Oil and Gas Well Development In an identified Special Flood Hazard Area
Applicable WV Laws

• 7-1-3v. Floodplain and mudslide area management; legislative findings; power and authority; enforcement; provisions cumulative. (County Authority)
• §8-12-14. Permits for construction and alteration. (Municipal authority)
Why a Floodplain permit?

• A community must be in the National Flood Insurance Program (NFIP) so flood insurance is available within its boundaries.
• Every county in WV and all but 2 incorporated municipalities are in the NFIP.
• When a community joins the NFIP it agrees to:
Why a Floodplain Permit?

• Adopt a floodplain ordinance that is compliant with the Title 44 Code of Federal Regulations (CFR).
• Enforce the ordinance.
• Permit all development in the Special Flood Hazard Area (SFHA).
A Community must permit oil and gas wells in the SFHA because.

- As defined in 44 CFR, section 59.1
  Development-Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
What is the cost of this permit?

- The cost of the floodplain permit is determined by the local Floodplain Ordinance.
- Neither NFIP nor the WV NFIP Coordinating Office determine the permit fee.
- Each community is different.
Determining the need for a Floodplain permit

- Is this going to be in the floodplain?
- Is there fill going to be placed for site prep?
- Have all other permits been obtained?
- Is there a site plan?
- Does this development encroach in the Floodway?
- Has there been a Floodplain Study done?
How do you know if your proposed site is in the SFHA?

- [www.mapwv.gov/flood](http://www.mapwv.gov/flood)
- Contact the community Floodplain Manager.
- Look at the FEMA flood maps at [www.msc.fema.gov](http://www.msc.fema.gov)
Lets get started by clicking the LAUNCH TOOL button
Read the **DISCLAIMER** and then click **I AGREE**
In the ZOOM TO box you can navigate 1) by full address
Choose a BASE-MAP
Different flood zones

• Approximate A Zone - *Approximate A Zones are those areas where floodplain boundaries have been established using approximate techniques without conducting detailed hydrologic and hydraulic studies.* These approximate 100-year flood zones are shown on flood hazard maps as “unnumbered A zones” (the letter “A” with no letter or number after it).
AE Zone

- Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
Rules for Fill

• All WV Floodplain Ordinances contain the following language: Fill may be used only to the extent it does not cause an adverse effect on adjacent properties.
Rules for Fill

• Within any floodway, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.
Rules for Fill

• Within any AE Zone without Floodway area, no new construction or development shall be allowed unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the elevation of the 1% annual chance flood more than one (1) foot at any point.
Rules for Fill

• In Approximate A Zones, when data from an acceptable source is not available, the Floodplain Administrator shall review, or shall cause to be reviewed; all proposed development to determine; 1. The amount being invested and, 2. The specific flood risk at the site. The Floodplain Administrator shall then require the applicant to determine the elevation above which the development will be reasonably safe from flooding. Depending on the amount of fill the floodplain administrator may require hydrologic and hydraulic analyses (done by a professional engineer) or another technique to determine that the fill will not cause any adverse impact to adjacent property owners.
Adverse Effects of Fill

• Unacceptable increase in flood heights
• Adverse alteration of drainage from adjacent property
• Increased velocity on adjacent existing structure
• Initiation or exacerbation of erosion problems
• Other unique site conditions may need to be considered when determining whether fill will cause adverse impact to adjacent property. (Karst, Subsidence areas, etc.)
Additional Fill Requirements

• Contour fill to drain properly (avoid ponding)
• Clean fill, no trash or woody debris.
• Protect fill from erosion.
• Fill compaction standards must be appropriate to proposed post fill use (particular attention is necessary when fill is being used to elevate a structure).

• Fill must be sloped according to specific ordinance requirements (generally 2 foot horizontal for every 1 foot vertical); an engineer can propose steeper sloping by providing data to justify the steeper slope, this includes installation of retaining walls.
Protecting Well Heads
Suggestions?
Storage tanks
Because they don’t make a good bobber!
Strap them down!
Stream Crossings
According to Local Floodplain Ordinance’s

• Alteration of a stream includes placement of culverts, bridges or other stream crossings. The floodplain administrator may require the use of certain “best practice” techniques in the construction of bridges, culverts or stream crossings to prevent damage, loss of stream crossings and localized flooding caused by blockage. These techniques may include, but are not limited to, wing walls, trash grates or requiring openings to be of sufficient size to pass debris and/or anticipated future increases in flood heights.

• All new and replacement bridges, culverts and other stream crossings shall adhere to the relevant anchoring requirements contained in this ordinance.
According to Local Floodplain Ordinance’s

• Section 4.5 Alteration or relocation of a stream

• Whenever a developer intends to alter or relocate a stream within the Floodplain Area the developer shall notify in writing, by certified mail, the \_(Community)\_, The Floodplain Administrator, The State Coordinating Office, any adjacent communities and any adjacent property owners of all such intended activities prior to the alteration or relocation of the stream.
What happens when the water rises?
Sediment Ponds
Sediment Ponds

- Sediment ponds as we know are temporary, however while they are being used could cause a rise in the BFE or adverse effect on adjacent properties.
- Even though it is temporary the Floodplain Manager may require a study to show no rise in the BFE or no adverse impact.
Contact Information

• To contact a community’s Floodplain Manager you can find their number at; 
  www.dhsem.wv.gov

• For State contact in Floodplain Management; 
  Phone 304-957-2571
  Or you e-mail me at kevin.l.sneed@wv.gov