



ENGINEERING DESIGN AND CHECK DATA
WASTE TREATMENT (629)

_____	LAND OWNER	_____	SERVICE CENTER
_____	COUNTY	_____	DATE

- **General Design Information**
 - Address and insert the following items in the design folder for the specific engineering conservation practice.

- **Project Cover Sheet**
 - Site location
 - Table of Contents
 - Signature by WV PE for overall plan
 - Company Name (when completed by TSP or private contractor), contacts, etc.
 - Permit Requirements /Approvals
 - MISS UTILITY WV (1-800-245-4848)

- **Design Information & Calculations**
 - Summary of system objectives
 - Process Flow Diagram
 - Expected system performance
 - Volume reductions
 - By-product properties & volume
 - Volume of manure needed and percent of manure used within contracted facility area
 - Calculation of Boiler size and BTU output
 - Anticipated heating savings from current system
 - Calculations and flow estimates for heat transfer method
 - Computation for pipe sizes
 - Determination of required insulation and method to achieve for selected heat transfer system
 - Estimated Air Emissions (Data can be from similar systems), include source
 - Process monitoring and control system parameters
 - Roof/building design over treatment/equipment
 - Storage area for by-products

- **Construction Specifications**
 - Building Pad to meet or exceed (561)
 - Roof to meet Roofs and Covers (367)
 - System specifications
 - Control system specifications
 - Other equipment specifications as appropriate, such as loading hopper/auger, ash removal, etc.
 - Particulate control system
 - Heat transfer system, rating, etc.

- **Engineering Drawings**
 - **Plan View Sheet(s)**
 - North arrow, Scale
 - Utilities/road
 - Legend
 - Job Classification
 - Existing structures
 - Proposed facilities
 - Construction limits
 - Transfer line location
 - Cross Sections and location
 - Erosion Control measure locations (Sites over 1 acre will need NPDES permit)
 - **Cross Sections**
 - Typical trench detail
 - Location of pipe, type, & size
 - Location of agitation pump, ramp, Backfill material
 - Compaction requirements
 - Insulation materials
 - Floor section
 - **Detail Sheet(s)**
 - Typical plumbing hookups
 - Heat transfer unit
 - Building layout
- **Erosion and Sediment Control Plan**
 - See DEP's Erosion and Sediment Pollution Control Program Manual and conservation District requirements.
 - Permits needed.
- **Operation and Maintenance Plan**
 - Start Up Sequence
 - Operation procedures
 - Maintenance
 - Emergency Action Plan
 - Monitoring Plan (if applicable)
 - Component Warranty
 - Component requiring periodic replacement
 - Anticipated Annual Operating Costs
 - Safety (Signage, fencing, lockouts, etc.)
- **Quality Assurance Plan**
 - Written plan for Quality Control/Quality Assurance for project. Include frequency requirements for minimum pressure requirements, leak checks, etc.
- **As-Built – Check Data**

- Contractor to provide a set of "As-builts" showing verifications, changes, etc. in red, along with photo documentation, inspection notes, certifications and seal from a WV Registered Professional Engineer for completed project.