

Potential Effect of More-Stringent Human Health Criteria on Point Sources in Idaho

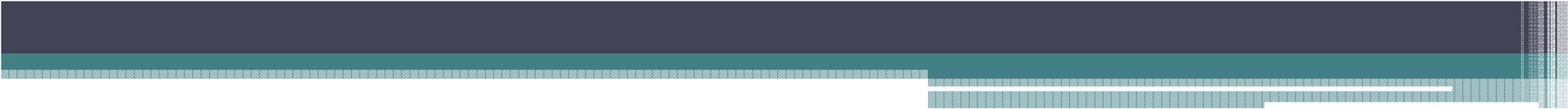
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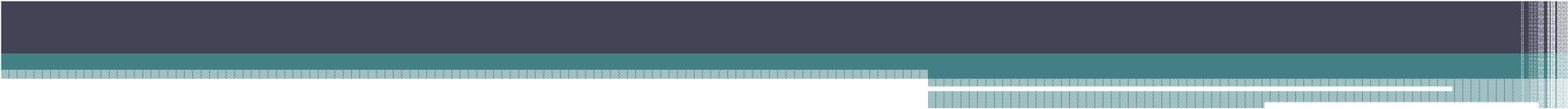
Introduction

- Goal
 - A preliminary sense of which NPDES permit holders may be affected by more-stringent human health criteria in Idaho.
- Process
 - Review a sample of Idaho permits that have effluent limits and/or monitoring requirements for pollutants affected by the EPA's disapproval action.
 - Conduct a “reasonable potential” analysis for those permits to determine if limits may be necessary, or if current limits may need to be more stringent.
 - Exclude pollutants with aquatic life criteria that are much more stringent than the human health criteria (e.g., cyanide and selenium).



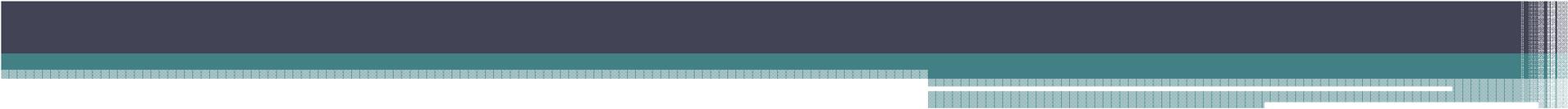
Types of Facilities With Monitoring Requirements or Limits

- Water Treatment Plants
 - Monitoring requirements for thallium and total trihalomethanes or THM (chloroform, chlorodibromomethane, dichlorobromomethane, and bromoform)
- Large Publicly Owned Treatment Works or POTWs (≥ 1 mgd design flow)
 - Priority pollutant scans required for applications.
- Groundwater remediation
- Pulp and Paper



How the EPA Determines the Need for Effluent Limits (“Reasonable Potential”)

- “Reasonable potential” means the projected receiving water concentration exceeds water quality criteria.
 - Effluent data analyzed using statistics in Chapter 3 of the EPA’s *Technical Support Document for Water Quality-based Toxics Control* (TSD).
 - Dilution may be considered; “critical” stream flows for human health are higher than for aquatic life.
 - More stringent criteria means “reasonable potential” is more likely.



How the EPA Calculates Limits Based on Human Health Criteria

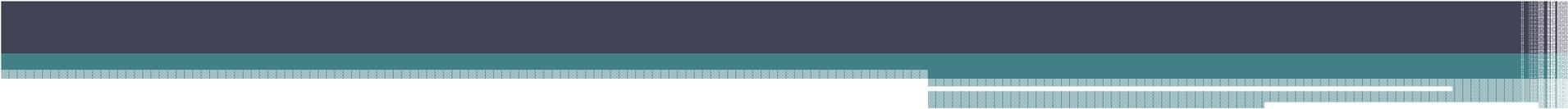
- If there is “reasonable potential,” then limits are established.
 - Mixing zone authorized: Average monthly limit meets criteria at the edge of the mixing zone.
 - No mixing zone authorized: Average monthly limit meets criteria at the point of discharge.
 - More stringent criteria means more stringent limits.

Permits Reviewed: POTWs

- POTW #1
 - 12 mgd design flow; 2.3:1 – 3.6:1 dilution
 - Receiving water not designated for DWS
- POTW #2
 - 3 mgd design flow; 4:1 dilution
 - Receiving water not designated for DWS.
- POTW #3
 - 5 mgd design flow; 17:1 dilution
 - Receiving water designated for DWS
- POTW #4
 - 17 mgd design flow; 19:1 – 38:1 dilution
 - Receiving water designated for DWS

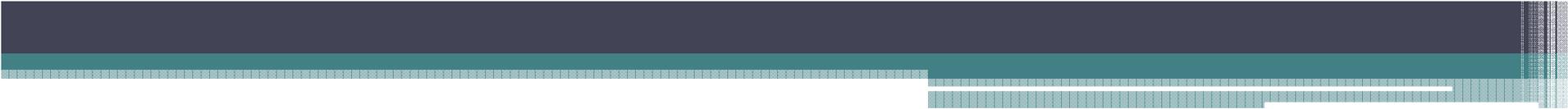
Permits Reviewed: Other Facilities

- Water Treatment Plants
 - Thallium has been monitored for but never detected.
 - Analysis for THMs was based on *total* THM effluent data.
 - Plant #1
 - 26:1 dilution
 - Receiving water not designated for domestic water supply (DWS) (i.e., “organisms only” criteria apply).
 - Plant #2
 - 11,530:1 dilution
 - Receiving water designated for DWS (i.e., “water + organisms” criteria apply).
- Pulp and Paper
 - 6.4:1 dilution based on the fact sheet.
 - Receiving water designated for DWS.
- Groundwater Remediation General Permit
 - Two permittees with a total of four coverages were evaluated.
 - No mixing zone was authorized in prior coverage.
 - Water + organisms criteria used since this is a statewide permit.



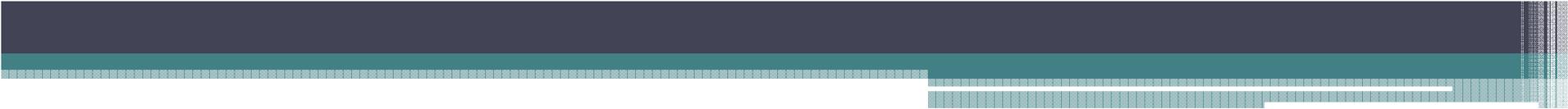
Discussion of Results: Current Criteria

- The following types of facilities may need new or more stringent limits for the following pollutants:
 - Groundwater remediation
 - tetrachloroethylene
 - trichloroethylene
 - vinyl chloride
 - fluoranthene
 - Pulp and paper
 - pentachlorophenol



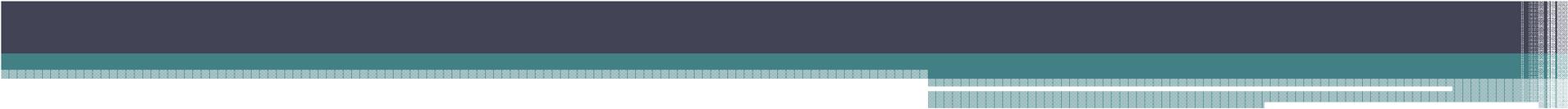
Discussion of Results: What If Criteria are Cut in Half (50% of Current Criteria)?

- Add the following:
 - Groundwater remediation
 - benzo(a)anthracene
 - benzo(a)pyrene
 - benzo(b)fluoranthene
 - benzo(k)fluoranthene
 - chrysene
 - dibenzo(a,h)anthracene
 - indeno(1,2,3-cd)pyrene



Discussion of Results: What if Criteria are Cut by a Factor of 5 (20% of Current Criteria?)

- Add the following:
 - Water treatment plants with low dilution
 - chlorodibromomethane
 - dichlorobromomethane
 - Groundwater remediation
 - pyrene
 - acenaphthene
 - Large POTWs
 - carbon tetrachloride
 - dichlorobromomethane (if receiving water is designated for DWS)



Discussion of Results: What if Criteria are Cut by a Factor of 10 (to 10% of Current Criteria)?

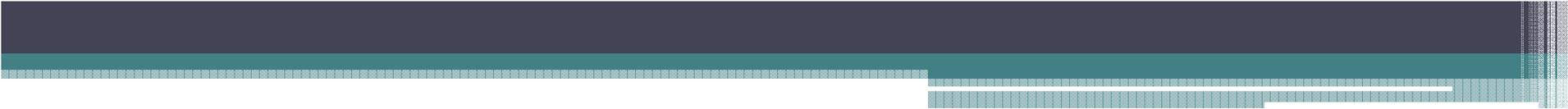
- Add the following:
 - Groundwater remediation
 - fluorene
 - Pulp and Paper
 - 2,4,6 trichlorophenol
 - Large POTWs
 - dichlorobromomethane (if receiving water is not designated for DWS)

Other Potential Issues for Point Sources

- Polychlorinated biphenyls (PCBs)
 - Monitoring not currently required in any Idaho permits.
 - Studies in Washington State: Concentrations in POTW effluents were > 64 pg/L about 90% of the time.
- 2,3,7,8 TCDD (dioxin)
 - Limited in Idaho's only pulp and paper permit.
 - The limits, which are based on old criteria (based on 6.5 g/day), are already below quantification limits.
 - Detected in POTW effluents in other States.

Other Potential Issues, Cont'd

- Pesticides
 - Yakima River (WA) Study:
 - DDT, dieldrin, endosulfan, and chlorpyrifos were detected in fruit packing and vegetable processing effluents.
 - Chlorpyrifos and endosulfan detected in POTW effluents.
- Other types of facilities (e.g., minor POTWs) could be affected
 - There could be a water quality impairment (i.e., 303(d) listing) and/or a total maximum daily load for one of these pollutants, for that facility's receiving water.
 - More stringent criteria make water quality impairments more likely.



Questions?