



**PROFESSIONAL ENGINEER CERTIFICATION FOR
CONSTRUCTION OF GEOMEMBRANE LINED LIQUID MANURE
STORAGE STRUCTURES**

State Form 53084 (5-22)
SATELLITE MANURE STORAGE STRUCTURE (SMSS)

**INDIANA DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT**
Confined Feeding Section
Office of Land Quality
100 North Senate Avenue
MC 65-45, IGCN 1101
Indianapolis, Indiana 46204
(800) 451-6027 extension 2-4473

INSTRUCTIONS:

1. Use this form to certify construction of a liquid manure storage structure as required in 327 IAC 20-5-5(e).
2. Fill in all information requested COMPLETELY.
3. Attach narratives, supporting documentation and testing results identified below in the Construction Details Section.
4. This certification form must be completed, signed, dated, and submitted to IDEM within thirty (30) days of completing construction and prior to introduction of any manure.
5. An Indiana registered professional engineer must certify this form.
6. Please submit the Completed Construction Affidavit (State Form) with this certification as required by 327 IAC 20-5-5(e).
7. Please send this form to the address listed above.
8. Please maintain a copy of these forms in your facility operating record.
9. For more information, contact IDEM's Office of Land Quality, Confined Feeding Permits Section, at (317) 232-4473.

GENERAL FACILITY INFORMATION

Name of Facility		SMSS Permit Number	
Date of Approval (month, day, year)			
Name of Permittee			
Address of Location		Telephone Number	
City		ZIP Code	
County of Operation		E-mail Address of Facility Contact	
Location of Operation (nearest crossroads or mailing address)			

GENERAL CONSTRUCTION INFORMATION

Start Date of Construction (month, day, year)		Complete Date of Construction (month, day, year)	
Name of Contractor (If Applicable)		Telephone Number of Contractor	
Name(s) of Structure(s) (P1, P2, etc.)			

CONSTRUCTION DETAILS: The following are the aspects of the geomembrane lined liquid manure storage structure that must be reviewed by the certifying engineer or his representative for compliance with the approved plans and specifications, and the facility permit. Please attach narratives, supporting documentation and the testing results with this form.			Is a Narrative Attached?	
LAGOON CONSTRUCTION: Please attach required documentation and a narrative discussing the following construction activities. Does the attachment address the following? If not, provide an explanation of why it is not included or not needed.			Yes	No
1. a. Subgrade Preparation / Earthen Berms				
i Describe the excavation, subgrade preparation, keyway and fill placement for any berms. Address the following: Was the subgrade prepared as required by the plans and specifications? Was the subgrade free from uncompacted fill, standing water, mud, ice, frozen ground or snow before the liner was installed? Did the subgrade preparation comply with the geomembrane installer's subgrade requirements? Was the subgrade inspected and approved by the certifying engineer?			<input type="checkbox"/>	<input type="checkbox"/>

		Yes	No
ii	Identify Contractor(s) that performed the work.	<input type="checkbox"/>	<input type="checkbox"/>
iii	Identify construction specifications, construction quality assurance (CQA) requirements and the CQA consultant(s).	<input type="checkbox"/>	<input type="checkbox"/>
iv	Include daily inspection notes, results of CQA tests, map(s) showing testing locations, pictures, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
v	Include PE's opinion that subgrade preparation and earthen berm construction was performed in accordance with the approved plans, specifications and CQA. Include any additional information regarding the earthwork and site preparation.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
b. Perimeter Drain System (if applicable)		Yes	No
i	Describe the excavation and the installation of the perimeter drain system.	<input type="checkbox"/>	<input type="checkbox"/>
ii	Identify contractor(s) that performed the construction work.	<input type="checkbox"/>	<input type="checkbox"/>
iii	Include inspection notes, construction pictures, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
iv	Include PE's opinion that perimeter drain installation was performed in accordance with the approved plans and specifications. Address the following: Was the perimeter drain system installed as specified on the approved drawings? Was the observation / standpipe installed? Was a shutoff valve installed? Was the drain pipe installed within a granular fill? Were pump(s) installed (<i>if applicable</i>)? Were pump(s) connected to an electric supply?	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
c. Geomembrane Installation		Yes	No
i	Identify geomembrane liner installation contractor(s).	<input type="checkbox"/>	<input type="checkbox"/>
ii	Identify the construction quality assurance (CQA) requirements, the CQA consultant and testing lab.	<input type="checkbox"/>	<input type="checkbox"/>
iii	Include copies of manufacturer's quality control certificates, daily inspection notes, results of CQA tests (peel and shear), map(s) showing geomembrane panel layout, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
iv	Describe how the geomembrane panels were seamed together. Describe certification seams (trial seams) performed by each seamer. Describe non-destructive and destructive tests performed on seams (frequency, vacuum box, peel shear, test results, et cetera.).	<input type="checkbox"/>	<input type="checkbox"/>
v	Identify any quality control and conformance testing performed on samples of the geomembrane and who performed the tests.	<input type="checkbox"/>	<input type="checkbox"/>
vi	Include the geomembrane manufacturer's written certifications for: <ul style="list-style-type: none"> a. The suitability of the material for the intended use. b. The expected service life of the geomembrane under the anticipated conditions. c. The physical properties of the liner for meeting the requirements of the appropriate ASTM standards. 	<input type="checkbox"/>	<input type="checkbox"/>
vii	Include a letter from the geomembrane installation contractor stating the geomembrane liner was installed according to the approved plans and specifications and the manufacturer's recommendations.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

2. SUMMARY CONCLUSION		Yes	No
a.	Does the certification include a brief narrative summarizing the results of the construction of the lagoon? The documentation should include test procedures, sampling details, analytical methods, laboratory data, field data, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
3. RECORD/AS-BUILT DRAWINGS		Yes	No
a.	Provide a set of record / as-built drawings of the lagoon that include a plan(s), cross section(s), detail(s), etc. Do the drawings show the following? If not, please provide an explanation.	<input type="checkbox"/>	<input type="checkbox"/>
i	The lagoon system dimensions.	<input type="checkbox"/>	<input type="checkbox"/>
ii	The depth of the lagoon.	<input type="checkbox"/>	<input type="checkbox"/>
iv	The top width of the earthen berm(s).	<input type="checkbox"/>	<input type="checkbox"/>
v	The elevations at; the top of berm(s), the bottom of lagoon (top of clay liner) and the operating level (elevation of the bottom of the two feet of freeboard).	<input type="checkbox"/>	<input type="checkbox"/>
vi	The operating volume of the lagoon(s), (volume excluding the freeboard volume).	<input type="checkbox"/>	<input type="checkbox"/>
vii	The slope of the lagoon's interior and exterior side (H/V).	<input type="checkbox"/>	<input type="checkbox"/>
viii	Dimensions of berm's cutoff trench.	<input type="checkbox"/>	<input type="checkbox"/>
ix	Inlets, access ramps, agitation pads, spillways, splash pads, staff gauges, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
xi	Identify the geomembrane liner material and thickness.	<input type="checkbox"/>	<input type="checkbox"/>
xii	The location of perimeter drain around the lagoon.	<input type="checkbox"/>	<input type="checkbox"/>
xiii	The location of the perimeter drain's discharge point.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
5. MODIFICATION APPROVAL			
Provide an explanation for any items answered "NO". Any deviation from the approved plans and specifications must have received modification (327 IAC 20-4-4) approval from IDEM prior to construction. Construction of manure structures not meeting the approved plans, specifications, and the facility permit may result in an enforcement action against the facility.			

6. PROFESSIONAL ENGINEER'S CERTIFICATION STATEMENT

I, _____ (your name), being a Registered Professional Engineer in the State of Indiana, do hereby state that the information on and attached with this construction certification report form for _____ (type of structure), constructed at _____ (name of facility), is true and accurate, and contains all information required by the permit and complies with the approved plans and specifications. The construction inspection activities are either directly overseen by _____ or as required in IC 25-31-1-16(b).

The information contained within this report is provided from various sources. This information includes direct observation by _____ personnel, personnel directly supervised by _____, independent off-site testing laboratories, construction contractors and survey firms.

By signing this form, I attest that the information provided above is true and accurate.

Signature

Date (month, day, year)

Name

License Number

Date of Expiration (month, day, year)

“SEAL”