BONDING WORKSHEETS
FOR
Oil and Gas Wastewater Storage Impoundments

October 2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AND WASTE MANAGEMENT

General Information

Permits: Please list all permits, approvals, licenses, registrations, other bonds, etc. for this facility.

I.D.#[1]	Authority[2]	Summary[3]

1. *List the permit I.D. number, registration number, etc. If there is no number, put in "none".*
2. *List the issuing authority's name, address and telephone number*
3. *List any closure features or monitoring requirements. As examples: For storage tanks, list the number, type and size of tanks. For NPDES permits list the number of outfalls to be monitored and ponds/plants to be maintained and/or closed.*

Date Prepared

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I.D. Number

BONDING WORKSHEET A
DECONTAMINATING THE FACILITY

Project Summary[1]:

1. Maximum volume of solid waste required to be moved or disposed as part of closure (includes cost for solidification). _____
2. Estimated volume of contaminated soils or materials (from accidents, spills, prior remediation's). _____
3. Total volume of waste (line 1 + line 2). _____
4 Unit cost to dispose off-site (include any analyses or transportation cost). _____
5 Total cost to dispose of waste (line 3 x line 4). _____
6 Estimated volume of contaminated liquid generated during decontamination. _____
7. Unit cost to treat/dispose of contaminated liquids (including any transportation) _____
8. Total cost to dispose of contaminated liquids (line 6 x line 7). _____
9. Estimated volume of fill material _____
10. Unit cost of acquiring, transporting, placing and stabilizing (i.e. revegetating) fill material (include costs for off-site purchase if soil not available on-site). _____
11. Total cost to fill (line 9 x line 10). _____
12. Equipment decontamination cost _____LS

Total cost – all Worksheet A **$_____**
(Put final total on summary cost sheet – line 1)

[1] *List the areas/equipment that will need to be decontaminated and include any assumptions made. Multiple sheets should be used to estimate the costs for different areas.*

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BONDING WORKSHEET B
GROUNDWATER MONITORING SYSTEM

1. Number of wells in the approved monitoring plan. _____
   a. Shallowest well depth _____ ft.
   b. Deepest well depth _____ ft.
   c. Average well depth _____ ft.
   d. Number with dedicated pumps _____
2. Unit cost to upgrade an existing well with a dedicated pump _____ $/well
3. Unit cost to install a well (assume average well depth, and include drilling, installation, developing and pump installation) _____ $/well
4. Number of wells to be installed (wells in the approved plan that haven't been installed) _____
5. Number of wells to be replaced over the life of the monitoring period (use 10% of line 1 and round up) _____
6. Number of pumps to be replaced/repaired (use 25% of line 1 over the monitoring period) _____
7. Unit cost to purge and sample a well (assume average well depth, and include methane monitoring, record keeping and shipping) _____ $/well
8. Unit cost to analyze sample(s)
   a. Quarterly (25 PA Code §273.284, §277.284 or §288.254) _____ $/well
   b. Annually (25 PA Code §273.284, §277.284 or §288.254) _____ $/well
9. Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, statistical analysis and data review) _____ $/well
10. Cost to purge, sample and analyze – quarterly (line 7 + line 8a + line 9) _____ $/well
11. Cost to purge, sample and analyze – annually (line 7 + line 8b + line 9) _____ $/well
12. Number of years of sampling (time to close) _____ years

13. Cost Summary –Groundwater Monitoring System

a.	System upgrade ([line 1 – line 1d] x line 2)	$_____
b.	Wells to be Installed (line 3 x line 4)	$_____
c.	Wells to be replaced (line 3 x line 5)	$_____
d.	Pumps to be replaced (line 2 x line 6)	$_____
e.	Cost of Quarterly Monitoring (line 1 x “4” x line 10 x line 12)	$_____
f.	Cost of Annual Monitoring (line 1 x line 11 x line 12)	$_____
	Subtotal	**$_____**

Adjustment for resampling, assessments, etc.

a.	Use 0% of subtotal if no assessments in last 2 yrs.	
b.	Use 5% of subtotal if assessment in last 2 yrs.	
c.	Use 10% if currently in assessment, abatement or increase monitoring	$_____

Total **$_____**

(Place this total on Summary Cost Worksheet – line 3)

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BONDING WORKSHEET C
SURFACE WATER MONITORING

Solid Waste Surface Water Sampling

1. Number of surface points monitored for Solid Waste Permit _____
2. Unit cost to sample a surface point (record keeping and shipping) _____ $/point
3. Unit cost to analyze sample(s)
   a. Quarterly (25 PA Code §273.284 or §288.254) _____ $/point
   b. Annually (25 PA Code §273.284 or §288.254) _____ $/point
4. Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review) _____ $/point
5. Cost to sample and analyze – quarterly (line 2 + line 3a + line 4) _____ $/point
6. Cost to sample and analyze – annually (line 2 + line 3b + line 4) _____ $/point
7. Number of years of sampling (30 + time to close) _____ years

Subtotal$** **$_____

Adjustment for resampling, assessments, etc.

a. Use 0% of subtotal if no assessments in last 2 yrs.
b. Use 5% of subtotal if assessment in last 2 yrs.
c. Use 10% if in assessment, abatement or increased monitoring $_____

Total **$**_____

(Place this total on Summary Cost Worksheet – line 4)

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BONDING WORKSHEET D
PRIVATE WATER SUPPLY MONITORING

1. Number of private water supplies monitored. _____

2. Unit cost to sample a well (include methane monitoring, record keeping and shipping) _____ $/well

3. Unit cost to analyze sample(s) quarterly (Act 101 Section 1103) _____ $/well

4. Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review) _____ $/well

5. Total cost for quarterly sampling (line 2 + line 3 + line 4) _____ $/well

6. Number of years of sampling (30 + time to close) _____ years

7. Cost Summary –Private Water Supply Monitoring

   a. Cost of quarterly monitoring (line 5 x 4 x line 6) $_____

Total $_____

(Place this total on Summary Cost Worksheet – line 5)

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BONDING WORKSHEET E
OTHER MONITORING AND REPORTING

Please list the annual costs to maintain the following permits/registrations that apply. Additional space is provided for items applicable to your facility, but not listed.

1. Title V or other air permit (include the annual permit fee, cost to complete emissions inventory and emissions fees) $_____
2. NSPS Annual Report preparation cost $_____
3. Local permit or Host Agreement requirements $_____
4. UST/AST registration $_____
5. Other _____ $_____
6. Other _____ $_____
7. Other _____ $_____
8. Other _____ $_____
9. Other _____ $_____
10. Number of years of monitoring/maintenance (30 + time to close) _____ years

Total (sum of lines 1 to 9 x line 10) **$**_____

(Place this total on Summary Cost Worksheet – line 8)

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BONDING WORKSHEET F
BORROW AREA CLOSURE

How do I start? Select a likely "worst case" scenario where you would have a maximum amount of the borrow area open and in need of closure. Provide a description of the scenario with references to site development stages.

1. Size of borrow area _____ acres

2. Volume of material required for regrading: _____ CY

3. Unit cost to regrade (provide equipment and rates) _____ $/CY

Are sufficient soils available to complete job?
(list deficit amount and attach maps that identify sources and stockpiles)

4. Earthen Materials

			Stockpile	Borrow	Onsite	Offsite	Processing Req'd Yes	Processing Req'd No
a. Structural Fill	_____	CY	☐	☐	☐	☐	☐	☐
b. Unit cost to place[1]	_____	$/CY						
c. Topsoil	_____	CY	☐	☐	☐	☐	☐	☐
d. Unit cost to place[1]	_____	$/CY						

5. Revegetation Cost

(Seeding rate used: _____ lbs/acre)
(Lime rate used: _____ tons/acre)
(Fertilizer rate used: _____ tons/acre)
(Mulch rate used: _____ tons/acre)

Unit cost to revegetate _____ $/acre

6. E & S Controls _____ $/acre

7. Bond Maintenance Cost (required if off-site borrow area) $_____ LS

8. Other costs (provide detail) $_____

[1] *The unit costs should include all associated costs including, but not limited to cost of material, excavation, transportation, processing and placement.*

9. Cost Summary

a.	Fill/Regrading (line 2 x line 3)	$_____
b.	Structural Fill (line 4a x line 4b)	$_____
c.	Topsoil (line 4c x line 4d)	$_____
d.	Revegetation (line 1 x line 5)	$_____
e.	E & S Controls (line 6)	$_____
f.	Bond maintenance (line 7)	$_____
g.	Other (line 8)	$_____
	Subtotal	**$**_____
	CQA/Project Management costs (use 5% of subtotal)	$_____
	Total	**$**_____

(Place this total on Summary Cost Worksheet – line 10)

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BONDING WORKSHEET G
SUMMARY COST WORKSHEET

Cost Summary - Landfills

1. Decontaminating the Facility $_____
2. Groundwater Monitoring System $_____
3. Surface Water Monitoring $_____
4. Private Water Supply Monitoring $_____
5. Other Monitoring $_____
6. Borrow Area Closure $_____
7. Other Costs[1] _____ $_____
8. Other Costs[1] _____ $_____

Subtotal **$**_____

Inflation

9. Inflation rate (projected inflation for the next three years based on the inflation for the prior three years). _____ %
10. Inflation cost for facility (subtotal x line 14) $_____

Contingency and administrative fees

11. Administrative fees (5%) (subtotal x 0.05) $_____
12. Project Management (5%) (subtotal x 0.05) $_____
13. Contingency fee amount (subtotal x rate of contingency fee from Table 1) $_____

Total (subtotal + line 15 + line 16 + line 17 + 18) **$**_____

[1] *You should include any costs that would be incurred by the Department, but were not included in these sheets. Provide separate sheets for documentation.*