# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 22MCN004 – McNary Dam modified spill tables

**Date Submitted**: 27-Jan-22 / Updated 15-Feb-22 / REVISED 19-Apr-22

**Project**: McNary Dam

**Requester Name, Agency**: Chris Peery, Corps NWW

**Final Action:** **APPROVED 10-Mar-22 / RESUBMITTED 19-Apr-22 /**

**REVISIONS APPROVED 28-Apr-22**

**FPP Section**: Spill Pattern Tables MCN-7 (with TSWs) and MCN-9 (No TSWs).

**Justification for Change**: Excessive wear and tear from operating beyond the designed capabilities has increased risk of failure for critical flood emergency response equipment, cranes 6 and 7. Even after extensive repairs, limiting the number of times the electrical relays for spillway cranes are operated is critical to ensure the cranes will be fully functional when needed for emergency flood situations along with spillway maintenance. The hoist for spillbay 6 is out of operation until the gearbox can be repaired.

UPDATE 19-April-2022: TSWs are surface spill spillways and pose a higher safety risk without having a means to remotely close them in an emergency. As Crane 6 does not have any remote-control capabilities, it can no longer be relied upon to operate the TSW in spillbay 19 remotely if an emergency closure is needed. To solve this safety issue, the hoist from Spillway Bay 16 will be moved to bay 19 to allow remote controlling of the TSW and we will then move crane 6 to manually operate Spillway Bay 16 in the same manner as spillway gates 2 & 6. The hoist for spillbay 16 is the logical choice at this time due to an initial concurrence by Ryan Laughery, that spillbay 16 would cause minimal negative impact to the spill patterns if set at a static opening as Spillway Gates 2 & 6 are.

**Proposed Change**: Set the spill gates in bays 2, 6, and 16, at the locations of spillway cranes 6 and 7, to a static opening of gate step 4 or 6. The cranes cannot be operated remotely. If changes are required, a crane operator will be called in to adjust the gates on a limited basis. Spillbays 6 and 16 will be set to an initial opening of step 6 during spring spill and step 4 during summer spill unless otherwise specified.

See modified spill pattern tables on the pages below.

**Comments**:

10-FEB-2022 FPOM:

Peery noted that the patterns should also have Bay 6 at a set opening. Wright will update the change form with the correct patterns (UPDATED 15-FEB)

FPOM asked if juvenile egress will be affected during low flow/spill with bay 6 set at 6 stops? Peery responded via email on 15-FEB: “*Project biologist and Ryan Laughery did not believe this will have a significant effect on egress conditions.  Any potential effects will also be dependent on flow.  The current spill table calls for bay 6 to be open starting at spill of 100 kcfs.  In an average flow year, spill on 10 April would be closer to 150-170 kcfs with the 125% spill cap.  Biologists will be tracking tailrace conditions during the spill season and changes will be considered if determine egress conditions appear poor.*”

FPOM reps need more time to discuss and refine. PENDING – will be discussed at March FPOM.

10-MAR-2022 FPOM:

Peery added that he and other NWW staff will be at the project on April 10 to observe tailrace hydraulics with this spill pattern. If problems are observed, the patterns will be re-evaluated and modified as necessary via another Change Form. APPROVED.

14-APR-2022 FPOM:

Peery provided an update that he and Laughery went to the project to observe the patterns. The tailrace looked good - there were no back eddies and flows seem to be moving downstream similar to the old pattern. A new issue has come up regarding the operation of Bay 19 with the TSW, which is currently on a crane and requires a crane crew to open/close. If there is an emergency (e.g., a boat in the BRZ), the project has no way to close the surface spill within a reasonable timeframe. It’s a significant safety issue. The project needs to move a hoist from another bay to the TSW in bay 19 so that it can be operated remotely in case of an emergency. NWW proposed moving the hoist from Bay 16 to Bay 19, which would allow the TSW in Bay 19 to be operated remotely and would set Bay 16 to a fixed number of openings like bays 2 and 6.

**Record of Final Action**:

March 10, 2022 - APPROVED at FPOM.

April 19, 2022 - RESUBMITTED. Revised patterns with Bay 16 locked at four or six stops. Pending review at the May FPOM meeting.

April 28, 2022 - Distributed to FPOM via email and discussed at FFDRWG. APPROVED.

**Table MCN-7. McNary Dam Spill Patterns for Fish Passage with TSWs in Bays 19-20 and Bays 2, 6, and 16 Locked at 4 or 6 Stops.**

| **Table MCN-7 Spill Patterns with TSWs (# Gate Stops per Spillbay) - Bay 2, 6, and 16 locked at 4 or 6 stops** | | | | | | | | | | | | | | | | | | | | | | **Total Stops** | **Spill** a |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** b | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19 c** | **20 c** | **21** | **22** b | **(#)** | **(kcfs)** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TSW | TSW | 1 | 0 | **1** | **21.2** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | TSW | TSW | 1 | 0 | **2** | **23.2** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | TSW | TSW | 1 | 1 | **3** | **25.2** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | TSW | TSW | 2 | 1 | **4** | **27.1** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | TSW | TSW | 2 | 1 | **5** | **29.0** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | TSW | TSW | 2 | 1 | **6** | **31.0** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | TSW | TSW | 2 | 1 | **7** | **32.9** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | TSW | TSW | 2 | 1 | **8** | **34.9** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **9** | **36.8** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **10** | **38.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **11** | **40.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **12** | **42.6** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **13** | **44.6** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | TSW | TSW | 2 | 2 | **14** | **46.5** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **15** | **47.9** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **16** | **49.8** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **17** | **51.8** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **18** | **53.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **19** | **55.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **20** | **57.6** |
| 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **21** | **59.6** |
| 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **22** | **61.5** |
| 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **23** | **63.5** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **24** | **65.4** |
| 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **25** | **67.4** |
| 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **26** | **68.7** |
| 0 | 4 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **27** | **70.7** |
| 0 | 4 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **28** | **72.6** |
| 0 | 4 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **29** | **74.6** |
| 0 | 4 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **30** | **76.5** |
| 1 | 4 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **31** | **78.5** |
| 2 | 4 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **32** | **80.4** |
| 2 | 4 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **33** | **82.4** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **34** | **84.3** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **35** | **86.3** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **36** | **88.2** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 1 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **37** | **90.2** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **38** | **92.1** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **39** | **94.1** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **40** | **96.0** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **41** | **98.0** |
| 2 | 4 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **42** | **99.9** |
| 2 | 4 | 2 | 2 | 3 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **43** | **101.6** |
| 2 | 4 | 2 | 2 | 0 | 6 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **44** | **102.5** |
| 2 | 4 | 2 | 2 | 0 | 6 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **45** | **104.5** |
| 2 | 4 | 2 | 2 | 0 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **46** | **106.4** |
| 2 | 4 | 2 | 2 | 1 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **47** | **108.4** |
| 2 | 4 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 2 | **48** | **110.3** |
| 2 | 4 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | TSW | TSW | 3 | 2 | **49** | **112.0** |
| 2 | 4 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **50** | **113.7** |
| 2 | 4 | 3 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **51** | **115.4** |
| 2 | 4 | 3 | 2 | 3 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **52** | **117.1** |
| 2 | 4 | 3 | 2 | 3 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **53** | **118.8** |
| 2 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **54** | **120.5** |
| 2 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **55** | **122.2** |
| 2 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **56** | **123.9** |
| 2 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 2 | **57** | **125.6** |
| 2 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 3 | **58** | **127.3** |
| 3 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 4 | 2 | 3 | TSW | TSW | 3 | 3 | **59** | **129.0** |
| 3 | 4 | 3 | 2 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **60** | **130.7** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **61** | **132.4** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **62** | **134.1** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **63** | **135.8** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **64** | **137.5** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | TSW | TSW | 3 | 3 | **65** | **139.2** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | TSW | TSW | 4 | 3 | **66** | **140.8** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **67** | **142.4** |
| 3 | 4 | 4 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **68** | **144.0** |
| 3 | 4 | 4 | 3 | 4 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **69** | **145.6** |
| 3 | 4 | 4 | 3 | 4 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **70** | **147.2** |
| 3 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **71** | **148.8** |
| 3 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **72** | **150.4** |
| 3 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **73** | **152.0** |
| 3 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **74** | **153.6** |
| 3 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 4 | **75** | **155.2** |
| 4 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 4 | **76** | **156.8** |
| 4 | 4 | 4 | 3 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **77** | **158.4** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **78** | **160.0** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **79** | **161.6** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **80** | **163.2** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **81** | **164.8** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | TSW | TSW | 4 | 4 | **82** | **166.4** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | TSW | TSW | 5 | 4 | **83** | **168.0** |
| 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **84** | **169.6** |
| 4 | 4 | 5 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **85** | **171.2** |
| 4 | 4 | 5 | 4 | 5 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **86** | **172.8** |
| 4 | 4 | 5 | 4 | 5 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **87** | **174.4** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **88** | **176.0** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **89** | **177.6** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **90** | **179.2** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 4 | **91** | **180.8** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | **92** | **182.4** |
| 5 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | **93** | **184.0** |
| 5 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **94** | **185.6** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **95** | **187.2** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **96** | **188.8** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **97** | **190.4** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **98** | **192.0** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | TSW | TSW | 5 | 5 | **99** | **193.6** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | TSW | TSW | 6 | 5 | **100** | **195.2** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | TSW | TSW | 6 | 5 | **101** | **196.8** |
| 5 | 4 | 6 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | TSW | TSW | 6 | 5 | **102** | **198.4** |
| 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **103** | **200.0** |
| 5 | 4 | 6 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **104** | **201.6** |
| 5 | 4 | 6 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **105** | **203.2** |
| 5 | 4 | 6 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **106** | **204.8** |
| 5 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **107** | **206.4** |
| 5 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **108** | **208.0** |
| 5 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 5 | 5 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **109** | **209.6** |
| 5 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 5 | **110** | **211.2** |
| 5 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 6 | **111** | **212.8** |
| 6 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | TSW | TSW | 6 | 6 | **112** | **214.4** |
| 6 | 4 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **113** | **216.0** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **114** | **217.6** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **115** | **219.2** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **116** | **220.8** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **117** | **222.4** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **118** | **224.0** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 7 | 6 | **119** | **225.6** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | TSW | TSW | 7 | 6 | **120** | **227.2** |
| 6 | 4 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | TSW | TSW | 7 | 6 | **121** | **228.8** |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | TSW | TSW | 7 | 6 | **122** | **230.4** |
| 6 | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | TSW | TSW | 7 | 6 | **123** | **232.0** |
| 6 | 6 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **125** | **235.2** |
| 6 | 6 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **126** | **236.8** |
| 6 | 6 | 7 | 7 | 7 | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **128** | **240.0** |
| 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **130** | **243.2** |
| 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **132** | **246.4** |
| 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **134** | **249.6** |
| 7 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | TSW | TSW | 7 | 6 | **136** | **252.8** |
| 7 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | TSW | TSW | 7 | 7 | **138** | **256.1** |
| 7 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | TSW | TSW | 8 | 7 | **140** | **259.5** |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **142** | **262.9** |
| 7 | 6 | 8 | 8 | 8 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **143** | **264.6** |
| 7 | 6 | 8 | 8 | 8 | 6 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **145** | **268.0** |
| 7 | 6 | 8 | 8 | 8 | 6 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **147** | **271.4** |
| 7 | 6 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 7 | 7 | 7 | 8 | 8 | 8 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **149** | **274.8** |
| 7 | 6 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 7 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **151** | **278.2** |
| 8 | 6 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **153** | **281.6** |
| 8 | 6 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 9 | TSW | TSW | 8 | 8 | **155** | **284.9** |
| 8 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 9 | TSW | TSW | 9 | 8 | **157** | **288.1** |
| 8 | 6 | 9 | 9 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **159** | **291.3** |
| 8 | 6 | 9 | 9 | 9 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **160** | **292.9** |
| 8 | 6 | 9 | 9 | 9 | 6 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **162** | **296.1** |
| 8 | 6 | 9 | 9 | 9 | 6 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **164** | **299.3** |
| 8 | 6 | 9 | 9 | 9 | 6 | 9 | 9 | 9 | 8 | 8 | 8 | 9 | 9 | 9 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **166** | **302.5** |
| 8 | 6 | 9 | 9 | 9 | 6 | 9 | 9 | 9 | 9 | 8 | 9 | 9 | 9 | 9 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **168** | **305.7** |
| 9 | 6 | 9 | 9 | 9 | 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | 9 | 9 | TSW | TSW | 9 | 8 | **170** | **308.9** |
| 9 | 6 | 9 | 9 | 9 | 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | 9 | 10 | TSW | TSW | 9 | 9 | **172** | **312.1** |
| 9 | 6 | 10 | 9 | 9 | 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | 9 | 10 | TSW | TSW | 10 | 9 | **174** | **315.3** |
| 9 | 6 | 10 | 10 | 9 | 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **176** | **318.5** |
| 9 | 6 | 10 | 10 | 10 | 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **177** | **320.1** |
| 9 | 6 | 10 | 10 | 10 | 6 | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **179** | **323.3** |
| 9 | 6 | 10 | 10 | 10 | 6 | 10 | 10 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **181** | **326.5** |
| 9 | 6 | 10 | 10 | 10 | 6 | 10 | 10 | 10 | 9 | 9 | 9 | 10 | 10 | 10 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **183** | **329.7** |
| 9 | 6 | 10 | 10 | 10 | 6 | 10 | 10 | 10 | 10 | 9 | 10 | 10 | 10 | 10 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **185** | **332.9** |
| 10 | 6 | 10 | 10 | 10 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 6 | 10 | 10 | TSW | TSW | 10 | 9 | **187** | **336.1** |
| 10 | 6 | 10 | 10 | 10 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 6 | 10 | 11 | TSW | TSW | 10 | 10 | **189** | **339.2** |
| 10 | 6 | 11 | 10 | 10 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 6 | 10 | 11 | TSW | TSW | 11 | 10 | **191** | **342.2** |
| 10 | 6 | 11 | 11 | 10 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **193** | **345.2** |
| 10 | 6 | 11 | 11 | 11 | 6 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **194** | **346.7** |
| 10 | 6 | 11 | 11 | 11 | 6 | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **196** | **349.7** |
| 10 | 6 | 11 | 11 | 11 | 6 | 11 | 11 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **198** | **352.7** |
| 10 | 6 | 11 | 11 | 11 | 6 | 11 | 11 | 11 | 10 | 10 | 10 | 11 | 11 | 11 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **200** | **355.7** |
| 10 | 6 | 11 | 11 | 11 | 6 | 11 | 11 | 11 | 11 | 10 | 11 | 11 | 11 | 11 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **202** | **358.7** |
| 11 | 6 | 11 | 11 | 11 | 6 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 6 | 11 | 11 | TSW | TSW | 11 | 10 | **204** | **361.7** |
| 11 | 6 | 11 | 11 | 11 | 6 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 6 | 11 | 12 | TSW | TSW | 11 | 11 | **206** | **364.8** |
| 11 | 6 | 12 | 11 | 11 | 6 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 6 | 11 | 12 | TSW | TSW | 12 | 11 | **208** | **368.0** |
| 11 | 6 | 12 | 12 | 11 | 6 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **210** | **371.2** |
| 11 | 6 | 12 | 12 | 12 | 6 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **211** | **372.8** |
| 11 | 6 | 12 | 12 | 12 | 6 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **213** | **376.0** |
| 11 | 6 | 12 | 12 | 12 | 6 | 12 | 12 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **215** | **379.2** |
| 11 | 6 | 12 | 12 | 12 | 6 | 12 | 12 | 12 | 11 | 11 | 11 | 12 | 12 | 12 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **217** | **382.4** |
| 11 | 6 | 12 | 12 | 12 | 6 | 12 | 12 | 12 | 12 | 11 | 12 | 12 | 12 | 12 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **219** | **385.6** |
| 12 | 6 | 12 | 12 | 12 | 6 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 12 | 12 | TSW | TSW | 12 | 11 | **221** | **388.8** |
| 12 | 6 | 12 | 12 | 12 | 6 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 12 | 13 | TSW | TSW | 12 | 12 | **223** | **392.0** |
| 12 | 6 | 13 | 12 | 12 | 6 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 12 | 13 | TSW | TSW | 13 | 12 | **225** | **395.2** |
| 12 | 6 | 13 | 13 | 12 | 6 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **227** | **398.4** |
| 12 | 6 | 13 | 13 | 13 | 6 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **228** | **400.0** |
| 12 | 6 | 13 | 13 | 13 | 6 | 13 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **230** | **403.2** |
| 12 | 6 | 13 | 13 | 13 | 6 | 13 | 13 | 12 | 12 | 12 | 12 | 12 | 13 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **232** | **406.4** |
| 12 | 6 | 13 | 13 | 13 | 6 | 13 | 13 | 13 | 12 | 12 | 12 | 13 | 13 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **234** | **409.6** |
| 12 | 6 | 13 | 13 | 13 | 6 | 13 | 13 | 13 | 13 | 12 | 13 | 13 | 13 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **236** | **412.8** |
| 12 | 6 | 13 | 13 | 13 | 6 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 12 | **237** | **414.4** |
| 13 | 6 | 13 | 13 | 13 | 6 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 6 | 13 | 13 | TSW | TSW | 13 | 13 | **239** | **417.6** |

**Table MCN-9. McNary Dam Spill Patterns with No TSWs and Bays 2, 6, and 16 Locked at 4 or 6 Stops.**

| **Table MCN-9 Spill Patterns with No TSWs (# Gate Stops per Spillbay) - Bays 2, 6 & 16 locked at 4 or 6 stops.** | | | | | | | | | | | | | | | | | | | | | | **Total Stops** | **Spill a** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** b | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** b | **(#)** | **(kcfs)** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | **3** | **5.6** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | **4** | **7.2** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | **5** | **9.5** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | **6** | **11.1** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 0 | **7** | **13.4** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **8** | **15.0** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **9** | **17.0** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **10** | **18.9** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **11** | **20.9** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **12** | **22.8** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **13** | **24.8** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **14** | **26.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **15** | **28.7** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **16** | **30.6** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **17** | **32.6** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **18** | **34.5** |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **19** | **36.5** |
| 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **20** | **38.4** |
| 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **21** | **40.4** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 0 | 0 | **22** | **42.3** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 1 | 0 | **23** | **44.3** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 2 | 2 | 0 | **24** | **46.2** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 3 | 2 | 0 | **25** | **47.9** |
| 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **26** | **49.5** |
| 1 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **27** | **51.5** |
| 2 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **28** | **53.4** |
| 3 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **29** | **55.1** |
| 0 | 4 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **30** | **56.7** |
| 0 | 4 | 3 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **31** | **58.4** |
| 0 | 4 | 4 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **32** | **60.0** |
| 0 | 4 | 4 | 0 | 2 | 0 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **33** | **62.0** |
| 0 | 4 | 4 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **34** | **63.9** |
| 0 | 4 | 4 | 0 | 2 | 0 | 3 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **35** | **65.6** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 | 2 | 0 | **36** | **67.2** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 1 | 2 | 4 | 4 | 2 | 0 | **37** | **69.2** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 4 | 4 | 2 | 0 | **38** | **71.1** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 3 | 2 | 4 | 4 | 2 | 0 | **39** | **72.8** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 0 | 2 | 4 | 4 | 2 | 0 | **40** | **74.4** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 1 | 2 | 4 | 4 | 2 | 0 | **41** | **76.4** |
| 0 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **42** | **78.3** |
| 1 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **43** | **80.3** |
| 2 | 4 | 4 | 0 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **44** | **82.2** |
| 2 | 4 | 4 | 1 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **45** | **84.2** |
| 2 | 4 | 4 | 2 | 2 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **46** | **86.1** |
| 2 | 4 | 4 | 2 | 2 | 4 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **47** | **88.1** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **48** | **90.0** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **49** | **92.0** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 0 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **50** | **93.9** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 1 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **51** | **95.9** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **52** | **97.8** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **53** | **99.8** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 0 | **54** | **101.7** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 1 | **55** | **103.7** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 4 | 4 | 2 | 2 | **56** | **105.6** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 5 | 4 | 2 | 2 | **57** | **107.2** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 5 | 5 | 2 | 2 | **58** | **108.8** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | 5 | 5 | 2 | 2 | **59** | **110.5** |
| 2 | 4 | 4 | 2 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | 5 | 5 | 3 | 2 | **60** | **112.2** |
| 2 | 4 | 4 | 3 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 3 | 5 | 5 | 3 | 2 | **61** | **113.9** |
| 2 | 4 | 4 | 3 | 2 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **62** | **115.6** |
| 2 | 4 | 4 | 3 | 3 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **63** | **117.3** |
| 2 | 4 | 4 | 3 | 3 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **64** | **119.0** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **65** | **120.7** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **66** | **122.4** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **67** | **124.1** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **68** | **125.8** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **69** | **127.5** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **70** | **129.2** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **71** | **130.9** |
| 2 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **72** | **132.6** |
| 3 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 2 | **73** | **134.3** |
| 3 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 3 | **74** | **136.0** |
| 3 | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 5 | 5 | 3 | 3 | **75** | **137.6** |
| 3 | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 6 | 5 | 3 | 3 | **76** | **139.2** |
| 3 | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 6 | 6 | 3 | 3 | **77** | **140.8** |
| 3 | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 6 | 6 | 3 | 3 | **78** | **142.4** |
| 3 | 4 | 5 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 6 | 6 | 4 | 3 | **79** | **144.0** |
| 3 | 4 | 5 | 4 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 6 | 6 | 4 | 3 | **80** | **145.6** |
| 3 | 4 | 5 | 4 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **81** | **147.2** |
| 3 | 4 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **82** | **148.8** |
| 3 | 4 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **83** | **150.4** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **84** | **152.0** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **85** | **153.6** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **86** | **155.2** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **87** | **156.8** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **88** | **158.4** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **89** | **160.0** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **90** | **161.6** |
| 3 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **91** | **163.2** |
| 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 3 | **92** | **164.8** |
| 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 4 | **93** | **166.4** |
| 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 6 | 4 | 4 | **94** | **168.0** |
| 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 7 | 6 | 4 | 4 | **95** | **169.6** |
| 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 7 | 7 | 4 | 4 | **96** | **171.2** |
| 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 7 | 7 | 4 | 4 | **97** | **172.8** |
| 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 7 | 7 | 5 | 4 | **98** | **174.4** |
| 4 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 7 | 7 | 5 | 4 | **99** | **176.0** |
| 4 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **100** | **177.6** |
| 4 | 4 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **101** | **179.2** |
| 4 | 4 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **102** | **180.8** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **103** | **182.4** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **104** | **184.0** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **105** | **185.6** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **106** | **187.2** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 4 | 4 | 4 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **107** | **188.8** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 4 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **108** | **190.4** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **109** | **192.0** |
| 4 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **110** | **193.6** |
| 5 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 4 | **111** | **195.2** |
| 5 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 5 | **112** | **196.8** |
| 5 | 4 | 7 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 7 | 7 | 5 | 5 | **113** | **198.4** |
| 5 | 4 | 7 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 8 | 7 | 5 | 5 | **114** | **200.1** |
| 5 | 4 | 7 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 8 | 8 | 5 | 5 | **115** | **201.8** |
| 5 | 4 | 7 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | 8 | 8 | 5 | 5 | **116** | **203.4** |
| 5 | 4 | 7 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | 8 | 8 | 6 | 5 | **117** | **205.0** |
| 5 | 4 | 7 | 6 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | 8 | 8 | 6 | 5 | **118** | **206.6** |
| 5 | 4 | 7 | 6 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **119** | **208.2** |
| 5 | 4 | 7 | 6 | 6 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **120** | **209.8** |
| 5 | 4 | 7 | 6 | 6 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **121** | **211.4** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **122** | **213.0** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **123** | **214.6** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **124** | **216.2** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **125** | **217.8** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **126** | **219.4** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **127** | **221.0** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **128** | **222.6** |
| 5 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **129** | **224.2** |
| 6 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 5 | **130** | **225.8** |
| 6 | 4 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **131** | **227.4** |
| 6 | 4 | 8 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **132** | **229.1** |
| 5 | 6 | 8 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **133** | **230.7** |
| 6 | 6 | 8 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **134** | **232.3** |
| 5 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **135** | **233.9** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 8 | 8 | 6 | 6 | **136** | **235.5** |
| 5 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 8 | 8 | 6 | 6 | **137** | **237.1** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 8 | 8 | 6 | 6 | **138** | **238.7** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 8 | 6 | 6 | **139** | **240.3** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 6 | 6 | **140** | **241.9** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 9 | 9 | 6 | 6 | **141** | **243.5** |
| 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 9 | 9 | 7 | 6 | **142** | **245.1** |
| 6 | 6 | 8 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 9 | 9 | 7 | 6 | **143** | **246.7** |
| 6 | 6 | 8 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **144** | **248.3** |
| 6 | 6 | 8 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **145** | **249.9** |
| 6 | 6 | 8 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **146** | **251.5** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **147** | **253.1** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **148** | **254.7** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **149** | **256.3** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **150** | **257.9** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **151** | **259.5** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **152** | **261.1** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **153** | **262.7** |
| 6 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **154** | **264.3** |
| 7 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 6 | **155** | **265.9** |
| 7 | 6 | 8 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 7 | **156** | **267.5** |
| 7 | 6 | 9 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 9 | 9 | 7 | 7 | **157** | **269.1** |
| 7 | 6 | 9 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 10 | 9 | 7 | 7 | **158** | **270.7** |
| 7 | 6 | 9 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 10 | 10 | 7 | 7 | **159** | **272.3** |
| 7 | 6 | 9 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | 10 | 10 | 7 | 7 | **160** | **274.0** |
| 7 | 6 | 9 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | 10 | 10 | 8 | 7 | **161** | **275.7** |
| 7 | 6 | 9 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | 10 | 10 | 8 | 7 | **162** | **277.4** |
| 7 | 6 | 9 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **163** | **279.1** |
| 7 | 6 | 9 | 8 | 8 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **164** | **280.8** |
| 7 | 6 | 9 | 8 | 8 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **165** | **282.5** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **166** | **284.2** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **167** | **285.9** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **168** | **287.6** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **169** | **289.3** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 7 | 7 | 7 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **170** | **291.0** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 7 | 7 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **171** | **292.7** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 7 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **172** | **294.4** |
| 7 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **173** | **296.1** |
| 8 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 7 | **174** | **297.8** |
| 8 | 6 | 9 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 8 | **175** | **299.5** |
| 8 | 6 | 10 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 10 | 10 | 8 | 8 | **176** | **301.1** |