



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Oil and Gas Management



Chapter 78a Training Waste Management – Control and Storage

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78a.56

Temporary Storage

78a.56 Temporary Storage

- Pits are no longer allowed at unconventional well sites to store drill cuttings and waste fluids, except as provided in § 78a.60(b) and § 78a.61(b).
- An operator using a pit for temporary storage at the effective date of these regulations shall properly close the pit within 6 months of the effective date.

➤ 78a.56(2), (3) - Modular Structures

- Modular aboveground storage structures that exceed 20,000 gallons capacity may not be utilized to store regulated substances without prior Department approval.
- The Department will maintain a list of approved modular storage structures on its web site.
- The operator must obtain siting approval from the Department for site specific installation of all modular storage structures for each individual well site where they are proposed.

78a.56(4) - Modular Structures

- After obtaining approval to utilize a modular aboveground storage structure at a specific well site, the owner or operator shall notify the Department at least 3 business days before the beginning of construction of the modular structure.
- The notice shall be submitted electronically to the Department through its web site and include the date the installation will begin.

78a.56(10) – Condensate

- Condensate, whether separated or mixed with other fluids at a concentration greater than 1% by volume may not be stored in any open top structure or pit.
- Aboveground tanks used for storing or separating condensate during well completion shall be monitored and have controls to prevent vapors from exceeding the LEL (lower explosive limit) of the condensate outside the tank.
- Tanks used for storing or separating condensate shall be grounded.

➤ 78a.56 Temporary Storage – Tanks

- Unless an individual is continuously present at the well site, operators shall equip all tank valves and access lids to regulated substances with reasonable measures to prevent unauthorized access by third parties.
- Tanks storing only freshwater, fire prevention materials and spill response kits are excluded.
- The operator shall display a sign on the tank or other approved storage structure identifying the contents and an appropriate warning of the contents such as flammable, corrosive or similar.

78a.57

**Control, Storage and Disposal of
Production Fluids**

➤ 78a.57 – Open Top Structures and Pits

- Open top structures may not be used to store brine and other fluids produced during operation of the well.
- An operator using a pit for storage of production fluids at the time of the effective date of these regulations shall report the use to the Department within 6 months of the effective date.

78a.57(a) – Production Pits

- An operator using a pit to store production fluids at the effective date of these regulations shall properly close the pit in accordance with appropriate restoration standards within one year of the effective date of this regulation.
- Any spills or leaks detected shall be reported and remediated in accordance with § 78a.66 prior to pit closure.

78a.57(c) – Secondary Containment

- Secondary containment is required for all new, refurbished or replaced aboveground primary containment, including their associated manifolds, that contain brine and other fluids produced during operation of the well.
- If one tank in a series of tanks is added , refurbished or replaced , secondary containment is required for the entire series of tanks.
- Secondary containment open to the atmosphere must have sufficient capacity to hold the contents of the largest tank + 10% for precipitation.

78a.57(d) – Primary Containment

- Shall be designed, constructed and maintained to be structurally sound in accordance with sound engineering practices adhering to Nationally recognized standards and manufacturer's specs.
- Tanks that are manifolded together shall be designed in a manner to prevent uncontrolled discharge of multiple manifolded tanks.

➤ 78a.57(e) – Underground Production Tanks

- An operator using underground or partially buried tanks to store production fluids as of the effective date of the regulations shall provide electronically to the Department a list of well sites where these tanks are located within 6 months of the effective date.
- New tanks shall be registered prior to installation.
- Shall be designed, constructed and maintained to be structurally sound in accordance with sound engineering practices adhering to Nationally recognized standards and manufacturer's specs.

78a.57(f), (g) – Corrosion Control

- All new, refurbished or replaced aboveground storage tanks that store brine or other fluid produced during operation of the well must comply with the corrosion control requirements in §§ 245.531 – 245.534.
- All new, refurbished or replaced underground storage tanks that store brine or other fluid produced during operation of the well must comply with the corrosion control requirements in § 245.432.
- Exempt from the use of Department certified inspectors to inspect interior linings.

78a.57(h) – Security of Tanks

- All new, refurbished or replaced tanks storing brine or other fluids produced during operation of the well must be reasonably protected from unauthorized acts of third parties.
- Unless the tank is surrounded by a fence, valves and access lids must utilize locks, open end plugs or removable handle and ladders on tanks must be retractable or other measures that prevent access by third parties

78a.57(i) – Inspection of Tanks

- Tanks storing brine or other production fluids during operation of the well must be inspected once per calendar month and documented.
- Any deficiencies identified during the inspection must be reported to the Department electronically within 3 days of the inspection.
- Deficiencies noted must be remedied prior to continued use of the tank.
- Inspection records shall be maintained for 1 year and made available to the Department upon request.

78a.58

Onsite Processing

78a.58 Onsite Processing

- The operator may request approval to process fluids from oil or gas wells or mine influenced water at a well site where the fluids were generated or at the well site where all of the fluid is intended to be beneficially used to develop, drill or stimulate a well.
- The request shall be submitted on forms provided by the Department.
- Must demonstrate that the processing operation will not result in pollution of land or waters of the Commonwealth.

78a.58(b) - Exemptions

- Approval from the Department is not required for the following activities conducted at a well site:
 - Mixing fluids with freshwater
 - Aerating fluids
 - Filtering solids from fluids
- These activities must be conducted within secondary containment.

78a.58(g) – Future Approvals

- Processing of fluids in a manner approved under subsection (a) will be deemed to be approved at subsequent well sites provided the operator notifies the Department of location of the well site where the processing will occur at least three business days prior to the beginning of processing operations.
- This notice shall be submitted electronically to the Department through its web site and include the date activities will begin.

78a.58(f) – Residual Waste

- Processing residual waste generated by the development, drilling, stimulation, alteration, operation or plugging of oil or gas wells other than as provided for in subsections (a) and (b) shall comply with the Solid Waste Management Act (35 P.S. §§ 6018.101—6018.1003).

78a.58(h) – Solid Waste

- Sludges, filter cake or other solid waste remaining after the processing or handling of fluids under subsection (a) and (b), including solid waste mixed with drill cuttings, shall be characterized under § 287.54 (relating to chemical analysis of waste) before the solid waste leaves the well site.

78a.58(e) – Drill Cuttings

- The operator may request to process drill cuttings only at the well site where those drill cuttings were generated by submitting a request to the Department for approval.
- The request shall be submitted on forms provided by the Department.
- Must demonstrate that the processing will not result in pollution of land or waters of the Commonwealth.

78a.58(d) - Radioactivity

- An operator processing fluids or drill cuttings generated from oil or gas wells shall develop an action plan for monitoring and responding to radioactive material produced by the treatment processes in accordance with the Department's *"Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities"* No. 250-3100-001, or in a manner at least as protective.
- An operator must also set up related procedures for training, notification, recordkeeping and reporting.

78a.59a

Impoundment Embankments

▶ 78a.59a – Impoundment Embankments

Site Preparation

- Foundation of impoundment embankment must be stripped and grubbed to a depth of two feet below existing contour prior to any placement & compaction of fill.
- Any springs encountered in the foundation area should be drained to the downstream toe of the embankment .

▶ 78a.59a – Embankment Design Criteria

- Minimum top width of 12’.
- Inside & outside side slopes no steeper than 3H:1V.
- Maximum Particle Size = 6”.
- Must meet specific soil type and compaction standards.

78a.59a – Soil Classification

- Soils to be used for embankment construction must be classified in accordance with ASTM D-2487 (Unified Soil Classification) at the rate of 1 sample per 10,000 cubic yards of placed fill or if there is a change in material, with at least one test per source.
- Soils to be used for embankment construction shall be described and identified in accordance with ASTM D-2488-09 A (Visual Manual Procedure) at the rate of 1 sample per 1,000 cubic yards of placed fill.

78a.59a – Soil Classification

- Soils acceptable for embankment construction are limited to GC, GM, SC, SM, CL or ML.
- Soils with split designation, when one of the designations is not one of the ones listed above, may not be used.
- Soils must contain a minimum of 20% of No. 200 sieve materials or larger.

78a.59a - Compaction

- All compaction for embankments must be done with a sheepfoot or pad roller.
- Loose lift thickness must be 9" or less.
- Compaction to visible non-movement of the embankment material is required.
- Soil shall be compacted to a minimum of 95% of the standard proctor in accordance with ASTM D698.
- Compaction shall be verified by field density testing in accordance with ASTM D1556 or ASTM D6938 with a minimum of one test per 2,000 cubic yards of lift surface

78a.59a - Compaction

**Failure to properly compact:
movement of the embankment material**



78a.59a(a)(9) - Stabilization

- Exposed embankments slopes shall be permanently stabilized using one or a combination of:
 - Exposed slopes shall have permanent vegetative ground cover established in compliance with § 102.22.
 - Compacted rock fill or riprap placed on the downstream face of the embankment as a cover having a minimum depth of 2'. The rock fill must be durable, evenly distributed and underlain by a Class 2, Type A geotextile.

78a.59a(b) – Alternate Practice

- The owner or operator may request approval from the Department to deviate from the requirements of § 78a.59a.
- The request must demonstrate that the alternate practice provides equivalent or superior protection to the requirements of this section.

78a.59b

Well Development Impoundments

78a.59b – Well Development Impoundments

- Must meet requirements of § 78a.59a.
- A well operator must register the location of well development impoundments constructed prior to the effective date of adoption of the regulations within 60 days of the effective date of the regulations.
- Registration is through the Department's website, with electronic notification of the GPS coordinates, township and county where the well development impoundment is located.

78a.59b – Well Development Impoundments

- The operator must provide certification as to whether the impoundment meets the following requirements:
 - Shall be constructed with a synthetic impervious liner.
 - Unless an individual is continuously present at a well development impoundment, a fence must completely surround the impoundment to prevent unauthorized acts of third parties or damage caused by wildlife
 - Prior to storing mine influenced water, the operator shall develop a mine influenced water storage plan and submit it to the Department for approval.

➤ 78a.59b – Registration of Impoundments

- Any impoundments that do not comply with these requirements shall be upgraded to meet these requirements or restored in accordance with subsection (g) within 12 months after the effective date of adoption of the regulations.
- New impoundments shall be registered prior to construction.
- Registration of the impoundment may be transferred to another operator on forms provided by the Department electronically through its web site.

78a.59b – Well Development Impoundment Requirements

- Constructed with a synthetic impervious liner.
- Unless an individual is continuously present at a well development impoundment, a fence must completely surround the impoundment to prevent unauthorized acts of third parties or damage caused by wildlife.
- The Department may require the operator to test water sources proposed to be stored in the impoundment prior to storage.

78a.59b(h) – Mine Influenced Water Storage Plan

- Prior to storing mine influenced water, the operator shall develop a mine influenced water storage plan and submit it to the Department for approval
- The plan shall be submitted on forms provided by the Department and include the following:
 - Demonstrate that the escape of mine influenced water stored in the impoundment will not result in air, water or land pollution, or endanger persons or property.
 - A procedure and schedule to test the mine influenced water. Testing shall be conducted at the source prior to storage in the impoundment.
 - A records retention schedule for the mine influenced water test results.

78a.59b(h) – Mine Influenced Water Storage Plan

- An operator with an approved mine influenced water storage plan shall maintain records of all mine influenced water testing prior to storage.
- These records shall be made available to the Department upon request.

78a.59b(f) – Seasonal High Groundwater

- The bottom of the impoundment is at least 20 inches above the seasonal high groundwater table.
- This may be maintained by using a passive artificial means. In no case shall the regional groundwater table be affected by the passive artificial system.
- A soil scientist or similarly trained person shall make and document the determination.
- The name, qualifications and statement of the person making the determination and its basis shall be provided to the Department upon request.

➤ 78a.59b(g) – Restoration of Impoundments

- The impoundment must be restored within 9 months of the completion of hydraulic fracturing of the last well serviced by the impoundment.
- Restoration is achieved by removing excess water and the synthetic liner, returning the site to approximate original conditions, to the extent practicable.
- An extension of the restoration may be approved under § 78a.65(c).
- If requested by the landowner in writing, restoration to approximate original contours may be waived by the Department if the liner is removed.

78a.59c

Centralized Impoundments

78a.59c – Centralized Impoundments

- Operators using a centralized impoundments as of the effective date of these regulations will have to obtain a residual waste permit under Subpart D, Article IX or close the impoundment in accordance with this section within three years of the effective date of the regulations.
- A closure plan is to be submitted electronically to the Department for approval within six months of the effective date of the regulations.

78a.59c(b) – Closure Plans

The closure plan must include the following:

- Removal of any impermeable membrane, concrete and earthen liner so that water movement to subsoils is achieved.
- Restoration of the site to approximate original conditions including preconstruction contours, and backfilling the impoundment to above finished grade to allow for settlement of fill.
- A plan for the removal of equipment, structures, wastes and related material from the facility.

78a.59c(b) – Closure Plans

The closure plan must include the following:

- An estimate of when final closure will occur, including an explanation of the basis for the estimate.
- A description of the steps necessary for closure of the facility.
- A narrative description, including a schedule of measures that are proposed to be carried out in preparation for closure and after closure at the facility, including measures relating to the following:

▶ 78a.59c(b)(6) – Closure Plans Narrative

- Water quality monitoring including but not limited to analyses of samples from the monitoring wells that were installed at the time of the construction of the centralized impoundment.
- A soil sampling plan that explains how the operator will analyze the soil beneath the impoundment's liners.
- The analysis shall be based on a grid pattern or other method approved by the Department.
- Any spills or leaks detected shall be reported and remediated prior to impoundment closure.

▶ 78a.59c(b)(6) – Closure Plans Narrative

- Compliance with Chapter 102 including erosion and sediment control and post construction stormwater management.
- Access control, including maintenance of access control
- The name, address and telephone number at which the operator may be reached

78a.70

Road-spreading of brine for dust control and road stabilization

78a.70a

Pre-wetting, anti-icing and de-icing

78a.70 and 78a.70a – Brine Spreading

- § 78a.70. Road-spreading of brine for dust control and road stabilization.
- No production brines from unconventional wells may be used for dust suppression or road stabilization.
- § 78a.70a. Pre-wetting, anti-icing and de-icing.
- No production brines from unconventional wells may be used for pre-wetting, anti-icing or de-icing.

78.70 and 78.70a – Conventional

- Brine spreading for dust control and road stabilization will continue using the current brine spreading approval process.
- The fact sheet and current Road Spreading Approval Form may be updated before 2017.
- Pre-wetting, anti-icing and de-icing will not be implemented.



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Questions?

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