Stormwater

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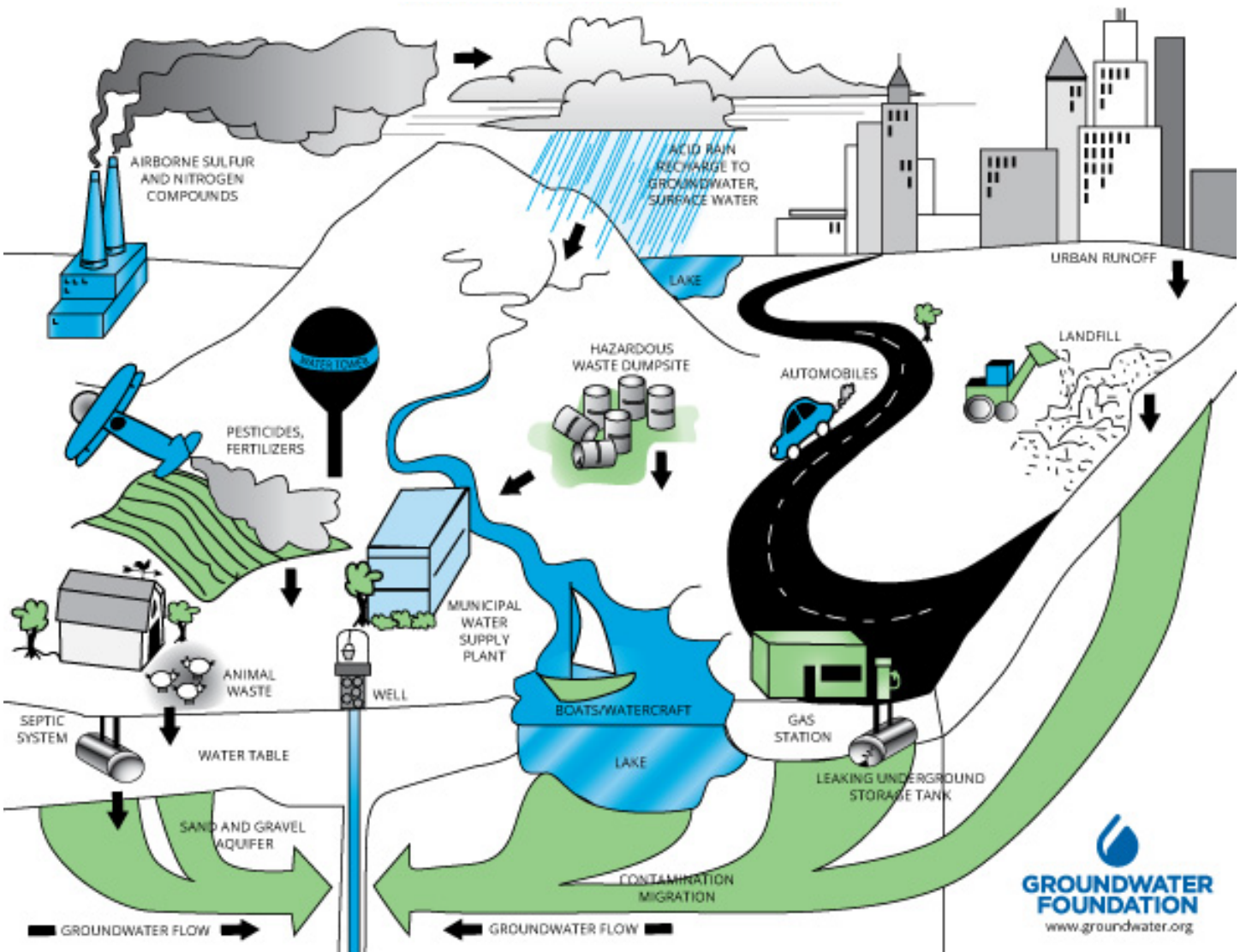
Sources of Groundwater Contamination



GROUNDWATER FOUNDATION
www.groundwater.org

Potential Impacts of Unmanaged Stormwater

Changes In:

- Infiltration to ground water
- Stream hydrology
- Watershed hydrology
- Stream morphology
- Riparian zone habitat
- Water quality
- Aquatic habitat and ecology
- Aquatic ecosystem

Stormwater

FEDERAL

National Pollutant Discharge Elimination System (NPDES)

- **Municipal Separate Storm Sewer Systems (MS4)**
- **Construction Generic Permit (CGP)**
- **Multi-Sector Generic Permit (MSGP)**

STATE

Environmental Resource Permitting (ERP)

- **Regulates activities in, on, or over surface waters or wetlands…as well as any activity involving the alteration of surface water flows.**

Stormwater Aspects

PERMITTING

- Narrative nutrient limits in the form of stormwater BMPs
- TMDL implementation for areas with BMPs
- Reporting requirements
- Stormwater Pollution Prevention Plan

COMPLIANCE

- Inspections – operation and implementation of BMPs and outfall locations
- Report review
- Rebuttable presumption – systems designed in accordance with criteria and requirements will not cause harm to water resources

Florida ERP

Environmental Resource Permitting (ERP)

Covers collection through treatment (including use or reuse) with design focus on water quality and quantity (considering flooding, over-drainage, environmental degradation, water pollution)

Florida Department of Environmental Protection

- **Single-family homes, stand-alone dredging projects, port projects, beach projects, mangrove trimming**

Water Management Districts

- **Multi-residential development, roadways, commercial development, and shoreline work related to one of these categories**

ERP Program
Chapter 62-330, F.A.C.

Environmental Resource Permitting

- State-level regulatory program established under Florida Law (Chapter 403 and Part IV of Chapter 373, F.S.).
- Established in 1995 from merger prior MSSW and Dredge and Fill programs.
- Functionally "linked" with management of state-owned ("sovereignty") submerged lands, including Aquatic Preserves (under Chapters 253 & 258, F.S.).
- Incorporates review of water quality certification (under s. 401 CWA) and coastal zone consistency concurrence (under FCMP) – needed by USACE.
- Robust and comprehensive program.
- Jointly implemented by DEP, WMDs and delegated programs.

Performance Standard for New Stormwater Discharges

- **Erosion and sediment control**
  - Retain sediment on-site
  - Can’t violate turbidity standard
- **Stormwater quantity**
  - Discharge rate WMD or local standards
  - Volume control
- **Stormwater quality examples**
  - 80% average annual load reduction
  - 95% average annual load reduction
  - Basin specific requirements

ERP Stormwater Basics

Key elements of ERP stormwater:

- Systems designed (and built) in accordance w/rules receive "rebuttable presumption: of compliance w/WQ standards.
- Each WMD establishes treatment and attenuation criteria (including special basins) within its boundaries (Volume II's).
- Performance-based design requirements (e.g. 80/95% TSS removal).
- Common elements (1" vs. ½", +50%, 72 hours, 25/24, pre- vs. post-, etc.).
- Typical designs are "dry" retention or "wet" detention, with differing criteria for each.
- Less-common designs include RIBs, exfiltration, swales, etc.
- Novel designs may be reviewed, if they provide reasonable assurance…

MS4s

Federally delegated to Florida

- **Phase I MS4s**
  - Incorporated municipalities or counties of population 100,000+
  - May include smaller municipalities with interconnected SW areas
- **Phase II MS4s**
  - Urbanized areas of population 1,000+
  - Can also be designated by DEP based on interconnections, discharges to TMDL waterbodies, or population density and thresholds

MS4 Permit Conditions

Permittees are required to implement a Stormwater Management Program (SWMP) to reduce discharge of pollutants from the MS4 to Waters of the State to the maximum extent practicable through best management practices (BMPs), such as:

- **Operate and maintain the Stormwater Collection System**
- **Practice good housekeeping at permittee facilities and projects**
- **Inspect facilities/areas that may contribute pollutants, including industrial and construction sites; have legal authority to prohibit discharges, inspect sites, and perform enforcement**
- **Public and community outreach and education**
- **Address Total Maximum Daily Loads**
- **Evaluate SWMP effectiveness**

CGPs & MSGPs & NEXs

CGP	MSGP	NEX
• 1+ Acre disturbance • Discharge/outfall • Stormwater Pollution Prevention Plans • Implement BMPS: erosion, waste, sedimentation, control • Monitoring	• Industrial activities • Discharge • Stormwater Pollution Prevention Plans • Implement BMPS: erosion, waste, sedimentation, control • Monitoring	• No Exposure Exclusion Certification • Exempt from SWPPPs, monitoring

Regulated Industrial Activities (MSGP Areas)

- Sector A: Timber Products
- Sector B: Paper Products Manufacturing
- Sector C: Chemical Manufacturing
- Sector D: Asphalt Paving
- Sector E: Glass, Clay, Cement, Man.
- Sector F: Primary Metals
- Sector G: Metal Mining
- Sector H: Coal Mines
- Sector I: Oil and Gas Extraction
- Sector J: Mineral Mining & Dressing
- Sector K: Hazardous Waste Facilities
- Sector L: Landfills
- Sector M: Auto Salvage Yards
- Sector N: Recycling Facilities
- Sector O: Power Plants (Steam)
- Sector P: Land Transportation
- Sector Q: Water Transportation
- Sector R: Ship & Boat Building
- Sector S: Air Transportation
- Sector T: Treatment Works
- Sector U: Food & Kindred Products
- Sector V: Textile Mills
- Sector W: Furniture & Fixtures
- Sector X: Printing & Publishing
- Sector Y: Plastics Manufacturing
- Sector Z: Leather Tanning & Finishing
- Sector AA: Fabricated Metal Products
- Sector AB: Transportation Equip.
- Sector AC: Electronic Goods
- Sector AD: Additional Activities

Six Major Types of Surface Water Management Systems

"Dry" Retention Ponds

"Wet" Detention Ponds

"Filtered" Ponds

Underground Exfiltration Trenches

Pervious Pavement

Underground Vaults

BMP Technology Examples

- Low Impact Development (LID)
- Pervious Pavement
- Green Roof & Cistern Systems
- Constructed Wetland & Marsh Systems
- Gross Pollutant Separators
- Trickling Filters used for Stormwater Treatment
  - Naples Airport Project

Contact Information

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