



Office of Water Management



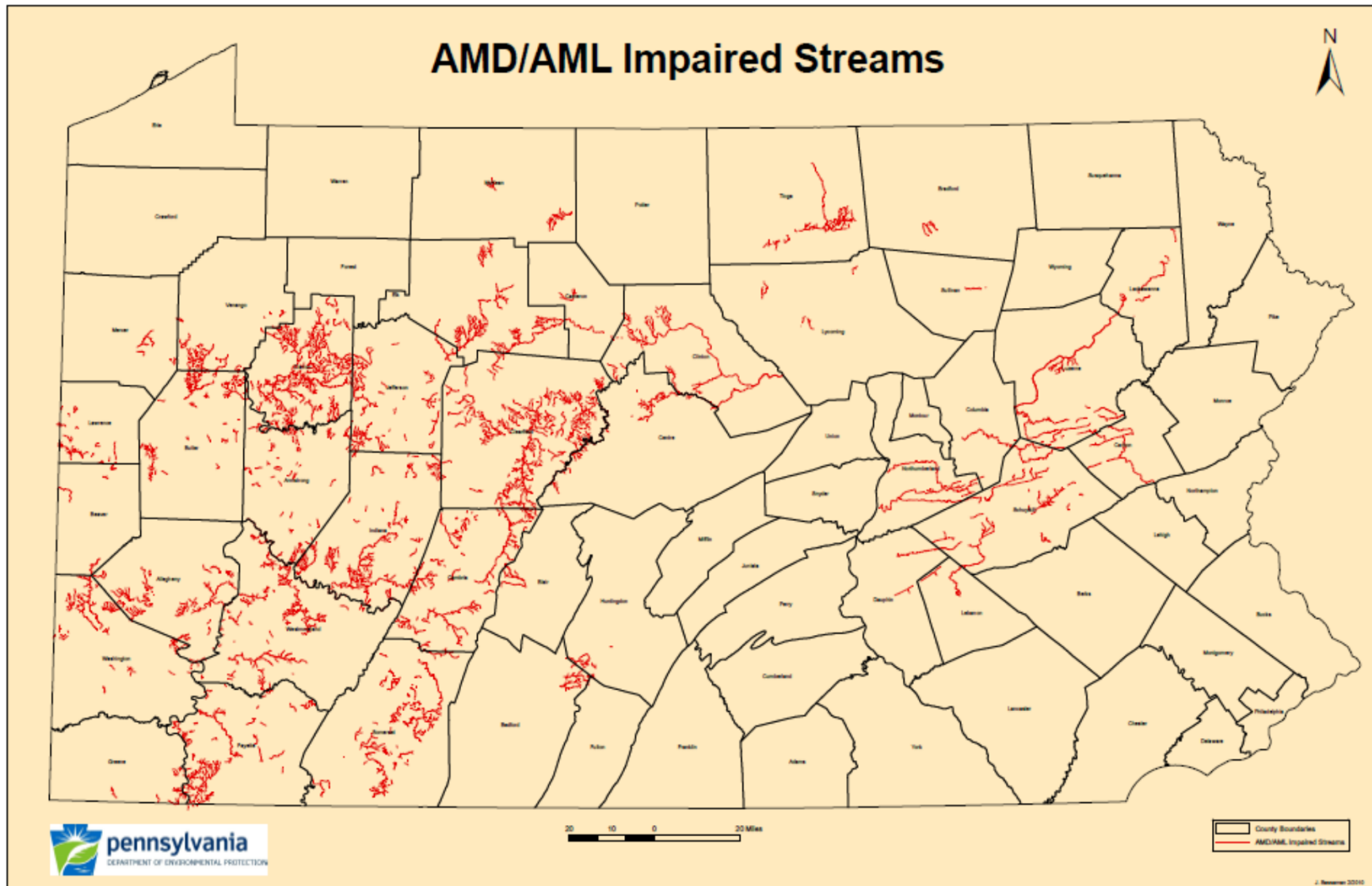
WPCAMR Marcellus Shale Forum

Session 1: Magnitude of the AMD Problem

By: Pamela Milavec, PA-DEP Bureau of
Conservation and Restoration

July 24, 2012

▶ 5,546 Stream Miles Impaired by AMD



Discharge Characterization

- Thousands of discharges
- Flows range from a few gpm to more than 40,000 gpm (Jeddo Tunnel), with significant seasonal variations
- Quality ranges from net alkaline, low-metals, low sulfates to extremely acidic, high-metals, high sulfates
- Discharges can be found in at least 38 counties, in both the bituminous (western) and anthracite (eastern) regions of PA
- Higher volume discharges tend to be lower in sulfates and metals
- Generally, the anthracite discharges tend to be higher in volume and lower in sulfates and other contaminants

Jeddo Tunnel

Buttler Township, Luzerne County, Pennsylvania

Nescopeck Creek Watershed

Tunnel Drainage Area 32 sq. mi.

Average Flow 40,000 g.p.m.

Maximum Flow 157,000 g.p.m.

Tunnel length 47,000 ft.

Year Constructed 1891

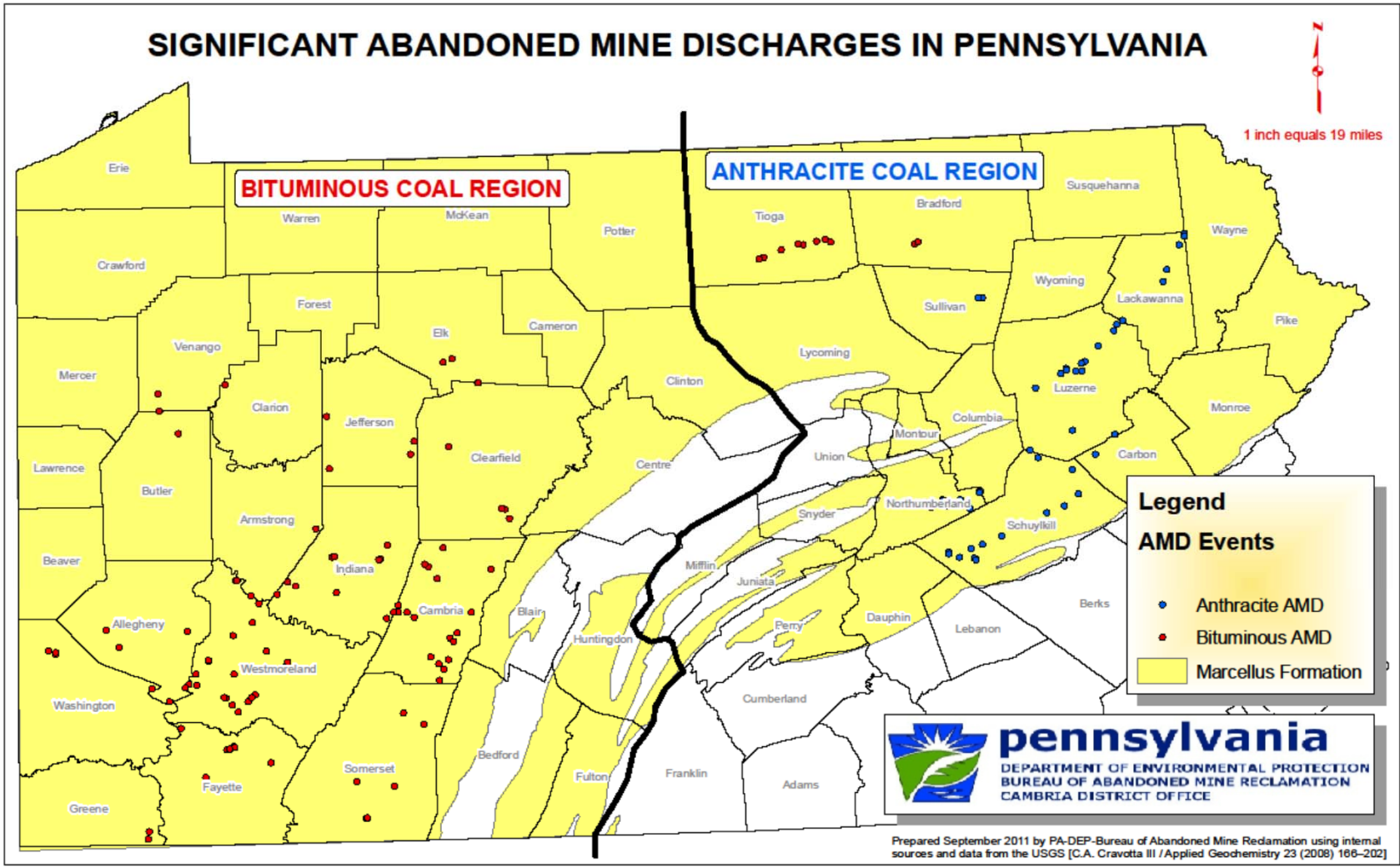
▶ Jeddo Tunnel, Luzerne Co.



DEP Data Sources

- Charles Cravotta, USGS: Data collection and report published in ScienceDirect
 - Evaluated the “top” 140 discharges (based on loading) – 40 in anthracite and 100 in bituminous
 - Resulting spreadsheet provides locational info, flows and extensive chemical analysis, including trace metals
 - Data collection was completed from 1999 – 2003,
 - The total volume of these 140 discharges exceeds **420,000 gpm** (sampled in lower flow conditions)

Location of most significant discharges



DEP Data Sources (continued)

- Todd Wood, BCR, Wilkes-Barre: Spreadsheet of significant anthracite discharges
 - Provides locational info and average flow and chemistry; discharges are grouped by receiving stream and the spreadsheet gives contact info for corresponding watershed groups
 - Data collection was from mid-1980s to the present
- OSM's AMLIS inventory provides some discharge info but is not complete

➤ Treated Discharges - Active

The Commonwealth and private industry (coal companies) operate or oversee the operation of many active treatment plants throughout the state

- These plants generally provide neutralization and precipitation of metals
- Additional treatment may be needed (Sulfate reduction)
- PA DEP BAMR/BCR operate the following plants:
 - Rausch Creek (Schuylkill)
 - Toby Creek (Elk)
 - Brandy Camp (Elk)
 - Hollywood (Elk)
 - Wildwood (Allegheny)
 - Lancashire #15 (Cambria)

▶ Treated Discharges: Active (continued)

- PA DEP District Mining Operations operates several plants:
 - LTV Banning, Euclid, Russelton and Clyde are large volume plants in counties with significant Marcellus activity (Allegheny and Washington)
 - Contact Sam Faith, 724-925-5515, sfaith@pa.gov

▶ Hollywood Treatment Plant



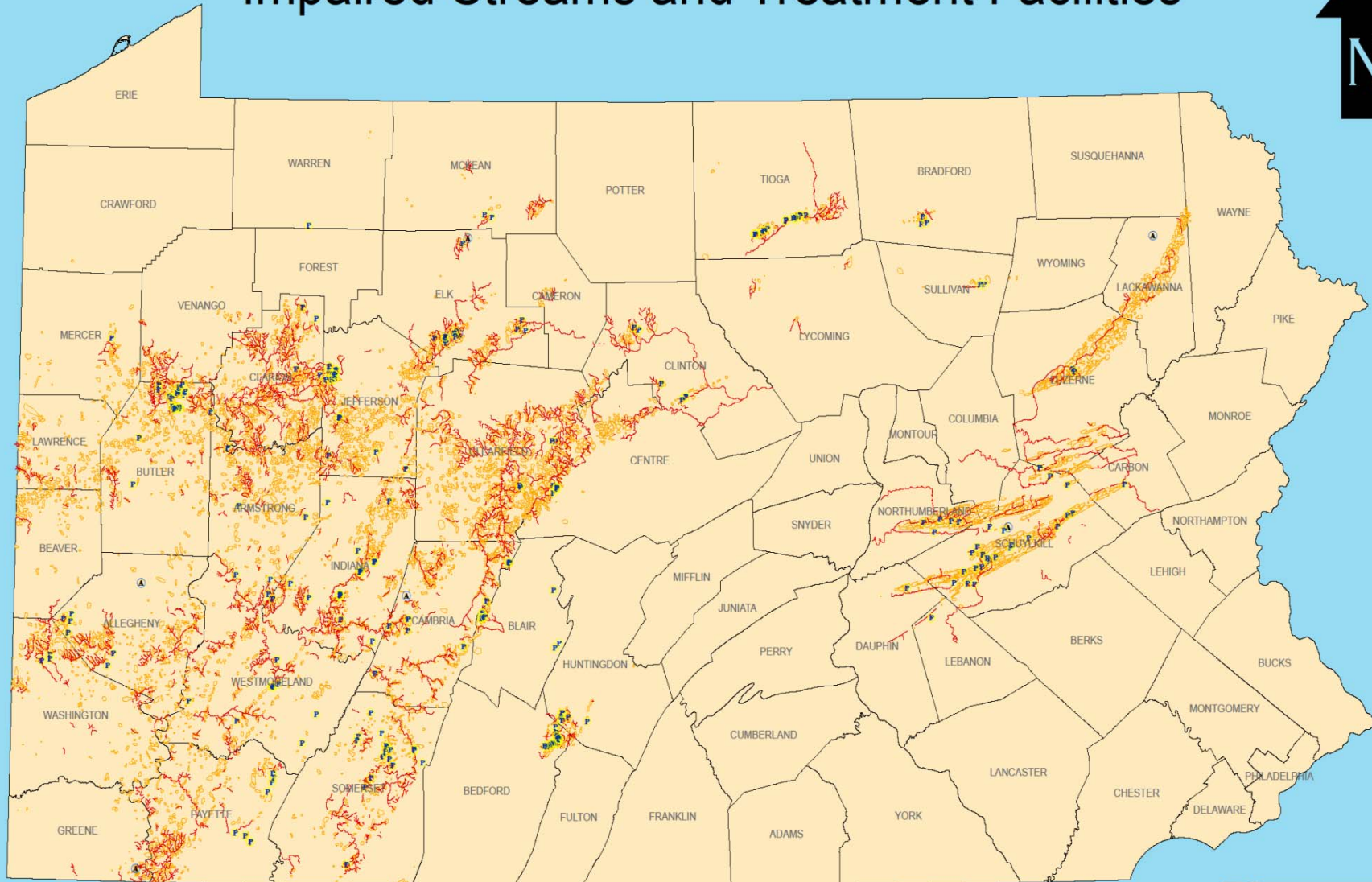
▶ Treated Discharges - Passive

- Over 300 passive systems have been constructed statewide
 - Discharges vary from a few gpm up to more than 1,000 gpm
 - Datashed.org is the primary source of info on passive systems
 - Provides locational info
 - Water quality data
 - Contact info
 - Additional treatment (sulfate reduction) may be needed

Wingfield Pines, Allegheny County



Impaired Streams and Treatment Facilities



- Passive Treatment Facilities
- Active Treatment Facilities
- AMD/AML Impaired Streams
- AML Problem Areas



Bureau of Abandoned Mine Reclamation



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Office of Water Management

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