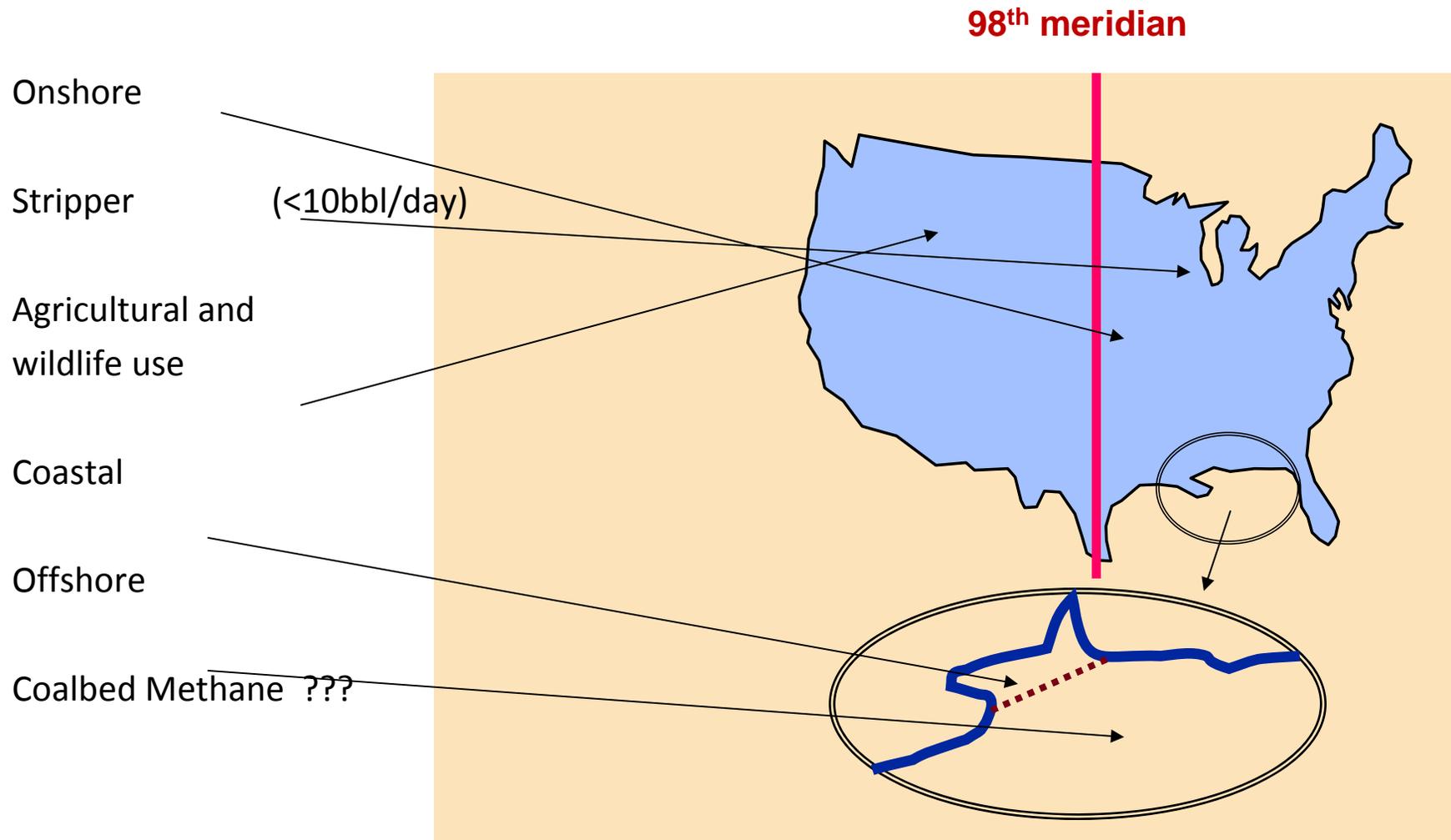


Water Regulatory Issues Relating to E&P Sector

John Veil

Argonne National Laboratory

EPA Oil and Gas Effluent Limitations Guidelines (ELGs) [40 CFR 435]

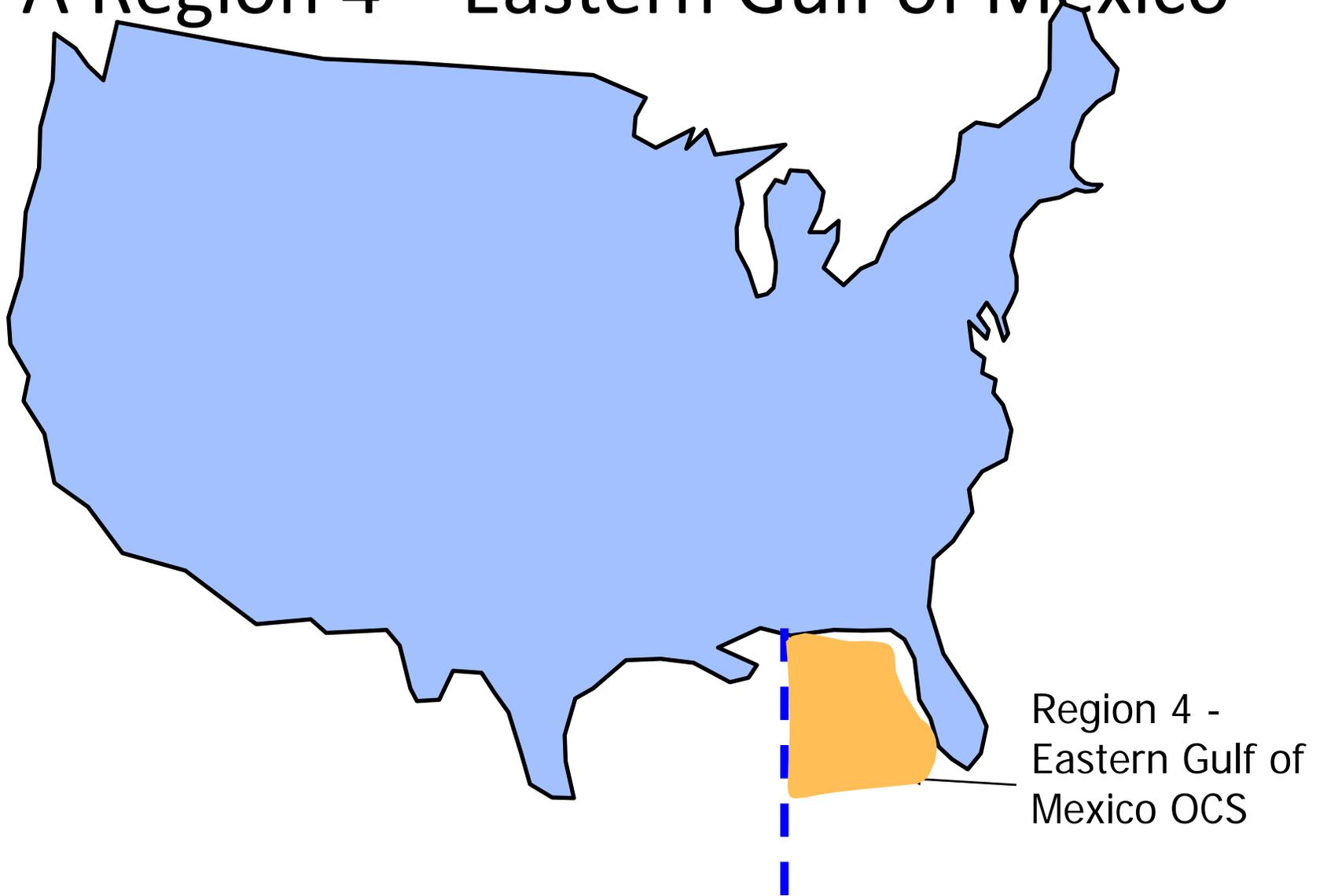


Overview of Regulatory Requirements Relating to Water Discharge

- National Pollutant Discharge Elimination System (NPDES) permits are required for discharges to surface waters
- Issued by state agencies in most states
- Contain numerical limits on selected pollutants
- May require best management practices or other operational controls
- Limits are based on technical feasibility of treatment and protection of water quality
- There are currently no national discharge standards for CBM water
 - EPA is studying the CBM sector and will decide next year if national effluent limitations guidelines are needed
 - In the mean time, states can establish limits using best professional judgment

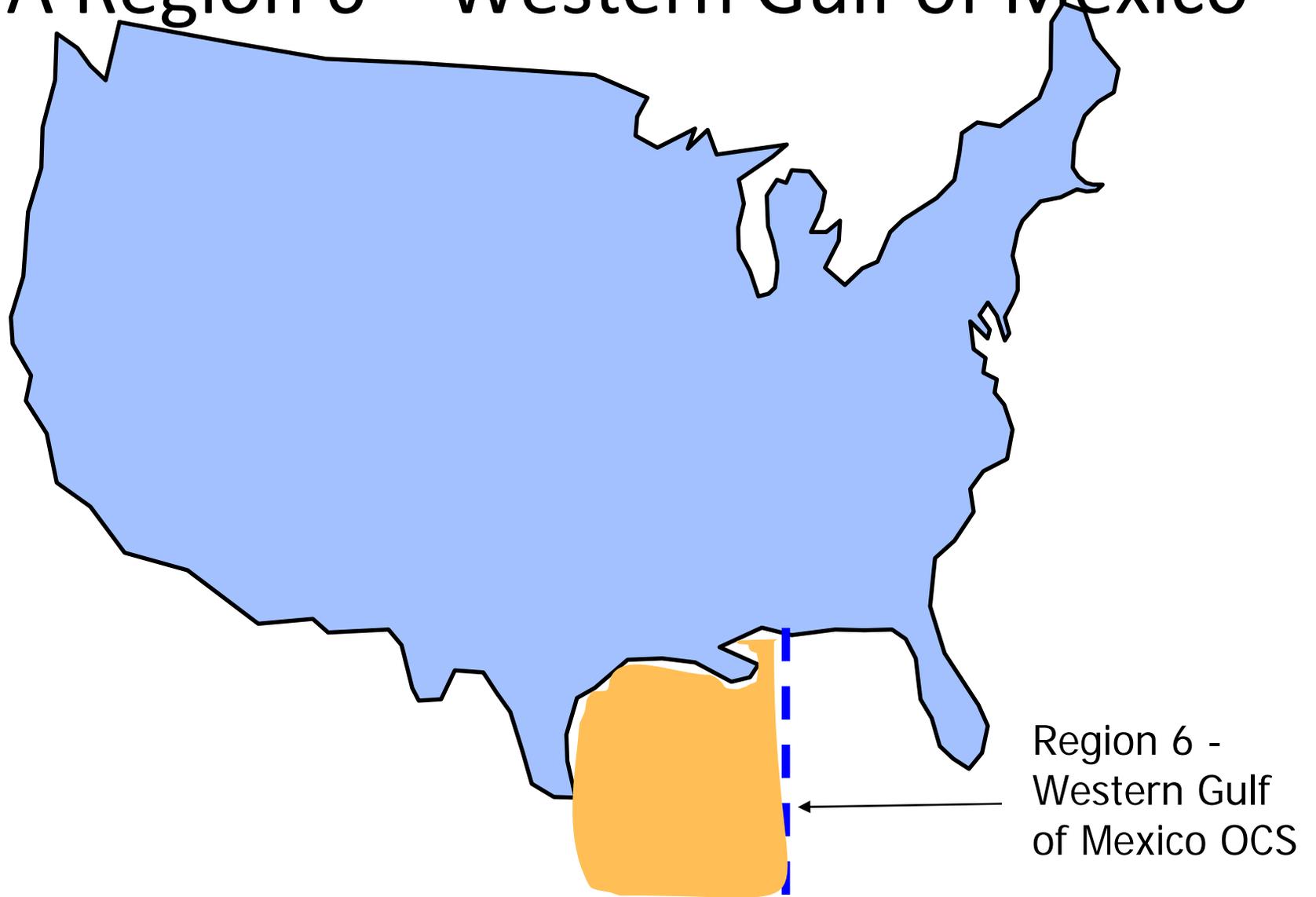


EPA Region 4 – Eastern Gulf of Mexico

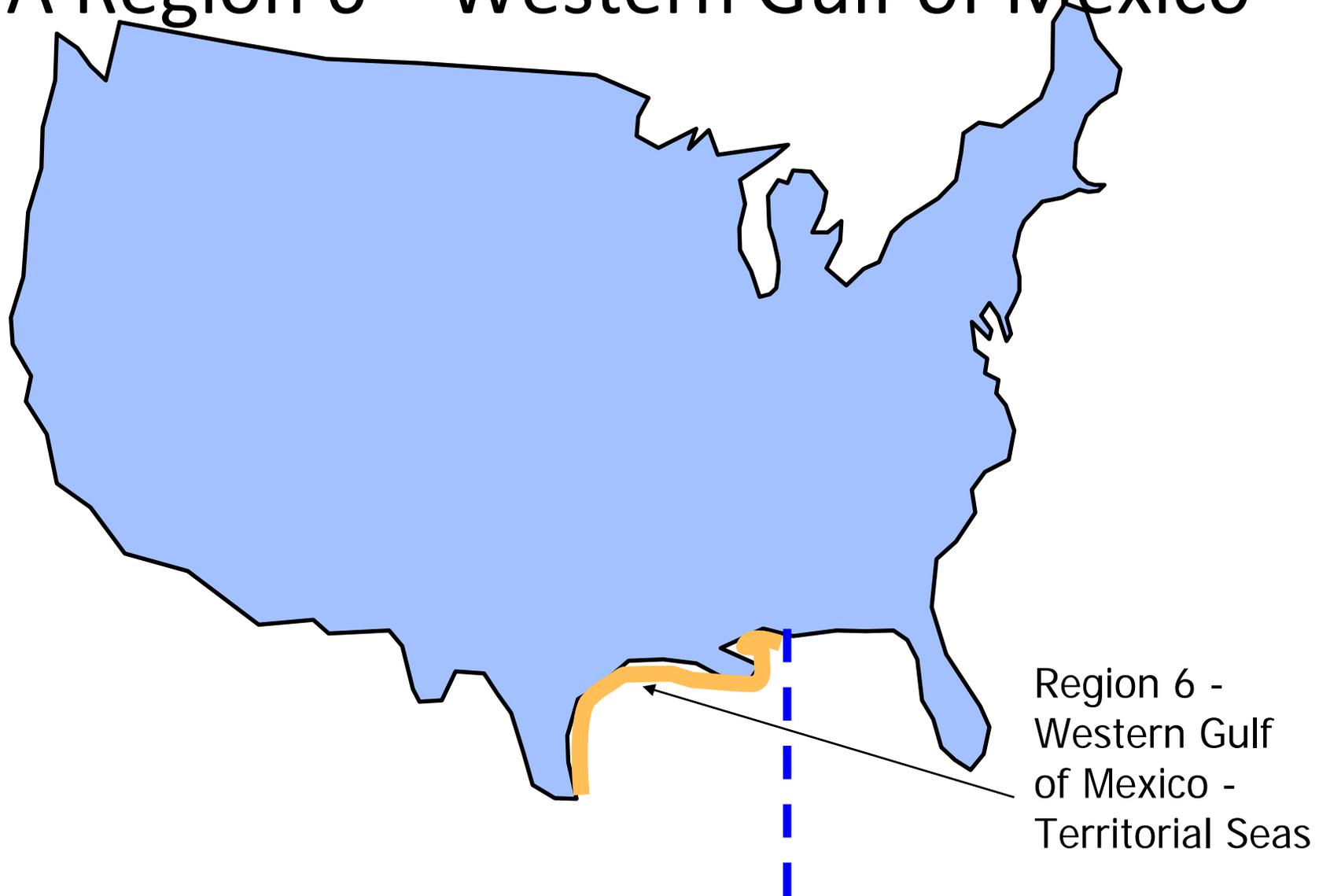


Region 4 -
Eastern Gulf of
Mexico OCS

EPA Region 6 – Western Gulf of Mexico



EPA Region 6 – Western Gulf of Mexico

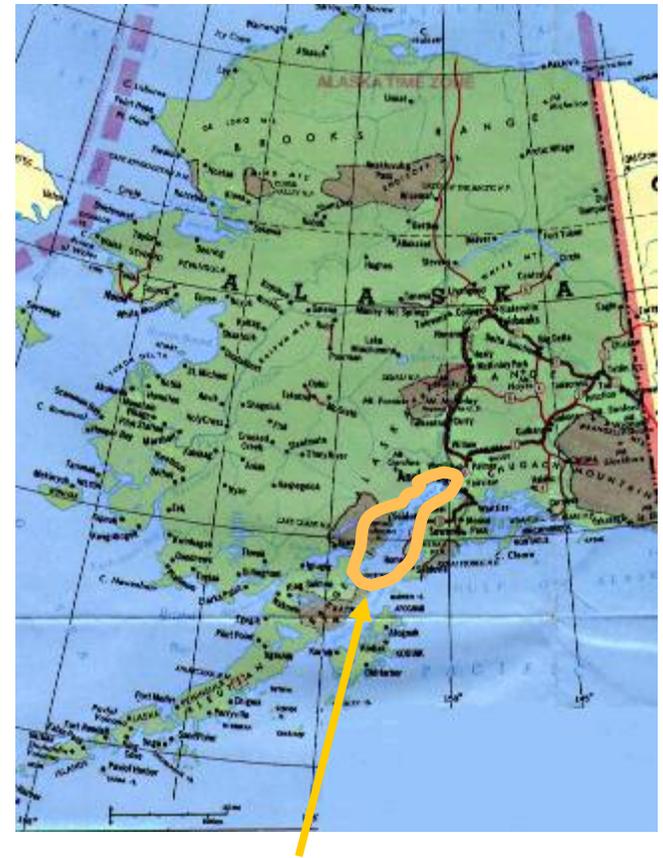


EPA Region 9 – California Coast



Region 9 –
California Coast

EPA Region 10 - Alaska



Region 10 – Cook Inlet, Alaska

Comparison of Toxicity Requirements in EPA Permits

Permit	Date Issued	Type of Test	Species
Region 4,	12/04	Chronic	Mysid shrimp (<i>Mysidopsis bahia</i>) Inland silverside minnow (<i>Menidia beryllina</i>)
Region 6, OCS	10/07	Chronic	Mysid shrimp (<i>Mysidopsis bahia</i>) Inland silverside minnow (<i>Menidia beryllina</i>)
Region 6, Territorial Seas	8/05	Chronic plus 24- hour acute test using full- strength effluent	Mysid shrimp (<i>Mysidopsis bahia</i>) Inland silverside minnow (<i>Menidia beryllina</i>)
Region 9, California	12/04	Chronic	Red abalone (<i>Haliotis rufescens</i>) Giant kelp (<i>Macrocystis pyrifera</i>) Topsmelt fish (<i>Atherinops affinis</i>)
Region 10, Cook Inlet	7/07	Chronic	Topsmelt fish (<i>Atherinops affinis</i>) Mussel (<i>Mytilus</i> sp.) or Pacific oyster (<i>Crassostrea gigas</i>) Purple sea urchin (<i>Strongylocentrotus purpuratus</i>) or sand dollar (<i>Dendraster excentricus</i>)

Comparison of Other Produced Water Requirements

Permit	Discharge Prohibition	Other Limits	Other Requirements
Region 4	- Within 1,000 m of Area of Biological Concern	N/A	- Notification before using new chemicals
Region 6, OCS	- Within Area of Biological Concern or National Marine Sanctuary	N/A	Note: previous permit required study of produced water discharges to hypoxic zone. Study results showed no impacts.
Region 6, Territorial Seas	- Within 1,000 m of Area of Biological Concern	N/A	N/A
Region 9, California	NA	- Limits on 9 metals, cyanide, and phenols - Monitoring for 26 chemicals and toxicity	- Annual discharge volume limits are set for each platform - Conduct study of on-line oil-and-grease monitors - Companies must submit a study to the EPA to determine the feasibility of disposal of produced water by means other than discharge
Region 10, Cook Inlet	- To shallow water or other sensitive areas - Within certain distance of coastal marsh, river mouth, parks, or wildlife areas	- Limits for each of the 9 platforms for 8 toxic pollutants and effluent toxicity	- Operators discharging greater than 100,000 gallons/day (~380 m ³ /day) of produced water must plan and conduct a study that addresses the fate and transport of pollutants in the water column and sediments within 3 years

States Are Developing New Tools

- As new oil and gas development comes to a region, the states develop regulatory tools
 - Tools suitable for 25 wells/year may not be appropriate for 1,000 well/year
- Example 1: Colorado issued new general permit for CBM discharges in August 2009
 - Should streamline processing time for NPDES permits
 - Incorporates site-specific limits based on the nature of the discharge and the receiving water
- Example 2: Pennsylvania proposed new discharge requirements for frac flowback water to protect TDS levels in streams and rivers
 - 500 mg/L for TDS
 - 250 mg/L for sulfates and chlorides
 - 10 mg/L for barium and strontium

The SPCC Saga

- EPA had long-standing SPCC regulations
- Throughout the 1990s, EPA proposed several sets of revisions, but did not finalize them until July 2002
 - The new SPCC regs contained many new comprehensive features that affected oil and gas producers
 - Size of operation requiring formal SPCC plan (option for self-certification)
 - Secondary containment
 - Consideration of produced water storage as oil storage
- Over the next 6 years, EPA prepared a series of revisions that provided “regulatory relief” to various parties affected by the 2002 rule
 - December 2008 amendments would help E&P sector
- Shortly after the start of the Obama Administration, EPA delayed the implementation date of the 12/08 SPCC amendments
 - EPA also asked for additional comments about whether the proposed amendments were needed
 - Final decision is expected soon

Water Withdrawal and Water Rights

- Some states require permits or other approvals for use of ground or surface water
- Some eastern states must follow the requirements of River Basin Commissions for water use
 - Delaware
 - Susquehanna
- State water rights laws and policies are complicated and different
 - When produced water is considered for beneficial reuse, water rights laws could present barriers
- As demand for water increases, approval to take/use water will become more controversial and difficult to obtain

Legislation to Control Hydraulic Fracturing

- Hydraulic fracturing is considered by the industry and by regulatory agencies as part of the drilling process and not an Underground Injection Control (UIC) activity
- In a series of court cases in the early 2000's (LEAF vs. EPA), an NGO challenged Alabama over not requiring UIC permits for frac jobs
- The Energy Policy Act of 2005 included language that clearly excluded hydraulic fracturing from the UIC program
- This year, bills were introduced into both the House and Senate that would remove the 2005 language and require that hydraulic fracturing be covered by a UIC permit and require disclosure of the chemicals used in frac fluids
 - House bill HR 2766
 - Introduced 6/09 and referred to House Committee on Energy and Commerce
 - Held hearing in advance of introducing bill
 - Senate bill S 1215
 - Introduced 6/09 and referred to Committee on Environment and Public Works