



**PROFESSIONAL ENGINEER CERTIFICATION
CONSTRUCTION OF EARTHEN LIQUID MANURE
STORAGE STRUCTURES**

State Form 53085 (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 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

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

GENERAL CONSTRUCTION INFORMATION

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

<p>CONSTRUCTION DETAILS: The following are the aspects of the earthen 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.</p> <p>LAGOON CONSTRUCTION: Please attach 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.</p>	Is a Narrative Attached?	
	Yes	No
<p>1. activities. Does the attachment address the following? If not, provide an explanation of why it is not included or not needed.</p> <p>a. Earthwork</p> <p>i Describe the excavation, subgrade preparation, keyway and fill placement. Address the following: Was the subgrade prepared as required by the plans and specifications? Was the subgrade free of standing water, ice, or snow? Was the subgrade surface free from mud, dried ground, uncompacted fill and frozen ground? Was the subgrade inspected and approved by the certifying engineer?</p>	<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, construction pictures, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
v Include PE's opinion that earthwork 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 (if applicable)? Were pump(s) connected to an electric supply? Provide any additional information on the perimeter drain system installation.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:		
c. Soil Liner System	Yes	No
i Describe the pre-qualification, selection, placement and compaction of the liner soils.	<input type="checkbox"/>	<input type="checkbox"/>
ii Identify contractor(s) that performed the work.	<input type="checkbox"/>	<input type="checkbox"/>
iii Identify the 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 locations of compaction tests, map(s) showing locations of hydraulic conductivity test, construction pictures, et cetera.	<input type="checkbox"/>	<input type="checkbox"/>
v Include PE's opinion that liner installation was performed in accordance with the approved plans, specifications and CQA.	<input type="checkbox"/>	<input type="checkbox"/>
Comments:		
2. LINER SPECIFIC DISCHARGE	Yes	No
a. Provide hydraulic conductivity test results as required by the CQA and specific discharge calculations of the liner showing compliance with the maximum allowable specific discharge of 1/16 (0.0625) cubic inch per square inch per day. (327 IAC 20-5-3(a))	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
b. Provide documentation supporting that the liner was constructed according to the approved specifications. (Indiana NRCS Conservation Practice Standard Code 521A, 521B or 521C 327 IAC 20-5-3(b))	<input type="checkbox"/>	<input type="checkbox"/>
c. Discuss the in-situ soil and constructed liner thickness. (327 IAC 20-5-3)	<input type="checkbox"/>	<input type="checkbox"/>
Comments:		
3. SUMMARY CONCLUSION		
a. Provide 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:		
4. RECORD / AS-BUILT DRAWINGS		
a. Provide a set of record/as-built drawings of the lagoon that include a plan(s), cross section(s), detail(s), et cetera. 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"/>
iii The thickness of clay liner.	<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"/>
x The location of perimeter drain around the lagoon.	<input type="checkbox"/>	<input type="checkbox"/>
xi 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, to the best of my knowledge, the information on and attached with this construction report certification form for _____ (*type of structure*), constructed at _____ (*facility name*), is true and accurate, and contains all information required by the permit and appropriate regulations. The construction inspection activities, either directly overseen by _____ or as documented by independent parties, other than the construction contractors, have been reported to me to have been performed in compliance the permit for the facility. 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.

Name: _____ Signature: _____ By signing this form, I attest that the information provided above is true and accurate.	Date: _____ (<i>month, day, year</i>)
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License Number _____

Expiration Date (*month, day, year*) _____

“SEAL”