

**TECHNICAL REVIEW CHECKLIST**  
**SOILS AND LINER QUALITY CONTROL PLAN**  
**Municipal Solid Waste Permits Section, Waste Permits Division**

This checklist serves as a guideline for Part III, Attachment 10, for Type I and Type IV landfill permit applications and modifications in accordance with the information requirements of 30 TAC Chapter 330, Subchapter H, Sections 330.203 and 330.330.205. For portions which are not applicable, mark the NA column. This checklist is intended to be used as a guide and must be used in conjunction with reading the rules.

FACILITY NAME: \_\_\_\_\_

LOCATION: \_\_\_\_\_  
(County)

APPLICANT'S NAME: \_\_\_\_\_

TYPE OF FACILITY: \_\_\_\_\_

MSW PERMIT NO.: \_\_\_\_\_  
(If Applicable)

DATE RECEIVED: \_\_\_\_\_

DATE ASSIGNED: \_\_\_\_\_

TECHNICAL REVIEW BY: \_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Printed Name)

SUPERVISOR: \_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Printed Name)

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|--|-----------|---|----------------------|---|----|-------------------------|----------|
|   |  | Y         | N | Y                    | N |    |                         |          |
| <b>Attachment 10 - Soil and Liner Quality Control Plan (SLQCP)</b> per 330.203, 330.205, and 330.206  | 330.56(j)                                    |           |   |                      |   |    |                         |          |
| <i>Soil Liner and Quality Control Plan (SLQCP)</i>  | 330.203<br>330.205                           |           |   |                      |   |    |                         |          |
| Site specific documentation per 30 TAC §330.203 regarding ballasting and dewatering requirements, must be included.   |  |           |   |                      |   |    |                         |          |
| Licensed Professional Engineer's Signature and Seal.<br>The SLQCP must be prepared under the direction of a licensed professional engineer, and in accordance with the Texas Engineering Practice Act, it must be signed, sealed, and dated by the engineer.  | 330.205(a)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Requirements.<br>Verify that the SLQCP addresses the soil liner requirements and that they are consistent with the requirements stated in 30 TAC §330.205 (e.g., Atterberg limits (ASTM D4318), Plasticity index equal to or greater than 15, and Liquid limit equal to or greater than 30). | 330.205(c)(6)                                |           |   |                      |   |    |                         |          |
| Preconstruction Testing - Soil Liners.<br>Verify that the SLQCP addresses the preconstruction testing requirements and that they are consistent with the requirements stated in 30 TAC §§330.205(c)(3), 330.205(c)(7), and 330.205(d).  | 330.205(c)(3)<br>330.205(c)(7)<br>330.205(d) |           |   |                      |   |    |                         |          |
| Soil Liner Specifications Preparation<br>Verify that the SLQCP addresses the preparation of the subgrade prior to the soil liner construction.  | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Specifications Placement<br>Verify that the SLQCP addresses the placement requirements for each lift of the soil liner.  | 330.205(b)                                   |           |   |                      |   |    |                         |          |

| DESCRIPTION  | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|--|--|-----------|---|----------------------|---|----|-------------------------|----------|
|  |  | Y         | N | Y                    | N |    |                         |          |
| Soil Liner Specifications<br>Compaction<br>Verify that the SLQCP addresses the compaction requirements for each lift of the soil liner.  | 330.205(c)(3)<br>330.205(d)<br>330.205(g)    |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Lift Bonding<br>Verify that the SLQCP addresses the requirements to achieve adequate bonding between each lift.   | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>Liner Tie-In<br>Verify that the SLQCP addresses the procedures for the liner tie-in.  | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>Sampling and Testing Locations<br>Verify that the SLQCP addresses the backfilling of the holes dug or created during any sampling and/or testing activities.                                | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>Soil Liners Overlain By Geomembrane Liners<br>Verify that the SLQCP addresses the procedures for preparing the soil liner in preparation for geomembrane placement.                         | 330.205(b)<br>330.205(h)                     |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>SLER/GLER Markers<br>Verify that the SLQCP addresses that the limits of all constructed liners will be marked in accordance with the requirements of 30 TAC §§330.55(b)(10) and 330.206(d). | 330.55(b)(10)<br>330.206(d)                  |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|--|-----------|---|----------------------|---|----|-------------------------|----------|
|   |  | Y         | N | Y                    | N |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>Construction Timing<br>Verify that the SLQCP addresses that the soil liner construction and testing will be conducted in a systematic and timely fashion in.   | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Soil Liner Specifications<br>Liner Protection<br>Ponded Water on Liners<br>Verify that the SLQCP addresses the procedures for the prevention and removal of ponded water on liners.   | 330.205(b)                                   |           |   |                      |   |    |                         |          |
| Field Testing - Soil Liners<br>Field Densities and Moisture Content<br>Verify that the SLQCP addresses the field density and moisture content and frequency of testing requirements.  | 330.205(c)<br>330.205(d)                     |           |   |                      |   |    |                         |          |
| Field Testing - Soil Liners<br>Sieve Analysis<br>Verify that the SLQCP addresses the sieve analysis and frequency of testing requirements.  | 330.205(c)                                   |           |   |                      |   |    |                         |          |
| Field Testing - Soil Liners<br>Atterberg Limits<br>Verify that the SLQCP addresses the Atterberg limits and frequency of testing requirements.  | 330.205(c)                                   |           |   |                      |   |    |                         |          |
| Field Testing - Soil Liners<br>Coefficient of Permeability<br>Verify that the SLQCP addresses the coefficient of permeability and frequency of testing requirements and that it is consistent with the requirements stated in 30 TAC §330.205(c)(5)(A). | 330.205(c)                                   |           |   |                      |   |    |                         |          |
| Field Testing - Soil Liners<br>Thickness Verification<br>Verify that the SLQCP addresses the thickness verification and frequency of testing requirements.  | 330.205(c)                                   |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted)                     | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|--|-----------|---|----------------------|---|----|-------------------------|----------|
|   |  | Y         | N | Y                    | N |    |                         |          |
| Non-Conforming Tests - Soil Liner<br>Field Density and Moisture Tests<br>Verify that the SLQCP addresses the procedures to be implemented for areas that do not meet the density and moisture content requirements.   | 330.205(c)<br>330.205(d)   |           |   |                      |   |    |                         |          |
| Non-Conforming Tests - Soil Liner<br>Permeability Tests<br>Verify that the SLQCP addresses the procedures to be implemented for areas that do not meet the permeability requirements.   | 330.205(c)<br>330.205(d)   |           |   |                      |   |    |                         |          |
| Documentation - Soils and Liner Evaluation Report (SLER)<br>Verify that the SLQCP addresses the preparation and submittal of the SLER in accordance with the requirements of 30 TAC §330.206.   | 330.206  |           |   |                      |   |    |                         |          |
| Material Requirements - Geomembrane Liner<br>Verify that the SLQCP addresses material specifications, manufacturing, shipping, delivery, storage, and installation.   | 330.205(b)(4)  |           |   |                      |   |    |                         |          |
| Preconstruction Testing - Geomembrane Liner<br>Verify that the SLQCP addresses the Manufacturer's Quality Control and third party independent laboratory testing requirements.  | 330.205(b)(4)  |           |   |                      |   |    |                         |          |
| Geomembrane Liner Installation<br>Verify that the SLQCP addresses that the installation of the geomembrane will have continuous inspection by the Geotechnical Professional and/or a Qualified Engineering Technician under his/her direct supervision, and that it is consistent with the requirements in §§330.205(a)(2), 330.205(c)(1), and 330.205(c)(2). | 330.205(a)(2)<br>330.205(b)(4)<br>330.205(c)(1)<br>330.205(c)(2) |           |   |                      |   |    |                         |          |

| DESCRIPTION  | REGULATORY CITATION<br>(30 TAC unless noted)                     | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|--|--|-----------|---|----------------------|---|----|-------------------------|----------|
|  |  | Y         | N | Y                    | N |    |                         |          |
| <p>Geomembrane Liner Installation Preparation<br/>Verify that the SLQCP addresses the subliner preparation prior to deploying the geomembrane liner (i.e., rock content not a detriment to the integrity of the overlying geomembrane and the final lift of the soil liner should pass the 3/8 inch sieve).</p>  | 330.200(b)<br>330.205(b)(4)<br>330.205(h)                        |           |   |                      |   |    |                         |          |
| <p>Geomembrane Liner Installation Placement<br/>Verify that the SLQCP addresses the placement of the geomembrane and that it is consistent with the requirements in §330.200(b) (i.e., geomembrane installed in direct and uniform contact with the compacted soil component).</p>   | 330.205(b)(4)  |           |   |                      |   |    |                         |          |
| <p>Geomembrane Liner Installation Trial Seams<br/>Verify that the SLQCP addresses the trial seam requirements and failure criteria.</p>  | 330.205(b)(4)  |           |   |                      |   |    |                         |          |
| <p>Geomembrane Liner Installation Field Seaming<br/>Verify that the SLQCP addresses the field seaming requirements..</p>   | 330.205(b)(4)  |           |   |                      |   |    |                         |          |
| <p>Geomembrane Liner Installation Field Testing<br/>Verify the SLQCP addresses that the field testing of the geomembrane will have continuous inspection by the Geotechnical Professional and/or a Qualified Engineering Technician under his/her direct supervision, and that it is consistent with the requirements in 30 TAC §§330.205(a)(2), 330.205(c)(1), and 330.205(c)(2).</p> | 330.205(a)(2)<br>330.205(b)(4)<br>330.205(c)(1)<br>330.205(c)(2) |           |   |                      |   |    |                         |          |
| <p>Geomembrane Liner Installation Field Testing<br/>Non-Destructive Testing<br/>Verify that the SLQCP addresses the non-destructive testing procedures and passing criteria (i.e. air-pressure and vacuum-box testing).</p>  | 330.205(b)(4)  |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted)    | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|---|-----------|---|----------------------|---|----|-------------------------|----------|
|   |   | Y         | N | Y                    | N |    |                         |          |
| Geomembrane Liner Installation<br>Field Testing<br>Destructive Testing<br>Verify that the SLQCP addresses the destructive testing procedures and failure criteria (i.e., shear and peel).   | 330.205(b)(4)                                   |           |   |                      |   |    |                         |          |
| Geomembrane Liner Installation<br>Non-Conforming Test Results and Repairs<br>Verify that the SLQCP addresses the procedures for retesting and repairs of non-conforming test results.   | 330.205(b)(4)                                   |           |   |                      |   |    |                         |          |
| Geomembrane Liner Protection<br>Verify that the SLQCP addresses protection of the geomembrane liner during placement and seaming.   | 330.205(b)(4)                                   |           |   |                      |   |    |                         |          |
| Anchor Trench and Backfilling<br>Verify that the SLQCP addresses the procedures for the construction and completion of the anchor trench.   | 330.205(b)(4)                                   |           |   |                      |   |    |                         |          |
| Documentation - Geomembrane Liner Evaluation Report (GLER)<br>Verify that the SLQCP addresses the preparation and submittal of the GLER in accordance with the requirements of §330.206.  | 330.206   |           |   |                      |   |    |                         |          |
| Leachate Collection System<br>Verify the SLQCP addresses that the installation of the leachate collection system will have continuous inspection by the Geotechnical Professional and/or a Qualified Engineering Technician under his/her direct supervision, and that it is consistent with the requirements in §§330.205(a)(2), 330.205(c)(1), and 330.205(c)(2). | 330.205(a)(2)<br>330.205(c)(1)<br>330.205(c)(2) |           |   |                      |   |    |                         |          |
| Leachate Collection System<br>Materials and Design<br>Verify that the SLQCP addresses that the construction, design, and strength of the leachate collection system in accordance with the requirements of §§330.200(a)(2) and 330.201.   | 330.200(a)(2)<br>330.201                        |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted)    | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|---|-----------|---|----------------------|---|----|-------------------------|----------|
|   |   | Y         | N | Y                    | N |    |                         |          |
| Protective Cover Layer<br>Verify the SLQCP addresses that the installation of the protective cover layer will have continuous inspection by the Geotechnical Professional and/or a Qualified Engineering Technician under his/her direct supervision, and that it is consistent with the requirements in §§330.205(a)(2), 330.205(c)(1), and 330.205(c)(2).                   | 330.205(a)(2)<br>330.205(c)(1)<br>330.205(c)(2) |           |   |                      |   |    |                         |          |
| Protective Cover Layer<br>Deployment<br>Verify that the SLQCP addresses the deployment of the protective cover layer.   |   |           |   |                      |   |    |                         |          |
| Protective Cover Layer<br>Thickness and Survey Verification<br>Verify that the SLQCP addresses the thickness requirements of the protective cover layer and that it is consistent with the requirements in Chapter 3.11.2 of the LCTH. Also, verify that the SLQCP addresses the thickness verification and frequency of testing requirements for the protective cover layer. |   |           |   |                      |   |    |                         |          |
| Protective Cover Layer<br>Drainage Flow Rate<br>Verify that the SLQCP addresses the permeability requirements of the protective cover layer.  |   |           |   |                      |   |    |                         |          |
| Interim Status Report (ISR)<br>Verify that the SLQCP addresses the requirements for preparation and submittal of an ISR and that it is consistent with the requirements in §330.206(e).   | 330.206(e)                                      |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Verify that the SLQCP contains procedures to be followed when excavations extend into or have the potential to extend into the groundwater as required by 30 TAC §330.205(b)(3)(B). The procedures must be in accordance with the provisions provided in 30 TAC §330.203.  | 330.205(b)(3)(B)<br>330.203                     |           |   |                      |   |    |                         |          |

| DESCRIPTION  | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|--|--|-----------|---|----------------------|---|----|-------------------------|----------|
|  |  | Y         | N | Y                    | N |    |                         |          |
| Ballasting and Dewatering<br>Seasonal High Water Table<br>Verify that the SLQCP includes the design seasonal high water table elevation and documentation to substantiate how it was determined. Substantiation must include historic groundwater elevation data from all piezometers/monitor wells.   | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Determining Ballast Requirements<br>Verify that the SLQCP addresses ballast requirements, if any, and it must be based upon the seasonal high water table elevation and the permitted depth of excavation. For areas where ballast is required, the SLQCP must contain calculations as required by §330.203(a)(1). If the SLQCP indicates that no ballast is required, then it must contain substantiating documentation in accordance with §330.203(a)(4) (i.e., seasonal high water table is below the permitted depth of excavation), or calculations in accordance with §330.203(a)(1) that show that the weight of the protective cover layer meets the required factor of safety. Ballast calculations in the SLQCP must not include the weight of the soil liner component when it is overlain by a geomembrane. | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Control of Hydrostatic Uplift<br>Verify that the SLQCP contains a demonstration, where applicable, that the liner system will not undergo uplift from hydrostatic forces during construction, and if waste is used as ballast, during waste placement until the required ballast thickness is completed. A demonstration must be in accordance with either and/or a combination of the methods in §§330.203(a)(2) and 330.203(a)(3).  | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|--|-----------|---|----------------------|---|----|-------------------------|----------|
|   |  | Y         | N | Y                    | N |    |                         |          |
| Ballasting and Dewatering<br>Control of Hydrostatic Uplift<br>Active or Passive Dewatering System<br>Verify that the SLQCP contains the design of the dewatering system, as required by §330.205(a), if this method is used. Also, verify that the SLQCP contains calculations that the dewatering system will perform adequately to reduce the hydrostatic forces as required by §330.203(a)(2). | 330.205(a)<br>330.205(b)(3)(B)<br>330.203    |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Control of Hydrostatic Uplift<br>Soils so Poorly Permeable<br>Verify that the SLQCP contains satisfactory documentation, as required by §330.203(a)(3), if this method is used, that the soils surrounding the landfill is so poorly permeable that groundwater can not move sufficiently to exert force that would damage the liner system.                         | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Ballast Thickness Verification<br>Verify that the SLQCP addresses the measures and tests that will be used to verify that any required ballast meets the criteria established as required by §330.203(e)(2).   | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |
| Ballasting and Dewatering<br>Documentation - Ballast Evaluation Report (BER)<br>Verify that the SLQCP addresses the preparation and submittal of the BER, if ballast is required, and that it is in accordance with the requirements of §330.203(f).  | 330.205(b)(3)(B)<br>330.203                  |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the permit application SDP contains a satisfactory demonstration as required by 30 TAC §330.202.   | 330.202                                      |           |   |                      |   |    |                         |          |

| DESCRIPTION  | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|--|--|-----------|---|----------------------|---|----|-------------------------|----------|
|  |  | Y         | N | Y                    | N |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the SLQCP specifies the GCL type and orientation and it is consistent with the SDP.   | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify in the SLQCP that the GCL properties are provided (bentonite free swell and fluid loss; bentonite content; GCL permeability; continuous inspection of needle-punched GCL for broken needles using metal detectors).  | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the SLQCP documents the GCL handling and storage (structurally sound cores; weatherproof wrapping; store off ground and cover at site; stack no higher than recommended by manufacturer; handle with appropriate construction equipment to prevent damage).   | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the SLQCP documents GCL installation (subgrade smooth-rolled, drained, and containing no particle greater 3/8"; avoid rutting of subgrade or dragging GCL panels; no folds or excessive slack in deployed GCL; lapping procedures; no vehicle traffic on deployed GCL; no smoking or damaging shoes on GCL; deployed GCL not used as work or storage area; no horizontal seams on sideslopes; no premature hydration; avoid placement in high winds; proper repairing). | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the SLQCP documents GCL QA/QC testing.  | 330.202                                      |           |   |                      |   |    |                         |          |

| DESCRIPTION   | REGULATORY CITATION<br>(30 TAC unless noted) | SUBMITTED |   | TECHNICALLY ADEQUATE |   | NA | LOCATION OF INFORMATION | COMMENTS |
|---|--|-----------|---|----------------------|---|----|-------------------------|----------|
|   |  | Y         | N | Y                    | N |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>For the supplier, verify that the SLQCP documents free swell and fluid loss (bentonite); mass/unit area and grab tensile strength (geotextile); tensile properties, thickness, and mass/unit area (geomembrane). | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>For the GCL manufacturer, verify that the SLQCP documents (clay mass/unit area, moisture content, grab tensile strength, and permeability).  | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>For GCL conformance tests, verify that the SLQCP documents (clay mass/unit area, permeability, direct shear).  | 330.202                                      |           |   |                      |   |    |                         |          |
| Alternate Liner Design<br>Geosynthetic Clay Liner<br>Verify that the SLQCP documents that protective cover must be placed as soon as possible after installation of the GCL and any overlying geosynthetic.   | 330.202                                      |           |   |                      |   |    |                         |          |