Summary of Substantive Changes
between the 2013 and the 2012 editions of
NSF/ANSI 50, "Equipment for Swimming Pools, Spas, Hot Tubs and other Recreational Water Facilities"

Presented to the IAPMO Standards Review Committee on October 6, 2014

General: General: The changes to this standard might have an impact on currently listed products. The substantive changes are:

- Added new requirements for vacuum service valves, included a requirement for the manufacturer to provide installation and operating instructions, and revised the existing performance, design, and marking requirements for valves (see Section 8).
- Added a minimum design pressure requirement of 50 psi (344 kPa) for pressure service valves or manufactured manifolds (see Section 8.3).
- Added additional requirements for ozone generation process equipment (see Section 13)
- Expanded the scope to include spas and hot tubs and for water return fittings, deck drain fittings, overflow fittings and perimeter grating for water-park, spray-pad pool or spa (see new Sections 20 and 21).
- Added additional steps in the test method and revised the acceptance criteria for flow-through chemical feeders (see Annex G.3.4).
- Revised the testing requirements for water quality testing devices (WQTD) and added new substances to the testing (see Annex O).

Section 7, Non-integral strainers: Clarified that non-integral strainers not intended to be used as stand-alone units are covered by section 6.3 as follows:
This section contains requirements for non-integral strainers for pumps used to circulate swimming pool or spa/hot tub water in commercial and residential applications. The requirements for integral strainers and non-integral strainers provided with a complete pump assembly and not intended for use as a standalone unit are specified in 6.3.

Section 8, ~~*Multiport*~~ *Valves*: Revised the text and section title to include all valves, versus only multiport valves.
Section 8.3, Design Pressure: Added the minimum design pressure requirement of 50 psi (344 kPa) for pressure service valves or manufactured manifolds as follows:
The working pressure of a pressure service valve or manufactured manifold or operational system associated with single or multiple tank filter system shall be 50 psi (344 kPa) or greater. The design burst pressure of a pressure service valve or operational system associated with single or multiple tank filter system ~~Multiport valves~~ shall be designed to have a burst pressure of at least four times the working pressure (i.e., minimum safety factor= 4:1).

Section 8.4, ~~Hydrostatic~~ *Pressure service*: Added two additional conditions for testing as follows:
The valve or manufactured manifold and its integral components shall not rupture, leak, burst, or sustain permanent deformation when subject to the following conditions in accordance with the following: (Annex D).
a) a hydrostatic pressure equal to 1.5 times the working pressure for 300 s;
b) 20,000 consecutive pressure cycles per B.1.4 d); and
c) a hydrostatic pressure equal to two times the working pressure per B.1.4 e).

Section 8.5, Valve leakage: Changed the amount of water allowed to leak from the valve as follows:
~~Multiport~~ Filter system valves and manufactured manifolds, when operating at the ~~working~~ test pressure and maximum design flow rate, shall ~~show no signs of leakage~~ not leak in excess of 3 ml from the waste port ~~When operated in the backwash position, leakage~~ and 30 ml from the return-to-pool port in the 5 min test ~~shall not exceed 0.0005 times the maximum design flow rate (see Annex D, section O.2)~~.

Section 8.6, Head loss curve: Reduced the allowable difference between the actual head loss across the valve and the manufacturers head loss curve from 10 to 5%.

Section 8.7, Waste port seal *– filter system valve*: Increased the allowable leakage from the filter system valve or manufactured manifold from no leakage to 3 mL when subjected to the 10psi (70 kPa) static pressure.

Section *8.8, Vacuum service*: Added new requirements for the design collapse pressure of a vacuum service valve.

Section *8.9, Installation and operating instructions*: Added new requirement for the manufacturer to provide installation and operating instructions with each valve or manifold.

Section 8.10, Identification: Added a new requirement to mark the valve with the vacuum pressure, if applicable and removed the requirements to mark the valve with the maximum head loss and maximum design flow rate.

Section 13, Ozone generation process equipment: Added additional requirements for ozone generation process equipment, including design, testing, and data plate marking and added two tables to provide examples of ozone-resistant compatible materials for operation.

Section 20, *Spas and hot tubs*: Expanded the scope to include spas and hot tubs.

Section 21, *Fittings for water-park, spray-pad, pool, or spa*: Expanded the scope to include requirements for water return fittings, deck drain fittings, overflow fittings and perimeter grating for water-park, spray-pad pool or spa.

Annex G, Test methods for the evaluation of flow-through chemical feeding equipment:
Annex G.3.4, Uniformity of output test method for feeder settings resulting in more than 5.0 lbs/d (2.27 kg/d) output: added additional steps in the test method for basic erosion-type flow-through chemical feeders, and revised the acceptance criteria.

Annex O, Water Quality Testing Devices:
Annex O.1.1.3, Synthetic Pool Water Characteristics: Added new requirements for the laboratory test equipment and test sample preparation as follows:
O.1.1.7 Laboratory Test Equipment
O.1.1.8 Test Sample Preparation

Annex O.2, Stock Solution Preparation: Included preparation of bromine stock solution and general test water solution.

Annex O.4, Test Procedure - Free Chlorine: Increased the number of times to run the test from one to three times.

Annex O.5, Test Procedure-Combined Chlorine: Changed the test procedure from testing only one concentration to testing multiple concentrations of chlorine, added additional methods for verifying the concentration, and increased the number of times to run the test from one to three.

Added procedures for additional substances as follows:
O.6 Test procedure for Free and Total Bromine
O.7 Test procedure for Hardness
O.8 Test procedure for Alkalinity
O.9 Test procedure for Cyanuric Acid
O.10 Test procedure for Total Dissolved Solids
O.11 Test procedure for Salinity

Annex O.12 Accuracy Testing: Revised the accuracy level tables for pH, chlorine, and bromine and added new accuracy level tables for hardness, alkalinity, cyanuric acid, total dissolved solids and salinity as follows:
O.12.4 Accuracy levels for Hardness
O.12.5 Accuracy levels for Alkalinity
O.12.6 Accuracy levels for Cyanuric Acid
O.12.7 Accuracy levels for TDS
O.12.8 Accuracy levels for Salinity

Added the following test solution tables:
Table O.1 pH Testing Chart
Table O.2 Free Chlorine
Table O.3 Combined Chlorine
Table O.4 Free and Total Bromine
Table O.5 Hardness Testing (CH or TH)
Table O.6 Total Alkalinity
Table O.7 Cyanuric Acid
Table O.8 TDS Testing
Table O.9 Salinity Testing

Added the following informative annexes:
Annex P, Variable-Speed pumps recommendation for installation and operation
Annex Q, Recommended Water Quality Maintenance for Spas