

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date Prepared

I.D. Number

FORM V
STORAGE IMPOUNDMENT APPLICATION FORM

1. Applicant or Permittee (Name and Mailing Address)

Telephone Number

Taxpayer I.D. Number

2. Name of Facility _____

Address of Facility _____

_____ Zip _____

City-Borough- Township _____

County _____

3. Type of Application

- New Facility or Expansion
- Modification

4. Property Owner(s) (Name and Address)

Surface

Telephone Number

Subsurface

5. U.S.G.S. Map Location of Facility

7.5' Map Name _____

Center of Facility:

LATITUDE / / /° / / /' / / /'

LONGITUDE / / /° / / /' / / /'

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6. General Information:

Number of New Acres Proposed for Permit

Number of Acres Proposed for Permit

____/____/____/____/____.____/____

____/____/____/____/____.____/____

Total acres of the Property

Number of Previously Permitted Acres

____/____/____/____/____.____/____

____/____/____/____/____.____/____

Previous Permit ID Number(s) _____

Type of Previous Permit _____ Effective/Expired _____/_____

7. Documents Prepared By: (Name and Address)

Telephone Number

8. AFFIDAVIT:

COMMONWEALTH/STATE OF _____

SS:

Sworn and subscribed to before me this _____ day

of _____ 19 _____

My Commission Expires:

NOTARY PUBLIC

PRINT OR TYPE Name to be Signed:

Date:

I, _____ do hereby certify pursuant to the penalties

of 18 Pa. C.S.A. Section 4904 to the best of my knowledge, information, and belief that the information contained in this application is true and correct and is in conformance with Chapters 287 and 299 of the rules and regulations of the Department of Environmental Protection.

Signature _____

Title _____

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**FORM V
LINER SYSTEM SECTION**

General References: 289.433 - 437, 289.533 - 536

- A. Liner System is for:
- Residual Waste Storage Impoundment
 - Class I
 - Class II

B. Location:

County: _____ Municipality: _____

Acreage of Storage Area: _____

C. Liner System Components are:	Area (ft ²)	Is Equivalency Review Being Requested (Y/N)
<input type="checkbox"/> 1. Subbase (Class I and II).	_____	_____
<input type="checkbox"/> 2. Secondary Liner. (Class I)	_____	_____
<input type="checkbox"/> 3. Leachate Detection Zone. (Class I and II)	_____	_____
<input type="checkbox"/> 4. Primary Liner. (Class I and II)	_____	_____
<input type="checkbox"/> 5. Protective Cover. (Class I and II)	_____	_____
<input type="checkbox"/> 6. Composite Liner. (Class I and II) Primary or Secondary (circle one)	_____	_____

D. Supporting Data:

The following information must be submitted along with this form. For information not appended to this form, indicate below where in the specifications or drawings the required information is located.

	(Drawing)	(Specification)
1. Design of Liner System. (Refer to Part II.) including liner thickness and elongation calculations	_____	_____
2. Liner Installation Plan. (Refer to Part III.)	_____	_____
3. Compatibility of Liner to Leachate. (Refer to Part IV)	_____	_____
4. Physical, Chemical, Mechanical, and Thermal Properties of Liners. (Refer to Part V)	_____	_____
5. Quality Assurance Plan for Construction and Installation of Liners. (Refer to Part VI)	_____	_____
6. Quality Control Plan for construction and installation of liners	_____	_____
7. Slope Stability Analysis including factor of if safety calculations	_____	_____
8. Seismic Analysis	_____	_____

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Part II. Design of Liner System.

A. Project Specifications	Subbase	Compo- site	Secondary Liner	Leachate Detection Zone	Compo- site	Primary Liner	Protective Cover	CAP
Thickness (inches or mils)								
Maximum Particle Size (inches)								
Standard Proctor Density (percent)	<u>FIELD</u> LAB							
Bearing Capacity (minimum) (lb/ft ²)								
Total Applied Load (lb/ft ²)								
Permeability (cm/s)	<u>FIELD</u> LAB							
Slope (percent)	+ <u>MINIMUM</u> <u>MAXIMUM</u>							

Geosynthetics: Where synthetic liners, geonets, geotextiles, or other geosynthetic materials are to be used, provide information as to the manufacturer, trade name, type, specifications, and composition of each product.

Non-Synthetic Liners: Where clay or other soils will be used as the secondary liner, provide information on the Atterberg Limits, soil density, moisture relationship, moisture content, and sieve analysis to be maintained at the time of installation.

Drainage system: Where piping is installed as part of the leachate detection, system submit plans and profile drawings which clearly illustrates the: slope, spacing, diameter and schedule of all piping to be installed.

B. Design Basis

For each major element of the liner system outlined above, provide the following information which supports the basis for the design. Include copies of the results of all tests conducted at the site, assumptions, and calculations used in the design. The stability of the landfill site and design is to be determined at critical sections. This is to include any below grade excavations/embankments or berms that may be critical. Consideration must be given to long and short term stresses, equipment loadings, filling sequence, and seismic activity. Where geosynthetics are used, a veneer stability analysis should be performed on the interfaces of the material and the soil or aggregates. A puncture analysis is to be included where a geosynthetic is used to protect a geomembrane. Following information is to be attached to this form and referenced to the appropriate section.

1. Subbase:

- i. Submit detailed information on how the subbase was sized and located, including the minimum and maximum depths to seasonal high water table and regional groundwater table. Be sure all elevations are tied to projects grid system and benchmarks. Explain this bases for the subbase size and materials selected.

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- ii. Describe how the subbase will bear the weight of the liners, leachate detection system, wastes, cover material, and operations equipment without causing or allowing any failure of the liner system. Explain what evaluations were conducted at the site and of the subgrade materials to ensure adequacy for the projected loads.
- iii. Discuss the potential for subsidence and the liner systems ability to allow for settlement. Include a liner thickness analysis and evaluate the maximum liner elongation.

2. Secondary Liner:

- i. Describe the physical, chemical, and thermal properties taken into consideration in selecting the secondary liner.
- ii. Submit and discuss the results of any testing conducted on the liner material which ensures it will not be adversely affected, both chemically and structurally, by the chemical characteristics of the waste or its leachate.

3. Leachate Detection Zone:

- i. Describe the physical, chemical, and thermal properties taken into consideration in selecting materials.
- ii. Submit and discuss the results of any testing conducted on the detection zone materials which ensures they will not be adversely affected, both chemically and structurally, by the chemical characteristics of the waste or its leachate.
- iii. Describe the methods for cleaning and maintaining pipes, including methods for testing installed pipes for leakage.
- iv. Describe how the leachate detection zone will support the primary liner without causing punctures in the event of subsidence.

4. Primary Liner:

- i. Describe the physical, chemical, and thermal properties taken into consideration in selecting the primary liner.
- ii. Submit and discuss the results of any testing conducted on the liner material which ensures it will not be adversely affected, both chemically and structurally, by the chemical characteristics of the waste or its leachate.

5. Protective Cover:

- i. Provide a detailed description of the physical and structural aspects of the protective cover. Include information on the size, types, dimensions and depths of all materials used, slopes, calculations on anticipated stresses and loads from wastes and operating equipment. Describe how the cover material will protect the primary liner from physical damage from stresses and disturbances from overlying wastes, cover materials, and equipment operations.

PART III. Liner Installation Plan

Attach a detailed explanation of the procedures and equipment to be used in site preparation and placement of each phase of the liner system. To the extent possible, outline the manpower requirements and the time required for each phase of installation. Be sure to reference applicable drawings and specifications which contain information relevant to each phase of the liners construction. As a minimum, the following are to be addressed:

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A. Subbase:

1. Information on the maximum depth of earth moving activities and the site preparation procedures to be followed prior to the installation of any subbase materials.
2. Information on the selection of subbase materials, their grading and tests to be conducted to ensure uniformity.
3. Information on how the subbase materials are placed, graded, compacted, and tested for proper installation.

B. Liners:

1. For synthetic liners, provide all information supplied by the manufacturer as to required handling and installation procedures.
2. For non-synthetic liners, information on the minimum acceptable characteristics (i.e. moisture content, etc.) are to be provided.
3. For non-synthetic liners, information as to the equipment required, pre and post installation testing is to be provided.

C. Leachate Detection Zone and Collection Zone:

1. Provide details on how the detection zone and leachate collection zone will be installed with specific information as to what materials and construction techniques will be used to construct each zone.
2. Describe the sequence of construction and equipment used.
3. Describe the sequence for installing the sump and all monitoring or gas venting facilities.

D. Protective Cover:

1. Describe where the cover materials will come from, and how they are transported and placed at the site.
2. Provide details on how the cover materials will be routinely tested for conformance with design specifications.

Part IV. Compatibility of Liner to Leachate:

A sampling plan for each component of the liner system, including sample size, methods for determining sample locations, sampling frequency, acceptance and rejection criteria, and methods for ensuring that corrective measures are implemented is to be included with this form.

- A. Information must be submitted which demonstrates that leachate will not adversely affect the physical or chemical characteristics of the liner system, or inhibit the liner's ability to restrict the flow of solid waste, solid waste constituents, or leachate.

Test Method Used: _____

Results of Liner Compatibility Tests are:

1. Exposure Period (days) _____
2. Temperature of Solution _____
3. Source of Representative Sample of Leachate _____

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4. Type of Compound and Construction
(Liner Classification: Thermoplastic,
Fabric Reinforced, etc.)

5. Tensile Properties:
a. ASTM Method
b. Type of Specimen
c. Speed of Test
d. Values to be Reported:

6. Tear Resistance:
a. ASTM Method
b. Type of Specimen
c. Speed of Test

7. Puncture Resistance:
a. ASTM Method
b. Type of Specimen
c. Results

- B. Attach a copy of the chemical analysis of the leachate used in determining the above results.
- C. Where appropriate, attach an analysis of the current leachate emanating from this impoundment.

Part V. Properties of Synthetic Liners

Supply the following physical, chemical, mechanical, and thermal properties for liners, based on ASTM methods where appropriate. Additional information may be submitted.

	Results with Units of Measurement	ASTM Method
1. Thickness	<hr/>	<hr/>
2. Tensile Strength at Yield	<hr/>	<hr/>
3. Elongation at Yield	<hr/>	<hr/>
4. Elongation at Break	<hr/>	<hr/>
5. Modulus of Elasticity	<hr/>	<hr/>
6. Tear Resistance	<hr/>	<hr/>
7. Impact Resistance	<hr/>	<hr/>
8. Puncture Resistance	<hr/>	<hr/>
9. Seam Strength (% of Liner Strength)	<hr/>	<hr/>
10. Ultraviolet Light Resistance	<hr/>	<hr/>
11. Operating Temperature Range	<hr/>	<hr/>
12. Permeability	<hr/>	<hr/>
13. Soil-to-Liner Friction (Angle in Degrees)	<hr/>	<hr/>
14. Ozone Resistance	<hr/>	<hr/>
15. Water Vapor Transmission	<hr/>	<hr/>
16. Coefficient of Linear Thermal Expansion	<hr/>	<hr/>
17. Low Temperature/Brittleness	<hr/>	<hr/>

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Part VI. Quality Assurance Plan for Construction and for Installation of Liners.

The following information shall be submitted on separate pages and referenced to the appropriate section. For each Section A summary table is to be provided which explains the procedures, the frequency for each test, and the pass/fail criteria which must be met.

- A. Qualifications of independent QA personnel (describe experience and training).
- B. Subbase
1. Provide design summary of procedures used to assure objectives are met:
 - a. Outline tests and observations to ensure quality of compacted fill.
 - b. Explain observations to ensure removal of objects or undesirable materials.
 - c. Discuss observations and tests that ensure that the surface is compacted, smooth, uniform, and consistent with design grades.
 - d. Summarize surveying to ensure that facility dimensions, side slopes, and bottom slopes are as specified in design.
 - e. Summarize review of Quality Control information.
- C. Non-synthetic Secondary Liners
1. Discuss inspection procedures of liner materials and test fill compaction. Properties to be tested should include: permeability, soil density/moisture content relationships, maximum clod size, particle size distribution, natural water content, Atterberg limits.
 2. Outline procedures and methods for observing and testing liner materials before and after placement to ensure:
 - a. Removal of roots, rocks, etc.
 - b. Identification of changes in soil characteristics causing a change in construction specifications.
 - c. Adequate spreading and incorporation of water to obtain full penetration through clods and uniform distribution of the specified water content.
 - d. Maintaining optimum water content throughout wet and dry periods and during construction.
- D. Synthetic and Geosynthetic Liners
- Outline Procedures For:
1. Inspection of product quality, the review of manufacturers control procedures and any other observations related to transporting, storing, and handling.
 2. Inspection of foundation preparation and equipment.

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3. Observations of liner placement.
4. Need and availability of manufacturers representative.
5. Observations of weather conditions and temperature during seaming operations.
6. Observations and measurements of anchor trench to ensure that it is as specified in design drawings.
7. Observations and tests to confirm that all designed liner penetrations and liner connections are installed as specified.
8. Visual inspection for tears, punctures, or thin spots during placement.
9. Inspections during and after liner seaming.
10. Observations and tests to assure that seals around liner penetrations are of sufficient strength and are impermeable to leachate.
11. Hydrostatic testing of all sump areas.

E. Protective Cover

Outline Procedures For:

1. Tests to ensure that the cover material meets design specifications, including permeability and clogging.
2. Observations that the cover material is free from objects that could damage the liner.
3. Observations to ensure that equipment used to place cover does not damage liner.
4. Measurements to ensure that entire liner is covered with specified thickness of cover material.

F. Leachate Detection System.

Discuss how the following activities will be conducted.

1. Observations and measurements to ensure that materials are of specified size and strength, and that pipe perforations are sized and spaced as specified.
2. Observations and tests to ensure that soils to be used are of proper size and gradation.
3. Method of placing bedding and inspection to ensure the pipes are bedded correctly and not susceptible to movement.
4. Observations and measurements to ensure that pipes are placed at specified locations, at specified grades, and are joined together as specified.
5. Observations and tests to ensure that backfilling is completed as specified in design, in all areas, including areas where a liner connects to a structure.
6. Testing of pipe joints and testing of solid wall pipes to ensure that there is no leakage.

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7. Observations and tests of the granular drainage layer to ensure that the material meets the specifications of design (including permeability and clogging potential to geosynthetics).
8. Synthetic drainage layers: Observations to ensure proper placement, correct seaming, and allowable weather conditions.
9. Geotextiles: Observations of placement to ensure that specifications are followed, adequate overlap and seaming, and that there is no damage.
10. Sumps: Observations to ensure that structures are of specified dimensions, material, and capacity.
11. Mechanical and electrical equipment installation: Observations to ensure that equipment is in accordance with design specifications and manufacturer's recommendations.

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FORM V HYDROGEOLOGIC INFORMATION SECTION

General References: Sections 289.261 - 268

Instructions: A narrative description of the general characteristics of the hydrogeology at the proposed site and contiguous properties (down to and including the lowest aquifer that may be affected by the facility) must be submitted, as well as the characteristics listed below. Information, except maps, may be provided on attached 8 1/2 x 11 inch sheets as needed.

1. Hydrologic characterization of each aquifer will be based upon multiple well aquifer tests when possible; the following determinations must be made and calculations included:
 - a. Hydraulic conductivities.
 - b. Storage coefficients for confined aquifers and specific yield for unconfined.
 - c. Transmissivities.
 - d. Hydraulic gradients.
 - e. Ground water velocities.
 - f. Number of wells, borings, or test pits used.
 - g. Maximum depth to regional water table or piezometric surface within the site with date of measurement.
 - h. Minimum depth to regional water table or piezometric surface within the site with date of measurement.
 - i. Twelve month characterization of regional water table fluctuations, within the uppermost aquifer (four consecutive quarters).
 - j. Description of perched or special water table conditions including seasonal high water table.
 - k. Minimum depth to any perched water.
 - l. Effects of any deep mines in the area.
 - m. Directions of ground water movement (shown on Phase I base maps) including description of how determined.
 - n. Uses of aquifers.
 - o. Ground water divides (shown on Phase 1 base maps)
 - p. Three-dimensional ground water flow with discharge/recharge characteristics.

2. Proposed Ground Water Quality Monitoring Points (wells, piezometers, etc.) must be described in the following format and are subject to Department approval. Proposed monitoring points are to be permanently numbered in consecutive order. A "U" or "D" should be added to the monitoring point number to identify upgradient/downgradient. For existing monitoring points, information is to be based upon data obtained at completion; for new monitoring points, construction information is to be based upon specifications. Monitoring wells will be designed, constructed, and maintained in accordance with Section 289.261 (relating to general requirement(s)), Section 289.262 (relating to number, location and depth), and Section 289.263 (relating to standards for casing of wells). Any proposed surface water monitoring point must have adequate flow to allow sampling even in the driest quarter of the year.

ALL MONITORING POINTS MUST HAVE AN ASSOCIATED LATITUDE AND LONGITUDE DETERMINED ACCURATELY TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S")

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Wells and Piezometers								
Monitoring Point Number	Drilling Method	Depth (ft)	Borehole Diameter (in.)	Casing		Location		Measuring Point Elevation (Ft/MSL)
				Diameter (in.)	Screened Interval (ft)	Latitude	Longitude	

Springs, Streams, Other Surface Water					
Monitoring Point Number (Spring or Surface Water)	Elevation (Ft/MSL)	Flow Rate (GPM)	Date of Measurement	Location	
				Latitude	Longitude

- SP - Spring
- ST - Stream
- S.W. - Surface Water

3. Ground Water Quality Description

An application for a residual waste storage impoundment must contain a description of the chemical characteristics of each aquifer in the proposed permit area and adjacent area, based upon at least two quarters of monitoring data, one of which shall be in the season of highest local groundwater levels of monitoring data. This requires at least two (2) sets of analyses on approximately a 90 day.

- 4. For Storage Impoundments permitted after July 4, 1992, the one year of data required shall be obtained prior to the disposal or storage of any waste at the facility. For residual waste landfills or disposal impoundments permitted before July 4, 1992, the year of data required shall be taken beginning with the first anniversary date of the issuance of the permit after July 4, 1992.

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Monitoring wells must be designed and constructed in accordance with Department standards. Any additional analytes required by the Department should be added in the blank spaces provided. Detection limits should be indicated where appropriate. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Facility Name: _____

Monitoring Point Number: _____
 ___ Well ___ Spring ___ Stream ___ Other
 ___ Upgradient ___ Downgradient

Location: County _____ Municipality: _____

Sampling Point: Latitude: ___° ___' ___." Longitude: ___° ___' ___."

Depth to Water Level: _____ ft. Measured from: ___ Land Surface ___ TOC

Casing Stick Up: _____ ft. Elevation of Water Level: _____ ft./MSL

Sampling Depth: _____ ft. Sampling Method: ___ Pumped ___ Bailed

Well Purged: ___ Yes ___ No ___ Grab

Sample Filtered: ___ Yes ___ No Well Volumes Purged: _____

Flow Rate: _____ GPM Filter Pore Size: _____ microns

Sample Date: (mm/dd/yy) _____ Sample Collection Time: _____

Sample Collectors Name: _____

Sample Collectors Affiliation: _____

Laboratory Performing Analysis: _____

Lab Sample Number: _____ Lab Analysis Date: _____

Comments: _____

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I.D. No. _____
Monitoring Point No. _____
Sample Date _____

FORM V**ANALYTES****1. Inorganics (Enter all data in mg/l except as noted)**

STORET NO.	ANALYTE	VALUE	ANALYSIS METHOD NUMBER
(00610)	Ammonia-Nitrogen		
(00440)	Bicarbonate (as CaCO ₃)		
(00918)	Calcium	Total	
(00915)		Dissolved	
(00340)	Chemical Oxygen Demand		
(00940)	Chloride		
(00951)	Fluoride		
(00980)	Iron (µg/l)	Total	
(01046)		Dissolved	
(01123)	Manganese (µg/l)	Total	
(01056)		Dissolved	
(00620)	Nitrate-Nitrogen		
(00403)	pH (standard units)	Field	
		Laboratory	
(00939)	Potassium	Total	
(00935)		Dissolved	
(00923)	Sodium	Total	
(00930)		Dissolved	
(00095)	Specific Conductance (µmhos/cm)	Field	
		Laboratory	
(00945)	Sulfate		
(00410)	Total Alkalinity		
(00515)	Residue, Total Filtrable at 103-105°C	(Total Dissolved Solids)	
(00680)	Total Organic Carbon		
(82079)	Turbidity (NTU)		

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 Monitoring Point No. _____
 Sample Date _____

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2. Metals (Enter all data in µg/l).

For monofills, these requirements may be modified based upon waste analysis under 287.132.

ANALYTE	STORET NO.	VALUE	ANALYSIS METHOD NUMBER
Arsenic	(00978) Total		
	(01000) Dissolved		
Barium	(01009) Total		
	(01005) Dissolved		
Cadmium	(01113) Total		
	(01025) Dissolved		
Chromium	(01118) Total		
	(01030) Dissolved		
Copper	(01119) Total		
	(01040) Dissolved		
Lead	(01114) Total		
	(01049) Dissolved		
Magnesium	(00921) Total		
	(00925) Dissolved		
Mercury	(71901) Total		
	(71890) Dissolved		
Selenium	(00981) Total		
	(01145) Dissolved		
Silver	(01079) Total		
	(01075) Dissolved		
Zinc	(01094) Total		
	(01090) Dissolved		
	Total		
	Dissolved		

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I.D. No. _____
Monitoring Point No. _____
Sample Date _____

3. Organics (Enter all data in µg/l)

For monofills, these requirements may be modified based upon waste analysis under 287.132.

STORET NO.	ANALYTE	VALUE	ANALYSIS METHOD NUMBER
(78124)	Benzene		
(77651)	1,2-Dibromoethane		
(34496)	1,1-Dichloroethane		
(34501)	1,1-Dichloroethene		
(34531)	1,2-Dichloroethane		
(77093)	Cis 1,2-Dichloroethene		
(34546)	Trans 1,2-Dichloroethene		
(34371)	Ethyl Benzene		
(34423)	Methylene chloride		
(34475)	Tetrachloroethene		
(78131)	Toluene		
(34506)	1,1,1,-Trichloroethane		
(39180)	Trichloroethene		
(39175)	Vinyl chloride		
(81551)	Xylene		

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FORM V
PROFESSIONAL CERTIFICATION SECTION

General Reference: 289.202

Professional Engineer

I, _____
(Engineer's Name - Print or Type)

being a Registered Professional Engineer in accordance with the Pennsylvania Professional Engineer's Registration Law do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying application, plans, specifications and reports has been prepared in accordance with accepted practice of engineering, are true and correct, and are in accordance with the Rules and Regulations of the Department of Environmental Protection. I also certify that those individuals indicated in the following paragraphs prepared this application under my supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature _____ Date _____

License Number _____ Expiration Date _____

Address _____

Telephone No. (____) _____

Professional
Seal

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FORM V

**CHEMICAL ANALYSIS OF RESIDUAL WASTE
ANNUAL REPORT BY THE GENERATOR
(Form ER-OFO-19)**

Important: Read all instructions before completing form.

Reference: 25 PA Code 287.54

WASTE CODE - Place appropriate code found in the Appendix in the box provided on every page of form.

SECTION I - GENERAL INFORMATION - self explanatory.

SECTION II - WASTE DESCRIPTION

Item A. General Properties

#3 Describe the color, physical state(s), and phase(s) of the waste. (This question is subjective.) Enter the number of solid and/or liquid phases of separation and describe each phase. For example, two phases: one yellow oily liquid and one gray granular solid.

Item B. Chemical Analysis

The analytical methodologies used shall be those set forth in the most recent edition of the EPA's Test Methods for Evaluating Solid Waste (SW-846), Methods for Chemical Analysis of Water and Wastes (EPA 600/4-79-020), Standard Methods for the Examination of Water and Wastewater (prepared jointly by the American Public Health Association, American Water Works Association, and Water Environment Federation), or a comparable method subsequently approved by EPA or the Department.

The person taking the samples and the laboratory performing the analysis shall employ the quality assurance/quality control procedures described in the EPA's Test Methods for Evaluating Solid Waste (SW-846) or Handbook for Analytical Quality Control in Water and Wastewater Laboratories (EPA 600/4-79-019).

All analyses submitted must specify the method used and any special preparation, deviation from the method, or pertinent observations. Each analysis sheet must include; *date of sampling, date of analysis, name of laboratory performing test, and laboratory contact person and phone number*. Analytical determinations should be run on the samples as is, unless otherwise specified in the cited method. Report the analyses in mg/kg on a dry weight basis for solids or in mg/L for liquids, or as otherwise specified in cited method.

No single analytical method is applicable for all waste streams and some modifications may be necessary for unusual waste types. Any modifications, however, must be approved by the Department.

If the sample is of unknown origin or characteristics, contact the appropriate Department regional office prior to analysis.

#1 Chemical Analysis of the Waste - The analysis must include the following unless the generator certifies in writing either the concentration of the parameter or the absence of the parameter based on his or her knowledge of the manufacturing or pollution control process:

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- A. Gross Analysis - The total concentration of any constituent present at 1% or greater.
- B. Trace Analysis - The total concentration of any constituent listed in Appendix VIII (25 Pa. Code 261.34(e)), which based upon generator knowledge of the waste and the process generating the waste, are likely to be found in the waste at concentrations exceeding 50 ppm.
- C. Hazardous Waste Determination - As required under 25 Pa. Code 262.11.
 - i. pH
 - ii. Ignitability
 - iii. Reactive Sulfide
 - iv. Reactive Cyanide
 - v. Toxicity Characteristic Leaching Procedure (TCLP) - include all parameters found in either 25 Pa. Code 261.24 or 40 CFR 261.24 as well as pH of extract. Report all results in mg/L or as otherwise specified in method.
- D. Additional Analyses - Any additional parameters as required:
 - i. on Form U (if waste is managed at a Pennsylvania facility).
 - ii. by conditions in a permit or approval for management of the waste.
 - iii. by the facility(ies) managing the waste.

Item C. Process Description and Schematic - Please attach to this form the following:

- #1 Describe the manufacturing process which produced the waste and any pollution control methods involved. This must include the raw materials used in the process, any intermediate products formed, final products, and any substances added during treatment. For non-hazardous waste, provide sufficient detail to demonstrate the waste is not a listed hazardous waste. For example:

"Resol Resin Manufacture"

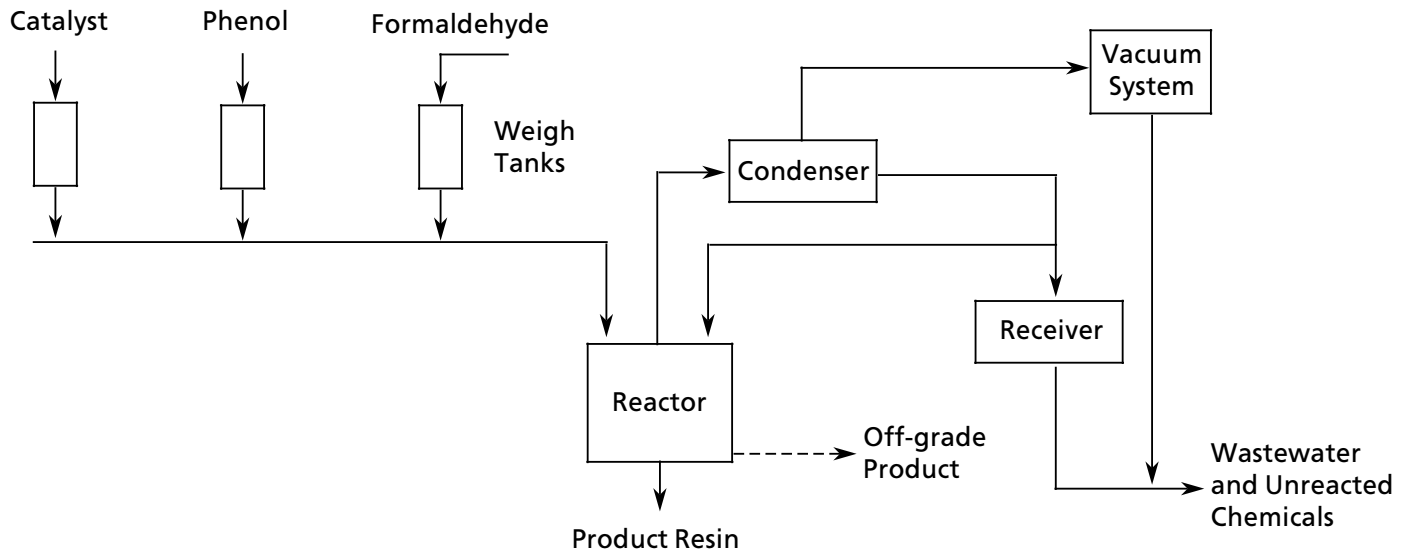
"These resins are formed by reacting phenol, or a substituted phenol with formaldehyde which contains an excess of formaldehyde. An alkali (sodium hydroxide) is used to catalyze the polymerization which takes place at a pH of between 8 and 11 and at a temperature of 60°C.

"When the desired degree of polymerization has occurred, the kettle is cooled to about 35°C to inhibit further reaction. The caustic may be neutralized in the kettle with sulfuric acid at this time. The water from this distillation forms a concentrated waste of unreacted materials and low molecular weight resin.

"The batch is dumped, and depending on the specific resin, the batch may be washed several times and a vacuum may be used during the dehydration cycle. It is important that molten resin be handled quickly to avoid its setting up to an insoluble, infusible mass which would become a waste."

- #2 Provide, on 8½ x 11" size paper, flow schematics of the manufacturing and/or pollution control processes generating the waste stream starting with the raw materials and ending with the final products. For example:

FORM V

**SECTION III. MANAGEMENT OF THE RESIDUAL WASTE - self explanatory.****SECTION IV. CERTIFICATION OF DOCUMENTS BY GENERATOR**

In accordance with 25 Pa. Code 287.54(f), information required in Section II which previously has been submitted to the Department may be omitted from this form, provided the generator certifies in this section that the information has not changed from those set forth for the previous year. The generator is to check the appropriate box(es) in this section, identify the form(s) and date(s) of submission(s) on which the information is found, and sign the certification statement.

If no information in Section II is omitted, do not check any of the boxes, but sign the certification statement.

The Form Must be Certified in the Following Manner:

- #1 Corporation - A corporate officer must sign the document and the corporate seal must be affixed.
- #2 Limited partnerships - A general partner must sign the document.
- #3 All other partnerships - A partner must sign the document.
- #4 Sole proprietorships - The proprietor must sign the document.
- #5 Municipal, state, or federal authority or agency - An executive officer or ranking elected official responsible for compliance of the authority's or agency's waste activities and facilities with all applicable regulations must sign the document.

All signatures affixed to the document must be notarized.

FORM V

**APPENDIX
RESIDUAL WASTE CODE (RWC)**

<p>000 Combustion Residues</p> <p>001 Coal-Derived Bottom Ash</p> <p>002 Coal-Derived Fly Ash</p> <p>003 Flue Gas Desulfurization Residue (FGD)</p> <p>004 Incinerator Bottom Ash</p> <p>005 Incinerator Fly Ash</p> <p>006 Incinerator Mixed Ash</p> <p>007 Other Ash</p> <p>100 Metallurgical Process Residues</p> <p>101 Foundry Sand</p> <p>102 Slag</p> <p>103 Refractory Material</p> <p>104 Grindings, Shavings</p> <p>105 Ferrous Baghouse Dust</p> <p>106 Non-Ferrous Baghouse Dust</p> <p>107 Ferrous Scrap, including Auto Recycle</p> <p>108 Non-Ferrous Scrap</p> <p>200 Sludges, Scales</p> <p>201 Water Treatment Sludge</p> <p>203 Industrial Wastewater Treatment Sludge, including Acid Mine Drainage Sludge</p> <p>204 Metallurgical Sludge</p> <p>205 Food Processing Sludge</p> <p>206 Paint, Coating Sludge and Scale</p> <p>207 Tank Bottoms</p> <p>208 Still Bottoms</p> <p>209 Oily Sludge, Petroleum Derived</p> <p>210 Emission Control Sludge</p> <p>211 Other Industrial Sludge</p> <p>212 Lime/Cement Kiln Scale, Residue</p> <p>213 Lime-Stabilized Spent Pickle Liquor</p> <p>300 Chemical Wastes</p> <p>301 Acidic Chemicals (pH < 6)</p> <p>302 Basic Chemicals (pH > 8)</p> <p>303 Combustible Chemicals</p> <p>304 Chemical Salts</p> <p>305 Carbon Residues (e.g., Decoloring, Filtering)</p> <p>306 Surface Coatings (e.g., Solid, Semi-Solid Paints, Polishes, Adhesives, Inks)</p> <p>307 Filter Aids (e.g., Diatomaceous Earth, etc.)</p> <p>308 Filter Media</p> <p>309 Spent Dyes</p> <p>310 Detergents, Cleaning Agents</p> <p>311 Off-Specifications Products, Intermediates</p> <p>312 Pharmaceutical Wastes</p>	<p>400 Generic, Manufacturing or Production Wastes</p> <p>401 Leather Wastes</p> <p>402 Rubber, Elastomer Wastes</p> <p>403 Wood Wastes (Including Particle Board, Sawdust, Shavings)</p> <p>404 Paper, Cardboard Wastes</p> <p>405 Textile Wastes Including Yarn, Fabric, Fiber, Elastic</p> <p>406 Glass Wastes Excluding Industrial Refractory Material</p> <p>407 Polyethylene, Polystyrene, Polyurethane and Other Non-Halogenated Plastics</p> <p>408 Glass Reinforced Plastics</p> <p>409 Halogenated Plastics (PVC, Teflon, CPE)</p> <p>410 Electronic Component Wastes (Off-Spec Semi-Conductors, Circuit Boards)</p> <p>411 Agricultural Wastes (Fertilizers, Pesticides, Feed Supplements)</p> <p>412 Photographic Wastes (Film, Photographic Paper)</p> <p>413 Asphalt (Bituminous)</p> <p>414 Ceramic Wastes</p> <p>415 Linoleum Wastes</p> <p>416 Thermal Insulation Wastes (cellulose, glass, wool)</p> <p>417 Wiring, Conduit, Electrical Insulation</p> <p>500 Special Handling Residues</p> <p>501 Asbestos-Containing Waste (Insulation, Brake Lining)</p> <p>502 PCB-Containing Waste</p> <p>503 Oil-Contaminated Waste (Soils, Spent Absorbent, Oily Rags)</p> <p>504 Paints (Liquid)</p> <p>505 Spent Catalysts</p> <p>506 Spill Residues</p> <p>508 Virgin Petroleum Fuel - Contaminated Soil and Debris</p> <p>509 Waste Oil</p> <p>510 Waste Tires</p> <p>700 Industrial Equipment, Scrap</p> <p>701 Pumping, Piping, Vessels, Instruments, Storage Tanks</p> <p>702 Scrap Materials from Maintenance, Product Turnaround</p> <p>800 Non-Coal Mining Wastes</p> <p>801 Drilling Fluids or Residuals</p> <p>900 Other</p>
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COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

Generator I.D. Number

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Date Prepared/Revised
Waste Code

FORM V

**CHEMICAL ANALYSIS OF RESIDUAL WASTE
 ANNUAL REPORT BY THE GENERATOR**

SEE INSTRUCTIONS BEFORE COMPLETING THIS FORM

I. GENERAL INFORMATION

A. Generator of the Waste

1. Name of company _____
 Mailing address _____ Zip: _____
 Location of site if different from mailing address _____
 Municipality _____ County _____
2. If a subsidiary, name of parent co. _____
3. Company contact person
 Name _____ Title _____
 Telephone Number _____

II. WASTE DESCRIPTION (Must be completed by generator)

A. General Properties

1. pH range _____ to _____ (based on analyses or knowledge)
2. Physical state:
 - a. liquid waste (EPA Method 9095)
 - b. solid (EPA Method 9095)
 - c. gas (ambient temperature and pressure)
3. Physical appearance:
 Color _____
 Number of solid or liquid phases or separation _____
 Describe each phase of separation.

Date Prepared/Revised

Waste Code

Generator I.D. Number

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B. Chemical Analysis - Please attach the following:

1. The results of a detailed chemical characterization of the waste, as described in the instructions.
2. A detailed description of the waste sampling method.
3. The quality assurance/quality control procedures employed by the laboratory(ies).
4. The results of the hazardous waste determination.
5. Provide a detailed explanation supporting use of generator knowledge in lieu of actual chemical analysis, if applicable.

C. Process Description and Schematic - *Please attach the following:*

1. A detailed description of the manufacturing and/or pollution control processes producing the waste, as specified in the instructions.
2. A schematic of the manufacturing and/or pollution control processes producing the waste, as specified in the instructions.
3. The substantiation for a confidentiality claim, as described in the instructions, if portions of the information you have submitted are confidential.

III. MANAGEMENT OF THE RESIDUAL WASTE

A. Processing or Disposal Facility(ies) - Attach additional sheets, if necessary.

1a. Name of facility _____
 Address _____ Zip: _____
 Municipality _____ County _____

b. Solid waste permit number(s) for processing or disposal facility being utilized.

c. Facility contact person
 Name _____ Title _____
 Telephone Number _____

d. Volume of waste shipped to processing or disposal facility in the previous year:
 _____ cubic yards, gallons, pounds, or tons (circle one)

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FORM V

2a. Name of facility _____

Address _____ Zip: _____

Municipality _____ County _____

b. Solid waste permit number(s) for processing or disposal facility being utilized.

c. Facility contact person

Name _____ Title _____

Telephone Number _____

d. Volume of waste shipped to processing or disposal facility in the previous year: _____
cubic yards, gallons, pounds, or tons (circle one)

B. Beneficial Use

1. Has the waste been approved for beneficial use? Yes No

2. If yes, list the general permit number or approval number. _____

3. Volume of waste beneficially used in the previous year:

_____ cubic yards, gallons, pounds, or tons (circle one)

Date Prepared/Revised
Waste Code

Generator I.D. Number

FORM V

VII. CERTIFICATION OF DOCUMENTS BY GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Check the following, if applicable:

- I certify the information required in IIA, General Properties, was supplied to the Department and has not changed.

Form Submitted: Form 26R
 Other (specify): _____

Date Submitted: _____

- I certify the information required in IIB, Chemical Analysis, was supplied to the Department and has not changed.

Form Submitted: Form 26R
 Other (specify): _____

Date Submitted: _____

- I certify the information required in IIC, Process Description and Schematic, was supplied to the Department and has not changed.

Form Submitted: Form 26R
 Other (specify): _____

Date Submitted: _____

Name of Responsible Official _____ Title _____

Signature _____ Date _____

Taken, sworn, and subscribed before me, this

_____ day of _____ A.D. 19 _____

