

SMCRA Water Quality Requirements & Regulatory Update



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SMCRA Hydrologic Requirements



- ❧ Establish the pre-mining baseline conditions in the surface and groundwater systems
- ❧ Predict the probable hydrologic impacts of the proposed operation
- ❧ Develop a hydrologic reclamation plan to minimize impacts
- ❧ Include information for alternative water sources including suitability for water replacement
- ❧ Conduct monitoring of the predicted impacts to determine the changes
- ❧ Assess site conditions for bond release to determine if the impacts to the hydrologic balance
- ❧ Provide inputs to the CHIA based on past mining impacts determined through the monitoring process

What do we consider?



☞ *Hydrologic balance* means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, soil zone, lake, or reservoir. It encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground and surface water storage.

PHC Determination Shall:



- ❧ contain a determination of the probable hydrologic consequences (PHC) of the proposed operation upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.
- ❧ be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site

PHC Determination



∞ include findings on:

- (i) Whether adverse impacts may occur to the hydrologic balance;
- (ii) Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface or ground water supplies;”
- (iii) Whether the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose; and...

PHC Findings



(iv) What impact the proposed operation will have on:

- (A) Sediment yields from the disturbed area
- (B) Acidity, total suspended and dissolved solids and other important water quality parameters of local impact
- (C) Flooding or stream flow alteration
- (D) Ground water and surface water availability
- (E) Other characteristics as required by the R.A.

Hydrologic Reclamation Plan



- “The application shall include a plan..indicating how the relevant requirements of Part 816...will be met. The plan shall be specific to the local hydrologic conditions.”
- It shall contain the steps to be taken during mining and reclamation through bond release ---
- To minimize disturbances to the hydrologic balance WITHIN the permit and ADJACENT areas;
- To prevent material damage outside the permit area;
To meet applicable Federal and State water quality laws;

Hydrologic Concerns



- ❧ **Prevent Adverse Impacts to the Hydrologic Balance** - Carefully predict and assess impacts through monitoring to the hydrologic balance
- ❧ **Avoid Acid/Toxic Drainage** - Carefully evaluate overburden and hydrologic balance, consider past mining impacts, and properly design special handling plans

Hydrologic Concerns



- ❧ **Avoid Additional Contributions of Suspended Solids** - Carefully design and construct sediment control structures, haul road structures, etc.
- ❧ **Ensure water availability and prevent increases in flooding** - ensure baseflow but not increase runoff to cause flooding
- ❧ **Protect the rights of surface and ground water users** - Carefully establish existing quality and quantity (seasonal flow conditions) for water supplies and provide ongoing monitoring to determine impacts

CHIA Considerations



- ❧ Consider proposed operation and all anticipated mining (existing, in permit review, etc.)
- ❧ Accumulated impacts of all anticipated mining impacts in cumulative impact area on water quality & quantity
- ❧ Required by the RA prior to permit issuance

Relationship to Water Quality?



- ❧ 2012 Offsite Impacts Report
- ❧ Informal Request for Review (IRR) for Ten Day Notices
- ❧ Notice of Intent to Sue (NOI) Issues
- ❧ OSMRE Oversight
- ❧ OSMRE Rulemaking

2012 Offsite Impact

OFF-SITE IMPACTS EXCLUDING BOND FORFEITURE SITES

RESOURCES AFFECTED		People			Land			Water			Structures		
DEGREE OF IMPACT		Minor	Moderate	Major	Minor	Moderate	Major	Minor	Moderate	Major	Minor	Moderate	Major
TYPE OF IMPACT EVENT	NUMBER OF EVENTS												
Blasting	14	0	0	3	0	0	3	0	0	0	1	0	7
Land Stability	214	0	9	2	154	40	2	1	0	0	0	5	1
Hydrology	117	0	6	0	0	2	0	103	5	1	0	0	0
Encroachment	144	0	0	0	104	32	5	0	0	0	3	0	0
Other	60	1	3	0	14	12	1	0	0	0	3	6	0
Total	549	1	18	5	272	86	11	104	5	1	7	11	8

Total Number of Inspectable Units ² :	2362		
Inspectable Units with one or more off-site impacts:	332		
Inspectable Units free of off-site impacts:	2030	% of Inspectable Units free of off-site impacts ⁴ :	83

Adding hydrology and land stability: 331 of the 549 events or approximately 60% of the impacts are likely to be water related

Informal Review Requests



	KY	OH	PA	VA	WV
IRRs	2	1	6	4	6

	Water Quality	Contemporaneous Reclamation	Bond Calculations
IRRs	8	3	2

October 1, 2012, through July 31, 2014, AR received **19 requests for Informal Review.**

Regional NOI Data



- ❧ 86% of the NOIs allege water quality-related issues including selenium, conductivity, NPDES numeric / effluent limit exceedances, DMR deficiencies, CHIA deficiencies, & material damage.
- ❧ 8% involve improper permit issuance.
- ❧ Remainder of the NOI allegations regard bonding, CCBs, or reclamation-related concerns.
- ❧ 57% of NOIs in Kentucky involve water quality issues

OSMRE Oversight



- AR Slurry Impoundment Breakthrough Assessment
- AR CHIA Assessment
- LFO Long Term Treatment Inventory & Water Treatment Bonds
- LFO Offsite Impacts
- In the Future - Underground Mine Pools?

OSMRE Rulemaking



- Stream Protection Rule
- Coal Combustion Residue
- Temporary Cessation

Questions?

