BLM
Buffalo Field Office
Impoundment
Reclamation

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History

2005, Bonding Required for CBNG Produced Water Impoundments

BLM
WDEQ
WOGCC

2009, WDEQ Reservoir Reclamation Guidance
2010, BFO Impoundment Reclamation Guidance
BLM Reclamation Guidance

Three Phase Process

Phase I – Sundry NOI to Abandon
Phase II – Reclamation Plan
Phase III – Final Abandonment
Phase I Reclamation

- Landowner Information
- Soil Survey Map Unit
- Groundwater depth (if known)
- Soil Analyses
- Down Channel Issues
- State Engineers Office Permit
- Topographic Map
- Photographs
- Runoff Data
Phase I Reclamation

• Soil Analyses
  – Five locations per acre
  – Three Depths per location
    • 0-6 In.  6-24”In.  24-48 In.
    • Composite all like depths per acre
      – Three analyses per acre
  – Background Samples
Phase I Reclamation

• Soil Analyses
  – Texture
  – pH
  – Conductivity
  – Arsenic
  – Barium
  – Boron
  – Cadmium

– Copper
– Iron
– Manganese
– Molybdenum
– Radium 226
– Selenium
– Zinc
– TOC
Phase I Reclamation

Belle Fourche Basin

Anadarko Petroleum

Geosyntec Consultants

Statistical analysis of data collected in basin showed no environmental degradation from impounded water.

No more soil analyses needed in Belle Fourche
Phase I Reclamation

• WDEQ Soil Analyses Requirements
  – Two Locations
    • Lowest elevation of reservoir
    • Halfway to High Water Mark
  – Two Depths
    • 0-6 in.  6-48 in.
Phase I Reclamation

• WDEQ Soil Analyses Requirements
  – pH
  – Conductivity
  – SAR
  – Selenium
  – Boron
  – Molybdenum
  – Arsenic
Phase I Reclamation

Variance Request

Use WDEQ Soil Analysis Standards

Site Specific

Individual Impoundments
Phase II Reclamation

- Engineer Design Drawings
- Final Grades
- Erosion Control
- Revegetation Plan
- Impacted Soil Mitigation
- Outfall Removal
- Monitoring
Phase III Reclamation

Final Abandonment
  Stabilized
  Revegetated

Sundry to Request Bond Release and Removal from Water Management Plan (WMP)
Bond Release

Impoundments that Weren’t Constructed

Sundry to remove from WMP
Include verification data
Request Reclamation Bond Release
We send memo to WYSO
Bond Release

Reservoir Released to Landowner
Sundry to Remove from WMP
Soil Analysis
Surface Owner Liability Release
SEO Permit Transfer
Outfall Removed
Request Bond Release
Bond Release

Reservoir Released to Landowner for Reservoir that wasn’t used

Sundry to Remove from WMP
Evidence of No Discharge
Surface Owner Liability Release
SEO Permit Transfer
Outfall Removed
Request Bond Release
BLM Reclaimed Impoundments

Powder River Basin Restoration Project
Eight On-Channel

CBNG
One Off-Channel Complete
Seven in 2018
Questions

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