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John C. Stennis Space Center INDEX OF THE STANDARDS FOR FACILITY PIPING SYSTEMS

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Document History Log

Change/ Revision	Change Date	Originator/ Phone	Description
Basic	12/01/2014	D. Dike 8-2803	Initial release. Supersedes SSC-47-000. New document number and format per SPR 1400.1. Updated 5.0, "Index of the Standards for Facility Piping Systems", adding designator codes. In 5.0, "Max. Operating Pressure" changed to "Max. Design Pressure", and "Tube Material" changed to "Pipe, Tube, Fitting Material."
A	8/3/2016	Benny McGrath 8-2969	Revised cover sheet to require approval from NASA SSC Center Operations Design & Construction Project Management Division, with concurrence from NASA SSC Engineering and Test Directorate, NASA SSC Center Operations Directorate Operations and Maintenance Division, and NASA SSC Safety and Mission Assurance. Updated references and acronyms. 1.0: Expanded to identify each of the specifications provided within the Index of the Standards for Facility Piping Systems: designators, fluid service media, maximum design pressure, and operating temperature range. Also added: "The pressure boundary material type of pipe and fittings for each piping system is also provided." 5.0: Updated Index of the Standards for Facility Piping Systems, adding general requirement notes; expanding the index to include a column for Service Media Designator; and incorporating provisions for use of gaseous methane and liquid methane to specified piping systems.

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1.0 PURPOSE

This John C. Stennis Space Center (SSC) standard (SSTD) provides an index of SSC facility piping systems with their designators, fluid service media, maximum design pressures, and operating temperature ranges. The pressure boundary material type of pipe and fittings for each piping system is also provided.

2.0 APPLICABILITY

This SSTD applies to all National Aeronautics and Space Administration (NASA) contractor and subcontractor personnel at SSC.

3.0 REFERENCES

All references are assumed to be the latest version unless otherwise indicated.

IPC, *International Plumbing Code*

SSC-47-050, *PVC Potable Water Piping Underground*

SSTD-8070-0044-PIPE, *Standard for Carbon Steel Piping Systems A, CC, D, J, J1, K1, K2, L, M, M1, N, Q, S, SS, V and W*

SSTD-8070-0047-PIPE, *Standard for Stainless Steel Piping Systems AA, ACK1, ACK4, ACK6, B, BCK1, BCK3, BCK4, BCK10, C, EE, G, H, JJ, K3, L1, L2, NCK1, NCK2, NCK3, NCK10, NCK11, NCK12, P, R, T and Z*

SSTD-8070-0059-PIPE, *Low Pressure Aluminum Pipe Systems with Piping Designator "E"*

SSTD-8070-0063-PIPE, *Pipe System 3-1/2% Nickel for High Pressure Gas Service "Y"*

SSTD-8070-0067-PIPE, *High Pressure Industrial Water Piping "AG"*

SSTD-8070-0069-PIPE, *Low Pressure Vacuum Jacketed Pipe*

SSTD-8070-0074-PIPE, *Refrigerant Tubing System*

SSTD-8070-0075-PIPE, *Plumbing and Ordinary Service Copper Tubing*

SPR 1440.1, *SSC Records Management Program Requirements*

SSTD-8070-0005-CONFIG, *SSC Preparation, Review, Approval, and Release of SSC Standards*

4.0 RESPONSIBILITIES

- a. Users of this SSTD shall comply with its requirements, ensure use of the correct version of this standard and the documents it references, and inform the appropriate organization of needed changes in accordance with SSTD-8070-0005-CONFIG.

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- b. Responsibilities for the use and control of this SSTD and for the review and approval of revisions or cancellation of this standard shall be as specified in SSTD-8070-0005-CONFIG and the applicable documents referenced therein.

5.0 GENERAL

- a. For each of the entry blocks within the Index of the Standards for Facility Piping Systems with more than one maximum design pressure, consult the corresponding SSTD for information about which design pressure applies and associated requirements and conditions for each design pressure.
- b. When pressures are supercritical, there is no longer a distinct boundary between liquid and gas phases. For purposes of this standard and the listed SSC standards in the table, when the pressure is supercritical and the temperature is nominally below critical temperature, the service media is considered a liquid. When the pressure is supercritical and the temperature is nominally above critical temperature, the service media is considered a gas. For reference, the critical pressures and temperatures of fluids where maximum design pressure and temperature range of piping enables supercritical pressures and temperatures are as follows:

Service Media	Critical Pressure (psig)	Critical Temp. (°F)
Air	534.42	-221.11
(para-)Hydrogen	171.80	-400.38
Methane	652.37	-116.65
Nitrogen	477.83	-232.52
Oxygen	716.74	-181.42

- c. For liquid service media, the listed temperature ranges of piping may (and often will) have minimum temperatures that are below the fusion line (freezing point). For these cases, the minimum allowed service temperature is the freezing point corresponding to the operating pressure of the fluid media.
- d. For liquid service media, the listed temperature ranges of piping may have maximum temperatures that are above the vaporization line (boiling point). For these cases, the maximum allowed service temperature is the boiling point corresponding to the operating pressure of the fluid media.
- e. For gaseous service media, the listed temperature ranges of piping may have minimum temperatures that are below the vaporization (or condensation) line (boiling point). For these cases, the minimum allowed service temperature is the boiling point corresponding to the operating pressure of the fluid media.