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| METROPOLITAN UTILITIES DISTRICT | Construction Standard | No: 6.0.5 |
| | 3/4", 1", 1 1/2" or 2" Service Taps on C900 PVC Water Mains | Page: 1 of 4 |
| Prepared by: D.J. Satterfield | | Supersedes: 10-24-08 |
| Approved by: James Bartels | | Effective: 2-12-24 |

The latest revisions can be found at the end of this document

GENERAL

All taps on C900 PVC mains shall use a tapping saddle. Direct taps are not permitted.

Caution: Saddles used for tapping C900 PVC water mains shall not be used for tapping ASTM D2241 PVC water mains (PVC pipe with iron pipe size O.D.). Generally, C900 PVC can be identified by its blue color and ASTM D2241 PVC can be identified by its white color. If there is doubt, the O.D. of the main shall be determined prior to making the tap. See Construction Standard 1.2.5 for the standard O.D. of C900 and ASTM D2241 PVC pipe. Saddles for ASTM D2241 PVC pipe will be ordered from local suppliers as needed. If a saddle is required for tapping ASTM D2241 PVC pipe, contact Engineering.

On 4" mains, 1-1/2" and 2" taps shall not be made.

- * See Construction Standard 6.0.1 for approved corporations or approved TPS tapping sleeves.
Note: Two (2) band saddles are not allowed.

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SERVICE SADDLES FOR C900 PVC

| <u>Tap Size</u> | <u>Saddle Stock Number</u> |
|-----------------|----------------------------|
| 4" x 1" | 21-444-04 |
| 6" x 3/4" | 21-445-06 |
| 6" x 1" | 21-444-06 |
| 6" x 1-1/2" | 21-446-06 |
| 6" x 2" | 21-447-06 |
| 8" x 3/4" | 21-445-08 |
| 8" x 1" | 21-444-08 |
| 8" x 1-1/2" | 21-446-08 |
| 8" x 2" | 21-447-08 |
| 10" x 3/4" | 21-445-10 |
| 10" x 1" | 21-444-10 |
| 10" x 1-1/2" | 21-446-10 |
| 10" x 2" | 21-447-10 |
| 12" x 3/4" | 21-445-12 |
| 12" x 1" | 21-444-12 |
| 12" x 1-1/2" | 21-446-12 |
| 12" x 2" | 21-447-12 |
| 16" x 3/4" | 21-445-16 |
| 16" x 1" | 21-444-16 |
| 16" x 1-1/2" | 21-446-16 |
| 16" x 2" | 21-447-16 |

* Revised Text

** Revised Table

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|--|--|--------------------------------------|
| METROPOLITAN UTILITIES DISTRICT | Construction Standard | No: 6.0.5 |
| | 3/4", 1", 1 1/2" or 2" Service Taps on C900 PVC Water Mains | Page: 2 of 4 |
| Prepared by: D.J. Satterfield | | Supersedes: 10-24-08 |
| Approved by: James Bartels | | Effective: 2-12-24 |

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**

REED FEED TAP PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Shell Cutter Adapter | Corp Adapter |
|----------|-------------------|--------------|----------------------|--------------|
| 3/4" | 11/16" | 99132 | 94198 | 09170 |
| 1" | 7/8" | 99134 | 94198 | 09171 |

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MUELLER PL-2 PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Corp Adapter | Corp Adapter Gasket |
|----------|-------------------|--------------|--------------|---------------------|
| 3/4" | 11/16" | 681919 | 507632 | H-15053 |
| 1" | 7/8" | 681920 | 507633 | H-15053 |

MUELLER D-5 PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Shell Cutter Holder | Boring Bar Adapter | Corp Adapter | Corp Adapter Gasket |
|----------|-------------------|--------------|---------------------|--------------------|--------------|---------------------|
| 3/4" | 11/16" | 681919 | 507634 | 40438 | 37902 | H-15053 |
| 1" | 7/8" | 681920 | 507634 | 40438 | 37903 | H-15053 |
| 1-1/2" | 1-7/16" | 528087 | 508198 | 40438 | 36196* | H-15053 |
| 2" | 1-3/4" | 528088 | 508198 | 40438 | 36188** | H-15053 |

* Use Corp Adapter 37905 if plumber is using a flared connection to the corp.

** Use Corp Adapter 37906 if plumber is using a flared connection to the corp.

SAFETY PRECAUTIONS

- * 1. Have a second worker close by to respond to any emergency situations.
- * 2. Wear protective gloves, hard hat, safety shoes and goggles. A face shield is recommended.
3. Ensure that there is a ladder in the trench to provide for a quick exit.
- * 4. Ensure that there is an impact blanket covering the complete tap area while tapping.
5. Be familiar with procedures to follow in the event of a main failure during the tapping process.
- * 6. If the main has discoloration that could be due to added stress on the main, DO NOT tap it in that area.
- ** 7. Do not tap an area that has scrapes or gouges.

* Revised Text

** Added Table/Text

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|--|--|--------------------------------------|
| METROPOLITAN UTILITIES DISTRICT | Construction Standard | No: 6.0.5 |
| | 3/4", 1", 1 1/2" or 2" Service Taps on C900 PVC Water Mains | Page: 3 of 4 |
| Prepared by: D.J. Satterfield | | Supersedes: 10-24-08 |
| Approved by: James Bartels | | Effective: 2-12-24 |
| The latest revisions can be found at the end of this document | | |

- * 8. Be aware that PVC pipe is less resistant to impact at lower temperatures (becomes brittle) and becomes more flexible at high temperatures. Extra care must be taken during the tapping operations during extreme low and high temperatures. The temperature of the outer pipe wall must be at least 32° F to tap. The temperature should be taken with a digital temperature gun. Contractor is responsible to keep pipe at proper temperature with blanket or insulation, or to excavate tap hole the day of tap.
- ** 9. Ensure that the PVC pipe to be tapped is supported with wood blocking no greater than 2' on either side of a proposed tap location. Additionally, if multiple taps are to be made in a single excavation, wood blocking support should be put in place between each tap, regardless of distance.

TAP LOCATIONS

- 1. Tap no closer than 24" from both the back of the bell and the spigot insertion line.
- * 2. Adjacent taps must be a minimum of 18" apart from each other lengthwise down the pipeline with a minimum 45° stagger from the other tap. Adjacent taps with less than a 45° stagger must be a minimum of 36" apart.

PROCEDURE

- 1. Review Safety Precautions.
- 2. Thoroughly clean the main surface at the tap location.
- 3. Place a saddle that is approved for C900 PVC pipe at a location 45° above horizontal. Evenly tighten the saddle to the pipe. Do not exceed the torque specified by the saddle (**CAUTION:** Damage to the main could result if torque limits of the saddle manufacturer are exceeded.)
- * 4. Install the impact blanket over the saddle and main and secure it. *Note: The intent of the impact blanket is to prevent pieces of pipe from flying around in the event of a main failure during the tapping operation.*
- 5. Apply Teflon® tape to the threads of the corporation and screw the corporation into the saddle and tighten. Open the corporation.

* Revised Text

** Added Text

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| METROPOLITAN UTILITIES DISTRICT | Construction Standard | No: 6.0.5 |
| | ¾”, 1”, 1 ½” or 2” Service Taps on C900 PVC Water Mains | Page: 4 of 4 |
| Supersedes: 10-24-08 | | |
| Effective: 2-12-24 | | |
| Prepared by: D.J. Satterfield | The latest revisions can be found at the end of this document | |
| Approved by: James Bartels | | |

- * 6. Lubricate the shell-cutter that is designated for use on C900 PVC pipe and, using the appropriate adapter and gasket, attach the appropriate drilling machine to the corporation.
- 7. **ALL TAPS ON C900 PVC WILL BE CONDUCTED MANUALLY. POWER HEADS SHALL NOT BE USED.** Lower the boring bar to the main and rotate the cutter while exerting finger-pull on the feed yolk. Rotate the ratchet handle one complete turn for every 1/8 turn of the feed yolk. Once the main is penetrated, withdraw the cutter, close the corporation, and then remove the drilling machine. Remove coupon from the cutter with a screwdriver or similar tool.
- 8. Check for leaks.

* Revised Text

Revision

The latest revision is detailed on the following page(s).

Pages affected: #1, #2, #3 & #4

GENERAL

All taps on C900 PVC mains shall use a tapping saddle. Direct taps are not permitted.

Caution: Saddles used for tapping C900 PVC water mains shall not be used for tapping ASTM D2241 PVC water mains (PVC pipe with iron pipe size O.D.). Generally, C900 PVC can be identified by its blue color and ASTM D2241 PVC can be identified by its white color. If there is doubt, the O.D. of the main shall be determined prior to making the tap. See Construction Standard [1.2.5](#) for the standard O.D. of C900 and ASTM D2241 PVC pipe. Saddles for ASTM D2241 PVC pipe will be ordered from local suppliers as needed. If a saddle is required for tapping ASTM D2241 PVC pipe, contact Engineering.

On 4" mains, 1-1/2" and 2" taps shall not be made.

- * See Construction Standard [6.0.1](#) for approved corporations or **TPS tapping sleeves**.
Note: Two (2) band saddles are not allowed.

**

SERVICE SADDLES FOR C900 PVC

| <u>Tap Size</u> | <u>Saddle Stock Number</u> |
|-----------------|----------------------------|
| 4" x 3/4" | 21-440-04 |
| 4" x 1" | 21-441 444 -04 |
| 6" x 3/4" | 21-440 445 -06 |
| 6" x 1" | 21-441 444 -06 |
| 6" x 1-1/2" | 21-442 446 -06 |
| 6" x 2" | 21-443 447 -06 |
| 8" x 3/4" | 21-440 445 -08 |
| 8" x 1" | 21-441 444 -08 |
| 8" x 1-1/2" | 21-442 446 -08 |
| 8" x 2" | 21-443 447 -08 |
| 10" x 3/4" | 21-440 445 -10 |
| 10" x 1" | 21-441 444 -10 |
| 10" x 1-1/2" | 21-442 446 -10 |
| 10" x 2" | 21-443 447 -10 |
| 12" x 3/4" | 21-445-12 |
| 12" x 1" | 21-444-12 |
| 12" x 1-1/2" | 21-446-12 |
| 12" x 2" | 21-447-12 |
| 16" x 3/4" | 21-445-16 |
| 16" x 1" | 21-444-16 |
| 16" x 1-1/2" | 21-446-16 |
| 16" x 2" | 21-447-16 |

* Revised Text

** Revised Table

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REED FEED TAP PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Shell Cutter Adapter | Corp Adapter |
|----------|-------------------|--------------|----------------------|--------------|
| 3/4" | 11/16" | 99132 | 94198 | 09170 |
| 1" | 7/8" | 99134 | 94198 | 09171 |

**

MUELLER PL-2 PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Corp Adapter | Corp Adapter Gasket |
|----------|-------------------|--------------|--------------|---------------------|
| 3/4" | 11/16" | 681919 | 507632 | H-15053 |
| 1" | 7/8" | 681920 | 507633 | H-15053 |

MUELLER D-5 PART NUMBERS FOR TAPPING C900 PVC

| Tap Size | Shell Cutter Size | Shell Cutter | Shell Cutter Holder | Boring Bar Adapter | Corp Adapter | Corp Adapter Gasket |
|----------|-------------------|--------------|---------------------|--------------------|--------------|---------------------|
| 3/4" | 11/16" | 681919 | 507634 | 40438 | 37902 | H-15053 |
| 1" | 7/8" | 681920 | 507634 | 40438 | 37903 | H-15053 |
| 1-1/2" | 1-7/16" | 528087 | 508198 | 40438 | 36196* | H-15053 |
| 2" | 1-3/4" | 528088 | 508198 | 40438 | 36188** | H-15053 |

* Use Corp Adapter 37905 if plumber is using a flared connection to the corp.

** Use Corp Adapter 37906 if plumber is using a flared connection to the corp.

SAFETY PRECAUTIONS

- * 1. Have a second worker close by to respond to ~~an~~ any emergency situations.
- * 2. Wear protective gloves, **hard hat, safety shoes** and goggles. A face shield is recommended.
- 3. Ensure that there is a ladder in the trench to provide for a quick exit.
- * 4. **Ensure that there is an impact blanket covering the complete tap area while tapping.**
- 5. Be familiar with procedures to follow in the event of a main failure during the tapping process.
- * 6. ~~Do not tap an area of main that is discolored. The discoloring may be an indication of stress in the main.~~ **If the main has discoloration that could be due to added stress on the main, DO NOT tap it in that area.**
- ** 7. **Do not tap an area that has scrapes or gouges.**

* Revised Text

** Added Table/Text

- * 8. Be aware that PVC pipe is less resistant to impact at lower temperatures (becomes brittle) and becomes more flexible at high temperatures. Extra care must be taken during the tapping operations during extreme low and high temperatures. **The temperature of the outer pipe wall must be at least 32° F to tap. The temperature should be taken with a digital temperature gun. Contractor is responsible to keep pipe at proper temperature with blanket or insulation, or to excavate tap hole the day of tap.**
- ** 9. **Ensure that the PVC pipe to be tapped is supported with wood blocking no greater than 2' on either side of a proposed tap location. Additionally, if multiple taps are to be made in a single excavation, wood blocking support should be put in place between each tap, regardless of distance.**

TAP LOCATIONS

- 1. Tap no closer than 24" from both the back of the bell and the spigot insertion line.
- * 2. Adjacent taps must be a minimum of 18" apart from each other lengthwise down the pipeline with a minimum 45° stagger. Adjacent taps with less than a 45° stagger must be a minimum of 36" apart.

PROCEDURE

- 1. Review Safety Precautions.
- 2. Thoroughly clean the main surface at the tap location.
- 3. Place a saddle that is approved for C900 PVC pipe at a location 45° above horizontal. Evenly tighten the saddle to the pipe. Do not exceed the torque specified by the saddle (**CAUTION:** Damage to the main could result if torque limits of the saddle manufacturer are exceeded.)
- * 4. ~~Wrap a piece of polyethylene wrap two times around the pipe and saddle. The polyethylene wrap shall be of a length to cover the main from trench wall to trench wall. Tape the ends of the polyethylene wrap and cut an "X" in the wrap over the saddle to allow for a corporation to be threaded into the saddle. The intent of the wrap is to prevent pieces of pipe from flying around in the event of a main failure during the tapping operation.~~ **Install the impact blanket over the saddle and main, and secure it. Note: The intent of the impact blanket is to prevent pieces of pipe from flying around in the event of a main failure during the tapping operation.**
- 5. Apply Teflon® tape to the threads of the corporation and screw the corporation into the saddle and tighten. Open the corporation.

* ~~Revised Text~~

* Revised Text

** Added Text

- * 6. Lubricate the shell-cutter that is designated for use on C900 PVC pipe and, using the appropriate adapter and gasket, attach the appropriate ~~Mueller D-5~~ drilling machine or equivalent to the corporation.
- 7. **ALL TAPS ON C900 PVC WILL BE CONDUCTED MANUALLY. POWER HEADS SHALL NOT BE USED.** Lower the boring bar to the main and rotate the cutter while exerting finger-pull on the feed yolk. Rotate the ratchet handle one complete turn for every 1/8 turn of the feed yolk. Once the main is penetrated, withdraw the cutter, close the corporation, and then remove the drilling machine. Remove coupon from the cutter with a screwdriver or similar tool.
- 8. Check for leaks.

* Revised Text