

Subsoil Salinity Tool Assessment Checklist



Submit the completed form to the AER with your Subsoil Salinity Tool (SST) assessment.

Figures and tables may meet the data requirements for multiple checklist items.

If an item is not included, provide justification for deficiency. If an item is not applicable for the development of remedial guidelines, check N/A if the option is available.

| General Information | |
|--------------------------------|-------------------------|
| Legal land description: | Applicant: |
| AER file numbers: | SST certificate holder: |
| Directive 056 licence numbers: | SST certificate number: |
| Licensee: | Submission date: |

| Part 1 Data and Assessment – Applicable for All SST Assessments | | | | |
|---|----------|--------------|-----|---|
| | Included | Not included | N/A | Comment |
| 1. Statement confirming lateral delineation | | | | Delineation to SST threshold of 100 mg/kg unless adequate justification provided. |
| 2. Statement confirming vertical delineation | | | | Delineation to SST threshold of 100 mg/kg unless adequate justification provided. |
| 3. Sufficient background data | | | | As per the <i>SST Help File</i> . ¹ |
| 4. All applicable receptors identified | | | | Clear description or depiction of applicable receptors. |

| Part 2A Reporting – Applicable for All SST Assessments | | | | |
|---|----------|--------------|-----|--|
| | Included | Not included | N/A | Comment |
| 1. SST input summary table | | | | A summary table of all SST input parameters, including a column that refers to what section in the report more information can be found about that input (exception may be default inputs). |
| 2. Background data tables | | | | At a minimum, include a table summarizing the background root zone salinity data used to determine the root zone buffer. Include similar background data tables to support SCARG ² rating categories applied for electrical conductivity and sodium adsorption ratio for other depths of concern. Refer to the <i>SST Help File</i> for further guidance. |
| 3. Soil texture summary table | | | | Provide soil texture data in a table, organized by sample depth. |
| 4. Site plan | | | | A site plan that includes all historical and existing monitoring wells and borehole locations. Ensure the site plan includes any excavations, remedial systems, existing infrastructure, and pipelines at the site. |
| 5. Figure illustrating the lateral extent of chloride contamination | | | | Illustrate the lateral extent of the chloride plume, with concentrations indicated. Use multiple figures, as appropriate, to best demonstrate the site and the lateral extent of subsurface contamination. |

(continued)

¹ Latest version of the SST Help File can be found at <ftp://ftp.gov.ab.ca/env/fs/SubsoilSalinityTool>.

² Salt Contamination Assessment & Remediation Guidelines.

| | Included | Not included | N/A | Comment |
|--|----------|--------------|-----|--|
| 6. Figure illustrating the vertical extent of chloride contamination | | | | Provide a cross-sectional diagram that illustrates the vertical extent of the chloride plume. Include monitoring well and borehole locations, lithology, water table elevations and chemistry data for soil and groundwater. |
| 7. Figure outlining the dimensions of the source area or subareas being modelled | | | | Refer to the <i>SST Help File</i> for guidance on how to define the extent of the source area or subareas. |
| 8. Aerial photo illustrating nearest aquatic life receptor | | | | Show the distance from the affected area to the nearest applicable freshwater aquatic life (FAL) receptor. Refer to <i>SST Help File</i> for guidance. |
| 9. Figure illustrating the source length for the source area or each subarea | | | | For Tier 2B and Tier 2C assessments, indicate on the figure the direction of groundwater flow. |
| 10. Summary table of the buffer allocation factors (BAFs) ³ | | | | If applicable, provide a table showing preliminary soil remedial guideline (SRG) developed for domestic use aquifer (DUA) and FAL receptors for each subarea, the BAFs applied, and the resulting SRG of each subarea for DUA and FAL receptors. |
| 11. Provide a summary of the SST SRGs developed | | | | |
| 12. Figure, table, or text describing contamination exceeding SST SRGs | | | | Once SRGs developed, provide a figure, a table, or text summarizing the extent (lateral and vertical) of contamination above SRGs that requires remediation. |

| Part 2B Reporting – Applicable for Tier 2B and Tier 2C Assessments Only | | | | |
|--|----------|--------------|-----|---|
| | Included | Not included | N/A | Comment |
| 13. Table summarizing groundwater monitoring well installation data | | | | Arrange data so that it is clearly shown which wells are background, shallow groundwater, deep groundwater and DUA, if applicable. |
| 14. Table summarizing shallow groundwater lateral gradient and hydraulic conductivity data | | | | If site-specific hydraulic gradients or hydraulic conductivity values were entered into the SST, provide a table summarizing what data were used for these inputs, including dates. If data were excluded, provide the rationale. |
| 15. Table summarizing deep groundwater lateral gradient and hydraulic conductivity data | | | | If site-specific hydraulic gradients or hydraulic conductivity values were entered into the SST, provide table summarizing what data were used for these inputs, including dates. If data were excluded, provide the rationale. |
| 16. Table summarizing vertical gradient data | | | | If site-specific vertical gradients were used in the SST to determine recharge or discharge conditions, provide a table summarizing what data were used for these inputs, including dates. In the table or as separate text, provide confirmation that the wells used had stabilized before gradients were measured and that the resulting gradients are representative of conditions along the groundwater transport pathway for applicable receptors. If data were excluded, provide the rationale. |

(continued)

³ Used for the DUA and FAL pathways in SST.

| | Included | Not included | N/A | Comment |
|---|----------|--------------|-----|--|
| 17. Table summarizing background groundwater salinity parameters, including total dissolved solids (TDS) and chloride. The corresponding calculation of arithmetic average TDS concentrations must be provided. | | | | If TDS was adjusted for monitoring wells with chloride concentrations greater than 30 mg/L, indicate which monitoring wells were adjusted. |
| 18. Groundwater flow figure | | | | Show the groundwater elevations or contours and indicate the direction of groundwater flow. Provide this information for shallow, deep, and DUA groundwater if applicable. |

| Part 3 Supporting Documents – Applicable for All SST Assessments | | | | |
|---|----------|--------------|-----|--|
| | Included | Not included | N/A | Comment |
| 1. Printouts of SST software guideline calculations | | | | |
| 2. Outlier analysis | | | | If data were excluded based on outlier analysis, provide the analysis. |