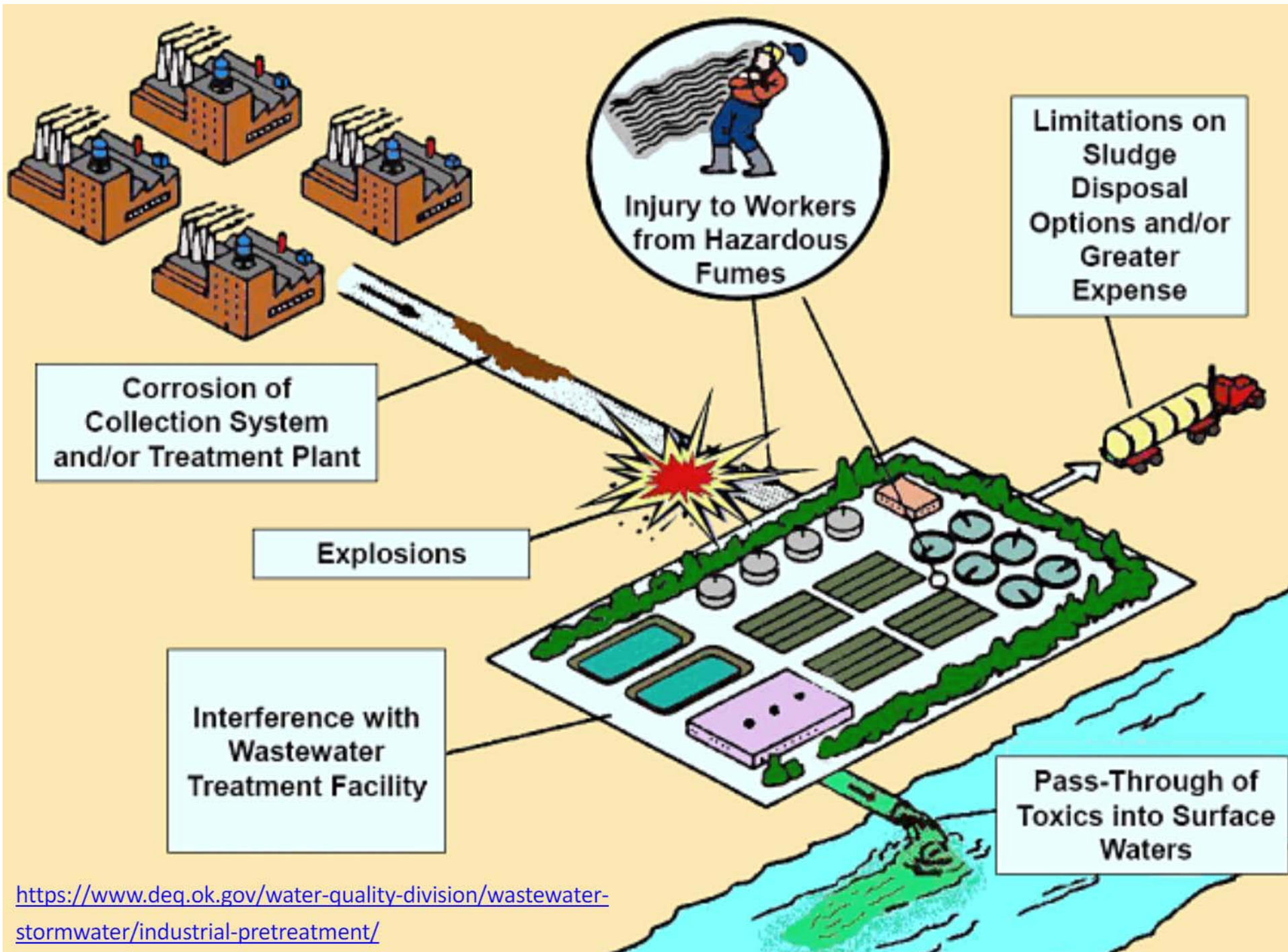
- Many industries discharge process wastewater to publicly-owned treatment works (POTWs)
 - Wastewater discharged to the city sanitary sewer
 - Wastewater hauled directly to the treatment facility
- *Pretreatment* is the management and regulation of industrial process wastewaters sent to POTWs

Industrial Wastewater

- *Industrial Wastewater* – wastewater other than domestic/sanitary wastewater
 - Hand sinks, toilets, etc. are not usually considered sources of industrial wastewater
- *Process Wastewater* – industrial wastewater that is involved in a manufacturing step; basically anything that touches the product
 - Washing/rinsing of parts at a business manufacturing car parts
 - Clean-up water at a meat locker
 - Does NOT include boiler blowdown, non-contact cooling water, or domestic wastewater
- All users of POTWs have certain responsibilities; some sizes or types of process wastewater discharges have more regulation

Why Have Pretreatment?

- Comply with Clean Water Act, state and federal regs
- Protect collection system and treatment plant
- Protect receiving streams
- Protect workers



<https://www.deq.ok.gov/water-quality-division/wastewater-stormwater/industrial-pretreatment/>

What does an SIU look like? – It depends



Photos from beacon.schneidercorp.com

Wastewater User Types

- **User**
- Any person, business, etc., who discharges wastewater to the POTW (collection system and treatment facility)
 - **Industrial User (IU)**
 - An industry that discharges process wastewater to the POTW
 - **Significant Industrial User (SIU)**
 - An IU that meets one or more of the following criteria:
 - Discharges an average of 25,000 gallons/day or more of process wastewater
 - Discharges process wastewater flows or pollutant loads greater than 5% of the POTW's design flows or loads
 - Discharges process wastewater that is covered by EPA's categorical pretreatment standards
 - Is designated by the control authority (usually DNR)

Flows and Loads

- Every POTW has approved design flows and approved design loads for some pollutants
 - These can be found in the Construction Permit, or on the Design Capacity page of the NPDES Permit
- With the 5% rule, a user that is significant in one city may not be significant in a larger city
- Example: Bob's Livestock Truck Wash discharges 200 lb/day BOD₅
 - West Bend's POTW has a design of 182 lb/day – they wouldn't be able to accept the wastewater
 - Audubon's POTW has a design of 540 lb/day – they may be able to accept the wastewater, but it would be nearly 40% of their design
 - In Perry, the truck wash would be 5.7% of the design – still significant, but manageable
 - In Spencer, it's 3.6% of design – so not significant *by this criterion*

Flows and Loads, cont.

- The 25,000 gallons/day (0.025 MGD) criterion applies regardless of the size of the POTW.
- If Billy's Business has a process flow of 30,000 gallons/day, it is an SIU anywhere
 - In Slater, where it's 10% of the ADW
 - In Emmetsburg, where it's 4.8% of the ADW
 - Or in Des Moines, where it's 0.06% of the ADW

Categorical Industrial Users (CIUs)

- EPA created 50+ categories of industries for wastewater regulation
- 35 of the 50 categories have Pretreatment Standards (categorical limits) established
- IUs subject to the standards in one or more of the 35 categories are called “categorical” or “categorical industrial users (CIUs)”
- Size doesn’t matter – if the industry’s discharge fits the category description and the category has federal standards, *the industry is categorical*
- A zinc plating industry that discharges 200 gallons/day is a CIU, regardless of the size of the POTW

CIUs – Special Notes

- An industry's discharge may fit into a category that doesn't have federal standards for industrial users
- Landfills and Meat Processors that discharge directly to a receiving stream have federal standards known as Effluent Limitation Guidelines
- There are no specific federal limits on industries discharging to POTWs
- **But wait!** These industries may be significant due to their size or other factors
- Bottom line: a landfill or meat processor is not a CIU
 - Landfills are SIUs because DNR believes they have potential to adversely affect the POTW
 - Meat processors may be SIUs due to their size
- There are also some special rules around categorical industries that never discharge more than 100 gallons/day

Who Regulates Industrial Users?

- The setup varies a bit, depending on the POTW
- Some POTWs have approved pretreatment programs – these are generally larger cities/sanitary districts/reclamation authorities
 - We call these “pretreatment cities”, regardless of whether the owner is actually a city or some other public entity
 - 20 in the state
- POTWs with average design flows greater than 5 MGD *must* have programs. Other POTWs *may* have programs
- DNR has oversight of the pretreatment programs, and EPA has oversight of DNR

Who Regulates Industrial Users? Part 2

- For the other 800 POTWs, DNR is the Control Authority
- A POTW still has responsibility for its IUs, but DNR is much more involved
- City/POTW decides what it can take and sets limits (subject to DNR and EPA requirements)
- SIUs must have a Treatment Agreement (TA) with the POTW
- TA must be submitted to DNR for review

Some Rules Apply to Everyone

- General and Specific Prohibitions
- Apply to *all* users of POTWs – industries, commercial businesses, residences, governments, non-profits
- **General Prohibition:** a user of a POTW cannot discharge anything that will cause pass through or interference
 - *Pass through:* Pollutants that the POTW is not designed to treat that end up in the effluent, causing permit violations
 - *Interference:* Any pollutants that adversely affect the operation of the POTW and cause permit violations or prevent use or disposal of sewage sludge

Some Rules Apply to Everyone, cont.

- Specific Prohibitions:
 - Pollutants causing fire or explosion hazards,
 - Solid or viscous substances that cause flow obstructions,
 - Excess heat that inhibits biological activity,
 - Petroleum/nonbiodegradable/mineral oil in amounts that will cause interference or pass through
 - Pollutants resulting in toxic gases, vapors, or fumes that cause acute health and safety problems
 - Pollutants that cause corrosive structural damage
 - Discharges with pH <5.0, or that cause raw waste to treatment works to be <6.0 or >9.0
 - Wastes in excess of design capacity of treatment works

User Responsibilities - SIUs

- All SIUs:
 - Have a control mechanism
 - Meet limits/requirements of control mechanism
 - Monitor as required
 - Notify Control Authority of increases in discharge
- CIUs:
 - Comply with federal Pretreatment Standards
 - Submit Baseline Monitoring Report (BMR)
 - All requirements of SIUs

Treatment Agreements - Overview

- Specific to Iowa (other states regulate slightly differently)
- Required of SIUs in non-pretreatment cities
- Agreement between city/POTW and SIU, subject to review by DNR
- Contain limits for the SIU
- **Do not contain:**
 - Fees/fines/surcharges (totally up to POTW)
 - POTWs and industries should have these items worked out and in writing, but we don't review them
 - Monitoring requirements (set by other rules)
- Form is available from <https://www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Wastewater-Permitting/NPDES-Operator-Information/Treatment-Agreements>

Parameters in TAs

- Flow, pH
 - All SIUs have limits for these
 - Flow limits are set so that the POTW stays within its design
 - pH limits prevent corrosion in sewer, keep POTW in optimum range
- Compatible Wastes
 - Wastes that the POTW is designed to treat
 - BOD₅, TSS, TKN – all must be within design capacity
 - May also include O&G, NH₃-N, or Phosphorus
 - Not always included if not expected in significant amounts
- Incompatible Wastes
 - Everything else
 - Usually metals: cadmium, chromium, lead, etc.

Categorical Limits

- Apply to categorical industries (e.g. metal finishers)
- Come from federal regulations
- Apply to incompatible wastes
- For example, metal finishers have an average copper limit of 2.07 mg/L

Local Limits

- Applied to non-categorical and categorical SIUs
- Set by city (often in negotiation with SIU); reviewed by DNR
- Incompatible wastes
 - Must be at least as stringent as any applicable categorical limits
 - Usually calculated because POTW is trying to meet an effluent limit. Also may be used to prevent interference.
- Compatible wastes, flow
 - Calculated to keep POTW within its design
 - Ideally, <80% of design is allocated
 - If >80% is allocated, need to start planning ahead (POTW improvements, restrictions on new industries)
 - If >=100% is allocated, need to revisit limits

Local Limit Examples

- Incompatible wastes
 - Categorical average copper for a metal finisher is 2.07 mg/L
 - Local limit has to be ≤ 2.07 mg/L
 - If POTW has an effluent limit of 0.03 mg/L, a couple of options are:
 - Set SIU's limits at 0.03 mg/L (easy)
 - Allocate SIU limits in proportion to their flow; if SIU flow is 1/10th of POTW, then they could have copper up to 0.3 mg/L
 - Can get very complicated with multiple SIUs, consideration of inhibition, biosolids disposal, etc.
- Compatible wastes
 - Say a POTW has a BOD₅ design of 1,250 lb/day (80% of design is 1,000)
 - Current average influent is 700 lb/day
 - POTW would ideally allocate 300 lb/day or less to its SIUs

So How Does It All Work?

- A potential SIU is identified – maybe by self, maybe by city, maybe by DNR
- Gather information about IU – we have a survey form to get some basic info to help decide path
- Determine if they are significant – by any of the four criteria
- Write TA with local limits; include categorical limits if required
- POTW and SIU sign TA and submit to DNR
- DNR reviews and hopefully accepts
- POTW's NPDES permit is amended (if possible) to include the TA requirements

Enforcement

- POTW should take the lead if enforcement is necessary
 - Letters, fines (if allowed by contract or ordinance)
- DNR will step in if necessary (if POTW isn't getting results or isn't acting)
 - EPA also has authority to step in
- Violation of the TA limits is a violation of the permit
- Not monitoring adequately is a violation of the permit
- Not enforcing the TA is a violation of the permit

Other Documents - BMR

- BMR (Baseline Monitoring Report)
 - Required of all categorical users
 - Contents include identifying information, other environmental permits, a description of operations, flow measurement, and pollutant measurements
 - Very thorough – contents set by EPA
- TOMP (Toxic Organics Management Plan)
 - Optional categorical users that are regulated for total toxic organics (TTOs)
 - List of 111 organic chemicals such as benzene, naphthalene, bis (2-ethylhexyl) phthalate
 - Describes CIU's plan for ensuring that concentrated toxic organics do not enter the sewer
 - If approved, allows CIU to certify that TTOs have not been dumped, rather than test for them

Metal Finishers

- Metal finishers are the most common CIUs in Iowa
- An industry is a metal finisher if it does one of six metal finishing operations: electroplating, electroless plating, anodizing, coating, chemical etching and milling, and printed circuit board manufacture
 - “Coating” can include phosphating, chromating, passivating, galvanizing, and other processes – look for acids used to clean or treat metals
 - Discharges from ancillary processes are also covered (e.g., rinsing parts after coating)
- Metal finishers are subject to regulations regardless of how much or little they discharge

Questions?



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