



Draft Permits for the Republic Services Newton County Landfill Injection Wells IW-1 and IW-2

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EPA, Region 5**

Agenda



- Purpose of Underground Injection Control (UIC) Program
- UIC Permits
- Proposed IW-1 & IW-2 Injection Wells
- Questions and answers
- Virtual Public Hearing (follows presentation)
 - 10:30 AM to 12:00 Noon
 - 7:30 to 9:00 PM

Underground Injection Control



Under the Safe Drinking Water Act, the UIC Program's mission is to protect underground sources of drinking water from contamination.



Regulation of injection wells:

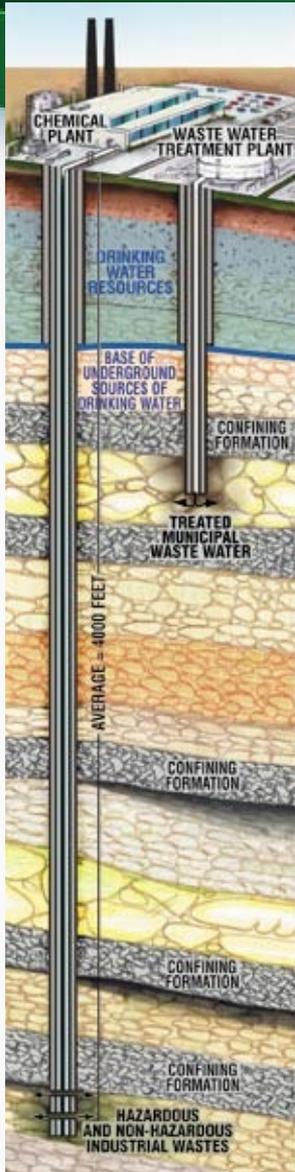
- Permitting
 - Well construction
 - Well operation & monitoring
 - Well closure
- Permit Compliance
 - Monitoring
 - Inspections
- Enforcement

Protecting Drinking Water Sources



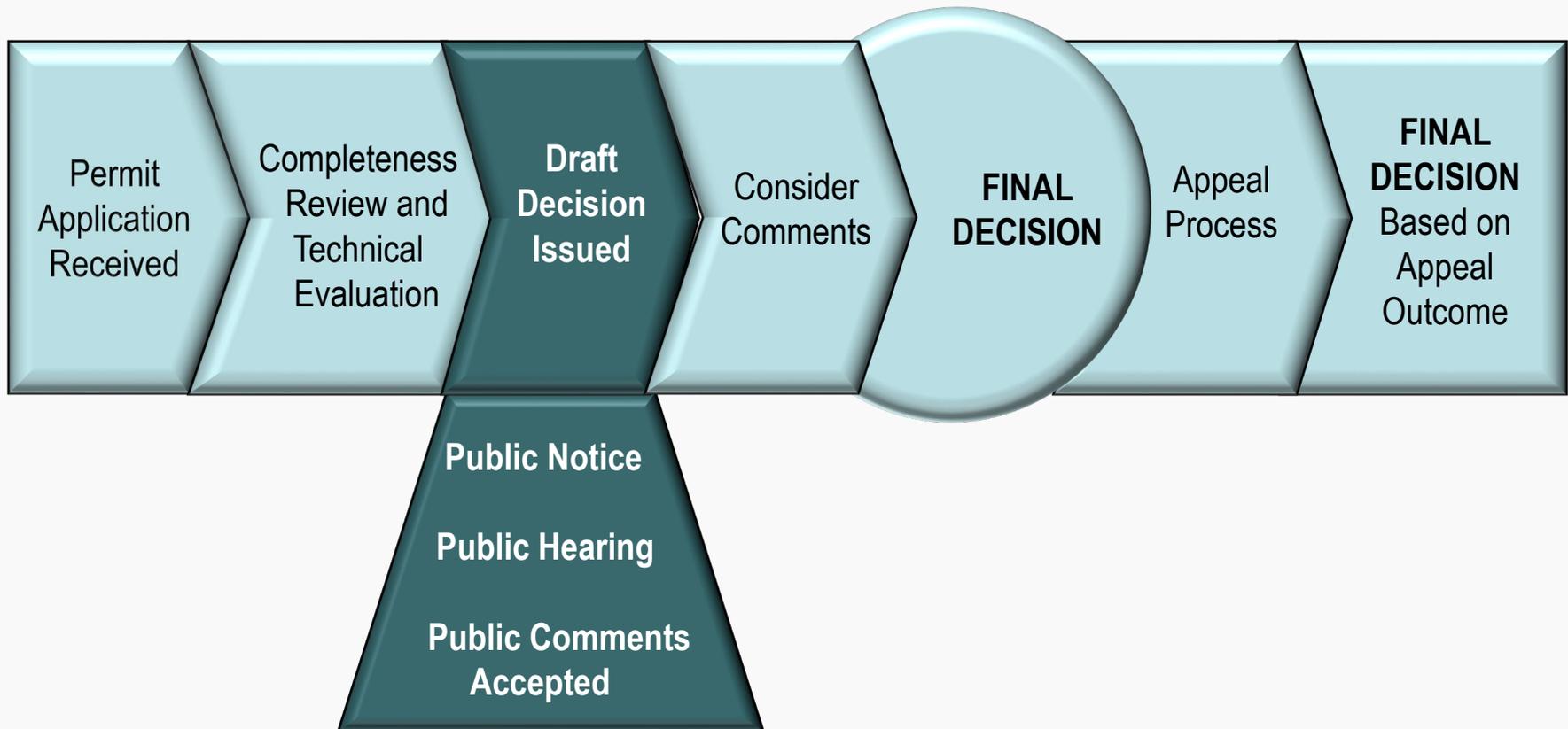
- Injection wells are designed and constructed to prevent leaks
 - multiple layers of steel pipe (well casing)
 - cement in between the well casings
- Fluid is injected into deep underground rock formations
 - Injection zone is deep below the Underground Sources of Drinking Water (USDW)
 - USDW: an aquifer (water-bearing rock formation) or a part of an aquifer that is currently used as a drinking water source or is needed as a drinking water source in the future.
 - Confining rock layers above injection zone
 - prevent fluids from migrating upwards to the USDW
- Significant penalties for permit violations

Class I injection wells:



- Class I injection wells are used to inject wastes into deep, confined rock formations.
- Class I wells are typically drilled thousands of feet below the lowermost underground source of drinking water (USDW).
- Class I injection wells: Proposed wells IW-1 & IW-2 are restricted to non-hazardous fluid injection
- Approximately 800 Class I injection wells in U.S.
- Approximately 12 Class I wells in Indiana

UIC Permit Process



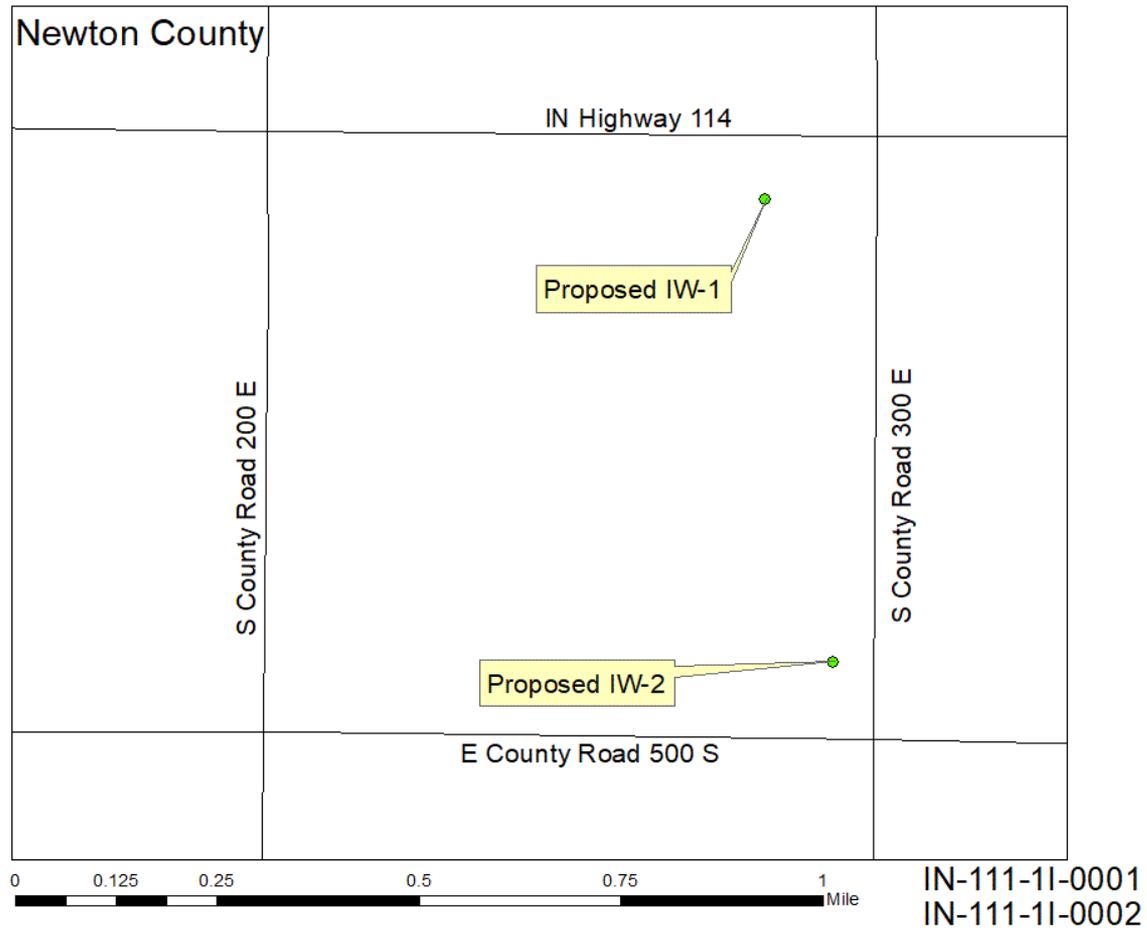
Permit Application Review:



- Geologic siting suitability
- Area of review (potential leakage pathways)
- Well construction design
- Operational standards
- Plugging and abandonment plan



Well Locations Map

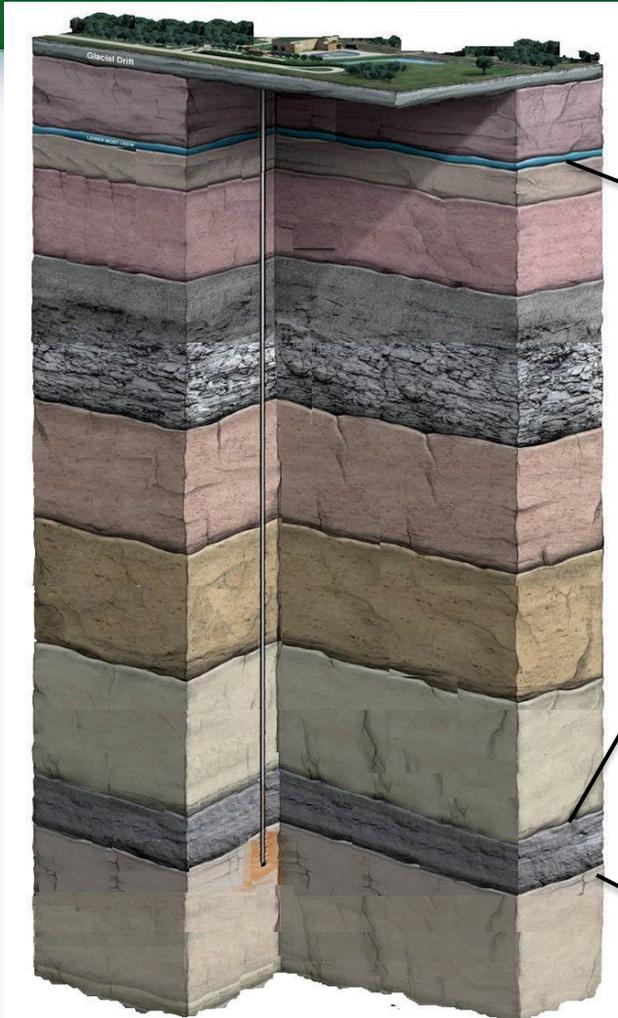


Class I Wells IW-1 and IW-2



- Two new Class I injection wells located within Newton County Landfill are proposed for construction to inject non-hazardous fluids deep underground into the Mount Simon Sandstone
- Well construction requires the installation of steel pipe (well casing), cement between well casings, injection tubing (steel or plastic pipe), and a packer (a donut-shaped steel device that seals off the annular space at the bottom of the well and holds tubing in place).
- If permitted, **only** non-hazardous fluids may be injected for disposal

Geology



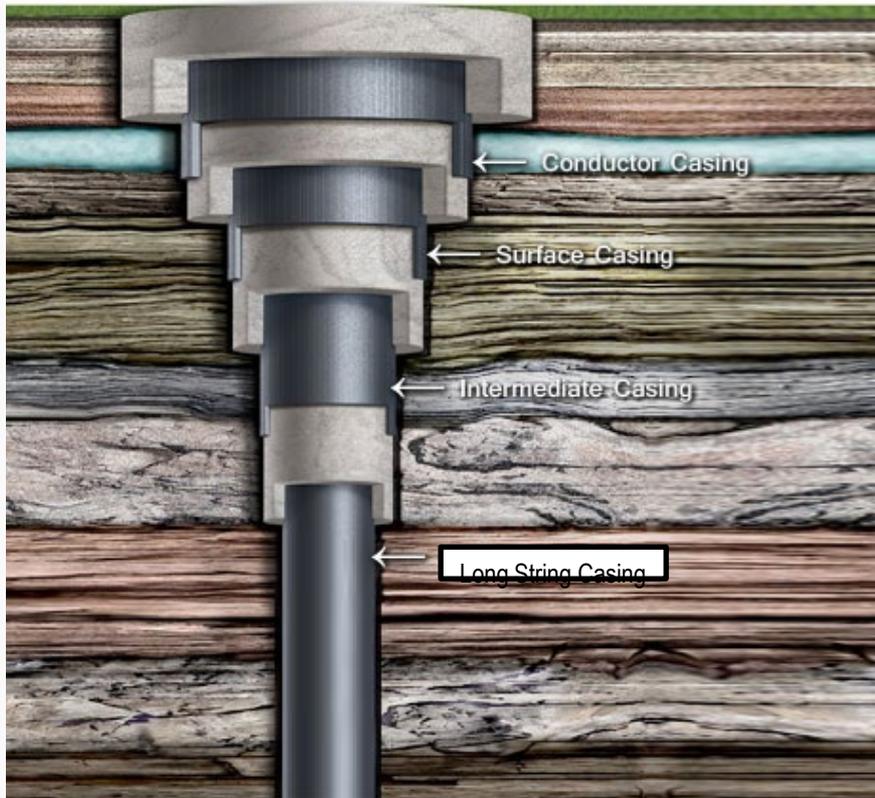
Underground Source of Drinking Water (USDW)
Silurian-Devonian Aquifer
Depth: 790 feet, Thickness: 120 feet

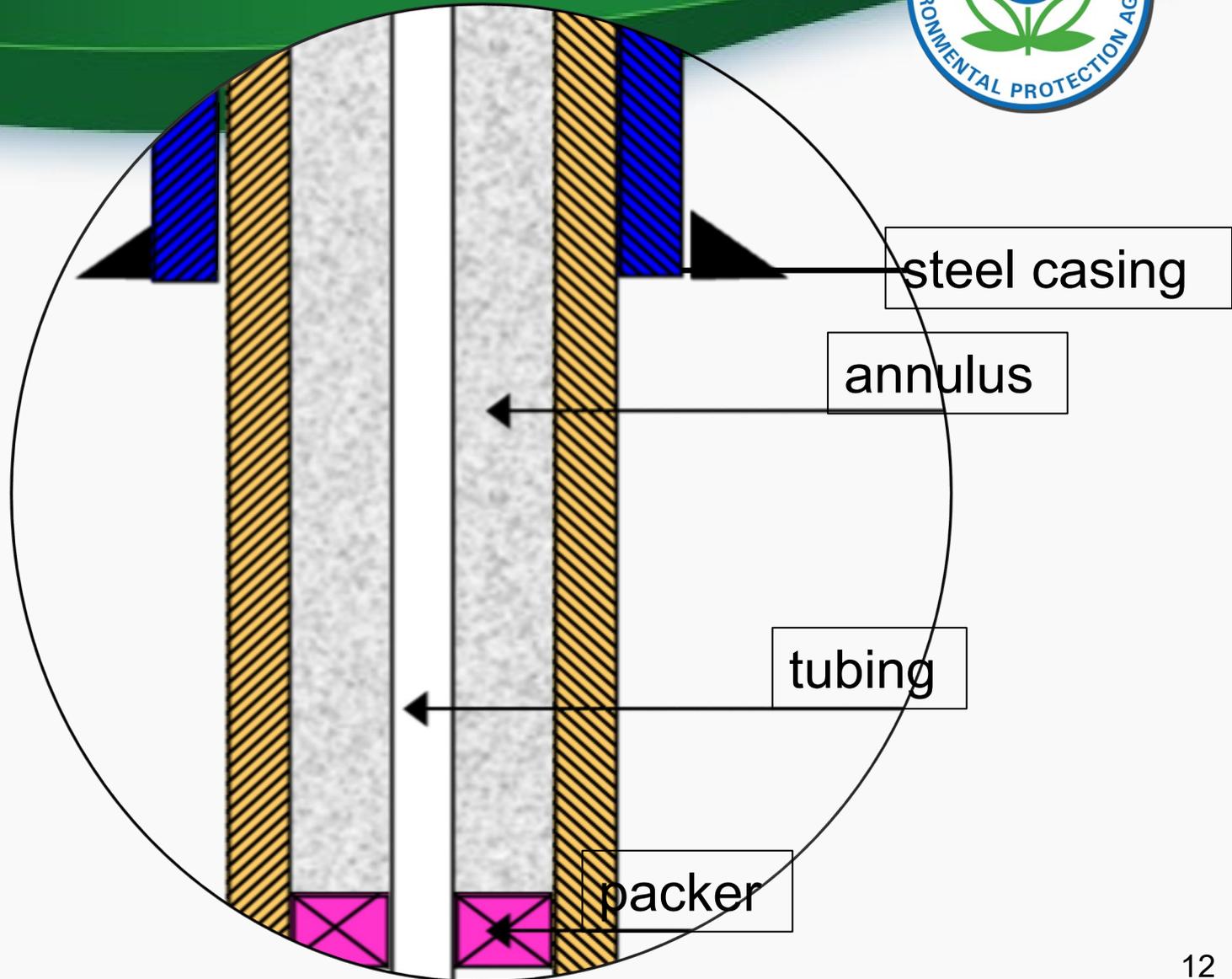
Confining Zone
Eau Claire Formation (660 ft. thick),
made of impermeable shale and siltstone

Injection Zone
Mount Simon Sandstone
Depth to top: 3020 feet

Drawing not to scale

Well Construction for Class I Disposal





What does the permit require?



Regular Reporting

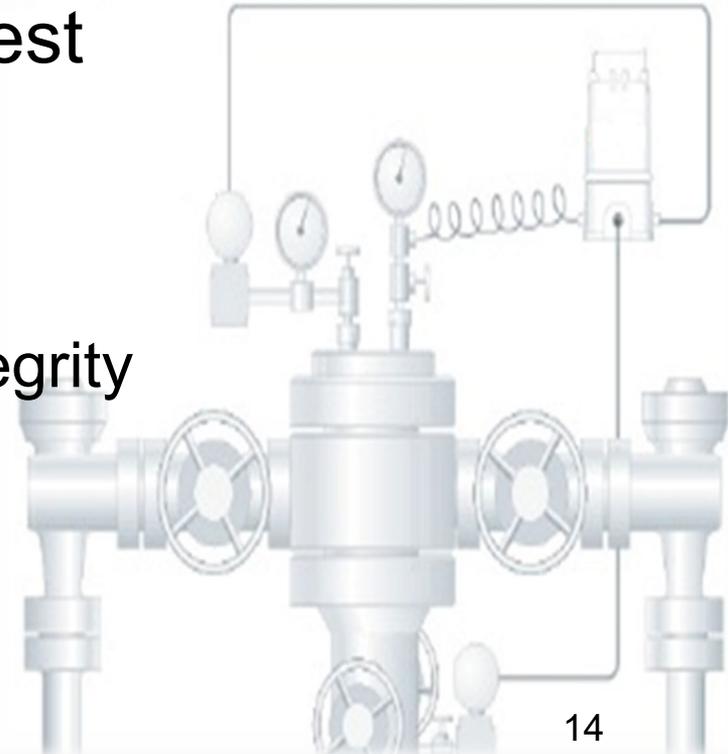
- Monitored weekly, reported *monthly*
 - Injection pressure
 - Flow rate
 - Annulus pressure
 - Cumulative injected volume
- Annulus liquid loss - *quarterly*
- Injected fluid analysis - *annually*

What does the permit require?



Mechanical Integrity Testing:

- Standard Annulus Pressure Test
 - Before injection begins
 - After well modifications
 - After any loss of Mechanical Integrity
 - At the request of EPA
 - At least every 5 years



What does the permit require?



Specific requirements:

- Injection pressure limit
- Fluid composition analysis
- Plugging and abandonment plan
- Financial assurance for closure costs

Summary



- EPA protects drinking water by regulating fluid injection underground
- EPA carefully reviews proposed injection wells
- Permit requirements include:
 - Construction
 - Operation, Monitoring, Testing & Reporting
 - Plugging and abandonment (well closure)
 - Financial assurance to fund future well closure



Questions?



Example of an injection well head

Virtual Public Hearing Sessions



- Morning Session: 10:30 AM to 12:00 Noon EST
- Evening Session : 7:30 PM to 9:00 PM EST
- Opening Statement by Hearing Officer
- Oral Comments from Audience
- Written Email Comments accepted until midnight, Saturday, April 10, 2021

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Or

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U.S. EPA – Region 5, Water Division

UIC Section, Permits Branch