1. Doc No: OSD-T-151-00013  Rev. 07
2. Title: OPERATING SPECIFICATIONS FOR SINGLE-SHELL WASTE STORAGE TANKS
3. Project Number: ☒ N/A
4. Design Verification Required: ☑ Yes  ☐ No
5. USQ Number: TF-16-1325-D, Rev. 0  ☐ N/A
6. PrHA Number  ☐ N/A
7. Approvals

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<td>08/18/2016</td>
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<td>GAUCK, GREGORY J</td>
<td>GAUCK, GREGORY J</td>
<td>07/14/2016</td>
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<td>Checker</td>
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<td>WILSON, ERIC R</td>
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8. Description of Change and Justification
OSD-T-151-00013 is revised from Rev. 6 to Rev. 7 to more accurately explain a recovery action step that is found in Sections 2.1, 2.2, 2.3, 3.1, and 3.2. The recovery action in Section 2.4 was revised to include immediate compensatory actions for a missed Dome Elevation Survey. Along with these changes, the OSD was reformatted to be consistent with TFC-ENG-CHEM-P-14 and clarification issues in Sections 2.1 and 3.1 were resolved.

9. TBDs or Holds  ☒ N/A

10. Related Structures, Systems, and Components

a. Related Building/Facilities  ☐ N/A  b. Related Systems  ☒ N/A  c. Related Equipment ID Nos. (EIN)  ☐ N/A

200E
200W

11. Impacted Documents – Engineering  ☒ N/A

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<td>01</td>
<td>SINGLE-SHELL TANK WASTE RETRIEVAL ALLOWABLE VACUUM ASSESSMENT</td>
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<td>RPP-15253</td>
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<td>28</td>
<td>Environmental Specification Requirements</td>
</tr>
<tr>
<td>RPP-RT-43116</td>
<td>00</td>
<td>EXPERT PANEL REPORT FOR HANFORD SITE SINGLE-SHELL TANK INTEGRITY PROJECT</td>
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12. Impacted Documents (Outside SPF):  ☐ N/A

13. Related Documents  ☐ N/A

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<th>Title</th>
</tr>
</thead>
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<td>TFP ENGINEERING</td>
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OPERATING SPECIFICATIONS FOR
SINGLE SHELL WASTE STORAGE TANKS

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U.S. Department of Energy Contract DE-AC27-08RV14800

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Key Words: Operating Specification, OSD, Single Shell Tank, SST, Structural Limitations, Water Additions, Pressure, Vacuum, Temperature, Corrosion Mitigation, Dome Load

Abstract: This document provides the operating specifications for the single-shell waste storage tanks.

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Approved For Public Release
OPERATING SPECIFICATIONS
FOR SINGLE-SHELL
WASTE STORAGE TANKS

E. R. Wilson
Washington River Protection Solutions

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Office of River Protection

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1.0 INTRODUCTION

The Operating Specifications contained in this document apply to single-shell tanks (SSTs) within the 200 East and 200 West Area tank farms (241-A, AX, B, BX, BY, C, S, SX, T, TX, TY, and U tank farms). The SSTs are underground, reinforced concrete, steel lined tanks used for storage of radioactive liquid chemical waste. For a list of all SSTs and related facilities, see RPP-13033, *Tank Farms Documented Safety Analysis*. The SSTs no longer accept new process waste. Existing waste is stored in these tanks until final disposal. Ongoing operations for SSTs include intrusion prevention, maintenance, retrieval, and surveillance monitoring equipment installations. Water additions are permitted as necessary for equipment addition/removal and tank pumping preparations, testing, and during pumping.

The purpose and scope of the Operating Specification Documents (OSDs) as well as detailed requirements and the authority for preparing, reviewing, releasing, and revising operating specifications are covered in TFC-ENG-CHEM-P-14, *Operating Specification Documents*.

Specification limits are given at the start of each section. The Detection/Control section may include information explaining how to comply with the specification limits. Statements in this section are not mandatory requirements; any method may be used for compliance with the specification limit, which will provide capability similar to that stated in the Detection/Control section.

Violations of specifications limits shall be reported according to the dispositions described under the Recovery Action sections for each specification. If additional reporting is required, it shall be made in accordance with the applicable procedure.

The Technical Basis section provides a summary of the reasoning behind the specification limits. Statements in this section are descriptive only and do not contain any requirements. This section is located in Appendix A.

Copies of technical basis letters and other references are found in RPP-11051, *Technical Basis for Single-Shell Tank Operating Specifications*. The technical basis for ventilation requirements can be found in RPP-11413, *Technical Basis for Ventilation System Requirements*.

The SST environmental limits can be found in RPP-16922, “*Environmental Specifications Requirements*”. Passive HEPA filter requirements are found in RPP-11413, “*Technical Basis for Ventilation System Requirements*”. SST dome surveying requirements are included in procedure TFC-ENG-FACSUP-C-10 “Control of Dome Loading”.
2.0 STRUCTURAL LIMITATIONS

2.1 Waste Temperatures

Table 2.1 SST Temperature Limits

<table>
<thead>
<tr>
<th>Tank Structure</th>
<th>Limit</th>
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<tr>
<td>Concrete</td>
<td>Maximum 280 °F for waste</td>
</tr>
<tr>
<td></td>
<td>Maximum 250 °F for dome</td>
</tr>
<tr>
<td></td>
<td>Maximum change 20 °F per day (1)</td>
</tr>
</tbody>
</table>

1. Only applicable during waste disturbing activities. This can be modified on a case-by-case basis by a process memo, which includes an approved engineering evaluation.

**Technical Basis: see Appendix A**

**Detection/Control:**

- Replaceable thermocouple trees are installed through risers to measure waste temperatures in tanks.

- Readings are taken by Production Operations on frequencies specified by operating procedures. All readings are evaluated by Production Operations Engineering and reviewed at least annually.

- Thermocouple readings are obtained if operable thermocouples exist. If the operability of a thermocouple is in question, engineering shall submit a request to have it repaired. If the thermocouple cannot be repaired, it shall be noted in SACs.

**Recovery Action:**

If the waste temperature limits are violated:

- Engineering shall investigate and determine the reason for the increase in temperature.

- The tank shall be restored to acceptable temperature as soon as practical.
  - Actions may include adjustment of airflows on tanks with active ventilation or installation of active ventilation.
  - Water may not be added for cooling purposes unless an analysis shows that no dry cooling method will suffice.

- The Central Shift Manager shall notify the managers of Production Operations Engineering and the Environmental On-Call Representative.
Additional notifications shall be made in accordance with TFC-OPS-OPER-C-57.

- Production Operations Engineering manager shall issue a PER within one working day of the violation.
  - The appropriate recovery shall be determined by the PER assignee and the recovery actions documented in the PER resolution.
  - The PER shall include an OSD Recovery Action Plan developed in accordance with TFC-ENG-CHEM-P-14.
- The Environmental On-Call representative shall evaluate for reporting per TFC-ESHQ-ENV_FS-C-01.
- If additional reporting is required, as determined by Tank Farm Operations Shift Manager, it shall be made in accordance with TFC-OPS-OPER-C-24.
2.2 Vapor Space Pressure

Table 2.2 Allowable Vacuum Determination

<table>
<thead>
<tr>
<th>Operating Mode</th>
<th>Maximum Allowable Tank Vacuum (in. w.g)</th>
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<tr>
<td>Normal Operations (Pre-Retrieval)</td>
<td>Maximum allowable vacuum in inches water gauge (w.g.) is equal to Operating Limit (A) from Table 2.3 below plus the waste height measured in inches, or Operating Limit (B) from Table 2.3, whichever is lower.</td>
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<tr>
<td>Retrieval/Closure</td>
<td>Maximum allowable vacuum in inches water gauge (w.g.) is equal to Operating Limit (A) from Table 2.3 plus the waste height measured in inches and closure material height measured in inches, or Operating Limit (B) from Table 2.3 multiplied by 1.2, whichever is lower, but not to exceed 6.0 inches w.g.</td>
</tr>
</tbody>
</table>

Notes:
1. Waste height is defined as the adjusted height resulting from the waste being distributed evenly over the dish or flat bottom of the tank.
2. Operating Limit (B) shall be selected based on the applicable time period of operation and the activities occurring in the tank at the time.
3. All operating limits calculated by the above formulae shall be rounded to one decimal place.

Example:
A retrieval project occurring in calendar year 2005 for the C-100 series tanks would select an Operating Limit (B) equal to 3.8 in. w.g. x 1.2 = 4.6 in. w.g.

Table 2.3 Allowable Vacuum Limits for Normal Operations

<table>
<thead>
<tr>
<th>Tank Farm</th>
<th>Allowable Vacuum to Prevent Uplift of Tank Liner Bottom for Empty Tank (in. w.g.)</th>
<th>Allowable Vacuum to Prevent Sidewall Buckling (in. w.g.)</th>
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<tbody>
<tr>
<td></td>
<td>Operating Limit (A)</td>
<td>Through Calendar Year</td>
</tr>
<tr>
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<td></td>
<td>2006</td>
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<tr>
<td>100-Series SSTs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B, C, T, U</td>
<td>1.5</td>
<td>3.8</td>
</tr>
<tr>
<td>BX, TX, BY, S, TY</td>
<td>2.5</td>
<td>4.3</td>
</tr>
<tr>
<td>SX, A, AX</td>
<td>2.4</td>
<td>6.0</td>
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<tr>
<td>B, C, T, U</td>
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<td>4.7</td>
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</table>

Technical Basis: see Appendix A
Detection/Control:

Experience has shown that inactive SSTs are extremely unlikely to reach the vacuum limits shown above. All SSTs are equipped with either an active ventilation system that pulls a vacuum on each tank or a breather filter/seal loop system that allows passive ventilation.

The fans on older active ventilation systems, such as SX-farm, had a lower design capacity than fans currently in use and were capable of only pulling a vacuum in the range of 6-7 inches water gauge. Fans on portable exhausters currently used to provide active ventilation during retrieval operations have a higher design capacity of approximately 11-12 inches water gauge. These new exhausters have interlocks that will shut the fan down prior to exceeding the allowable vacuum for the tank. Set points for portable exhausters are documented in:

- RPP-15253, Portable Exhauster Set Point Justification & Set Points (POR03, POR04, POR05, POR06, & POR-008).
- RPP-47868, Set Point Justification for Portable ExhausterPOR107 Ventilation System.
- RPP-47866, Set Point Justification for Portable ExhausterPOR126 Ventilation System.
- RPP-47867, Set Point Justification for Portable ExhausterPOR127 Ventilation System.

SST tanks are ventilated through a passive breather filter so that the tank's inner pressure will remain equal to atmospheric pressure during passive ventilation conditions. Additional information can be found in RPP-11413, “Technical Basis for Ventilation System Requirements”.

Recovery Action:

If this specification limit is violated:

- The vapor space pressure shall be restored within one shift to within the requirement.

- The Central Shift Manager shall contact the managers of Production Operations Engineering, Engineering Standards, and the Environmental On-Call Representative.
  
  o Additional notifications shall be made in accordance with TFC-OPS-OPER-C-57.

- Immediate recovery actions may include adjustment of the air-in leakage to actively ventilated tanks under the direction of the Central Shift Manager.

- Production Operations Engineering manager shall issue a PER within one working day of the violation.
  
  o The appropriate recovery shall be determined by the PER assignee and the recovery actions documented in the PER resolution.

  o The PER shall include an OSD Recovery Action Plan developed in accordance with TFC-ENG-CHEM-P-14.
• The Environmental On-Call Representative shall evaluate for reporting per TFC-ESHQ_FS-C-01.

• If additional reporting is required, as determined by Tank Farm Operations Shift Manager, it shall be made in accordance with TFC-OPS-OPER-C-24.

### 2.3 Dome Loading

<table>
<thead>
<tr>
<th>Applicable System</th>
<th>Requirements</th>
</tr>
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<tbody>
<tr>
<td>SSTs (100 and 200-series)</td>
<td>Establish tank safe operating limits for concentrated loads as described in an Analysis of Record. Determine in-place load conditions on the specific tank. Track and control load additions to ensure that the total applied load does not exceed the documented load limits. Restrict load additions to the tank until assessment of in-place loading. (This restriction does not apply to personnel or equipment carried by personnel.) Changes to load limits shall be determined by structural evaluations in accordance with national codes and standards and DOE orders, and approved by qualified personnel in accordance with Tank Operations Contractor engineering procedures.</td>
</tr>
</tbody>
</table>

**Technical Basis:** see Appendix A

**Detection/Control:**

Analysis of Record documents for SSTs (100 and 200-series) shall be developed and maintained in accordance with TFC-ENG-FACSUP-C-10, *Control of Dome Loading*. The Analysis of Record documents establish tank safe operating load limits, including limits for concentrated loads and vehicular access controls.

The change process for Analysis of Record load limits shall meet the requirement in the table above stating that: “Changes to load limits shall be determined by structural evaluations in accordance with national codes and standards and DOE orders, and approved by qualified personnel in accordance with Tank Operations Contractor engineering procedures.”

A Dome Load Record shall be developed and maintained for each SST (100 and 200-series) in accordance with TFC-ENG-FACSUP-C-10.

Until the load summary provided in the Dome Load Record Summary Sheet is completed for a specific SST, an interim load limit obtained from the Analysis of Record shall apply for that SST.
The addition and removal of temporary concentrated loads applied over tank domes and within Exclusion Zones shall be tracked and controlled in accordance with TFC-OPS-OPER-C-10, *Vehicle and Dome Load Control in Tank Farm Facilities*.

Vehicle access to tank farms and movement within tank farms shall be controlled in accordance with TFC-OPS-OPER-C-10.

Before a temporary concentrated load is added to a tank dome or Exclusion Zone (including vehicle loads; excluding personnel and equipment carried by personnel), the resulting sum of the temporary concentrated loads shall be evaluated against the Allowable Load Margin for that facility in accordance with TFC-OPS-OPER-C-10. TFC-ENG-FACSUP-C-10 includes provisions for waiving and revising the Allowable Load Margin.

Changes to permanent load conditions shall be included in the Dome Load Record and evaluated to ensure the Analysis of Record limits are not exceeded, in accordance with TFC-ENG-FACSUP-C-10.

**Recovery Action:**

**If the Allowable Load Margin is exceeded:**

- Notify the Engineering Discipline Lead – Civil/Structural to determine if any restrictions or immediate actions are warranted.

- The Central Shift Manager shall notify Production Operations Engineering (SST Cognizant System Engineer or SST Design Authority) and the Environmental On-Call Representative.
  - Additional notifications shall be made in accordance with TFC-OPS-OPER-C-57.

- Production Operations Engineering shall issue a PER within four working days of the violation.
  - The appropriate recovery shall be determined by the PER assignee and the recovery actions documented in the PER resolution.
  - The PER resolution shall include an OSD Recovery Action Plan developed in accordance with TFC-ENG-CHEM-P-14.

- The Environmental On-Call Representative shall evaluate for reporting per TFC-ESHQ-ENV_FS-C-01.

- If additional reporting is required, as determined by Tank Farm Operations Shift Manager, it shall be made in accordance with TFC-OPS-OPER-C-24.
2.4 Dome Surveys

Dome surveys for SSTs are conducted at the frequency listed in Table 2.5. The results from the dome surveys are recorded in the Tank Farm Historic Dome Load Record Data reports.

<table>
<thead>
<tr>
<th>Applicable System</th>
<th>Requirements</th>
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<tr>
<td>SSTs (100 and 200-series)</td>
<td>Tank dome surveys shall be performed on a 2 years ±4 month frequency in SST Farms with active retrieval or installed interim surface barriers. All other SST Farms are to occur on a 3 years ±4 month frequency.</td>
</tr>
</tbody>
</table>

**Technical Basis: see Appendix A**

**Detection/Control:**

Dome elevation surveys shall be scheduled in the computerized maintenance management system per TFC-ENG-FACSUP-C-10. Survey results shall be reviewed and any necessary response taken in accordance with TFC-ENG-FACSUP-C-10.

**Recovery Action:**

If a Dome Elevation Survey is missed:

- The Cognizant System Engineer or Design Authority shall complete an OSD Recovery Action Plan Form (A-6005-240) in accordance with TFC-ENG-CHEM-P-14 and submit the Recovery Action Plan to the WRPS Chief Engineer (with notification to the ORP Assistant Manager Tank Farms when it is approved).
3.0 OTHER REQUIREMENTS

3.1 Water and Chloride Additions

<table>
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<th>Variable</th>
<th>Specification Limit</th>
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<tr>
<td>Retrieved SST’s</td>
<td>Up to 50 gallons of raw water may be used to periodically flush the ENRAF plummet prior to closure with approval of West BO System Engineering. Additions greater than 50 gallons per activity require approval from Environmental Compliance.</td>
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<tr>
<td>SST’s undergoing retrieval</td>
<td>Raw water additions shall be made in accordance with the applicable Tank Waste Retrieval Work Plan (TWRWP) or Functions and Requirements (F&amp;R) document.</td>
</tr>
<tr>
<td>All other SST’s</td>
<td>Up to 100 gallons of raw water per activity requires System Engineer approval. Additions greater than 100 gallons require approval from Manager of Production Operations Engineering (or designee).</td>
</tr>
</tbody>
</table>

Note: Raw water must be used where practical

Technical Basis: see Appendix A

Detection/Control:

Water meters shall be used to monitor and record water additions. The source of the water must be documented in accordance with TO-040-540.

Recovery Action:

If this specification limit is violated:

- The Central Shift Manager shall immediately stop the water addition at the source.
- The Central Shift Manager shall notify Production Operations Engineering manager and the Environmental On-Call Representative.
  - Additional notifications shall be made in accordance with TFC-OPS-OPER-C-57.
- Production Operations Engineering manager shall issue a PER within one working day of the violation.
  - The appropriate recovery shall be determined by the PER assignee and the recovery actions documented in the PER resolution.
  - The PER shall include an OSD Recovery Action Plan developed in accordance with TFC-ENG-CHEM-P-14.
3.2 Absorbent Additions

The addition of water-insoluble absorbents to SSTs is prohibited.
For example: Do not add diatomaceous earth or cementitious materials to SSTs

**Technical Basis: see Appendix A**

**Detection/Control:**

The SSTs are not being operated. Additions of all materials during retrieval of SSTs are documented in a TWRWP.

**Recovery Action:**

The addition of water insoluble absorbents will require notification to the Chief Engineer. A technical evaluation will be required to provide details to the impact on retrieval and feed to WTP.

- The Central Shift Manager shall notify Production Operations Engineering manager and the Environmental On-Call Representative.
  
  o Additional notifications shall be made in accordance with TFC-OPS-OPER-C-57.

- Production Operations Engineering manager shall issue a PER within one working day of the violation.
  
  o The appropriate recovery shall be determined by the PER assignee and the recovery actions documented in the PER resolution.
  
  o The PER shall include an OSD Recovery Action Plan developed in accordance with TFC-ENG-CHEM-P-14.

- The Environmental On-Call Representative shall evaluate for reporting per TFC-ESHQ-ENV_FS-C-01.

- If additional reporting is required, as determined by Tank Farm Operations Shift Manager, it shall be made in accordance with TFC-OPS-OPER-C-24.
4.0 REFERENCES


TFC-ENG-FACSUP-C-10, Rev. C-23, “Control of Dome Loading and SSC Load Control,”
Washington River Protection Solutions LLC, Richland, Washington.

Protection Solutions LLC, Richland, Washington.

TFC-ESHQ-Q_C-C-01, Rev. L, “Problem Evaluation Request,” Washington River Protection
Solutions LLC, Richland, Washington.

TFC-OPS-OPER-C-10, Rev. B-25, “Vehicle and Dome Load Control in Tank Farm Facilities,”
Washington River Protection Solutions LLC, Richland, Washington.


TFC-OPS-OPER-C-57, Rev A-6, “Event Notification,” Washington River Protection Solutions
LLC, Richland, Washington.

LLC, Richland, Washington.
APPENDIX A - OSD TECHNICAL BASIS

Section 2.1 Waste Temperatures

See SD-RE-TI-012, Single-Shell Waste Tank Load Sensitivity Study, page 18, and RPP-11051, Technical Basis for Single-Shell Tank Operating Specifications. Temperatures and temperature changes in excess of these limits may lead to severe structural stress. The 20 °F per day maximum temperature change applies to bulk waste temperature conditions in the tank. This limit of 20 °F/day was originally set to protect concrete and prolong the life of the SSTs by limiting heating/cooling rate in particular during filling operations going from ambient temperature to full operational temperature of up to 350 °F. It may be over-restrictive for operations such as retrieval and closure and can be modified based on an estimation of the potential effects of planned operations on the tank structure.

Section 2.2 Vapor Space Pressure

See RPP-11051, Technical Basis for Single-Shell Tank Operating Specifications. Tank vapor space pressures are limited to prevent structural damage due to excess tension or compression in the tank structure. Structural calculations have been performed for all SSTs to determine design limits for allowable vacuum that prevent damage to the tank liner from either uplift of the tank liner bottom or buckling of the tank liner sidewalls assuming an empty tank. These calculations are documented in RPP-11788, Single-Shell Tank Waste Retrieval Allowable Vacuum Assessment, and the design limits are included in HNF-3912, System Specification for the Single-Shell Tank System. The design limits are based on estimated corrosion through calendar year 2028 and presented on a biennial basis in RPP-11788 and HNF-3912. Corrosion gradually reduces the tank liner wall thickness with time and reduces the allowable vacuum. Since the difference in allowable vacuum for individual tank farms is small for a given time period, the operating limits have been grouped to the extent practical to simplify presentation and use. The specified operating limits are set at 90% of the lowest calculated design limit for the group of farms.

The allowable vacuum to prevent uplift of the liner bottom is largely unaffected (< 3% difference) by the reduction in liner bottom plate thickness over the period of analysis, since it is primarily governed by overcoming the weight of the plate. Therefore, only a single Operating Limit (A) is provided in Table 2.3, based on 90% of the lowest calculated design limit for the group of tanks and on estimated corrosion through calendar year 2028. The maximum allowable vacuum to protect against sidewall buckling is more sensitive to the reduction in wall thickness due to corrosion over time. Operating limits are, therefore, provided on a 4-calendar yearly basis through the end of retrieval (2018), and are also provided for 2024 and 2028 to accommodate closure activities. Operating Limit (B) provided in Table 2.3 is based on 90% of the lowest calculated design limit for the group of tanks for the year in question.

The limit to prevent bottom uplift may be increased as the level of waste in the tank increases. The methodology in Table 2.2 conservatively assumes that the waste or closure material in the tank has a specific gravity of 1.0 in calculating the increased allowable vacuum due to additional
waste height. This simplifies method of calculation by eliminating the need to multiply waste height by specific gravity as in previous revisions and eliminates uncertainty associated with estimation of waste or closure material specific gravity. The maximum allowable vacuum cannot exceed the limit to prevent sidewall buckling or 6.0 inches water gauge, whichever is lower.

The limits presented in Table 2.3 are for normal operations and cover the time period prior to the start of retrieval activities. As discussed in RPP-11788, for waste retrieval operations and tank closure, a lower factor of safety may be used in the analysis in determining the allowable design vacuum limit consistent with the ASME Boiler and Pressure Vessel Code Section III. The formula presented in Table 2.2 enables the tank vacuum limit to be determined for retrieval/closure activities, by increasing the vacuum limit to prevent sidewall buckling by a factor of 1.2, which is the ratio of the factors of safety used in the structural analysis and is equal to $2/1.67 = 1.2$. The allowable vacuum limit for retrieval/closure activities shall not exceed 6.0 inches water gauge.

No limits are set for over-pressurization of the tanks because there are no credible accident scenarios identified in the safety basis that would lead to a tank over pressurization.

**Section 2.3 Dome Loading**

One of the parameters requiring a control in the field to assure the SSTs (100 and 200-series) are operated within the associated design limits is the load at the surface (i.e., dome loading). The programmatic requirements established in Table 2.4 are designed to prevent excessive concentrated loads from being placed on SSTs.

**Section 2.4 Dome Surveys**

Dome elevation surveys are required by RPP-26516, *SST Dome Survey Program* and are procedurally required by TFC-ENG-FACSUP-C-10, *Control of Dome Loading*. The monitoring of the tank dome by survey is required to physically verify the structural integrity of the tanks as deflection is a key indicator of structural integrity.

**Section 3.1 Water and Chloride Additions**

The Tank Waste Retrieval Work Plan (TWRWP) and Retrieval Functions and Requirements (F&R) documents contain allowable water addition requirements for tanks under retrieval. Water additions to SST’s should be controlled to minimize the amount of free liquid in the SST that could be released to the environment if a tank leak occurred. The limits are established based on the applicable TWRWP or F&R (TPA is the primary document) for the tank being retrieved. Raw water must be used over potable where practical.

This specification will reduce the inadvertent introduction of the chloride ion to the SSTs. The Single-Shell Tank Integrity Project Expert Panel identifies the introduction of the chloride ion as a contributory factor to future tank liner degradation (RPP-RPT-43116, Section 4.2.8).


**Section 3.2 Absorbent Additions**

Water insoluble absorbents added to the SSTs have been shown to be ineffective for immobilizing water. The addition of water insoluble absorbents will also interfere with the future retrieval of wastes, and may adversely impact WTP operations. The Single-Shell Tank Integrity Project Expert Panel identifies the need for this control in Section 5.4.3.1 of RPP-RPT-43116.