

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ；from leaks carried over from before 201 jions from Survey leaks discovered in 2017 and Total of all 2017 emissions from leaks |  |  | $\substack{42 \\ \hline \frac{135}{157} \\ 1,523}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Distribution Main \＆Service Pipeline Leaks： |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | （ceogrophic | $\underset{\text { casine }}{\text { casifation }}$ |  | $\underset{\substack{\text { Pipesiee } \\ \text {（nominal）}}}{ }$ |  |  | $\underset{\substack{\text { leak } \\ \text { Grade }}}{\text { col }}$ |  |  | $\begin{aligned} & \text { Leak Discovery } \\ & \text { Method } \end{aligned}$ | （istover Oate | （eatade ore |  |  | $\begin{gathered} \text { Reason } \\ \text { for } \\ \text { Not Scheduling a } \\ \text { Repair } \end{gathered}$ | $\begin{gathered} \text { Number } \\ \text { of } \\ \text { Days Leaking } \end{gathered}$ | $\begin{aligned} & \text { Number of } \\ & \text { Days to } \\ & \text { Repair } \end{aligned}$ | Emission Factor （Mscf／Day） <br> （Mscf／Day） |  | Explonator Notes／Commens |
| 11616028 | 9214 | мв | Pc | ${ }^{2 \prime}$ | 439 | Lessthan of Equatio 60 | Code 2 | N／A | ${ }^{\text {B }}$ | M | $7 / 25 / 2016$ | N／A | 1／30／20017 |  |  | ${ }^{30}$ | 190 | ${ }_{0}^{0.0612}$ | ${ }_{1.8360}$ |  |
| 11617564 <br> 162053 | 92075 | ${ }_{\text {MB }}^{\text {M }}$ | ${ }_{\substack{\text { pc } \\ p \\ p}}$ | ${ }_{\text {1／2／2＂}}^{1 / 2}$ | ${ }_{7}^{517}$ | Lesssthan of Euatio 60 | Code 2 | N／A | ${ }^{8}$ | 5 | ${ }_{\substack{\text { 8／1／f／2016 }}}^{982016}$ | N／A | ${ }_{\substack{1 / 30102017 \\ 4 / 122017}}$ |  |  | ${ }_{30}^{30}$ | $\underset{\substack{168 \\ 198}}{ }$ | ${ }_{0}^{0.0612}$ |  |  |
| ${ }_{1}^{1202835}$ | ${ }_{\substack{92224 \\ 9211}}^{\text {g20 }}$ | ${ }_{\text {¢ }}^{\text {D8 }}$ | ${ }_{\text {pc }}^{\text {Pb }}$ | ${ }_{3 / 4}$ | 900 |  | Code ${ }^{\text {code }}$ | N／A | ${ }_{8}^{8}$ | ${ }^{5}$ |  | N／A | －4／1／320017 |  |  | ${ }_{10}^{103}$ | ${ }_{84}^{198}$ | ， | 2.8788 0.7260 |  |
| ${ }_{1}^{1223730}$ | 92083 | ${ }^{\text {mb }}$ | ${ }_{\substack{\text { pc } \\ p}}^{\text {c }}$ | 11／2＂ | 766 | Less tha or Eauat 0.60 | ${ }_{\text {code }}$ Cod | N／A | ${ }_{8}^{8}$ | 5 | 111／20016 | N／A | 1／4／2017 |  |  | ${ }_{14}^{4}$ | ${ }_{64}^{64}$ | ${ }^{0.00612}$ | － 0.2448 |  |
|  | ¢2083 | ${ }_{\text {OB }}^{\text {O8 }}$ | ${ }_{\substack{p c \\ p ¢}}^{\text {c }}$ | ${ }_{3 / 4}^{3 / 44^{\prime}}$ |  |  | ${ }_{\substack{\text { code } \\ \text { code } 2}}^{\text {cole }}$ | N／A | ${ }_{8}^{8}$ | s |  | N／A | － $1 / 1 / 4202017$ |  |  | ${ }_{25}^{14}$ | ${ }_{73}^{64}$ | ${ }_{\substack{0.0276 \\ 0.0276}}^{0.002}$ | co． 0.3869 |  |
| ${ }_{1}^{12242922}$ | ¢92026 | ${ }_{\text {¢ }}^{\text {¢ }}$ | p | ${ }_{11 / 44^{\prime \prime}}$ |  | Lessthan or Gqualt to 60 | ${ }_{\text {code }}$ Code 2 2 | $N /{ }^{\text {N }}$ | ${ }_{8}^{8}$ | 5 | ${ }_{\text {11／5／2016 }}$ | N／A | 1／1／320017 |  |  | 13 | 60 | 0.0089 | 0.157 |  |
| ${ }^{1622228}$ | 92008 | ${ }^{\text {ob }}$ | ${ }^{\text {p }}$ | $3 / 4{ }^{4}$ | 191 | Less than of Gual 106 | code 2 | N／A | ${ }^{8}$ | 5 | 111／8／2／216 | N／A | 2／8／2017 |  |  | ${ }^{39}$ | ${ }^{83}$ | 0.0276 | ${ }^{1.0764}$ |  |
| （1624265 | ${ }_{\substack{92109 \\ 9218}}$ | ${ }_{\text {¢ }}^{\text {о }}$ | ${ }_{\text {pr }}^{\text {P }}$ | ${ }_{3 / 44^{*}}^{3 / 4}$ | ${ }_{623}^{815}$ |  | ${ }_{\substack{\text { Code } 2 \\ \text { Code } 2}}^{\text {cel }}$ | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{\text {M }}$ |  | N／A | ${ }_{\text {2／8，}}^{2 / 7 / 2017}$ |  |  | ${ }_{39}^{38}$ | ${ }_{71}^{80}$ | ${ }_{\substack{0.0276 \\ 0.0276}}^{0.010}$ | 1.0488 <br> $\substack{10764}$ <br> 104 |  |
| ${ }^{16242977}$ | ${ }_{923} 927$ | ${ }^{\circ} 8$ | ${ }_{\text {pc }}$ | $3 / 4{ }^{\text {3／}}$ | ${ }_{33}$ | Lessthano of qualt to 60 | ${ }_{\text {code }}$ | N／A | 8 | \％ | $121 / 2 / 2016$ | N／A | 3／3／2017 |  |  | 62 | 88 | ${ }_{0}^{0.0276}$ | ${ }_{1.712}$ |  |
| 1625299 162518 |  | ${ }_{\text {MB }}^{\text {M }}$ | ${ }_{\text {P }}^{\text {P }}$ | ${ }_{2}^{4 \prime \prime}$ | ${ }_{515}^{527}$ | Less hano of Gualt 0 60 | ${ }_{\substack{\text { code } \\ \text { Code } 2}}^{\text {cote }}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{M}$ |  | N／A | ${ }_{\text {l }}^{3 / 2 / 2 / 2017}$ |  |  | ${ }_{73}^{68}$ | ${ }_{90}^{90}$ | （0．0612 |  |  |
| ${ }_{1}^{12265978}$ | ${ }_{9} 92027$ | ${ }_{\text {MB }}$ | ${ }_{\text {pc }}$ | $2_{2 \prime \prime}$ | ${ }_{624}^{515}$ | Lessthan or Gqualt 0 of 6 | Code 2 | $N /{ }^{\text {N／}}$ | ${ }_{8}$ | ${ }_{5}$ | ${ }_{\text {12 }}^{122 / 25202016}$ | N／A | 2／15／2017 |  |  | ${ }_{46}$ | ${ }_{49}$ | ${ }_{0.0612}^{0.0612}$ | 2.8152 |  |
| 17700145 | 92104 | ${ }^{\text {ob }}$ | ${ }^{\text {pc }}$ | 3／4／ | 408 | Less than of Equal 106 | code 1 | N／A | ${ }^{8}$ | m | 1／4／2017 | N／A | 1／4／2017 |  |  | 1 | 1 | 0.0276 | 0.0276 |  |
| 1702255 <br> 170026 | ${ }_{\substack{92124 \\ 9209}}$ | ${ }_{\text {DB }}^{\text {DB }}$ | ${ }_{p}$ |  | 540 |  | ${ }_{\substack{\text { code } 1 \\ \text { Code }}}^{\text {1 }}$ | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | 1／1／20017 | N／A | － $1 / 2 / 2 / 2017$ |  |  | 1 | 1 | ${ }_{\text {a }}^{\substack{0.0089}}$ | （0．0089 |  |
| ${ }^{17002285}$ | ${ }^{92221}$ | мв | p | ${ }^{3 \prime \prime}$ | ${ }^{449}$ | Less than or faual to 60 | Code 1 | N／A | ${ }^{8}$ | m | 1／5／5017 | N／A | 1／5／2017 |  |  | 1 | 1 | ${ }^{0.2988}$ | ${ }^{0.2988}$ |  |
| 170275 <br> 170041 | ${ }_{\substack{91129}}^{92129}$ | ${ }_{\text {MB }}^{\text {M }}$ | ${ }_{p}$ | $\underset{\substack{11 / 4 " \\ 24}}{1 / 2}$ | ${ }_{468}^{492}$ | $\xrightarrow{\text { Less }}$ Lesa or faual Lest 60 | ${ }_{\substack{\text { Code } \\ \text { code } \\ 1}}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{\sim}{m}$ |  | N／A | ${ }_{\text {1／8，}}^{1 / 2 / 2017} 1$ |  |  | ${ }_{2}^{1}$ | ${ }_{2}^{1}$ | ${ }_{\substack{0.29888 \\ 0.2988}}^{0.0}$ | ${ }_{\substack{0.2998 \\ 0.976}}^{0.0}$ |  |
| ${ }^{1700034}$ | ${ }^{92083}$ | мв | P | ${ }^{11 / 44^{4}}$ |  | Lessthan or Equat 0 to 60 | Coded 1 | N／A | ${ }^{8}$ | m | 1／882017 | N／A | 1／8／2017 |  |  | 1 | 1 | 0.2988 | 0.2988 |  |
|  | coive | ${ }_{\text {MB }}$ | p | ${ }_{21}^{1 / 2 / 4}$ | ${ }_{408}^{468}$ | Lessthan or fauarit 600 | ${ }_{\text {code }}^{\text {code }}$ Coid | N／A | ${ }_{8}^{8}$ | M |  | N／A | （19， |  |  | 1 | 1 | － | － |  |
| ${ }^{1700513}$ | ${ }^{92117}$ | ${ }^{\circ 8}$ | ${ }^{\mathrm{P}}$ | ${ }^{3 / 4 / 4}$ | ${ }^{768}$ | Less than or Equat ot 60 | Code 1 | N／A | ${ }^{8}$ | m | 1／9／20017 | N／A | 1／9／2017 |  |  | 1 | 1 | 0.0276 | 0.0276 |  |
| ${ }_{\text {l }}^{1700551}$ |  | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }_{\substack{\text { pc } \\ p}}^{\text {cf }}$ | ${ }_{3 / 4{ }^{3 / 4}}$ | ¢ 588 |  | ${ }_{\substack{\text { code } \\ \text { Code } \\ \text { 1 }}}$ | N／A | ${ }_{8}^{8}$ | ${ }_{\text {M }}$ | 1，9／2017 $1 / 102017$ | N／A | lindioli |  |  | ${ }_{1}^{2}$ | ${ }_{1}^{2}$ | ${ }_{\substack{0 \\ 0.0276}}^{0.0276}$ | ${ }_{\substack{0.0552 \\ 0.0276}}^{0.2}$ |  |
| 1700664 | 9213 | ${ }^{\text {ob }}$ | p | $3 / 44^{4}$ |  | Less than of Equat 1060 | code 1 | N／A | ${ }^{8}$ | m | 1／1012017 | N／A | 1／1012017 |  |  | 1 | 1 | 0.0089 | 0.0089 |  |
| ${ }^{170007353}$ | ${ }_{\substack{92113 \\ 92069}}$ | ${ }_{\text {¢ }}^{08}$ | ${ }_{\substack{\text { pec } \\ p}}$ | ${ }_{3 / 4}^{3 / 4}$ | ¢16 | $\pm$ | ${ }_{\text {code }}^{\text {Code } 21}$ Code | N／A | ${ }_{8}^{8}$ | ${ }_{\text {s }}$ | ${ }_{\text {l／11／2017 }}^{1 / 1 / 1 / 2017}$ | N／A | 3／3／2017 |  |  | ${ }_{1}^{61}$ | ${ }_{1}^{51}$ | ${ }_{0}^{0.0089} 0$ | ${ }_{\substack{1.6836 \\ 0.0089}}^{\text {ate }}$ |  |
| 1770075 | 92083 | ${ }^{\text {o8 }}$ | ${ }^{\text {p }}$ | $3 / 4{ }^{\text {a }}$ | 696 | Less than of Equat 1060 | code 1 | N／A | ${ }^{8}$ | m | 1／1／12017 | N／A | 1／1／120017 |  |  | 1 | 1 | 0.0276 | 0.0276 |  |
| ${ }^{17070938}$ | 92911 | ${ }_{\text {¢ }}^{\text {M }}$ | ${ }_{\text {p }}^{\text {p }}$ | ${ }^{3 / 4}{ }^{4}$ | 44 | Less han or Eaual 1 （60 6 | ${ }_{\text {Code }}^{\text {Code }}$ 2 | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | － $1 / 1 / 127201217$ | N／A | － $1 / 1 / 2720171$ |  |  | 15 | ${ }_{15}^{15}$ | ${ }_{\substack{0.02768 \\ 0.2988}}^{\text {a }}$ |  |  |
| ${ }^{1708823}$ | ${ }_{92037}^{92123}$ | ${ }_{\text {MB }}$ | ${ }_{\substack{\text { pc } \\ p}}^{\text {c }}$ | ${ }^{11 / 2 / 2}$ | ${ }_{500}^{600}$ | Less tha or Eauat 0.60 | ${ }_{\text {code }} 1$ | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{*}$ | 1／1320017 | N／A | 1／13／2017 |  |  | 1 | 1 | ${ }_{\text {0，0，012 }}^{0.0076}$ | ${ }_{\text {O．0．012 }}^{0.0276}$ |  |
| ${ }^{1700932}$ | 92057 | м ${ }^{\text {c }}$ | ${ }_{\text {p }}$ | $1{ }^{1 /}$ | ${ }_{624}$ | Lessthan or tqualt 0 o 60 | ${ }_{\text {code }}$ | N／A | ${ }_{8}$ | ${ }_{M}$ | 1／14／2017 | N／A | 1／1／2／2017 |  |  | 1 | 1 | ${ }_{0}^{0.0612}$ | ${ }_{0}^{0.0612}$ |  |
| ${ }^{170092}$ | ${ }^{922029}$ | ${ }^{\text {DB }}$ | ${ }^{p}$ | 1／2／crs | ${ }_{4}^{494}$ | Lessthan of Equat 0.60 | Codet 1 | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{ }$ | 1／1／42017 | N／A | 1／1／420017 |  |  | 1 | 1 | ${ }^{0.0089}$ | ${ }^{0.0089}$ |  |
| ${ }^{1709096}$ | ${ }_{\substack{92104 \\ 9950}}$ | ${ }_{\text {OB }}^{\text {O8 }}$ | ${ }_{\text {Pb }}^{\text {PC }}$ | ${ }_{3 / 4} 3$ | ${ }_{4} 96$ | Leessthao of tauat 1060 | ${ }_{\text {code }}^{\text {code }}$ Code | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | － $1 / 1 / 2420017$ | N／A | ${ }^{1 / 1 / 4202017}$ |  |  | 1 | 1 | ${ }_{\substack{0 \\ 0.02276}}^{0.0276}$ | ${ }_{\substack{0}}^{0.00276} 0$ |  |
| ${ }^{170959} 1$ | ${ }_{\substack{91945 \\ 92057}}$ | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }^{\text {P8 }}$ |  | ${ }_{\text {sid }}^{805}$ |  | ${ }_{\substack{\text { code } 1 \\ \text { code } 1}}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{\sim}{m}$ | 1／1／62017 $1 / 6 / 2017$ | N／A | － $1 / 1 / 6 / 2017$ |  |  | 1 | 1 | ${ }_{\substack{0.0076 \\ 0.0089}}^{0.069}$ | ${ }_{0}^{0.0076}$ |  |
| ${ }^{1700977}$ | ${ }^{92257}$ | ${ }^{\text {mb }}$ | Undrown | ${ }^{3 / 44^{4}}$ | ${ }_{6}^{613}$ | Less than of Guat to 60 | codel 1 | N／A | ${ }^{8}$ | m | $1 / 1772017$ | N／A | $1 / 1772017$ |  |  | 1 | 1 | 0．2988 | 0．2988 | Pipe Material of Unkown，will se west csse emisision factofor respetive Pipe Cassificaton |
|  |  | ${ }_{\text {¢ }}^{\text {D8 }}$ | ${ }_{p c}^{p}$ |  |  |  |  | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | － 1 1／7772017 $1 / 72017$ | N／A | － $1 / 1 / 7720177$ |  |  | ${ }_{1}^{1}$ | ${ }_{1}^{1}$ | ${ }_{\substack{0 \\ 0.0027}}^{0.0089}$ | ${ }_{\substack{0 \\ 0.00276}}^{0.0098}$ |  |
| 1701133 170136 | ¢2019 | ${ }_{\text {MB }}^{\text {M }}$ | ${ }_{p}{ }^{\text {p }}$ | ${ }_{3 / 4}{ }^{3 \prime}$ | ${ }^{517}$ | Less hano ofaul | ${ }_{\substack{\text { Code } \\ \text { code } \\ \text { coid }}}$ | N／A | ${ }_{8}^{8}$ | ${ }_{\text {M }}$ | 1／1772017 1172017 | N／A | － $1 / 1 / 828177$ |  |  | ${ }_{1}$ | ${ }_{1}^{2}$ | （0．2988 | － 0.5096 |  |
| ${ }_{1701142}^{17014}$ | ${ }_{\substack{92205 \\ 920}}$ | ${ }^{\text {MB }}$ | ${ }^{\text {PB }}$ | ${ }^{3 / 4}$ | 829 | Lessthan of Gualt 0 （to 60 | ${ }_{\text {code }}$ | N／A | ${ }^{8}$ | $\stackrel{\sim}{*}$ | 1／1／282017 | N／A | 1／1／820017 |  |  | 1 | 1 | ${ }^{\text {coiol }}$ | ${ }^{0} 0.0089$ |  |
| ${ }_{1}^{170711136}$ | ¢22154 |  | ${ }_{\substack{\mathrm{pc} \\ p \mathrm{c}}}$ | ${ }_{3 / 4}^{3 / 4}$ | 553 | Less han or faual 1060 | ${ }_{\substack{\text { code } \\ \text { Code } 2}}^{\text {2 }}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{M}$ | － $1 / 1 / 282017$ | N／A | ${ }_{\substack{1 / 1 / 882017 \\ 3 / 282017}}$ |  |  | ${ }_{70}^{1}$ | 70 | －0．0．0276 | （0．0276 |  |
|  | 91942 | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }^{p}$ |  | ${ }_{699} 69$ | Lessstha of Guautio 60 | ${ }_{\substack{\text { coide } \\ \text { Codel } \\ \text { code }}}^{\text {coed }}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{M}$ | 边1／1282017 | N／A |  |  |  | 1 |  | ${ }_{0}^{0.0276}$ | ${ }_{0}^{0.0276}$ |  |
| 170129 <br> 170256 | ¢ | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }_{p}$ |  | ${ }_{4} 69$ | Lesss hha of taualit 60 | ${ }_{\text {code }}^{\text {code } 1}$ Code 1 | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{m}$ | － $11 / 188181217$ | N／A | － $11 / 188202717$ |  |  | ${ }_{1}^{1}$ | ${ }_{1}^{1}$ | － |  |  |
| 17012101 170341 | 92021 | ${ }_{\text {MB }}^{\text {M }}$ | ${ }_{\text {pc }}^{\text {pc }}$ | ${ }_{\substack{11 / 22^{\prime \prime} \\ 3}}$ | ${ }_{781}^{805}$ | $\pm$ | ${ }_{\text {code }}^{\text {Code } 2}$ Code 1 | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | 1／1972017 $1 / 192017$ | N／A | 4／4／20017 |  |  | ${ }_{1}^{76}$ | ${ }_{1}^{76}$ | ${ }_{0}^{0.0012} 0$ | ${ }_{0}^{4.50276}$ |  |
| ${ }^{17013139}$ | cose 92084 | MB | p | ${ }_{\text {cosa }}$ | ${ }_{457} 4$ | Leesstha of Gualt 060 |  | N／A | ${ }^{8}$ | $⿳ 亠 丷 厂$ | 1／1／192017 | N／A | 1／1／292017 |  |  | 1 | 1 | －0．2088 | － |  |
| ${ }^{1701355} 10$ | ${ }_{\substack{92254 \\ 92025}}$ | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }_{\text {pc }}^{\text {pc }}$ | ${ }_{3 / 4}^{3 / 4}$ |  |  | ${ }_{\text {Code }}^{\text {Code } 1}$（ | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | － 1 1／181／2017 $1 / 21217$ | N／A | － 1 1／1／2／2017 |  |  | ${ }_{1}^{2}$ | ${ }_{1}^{2}$ | ${ }_{\substack{0.0276 \\ 0.027}}^{0.0}$ | ${ }_{\substack{0.025276}}^{0.025}$ |  |
| cole1701412 <br> 170148 | ¢ 9 91902 | ${ }_{\substack{\text { DB } \\ \text { DB }}}$ | ${ }_{p}^{p}$ | ${ }_{\text {cher }}^{1 / 2 / 4}$ | ${ }_{697}^{454}$ | Less tha of Eauat 0.60 | ${ }_{\substack{\text { Codet } \\ \text { code }}}^{\text {coil }}$ | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | － 1 1／2201217 1 | N／A | － 1 1／272017 1 |  |  | 1 | 1 | ${ }_{\text {coiol }}^{0.0089}$ | ${ }_{\substack{0.0089 \\ 0.0276}}^{0.080}$ |  |
| ${ }^{17014148}$ | ¢ 920105 | ${ }_{\text {M }}$ | ${ }_{p}^{p c}$ | ${ }_{\text {12 }}$ | ${ }^{697}$ | Leessthan of Guatit 0600 | ${ }_{\text {code }}^{\text {code }} 1$ | N／A | ${ }_{8}^{8}$ | $\stackrel{\sim}{m}$ | ${ }^{1 / 2 / 2212017}$ | N／A | ${ }_{1}^{1 / 2 / 2202017}$ |  |  | 1 | 1 | ${ }_{\substack{0}}^{0.0 .0276}$ |  |  |
| 1771439 1701464 | （2028 | ${ }_{\text {MB }}^{\text {M }}$ | p | ${ }_{2}^{2 \prime \prime}$ | ${ }_{313}^{613}$ | $\xrightarrow{\text { Less }}$ Lesan or faual 1060 | ${ }_{\substack{\text { code } \\ \text { code } \\ 1}}$ | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{\text {m }}$ | － $1 / 2 / 1 / 2017$ | N／A | ${ }_{1}^{1 / 2 / 272017}$ |  |  | ${ }_{1}^{2}$ | ${ }_{1}^{2}$ | ${ }_{\substack{0.29888}}^{0.2988}$ | ${ }_{0}^{0.59768}$ |  |
| ${ }^{1701480}$ | 92020 | ${ }_{\text {OB }}$ | ${ }_{\substack{p c \\ p}}$ | $3 / 4{ }^{3 / 4}$ | 685 |  |  | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{M}$ | － 1 1／232017 1 123017 | N／A | － |  |  | 1 | 1 | （0．0276 | ${ }_{0}^{0.0276}$ |  |
| ${ }^{1071483}$ | ${ }_{\substack{92113 \\ 9213}}$ | ${ }_{\text {MB }}$ | ${ }_{p}^{P 6}$ | ${ }_{2 \prime}^{3 / 4}$ | 385 | Lessthan or f Guanalito 060 | ${ }_{\text {Code }}^{\text {Code } 1}$ | ${ }_{N / A}$ | ${ }_{8}$ | ${ }_{M}$ | － $1 / 2 / 232017$ | N／A | ${ }_{\text {l }}^{\text {1／23320017 }}$ |  |  | 1 | 1 |  | － |  |
| 1701500 1702508 | （92069 | ${ }_{\text {¢ }}^{\text {¢ }}$ | ${ }_{p}^{\text {pc }}$ | ${ }_{\text {chen }}^{3 / 4 / 4}$ |  |  | Code 1 Code 1 | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{M}$ | 1／23／2017 | N／A | － 1 1／232017 $1 / 2 / 2017$ |  |  | $\frac{1}{2}$ | ${ }_{2}^{1}$ | ${ }_{\substack{0.0276 \\ 0.2988}}^{0.028}$ | ${ }_{\substack{0.0276 \\ 0.5976}}$ |  |
| ${ }^{17205525}$ | cen 9 9214 | ${ }_{\text {OB }}$ | $p$ | 1／2／ps | ${ }_{485}^{889}$ | Lesssthan of Guatios 60 | Codet 1 | N／A | ${ }_{8}^{8}$ | m | 1／2120017 | N／A | 1／21／2017 |  |  | 1 | 1 | ${ }^{0} 0.0089$ | ${ }^{0} 0.0089$ |  |
| ${ }_{1}^{17715159}$ | ${ }_{\substack{92085 \\ 92057}}$ | ${ }_{\text {¢ }}^{\text {м8 }}$ | ${ }_{\text {pc }}^{\text {pc }}$ | ${ }_{\text {coser }}^{3 / 44^{\prime \prime}}$ | ${ }_{613}^{685}$ |  | ${ }_{\text {Code }}^{\text {Code } 1}$ | N／A | ${ }_{8}^{8}$ | $\stackrel{M}{M}$ | － | N／A | － $1 / 2 / 2320217$ |  |  | 1 | 1 | ${ }_{0}^{0.0076}$ | ${ }_{0}^{0.00276}$ |  |
| 1701632 170635 | ${ }_{\substack{92109 \\ 92029}}$ | ${ }_{\text {M }}^{\text {¢ }}$ | ${ }_{\text {p }}{ }_{\text {p }}$ | ${ }_{\substack{1 / 2 \\ 11 / 2 "}}^{\text {cris }}$ | ${ }_{649}^{409}$ |  | Code 1 code 1 | N／A | ${ }_{8}^{8}$ | ${ }_{M}^{\text {M }}$ | 1／242017 | N／A | － 1 1／24／2017 |  |  | 1 | 1 | ${ }_{\text {a }}^{\substack{0.0089 \\ 0.0612}}$ | ${ }_{\text {a }}^{0.0089}$ |  |
| 1702636 | 92116 | ${ }_{\text {¢ }}$ | ${ }_{\text {pc }}$ | 3／4＂ | ${ }_{69}^{69}$ | Lessthan of Gualt to 60 | Code 1 | N／A | 8 | \％ | $1 / 2552017$ | N／A | 1／2552017 |  |  | 1 | 1 | ${ }_{0}^{0.0276}$ | ${ }_{0}^{0.0276}$ |  |
| 1701637 <br> 107704 |  | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }_{\substack{\text { pc } \\ p}}^{\text {ch }}$ | ${ }_{3 / 4{ }^{3 / 4}}$ | ${ }^{57}$ |  | ${ }_{\substack{\text { code } \\ \text { code } \\ \text { coid }}}$ | N／A | ${ }_{8}^{8}$ | m | $1 / 2420017$ $1 / 252017$ | N／A | － 1 1／2520017 $1 / 2 / 2017$ |  |  | ${ }_{27}^{27}$ | ${ }_{3}^{2}$ |  | ${ }_{0}^{0.0 .7552}$ |  |
| 1701712 1701760 | 92105 |  | ${ }_{\substack{\text { pc } \\ p}}^{\text {ch }}$ | ${ }_{\text {chen }}^{3 / 40^{4}}$ | 517 |  | ${ }_{\substack{\text { code } \\ \text { code } \\ \text { cos }}}$ | N／A | ${ }_{8}^{8}$ | ${ }_{\text {M }}$ | 1／1／35017 | N／A | － 1 1／2420017 $1 / 25017$ |  |  | 2 | ${ }_{1}^{2}$ | （0．0276 | ${ }_{\substack{0 \\ 0.0552 \\ 0.0276}}^{0.052}$ |  |
| ${ }_{\substack{10771762}}^{170162}$ | ¢ 922020 | ${ }_{\text {¢ }}^{\text {08 }}$ | ${ }_{\text {p }}^{\text {Pe }}$ | ${ }_{3 / 44^{\prime \prime}}^{11 / 4}$ | 517 | Lesssthan or fauaitit 060 | ${ }_{\text {code }}^{\text {code }} 1$ | N／A | ${ }_{8}^{8}$ | ${ }_{M}$ | 1／2552017 | N／A | ${ }^{\text {1／25520017 }}$ |  |  | 1 | 1 | ${ }_{\substack{0}}^{0.0276} 0$ | ${ }_{\substack{0}}^{0.00276}$ |  |
| 1701768 <br> 1701808 | 92029 | ${ }_{\text {M }}^{\text {M }}$ | ${ }_{p}^{p}$ | ${ }_{3}^{3 / 4}$ | ${ }_{517}^{385}$ |  | ${ }_{\substack{\text { Code } 1 \\ \text { Code } \\ \text { 1 }}}$ | N／A | ${ }_{8}^{8}$ | m | － $1 / 255017$ | N／A | － $1 / 1 / 552017$ |  |  | 1 | 1 | （0．0276 | ${ }_{\substack{0.0276 \\ 0.2988}}$ |  |
| 1770881 | 92124 | мв | P | ${ }^{2 \prime \prime}$ | 553 | Lessthano of Gualt 060 | Code 1 | N／A | ${ }_{8}$ | m | 1／26／2017 | N／A | $1 / 12712017$ |  |  | 2 | 2 | 0．2988 | ${ }_{0}^{0.5976}$ |  |
|  | ${ }_{921923}^{9197}$ | ${ }_{\text {¢ }}^{\text {¢ }}$ | ${ }_{\substack{\text { pc } \\ p}}$ | ${ }_{3 / 40^{3}}^{3 / 4}$ | ¢65 |  | ${ }_{\substack{\text { code } \\ \text { Code } \\ \text { 1 }}}$ | N／A |  | м | （1／262017 | N／A | － $1 / 2 / 6 / 2017$ |  |  |  |  |  | ${ }_{\substack{0.0276 \\ 0.0276}}^{0.0}$ |  |



























 Pipe Material fo Unonown, will use worst case emisison factor for respective Pipe classitation
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SDG\&E, June 15, 2018
Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent In Response to Data Request, R15-01-008 2018 June Report

Appendix 4; Rev. 03/31/18
Notes:
Definitions in Data Request R15-01-008 2018 June Report
If highlighted cells are filled in, the other cells will auto-populate

Summary of Data by Pipeline Facility/Material and Results for Annual System Leak Rate and Resulting Number of Unknown Leaks for Each Pipeline Facility/Material

| Facility/Material | Total System Miles per material type | Miles on <br> Annual <br> Survey <br> [ $M_{X, A}$ ] | Miles on Multi-Year Survey Cycles [ $\mathrm{M}_{X}$ ] | Survey Interval (yrs) [I] | Miles Surveyed Annually from Multi-Year Survey Cycles $\left[M_{X, 1}\right]$ | Total \# of Leaks Detected from Survey [ $N_{x, l}$ ] | Multi-Year Interval Constant [ $C_{1}$ ] | Annual Leak Rate [Leaks / Mile / Yr] $R_{X}=\frac{N_{X, L}}{M_{X, A}+\left(I \times M_{X, I}\right)}$ | \# of Unknown Leaks † $N_{X, u n k}=R_{X} \times C_{I} \times M_{X}$ | Total \# of Leaks Detected from O\&M* [ $N_{x, 0}$ ] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Main/Plastic | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Main/Plastic | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Main/Plastic | 4,525 | 1,171 | 3,354 | 5 | 703 | 9 | 2 | 0.0019 | 13 | 73 |
| Main/Unprotected Steel | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Main/Unprotected Steel | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Main/Unprotected Steel | N/A | N/A | N/A | 5 | N/A | N/A | 2 | N/A | N/A | N/A |
| Main/Protected Steel | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Main/Protected Steel | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Main/Protected Steel | 3,573 | 1,325 | 2,248 | 5 | 349 | 19 | 2 | 0.0062 | 28 | 115 |
| Service/Plastic | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Service/Plastic | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Service/Plastic | 4,239 | 1,306 | 2,933 | 5 | 494 | 37 | 2 | 0.0099 | 58 | 75 |
| Service/Unprotected Steel | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Service/Unprotected Steel | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Service/Unprotected Steel | N/A | N/A | N/A | 5 | N/A | N/A | 2 | N/A | N/A | N/A |
| Service/Protected Steel | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Service/Protected Steel | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Service/Protected Steel | 3,057 | 942 | 2,115 | 5 | 356 | 49 | 2 | 0.0179 | 76 | 260 |
| Service/Copper | N/A | N/A | N/A | 3 | N/A | N/A | 1 | N/A | N/A | N/A |
| Service/Copper | N/A | N/A | N/A | 4 | N/A | N/A | 1.5 | N/A | N/A | N/A |
| Service/Copper | N/A | N/A | N/A | 5 | N/A | N/A | 2 | N/A | N/A | N/A |
| Total | 15,394 | 4,744 | 10,650 | N/A | 1,902 | 114 | N/A | N/A | 174 | 523 |

† The formula for calculating the number of unknown leaks provided in Appendix 4 on the Unsurveyed Pipeline Leaks tab contains two factors in the denominator (Miles Surveyed Annually from Multi-Year Survey Cycle ( $\mathrm{M}_{\mathrm{x}, \mathrm{I}}$ ) and Survey Interval (I)). This portion of the equation simply calculates the total miles on multi-year survey. When using a simple percentage of miles as the miles surveyed in the reported year this equation yields the correct total miles on the multi-year cycle; however, when using actual miles it is incorrect and is off by the difference from the straight percentage times the interval of the cycle. The correct approach is to use the actual miles in column D (which has been labeled $\mathrm{M}_{\mathrm{x}}$ ). This set of factors is also used in the equation in Column I for calculating the annual leak rates ( $R_{\mathrm{x}}$ ); however, in this case it is correct because when the portion being surveyed is not an exact proportion the mileage basis must be allowed to vary in order to properly derive the annual leak rates.

## Estimated Emissions by Pipeline Facility/Material for Each Leakage Category

| Leakage Category | ```Emission Factor (Mscf/day/ leak)``` | 2017 <br> Emissions from Leaks detected Prior to 2017 (Mscf) | 2017 <br> Emissions from Leaks Detected from 2017 <br> Survey <br> (Mscf) | 2017 <br> Emissions <br> from <br> O\&M* <br> Leaks <br> Detected in 2017 <br> (Mscf) | 2017 <br> Estimated <br> Emissions <br> from <br> Unknown <br> Leaks <br> (Mscf) | Total Estimated2017 EmissionsfromDistributionPipelines(Mscf) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Facility/Material |  |  |  |  |  |  |
| Main/Plastic | 0.2988 | N/A | N/A | N/A | N/A | N/A |
| Main/Plastic | 0.2988 | N/A | N/A | N/A | N/A | N/A |
| Main/Plastic | 0.2988 | 22 | 693 | 75 | 1,405 | 2,195 |
| Main/Unprotected Steel | 0.1548 | N/A | N/A | N/A | N/A | N/A |
| Main/Unprotected Steel | 0.1548 | N/A | N/A | N/A | N/A | N/A |
| Main/Unprotected Steel | 0.1548 | N/A | N/A | N/A | N/A | N/A |
| Main/Protected Steel | 0.0612 | N/A | N/A | N/A | N/A | N/A |
| Main/Protected Steel | 0.0612 | N/A | N/A | N/A | N/A | N/A |
| Main/Protected Steel | 0.0612 | 11 | 264 | 55 | 622 | 952 |
| Main/Unknown* | 0.2988 | 0 | 0 | 1 | 0 | 1 |
| Service/Plastic | 0.0089 | N/A | N/A | N/A | N/A | N/A |
| Service/Plastic | 0.0089 | N/A | N/A | N/A | N/A | N/A |
| Service/Plastic | 0.0089 | 0 | 59 | 1 | 188 | 249 |
| Service/Unprotected Steel | 0.0600 | N/A | N/A | N/A | N/A | N/A |
| Service/Unprotected Steel | 0.0600 | N/A | N/A | N/A | N/A | N/A |
| Service/Unprotected Steel | 0.0600 | N/A | N/A | N/A | N/A | N/A |
| Service/Protected Steel | 0.0276 | N/A | N/A | N/A | N/A | N/A |
| Service/Protected Steel | 0.0276 | N/A | N/A | N/A | N/A | N/A |
| Service/Protected Steel | 0.0276 | 9 | 268 | 23 | 762 | 1,063 |
| Service/Copper | 0.0226 | N/A | N/A | N/A | N/A | N/A |
| Service/Copper | 0.0226 | N/A | N/A | N/A | N/A | N/A |
| Service/Copper | 0.0226 | N/A | N/A | N/A | N/A | N/A |
| Service/Unknown* | 0.0600 | 0 | 40 | 1 | 0 | 41 |
| Unknown/Unknown* | 0.2988 | 0 | 0 | 0 | 0 | 0 |

O\&M leaks include any other pipeline leaks that are discovered during the year from operations and maintenance activity, third party and gas odor reports, etc. that are not accounted for in other categories of this worksheet.

* Leaks are occasionally repaired without excavation of the leak location resulting in Material and/or Facility to be unknown. In these cases the most conservative emission factor is applied. There are no "Unknown leaks" for these line items because all system mileage is accounted for in the other categories.

SDG\&E, June 15, 2018
Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.

In Response to Data Request, R15-01-008 2018 June Report
Appendix 4; Rev. 03/31/18
This summary purposefully should exclude damages, blowdowns, component emissions and component leaks.

|  | Count of <br> Leaks <br> Carried over from Prior Year | Count of Leaks Discovered in the Year of Interest | Count of Leaks Repaired in the Year of Interest | Average <br> Days to Repair Leaks | Count of Estimated Unsurveyed Leaks in the Year of Interest | Count of Remaining Known Leaks at final day of the Year of Interest (12/31/17) | Emissions from Leaks Carried over from Prior Year. | Emissions from Leaks Discovered in the Year of Interest. | Emissions from Estimated Unsurveyed Leaks in the Year of Interest | Total Emissions in the Year of Interest [Mscf of Natural Gas] | Explanatory Notes / Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Grade 1 | 0 | 540 | 540 | 1 | N/A* | 0 | 0 | 879 | N/A | N/A |  |
| Grade 2 | 15 | 83 | 96 | 50 | N/A* | 2 | 42 | 561 | N/A | N/A |  |
| Grade 3 | 0 | 14 | 14 | 32 | N/A* | 0 | 0 | 41 | N/A | N/A |  |
| Graded Leak Total | 15 | 637 | 650 | N/A** | N/A* | 2 | 42 | 1,481 | N/A* | N/A |  |
| Above Ground Hazardous | 0 | 0 | 0 |  | N/A* | 0 | 0 | 0 | N/A* | N/A |  |
| Above Ground Non-Hazardous | 0 | 0 | 0 |  | N/A* | 0 | 0 | 0 | N/A* | N/A |  |
| Above Ground Non-Hazardous Minor | 0 | 0 | 0 |  | N/A* | 0 | 0 | 0 | N/A* | N/A |  |
| AG Total | 0 | 0 | 0 | N/A** | N/A* | 0 | 0 | 0 | N/A* | N/A | Column E-The |
| Total of All Leaks | 15 | 637 | 650 | N/A** | N/A* | 2 | 42 | 1,481 | N/A* | N/A | duration of Grade |
|  |  |  |  |  |  |  |  |  |  |  | 1 leaks is |
| Main/Plastic | 1 | 81 | 82 | 7 | 13 | 0 | 22 | 768 | 1,405 | 2,195 | estimated based |
| Main/Unprotected Steel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | on company |
| Main/Protected Steel | 5 | 133 | 136 | 14 | 28 | 2 | 11 | 320 | 622 | 952 | policy. |
| Main/Unknown | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 1 |  |
| Service/Plastic | 1 | 111 | 112 | 7 | 58 | 0 | 0 | 60 | 188 | 249 |  |
| Service/Unprotected Steel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Service/Protected Steel | 8 | 305 | 313 | 9 | 76 | 0 | 9 | 291 | 762 | 1,063 |  |
| Service/Copper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Service/Unknown | 0 | 5 | 5 | 12 | 0 | 0 | 0 | 41 | 0 | 41 |  |
| Unknown/Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Total | 15 | 637 | 650 | N/A** | 174 | 2 | 42 | 1,481 | 2,978 | 4,501 |  |

* Since the estimated number of Unknown Leaks occurs at various points in time during the leak survey cycle, estimation of the number of leaks by leak grade, and whether or not the leaks are Below Ground or Above Ground may be misleading using the suggested methodology. The wording in the column headers is also misleading since these numbers would be an estimation rather than a "Count".
The estimated emissions in these categories can not be provided since they are dependent on an estimated number of leaks.
** Totals are not applicable in these columns.

Distribution Main \＆Service Pipeline Damage（3rd party dig－ins，natural disasters，ett．）

| ${ }^{10}$ |  | Pipe | ${ }_{\text {premer }}^{\text {piecal }}$ | $\xrightarrow{\text { Pipesiee }}$（nominal |  |  | $\underset{\substack{\text { leak } \\ \text { Gande }}}{\substack{\text { ．}}}$ |  | Discovery Date （MM／DD／YY） | $\xrightarrow{\text { Reapirate }}$（mmolim） |  |  | Explanator Notes／／commens |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underset{\substack{1702132 \\ 17211}}{ }$ | ${ }_{\substack{92211 \\ 92019}}$ | ${ }_{\text {M8 }}^{\text {M }}$ | ${ }_{\text {p8 }}^{\text {p8 }}$ | ${ }_{3 / 44^{10}}$ | ${ }_{749}^{913}$ |  | ${ }_{\substack{\text { code } \\ \text { code } 1}}$ | ${ }_{8}^{8}$ | 1／30／2017 | $\underset{\substack{1780 / 2017 \\ 6 / 62017}}{ }$ | ${ }_{1}^{1}$ | ${ }_{2121215}^{24,28}$ | Ppom |
| 123293 | 91945 | ${ }^{\text {o8 }}$ | ${ }^{\text {P8 }}$ | 3／4＂ | 634 | Less thano of Guatio 60 | ${ }_{\text {code } 1}$ |  | ${ }^{10 / 312 / 2017}$ | 10／31／2017 |  | 21212 | ${ }_{\text {eminss }}$ |
| 1272783 | 92028 | ${ }^{\circ}$ | ${ }^{\text {P8 }}$ | 1 ＂ | 599 | Lessthan of Gualto 60 | Code 1 |  | 12／16／2017 | 12／16／2017 | 1 | 63319 |  |
| ${ }_{\text {1720041 }}^{170050}$ | ${ }_{\substack{92131 \\ 92107}}$ | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }^{p}$ | ${ }_{1 / 2 / 2 \text { cris }}^{1 / 2}$ | ${ }_{1}^{444}$ |  | ${ }_{\substack{\text { code } \\ \text { Code } 1}}$ | ${ }_{8}^{8}$ | ${ }^{\text {1／f／2017 }} 1$ | ${ }^{1 / 7 / 2017} 1 / 102017$ | ${ }_{1}^{2}$ | （18．09 |  |
| 1700813 | ${ }_{923} 203$ |  | p | $1 / 22^{\text {ctis }}$ | 79 | Lessthano of fuatito 00 | ${ }_{\text {code }} 1$ |  | 1／12／2017 | 1／12／2017 |  | 5.664 |  |
| 170095 | 9211 | ${ }^{\text {ов }}$ | P | 1／2\％${ }^{\text {crs }}$ | ${ }^{384}$ | Leess han or fuatio 60 | code 1 |  | 6／2017 | 11／2017 | $1$ | 2.8 .87 |  |
| 1701098 | 9237 | ${ }^{\text {ов }}$ | ${ }^{\text {p }}$ | 3／4＂ | ${ }_{4} 93$ | Less thano f Guatio 60 | del |  | 21／2017 | 121／2017 | 1 | 21.215 |  |
| 170331 | ${ }^{2037}$ | ${ }^{\text {ов }}$ | ${ }^{\text {p }}$ | $3 / 4^{3 / 4}$ | 745 | hano Equal | Code 1 |  | 3／2017 | 13／2017 | 1 |  |  |
| 1707436 | ${ }^{921206}$ | ${ }^{\text {ов }}$ | p | 1／2／cris |  | than of Equalito 60 | code 1 |  | 92017 | 192017 | $1$ |  |  |
| $\xrightarrow{1704365}$ | ${ }_{9}^{212126}$ | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }^{\text {P8，}}$ | ${ }_{3 / 44^{\prime \prime}}^{3 / 4}$ | ${ }_{\substack{588 \\ 758}}^{5}$ | Lesshan r fuatio 0 | $\underset{\substack{\text { codel } \\ \text { code }}}{\text { coil }}$ |  |  | $\underset{\substack{34 / 2017 \\ 3 / 72017}}{ }$ | $1$ | ${ }_{212}^{212}$ |  |
| 1705801 | 91950 | ${ }_{\text {¢ }}$ | p | ${ }_{17}$ | 470 | Less than of tuaut | ${ }_{\text {code } 1}$ | ： | 3／1／2017 | 3／1／2017 | 1 | 18.609 |  |
| 175889 | 91950 | ${ }^{\text {ов }}$ | ${ }^{\text {p }}$ | 3／4＂ | ${ }^{\text {698 }}$ | Less than of fual to 60 | Code 1 |  | 3／1／2017 | 3／1／2017 | 1 | 21.215 | All amagesin Appendix． |
| ${ }^{1705959} 5$ | ${ }^{92109}$ | ${ }^{\text {ов }}$ | ${ }^{\text {PC }}$ | $3 / 4{ }^{3}$ | ${ }^{794}$ | Less than of Equalto 60 | Code 1 |  | ${ }^{3 / 17122017}$ | 3／17272017 | ${ }_{1}^{1}$ | ${ }_{9}^{9.108}$ |  |
| ${ }^{120658}$ | ${ }_{9} 22177$ | ${ }^{\circ 8}$ | p | Mi／c－cts | ${ }_{735}^{483}$ |  | ${ }_{\text {code }}$ |  | （3／242017 | － | $1$ |  |  |
| 17172507 | 9212 | ${ }^{\circ}$ | p | ${ }_{1} 1$ | ${ }_{10}$ | Lessthan of tuaut 0 o 0 | ${ }_{\text {code }}$ | ： | 4／122017 | 4／1221217 | 1 | 18.609 |  |
| 170875 | ${ }^{2037}$ | ${ }^{\text {OB }}$ |  |  | ${ }^{808}$ | Less than of Equalto 60 | code 1 |  | 4／2422017 | ${ }^{4 / 2420217}$ |  | 1886 |  |
| $\xrightarrow{17082824}$ | ${ }^{92129} 9$ | ${ }_{\text {¢ }}^{\text {¢ }}$ | p |  | ${ }^{376}$ |  | ${ }_{\text {cole }}^{\substack{\text { code } \\ \text { code } 1}}$ | ${ }_{8}^{8}$ | 4／2552017 | ${ }_{4}^{4 / 2552017} 4$ | 1 | $\underset{\substack{18.899 \\ 18.609}}{\substack{\text { che }}}$ |  |
| 170922 | 9230 | ${ }^{\text {о }}$ |  |  | 8 | Lessthan or fualt 60 | code 1 |  | 51／2017 | 51／2017 |  | 10,099 <br> 18.69 | Sester |
| 179925 <br> 171130 | $\substack{92110 \\ 92106}$ | ${ }^{\text {08 }}$ | ${ }_{p}^{p 8}$ | ${ }_{3 / 4 / 4}^{3 / 4}$ | ${ }_{\substack{796 \\ 821}}$ |  | ${ }_{\substack{\text { code } \\ \text { code } \\ \text { Cod }}}$ | ${ }_{8}^{8}$ |  | ${ }_{\substack{5 / 2 / 2017 \\ 5 / 22017}}$ | 1 | ${ }_{2121215}^{21215}$ |  |
| 1711126 | 92111 | ${ }_{\text {¢ }}$ | ${ }_{p}^{\text {pe }}$ | $3 / 4{ }^{\text {3／4 }}$ | ${ }_{917}^{817}$ | Lesstano or tuaut 0 o 0 | ${ }_{\text {code }}^{\substack{\text { coded } \\ \text { coie }}}$ | 8 | ${ }_{\text {5／242017 }}^{5122017}$ | ${ }_{5}^{5 / 24212017}$ | 1 | ${ }_{21215}^{21215}$ |  |
| 171147 | ${ }^{2037}$ | ${ }^{\text {о8 }}$ |  | －1／2cris | S45 | Less han or fuult 060 | Code 1 |  | STill | $5 / 2662017$ |  | 12.43 |  |
|  | 92109 |  |  |  |  |  |  |  |  | 1／2017 |  |  |  |
| 1712257 | 9237 | ${ }^{\circ}$ | ${ }^{\text {p }}$ | 1／4／4 | ${ }_{83} 83$ | Less than of tuaut 0 （to | ${ }_{\text {code } 1}$ | ： | $6 / 7 / 2017$ | 6／72017 | 1 | ${ }_{212125}^{12095}$ |  |
| ${ }_{\substack{171327 \\ 171368}}$ | 92130 | ${ }_{\text {OB }}^{\text {O }}$ | p | ${ }_{3}^{1 / 2 / 24}$ | ${ }_{486}^{234}$ |  | ${ }_{\substack{\text { code } \\ \text { code } \\ \text { col }}}$ | ${ }_{8}^{8}$ |  |  | 1 | （18．699 |  |
| ${ }_{173737}$ | 92107 | ${ }^{\text {ob }}$ | ${ }^{\text {P8 }}$ | $33 / 4$ | ${ }^{678}$ | Less than of taual to 60 | code 1 | 8 | ${ }_{6}^{61272017}$ | ${ }_{6}^{61272017}$ | 1 | 21.15 |  |
| ${ }_{1}^{1714348} 1$ | ${ }_{\text {a }}^{92123}$ | ${ }_{\text {¢ }}^{\text {¢ }}$ | ${ }_{\text {p }}^{\text {p }}$ | ${ }_{1}^{3 / 4}$ |  | Leess hano of tuatio 60 | ${ }_{\substack{\text { coded } \\ \text { code } 1}}^{\text {col }}$ | 8 | ${ }^{7} 71 / 21221717$ | ${ }^{7 / 11212017}$ | 1 | corem | Insson estmated foon |
| ${ }_{17251767}^{171659}$ | ${ }_{\substack{9237 \\ 9206}}^{2}$ | ${ }_{\text {¢ }}^{\text {¢ }}$ |  |  | ${ }_{810}^{4}$ |  | ${ }_{\substack{\text { code } \\ \text { code } 1}}^{\text {d }}$ |  | ${ }_{\text {l }}^{7 / 13 / 2017} 7$ | ${ }_{7 / 13 / 231217}^{7 / 217}$ | 1 | 18.699 <br> 18.699 |  |
| 1724 | ${ }_{9}^{92105}$ | ${ }^{\circ} 8$ | P | $1 / 2{ }^{1 / 2}$ | ${ }^{174}$ | Less than of tuaut to 60 | code 1 | ${ }^{8}$ | 71552017 | 715152017 | 1 | 11.302 |  |
| ${ }_{\text {172asg }}$ | ${ }_{\substack{92237 \\ 9223}}^{\text {920 }}$ | ${ }_{\text {¢ }}^{\text {OB }}$ | ${ }_{p}$ | ${ }_{1}^{1 / 2}$ | ${ }_{\text {l }}^{1088}$ |  | ${ }_{\substack{\text { coded } \\ \text { code } 1}}^{\text {d }}$ | ${ }_{8}^{8}$ | $\xrightarrow{771522017}$ | ${ }_{71 / 52017}^{7175017}$ | 1 | ${ }_{0}^{15451}$ |  |
| $\underset{\substack{171536 \\ 1715374}}{ }$ | ${ }^{20237}$ | ${ }_{\text {ob }}^{\text {OB }}$ |  | ${ }_{12}{ }^{\text {＂18 }}$ | ${ }_{4}^{163}$ | Less han or fual 1 （ 60 | code 1 |  | $\xrightarrow{772020217}$ | ${ }_{720}^{7202017}$ |  |  |  |
| ${ }_{\text {172 }}$ | ${ }_{\substack{922126 \\ 9210}}$ | ${ }_{\text {¢ }}^{\text {08 }}$ | ${ }_{p}$ | 1／2＂tis | ${ }_{99}^{49}$ | Leess hano of tuatio6 Les | ${ }_{\substack{\text { coded } \\ \text { code }}}^{\text {coi }}$ | ${ }_{8}^{8}$ | ${ }^{71202017} 17$ | ${ }_{7}^{72120201217}$ | 1 | 18,69 <br> 18.69 <br> $\substack{109 \\ \hline}$ |  |
| $\xrightarrow{1715815}$ | ${ }^{92037}$ | ${ }_{\text {ob }}^{\text {ob }}$ |  | ${ }_{1 \text { 1＂}}^{1 \text {＂cis }}$ |  | Less han or fual 10.60 | Code 1 | ${ }_{8}^{8}$ | ${ }^{7} 72525017$ | ${ }^{7 / 2525217}$ | 1 | 18,69 <br> 18609 <br>  <br> 18 |  |
| ${ }_{1}^{1775823}$ | ${ }_{\substack{92037 \\ 9207}}$ | ${ }_{\text {ob }}^{08}$ | p | ${ }_{1 / 2}^{1 / 2 c^{-c+c}}$ | ${ }^{237}$ |  | ${ }_{\text {code }}^{\text {coded }}$ Cod |  | 7／31／2017 | ${ }_{7 / 31212017}$ | 1 | 18.699 <br> 18.69 |  |
| 171568 | ${ }^{92109}$ | ${ }^{\text {ob }}$ | p | 1／2／2ctis | ${ }_{\substack{53 \\ 53}}$ | Leesstran or Equalto 60 | Code 1 |  | 8／2／2017 | 8／2／2017 | 1 | ${ }^{8.880}$ |  |
| 1717850 | ${ }_{92123}^{921}$ |  |  |  | 595 |  | ${ }_{\text {cose }}^{\substack{\text { code } \\ \text { coie }}}$ |  | $\underbrace{}_{\substack{88882017 \\ 8 / 2217}}$ |  |  |  |  |
| 171787 | 92106 | ${ }^{\circ}$ | p | $1 / 22^{\text {cis }}$ |  | Less thano of qualto 0 o 0 | ${ }_{\text {code }} 1$ | в | 8／21／2017 | 8／21／2017 | 1 | 18.69 |  |
| 1717926 <br> 171724 | ${ }_{\substack{92124 \\ 92037}}$ | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }_{p}$ |  | ${ }_{\substack{560 \\ 752}}^{5}$ |  | ${ }_{\substack{\text { code } \\ \text { code } 1}}$ | ${ }_{8}^{8}$ | ${ }_{\substack{8 / 2 / 22017 \\ 8 / 2212017}}$ | ${ }_{\substack{8 \\ 8 / 222201217}}^{\substack{\text { 2017 }}}$ | 1 | 18.699 18.699 $\substack{\text { cos }}$ |  |
| 1718325 | 92106 | ${ }^{\circ}$ | p | $1 / 2{ }^{\text {c－cts }}$ |  | Less thano of qualto 60 | code 1 | в | 8／25／2017 | 8／25／2017 |  |  |  |
| ${ }_{\substack{1718588 \\ 178513}}$ | （2126 | ${ }_{\text {¢ }}^{\text {M }}$ |  | ${ }_{2}^{1 / 2}$［－crs |  | $\xrightarrow{\text { Less han or fuaut } 1 \text { Les }}$ Lest | ${ }_{\text {cose }}^{\substack{\text { code } \\ \text { cose }}}$ |  |  |  | 1 | ${ }_{\text {ckind }}^{17807}$ |  |
| 171864 | ${ }^{92037}$ | м8 | ${ }^{\text {p }}$ | ${ }_{2}{ }^{\prime \prime}$ | ${ }_{812}$ | Less than of fuaut to 60 | code 1 |  | 888920217 | ${ }_{8}^{83812017}$ | 1 | 63319 | 隹 |
| $\xrightarrow{172903}$ | 92106 |  |  | ${ }_{3 / 4}$ |  | Less han or fual 10.60 | Cote 1 |  | 9／5／2017 | 9／5／2017 |  | ${ }^{117002}$ |  |
| 1779193 <br> 17952 | ${ }^{\text {g2209 }}$ | ${ }_{\text {og }}^{08}$ | ${ }_{\text {p }}$ | ${ }_{1 / 2 / 45}^{1 / 4}$ | ${ }_{43}$ |  | ${ }_{\text {code }}^{\text {Coded }}$（ | ${ }^{8}$ | 98／2017 | 9\％／82017 | 1 | 19.1055 |  |
| 1719337 <br> 1272190 | ${ }_{\substack{92124 \\ 9211}}$ | ${ }_{\text {¢ }}^{\text {08 }}$ | ${ }_{p}^{\text {pr }}$ | ${ }_{\text {3／4／}}^{1 / 2}$ | ${ }_{172}^{45}$ | Less han of Euait 0.60 | ${ }_{\substack{\text { code } \\ \text { code } 1}}$ | ${ }_{8}^{8}$ | ${ }_{\text {9，}}^{\substack{1 / 212017 \\ 9 / 20217}}$ | ${ }_{\text {g }}^{9 / 1 / 1 / 20217}$ | 1 | ${ }_{\substack{18.699 \\ 21215}}^{1}$ |  |
| ${ }_{1}^{172909}$ | ${ }_{\text {92037 }}$ | ${ }_{\text {c }}^{\text {08 }}$ | ${ }_{\substack{p c \\ p}}$ | ${ }_{\text {c }}^{3 / 4 / 4}$ | ${ }_{753}^{771}$ | Less thao of tuaut 0 60 | ${ }_{\text {code }}^{\text {codel }}$ | ${ }^{8}$ | 边 | ${ }^{\text {9／1212017 }}$ | 1 | ${ }_{2}^{214393}$ |  |
| 1720538 <br> 120713 <br> 1 | ${ }_{\substack{9237 \\ 9212}}$ |  |  | ${ }_{\text {／} / 2 / 2 \text { cris }}^{1 / 1}$ |  | $\xrightarrow{\text { Less }}$ Lestan of faua 10 b 60 | ${ }_{\substack{\text { code } \\ \text { code } 1}}$ |  |  | ${ }_{\text {g／262017 }}^{9 / 2 / 2017}$ |  | 4.990 18.699 |  |
| 1272004 | 9237 | ${ }_{8}$ | ${ }^{\text {p }}$ | $3 / 4 / 4$ | ${ }_{17}^{52}$ | Less than or fuaut | ${ }_{\text {code }}$ | 8 | 9／282017 | 9／282017 | 1 | 12.75 |  |
|  | ${ }_{\text {a }}^{22131}$ | ${ }_{\text {OB }}^{\text {O8 }}$ | $\stackrel{p}{p}$ |  | con | Less han or fual 10.60 | Code 1 | ${ }_{8}^{8}$ | 9／3／2／217 | $\xrightarrow{\text { 9／2927017 }}$ 10112017 | 1 |  |  |
| 1272399 | 92105 | ${ }^{\text {ов }}$ |  | 11／4＂ | 1052 | Less than of tuaut 0 o 0 |  |  | 10／13／2017 |  |  |  |  |
| $\underset{\substack{122231 \\ 122821}}{ }$ | ${ }_{\substack{9237 \\ 9231}}$ | ${ }_{\text {OB }}^{\text {O8 }}$ |  |  | ${ }_{454}^{537}$ | Less han or fuul 0 60 | ${ }_{\substack{\text { code } \\ \text { Code } \\ \text { col }}}$ | ${ }_{8}^{8}$ | ${ }^{\text {101／4272017 }}$ | ${ }^{101 / 152017}$ | ${ }_{1}$ | 18.699 1.609 |  |
| 1272398 | 92106 | ${ }^{\circ}$ | P | ${ }^{1 / 12}$ | 814 | Less than of tuaut 0 60 | ${ }_{\text {code }} 1$ | 8 | ${ }^{\text {10／2／52017 }}$ | ${ }^{10125252017}$ | 1 | 18.609 | Emiss |
| ${ }_{\substack{122011}}^{12950}$ | 92109 |  |  | 1／2／${ }^{1 / 2}$ | 738 <br> 334 | Less tha or fual 10.60 | Code 1 |  | 11／1／2017 | ${ }^{\text {11／2／2017 }}$ 11／120217 |  | 18.699 <br> 1.800 | estim |
| ${ }_{1}^{122424717}$ | ${ }_{\substack{\text { and } \\ 9208 \\ \text { 2209 }}}$ | ${ }_{8}^{\text {08 }}$ | p | 1／2＂\％${ }^{2 / 15}$ | ${ }_{502}^{334}$ |  | ${ }_{\text {code }}^{\text {Code } 1}$ | ${ }^{8}$ | ${ }_{1}^{111 / 1202017}$ |  |  | （18，69 |  |
| 122475 | 92106 | ${ }^{\text {ов }}$ |  | $11^{1 / 21 / P 5}$ | 514 | Leesthan of Guat to 60 | code 1 |  | 3／2017 |  |  | 18.69 |  |
| － 122748 | ${ }^{92110}$ | ${ }^{\text {о8 }}$ | $\stackrel{p}{p}$ | ${ }_{1 / 22^{1 \prime \prime} \text {＂cis }}$ | ${ }_{\text {cos }}$ | Less han or fual 10.60 | Codes 1 | ${ }_{8}^{8}$ | 11／1／272017 | 11／442017 |  | 18.699 | x． |
| 1272650 | ${ }_{9} 92109$ | ${ }_{8}$ | p | $1 / 2{ }^{1 / 25}$ | 1078 | Lessthan or fuaut 0 （0 0 | Code 1 |  | 1212182017 | 12／182／2017 |  | 18．699 |  |
| $\xrightarrow{1226885}$ | ${ }_{\substack{92106 \\ 92126}}$ |  |  | ${ }_{11 / 24^{1 / 2}}$ | cis | Less han or fual 10.60 | Code 1 |  | $\xrightarrow{\text { 1212182017 }} 1$ |  |  | ${ }_{18,699}^{18.600}$ |  |
| 172697 | ${ }_{92337}^{9236}$ | ${ }^{\text {o8 }}$ | ${ }^{\text {p }}$ | $3 / 4{ }^{1}$ | ${ }_{32} 32$ | Less thano of quaut 0 60 | ${ }_{\text {code }} 1$ | 8 | 1212192017 | ${ }^{121 / 192017}$ | 1 | 21215 |  |
| 1770315 <br> 170083 |  | ${ }_{\text {OB }}^{08}$ | ${ }_{p}^{\text {p }}$ | ${ }_{\text {che }}^{\substack{3 / 4 / 4 / 4 \\ 11 / 4}}$ | ${ }_{\substack{894 \\ 99}}^{89}$ |  | ${ }_{\substack{\text { codede } \\ \text { code } 1}}^{\text {d }}$ | ${ }_{8}^{8}$ |  | ${ }^{1 / 1 / 2 / 22017}$ | 1 | 188.87 <br> 18.609 | SSCommenst for Distribution Pipe |
| 12701059 | ${ }^{\text {9，9111 }}$ | ${ }^{\text {ob }}$ | p | ${ }^{17}$ |  |  | ${ }_{\text {coded }} 1$ |  | 1／1／720217 | $11 / 172017$ |  | －0779 |  |
| ${ }_{1701383}$ | ${ }^{\text {g2209 }}$ | ${ }_{\text {ob }}^{\text {¢ }}$ | p | 1／2／cts | 169 |  | cote | 8 | ${ }_{1}^{1 / 28202017}$ | 1／202017 | 1 | 18809 <br> 18.89 |  |
| $\xrightarrow{1701394} 1$ | 91910 | ${ }_{\text {ob }}^{\text {OB }}$ | ${ }_{p}^{p}$ |  |  |  | ${ }_{\substack{\text { code } \\ \text { Code } 1}}$ |  | ${ }^{\text {1／20202017 }} 1$ | ${ }_{1}^{1 / 22020217}$ |  | ${ }_{\substack{21215 \\ 18.69 \\ \hline}}$ |  |
| ${ }^{17071285}$ | 或 920204 | ${ }^{\text {¢ }}$ | ${ }^{p}$ | 3／4／4 | ${ }^{805}$ | Leesstharof Guautio $0^{\text {co }}$ | ${ }_{\text {code }}^{\text {codel }}$ |  | （1／2520217 | litas |  | （1248） |  |
| ${ }_{1702366}^{10710}$ | ${ }^{\text {g2213 }}$ | ${ }_{\text {ob }}$ | ${ }_{p}$ | ${ }_{3 / 44^{\prime}}$ | ${ }_{505}$ | Lessthan or tuaulito 0 | cote | 8 | 212／2017 | $1 / 1 / 212017$ | 1 | 21215 |  |
| 1703932 <br> 1703121 | ${ }_{\substack{29154 \\ 92201}}$ | ${ }_{\text {¢ }}^{\text {м8 }}$ | ${ }_{p}^{p}$ | ${ }_{3 / 4{ }^{2 \prime \prime}}$ | ¢09 |  | code 1 coie 1 |  | ${ }_{\text {2 }}^{2 / 2912017}$ | ${ }_{2 / 112017}^{2912017}$ | 1 | 13,95 <br> 30.14 <br> 30， |  |
| 1703205 | 921 | ${ }^{\text {о }}$ | $p$ | 1／2／cris | ${ }^{25}$ | Less than of Gualto 60 | de 1 |  | ／3／2017 |  |  | 8.609 |  |
|  |  |  |  |  |  |  | Code 1 |  | 2／21／2017 | 2／21／2017 |  |  |  |


| 10 |  | ${ }_{\text {coser }}^{\text {Pripe }}$ |  |  |  | ${ }_{\substack{\text { Pessur } \\ \text { (sai) }}}^{\text {a }}$ |  |  | $\begin{aligned} & \text { Discovery Date } \\ & \text { (MM/DD/YY) } \end{aligned}$ |  |  |  | $\begin{aligned} & \text { Annual } \\ & \text { Emissions } \\ & \text { (Mscf) } \end{aligned}$ | Explonator Notes/ Commens |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\xrightarrow{1703838}$ | ${ }_{\text {921164 }}^{9215}$ | ${ }_{\text {¢ }}^{08}$ | ${ }_{p}^{\text {pC }}$ | $\xrightarrow{3 / 4 / 4}$ | ${ }^{842}$ | $\xrightarrow{\text { Less thar of Equatio } 60}$ | ${ }_{\substack{\text { code } \\ \text { code } 1}}^{\text {coil }}$ | ${ }_{8}^{8}$ | $\xrightarrow[\substack{2 / 22 / 2017 \\ 3 / 21217}]{ }$ | $\underset{\substack{2 / 22 / 2017 \\ 3 / 12017}}{ }$ | 1 |  | $\underbrace{}_{\substack{14.530 \\ 13.05}}$ |  |
| ${ }^{170} 70$ Pasa | 9990 | ${ }_{\text {¢ }}$ | p | 1/2P1ps | 72 |  | ${ }_{\text {code }}^{\substack{\text { coder } \\ \text { code }}}$ | ${ }_{8}$ | 31/201217 | 3/4/2017 | 1 |  |  |  |
| ${ }_{1}^{17205021}$ |  | ${ }_{\text {c }}^{\text {pg }}$ | ${ }^{p}$ | ${ }_{1 / 2 / 4{ }^{\text {ctis }} \text { ( }}$ | ${ }_{\text {898 }}^{85}$ |  | coidcode 1 <br> Code 1 | ${ }_{8}^{8}$ | - | ${ }_{\substack{\text { che } \\ 3 / 1 / 212017}}$ | 1 |  | $\substack{21215 \\ 3592}^{2}$ |  |
| ${ }_{1}^{17055599}$ | ${ }_{\text {cker }}^{\text {g2118 }}$ | ${ }_{\text {¢ }}^{\text {O }}$ | p |  | ${ }_{9}^{89}$ |  | ${ }_{\substack{\text { code } \\ \text { Code } 1}}^{\text {coder }}$ | ${ }_{8}^{8}$ |  | $\underbrace{}_{\substack{3 / 1 / 320217 \\ 3 / 22017}}$ | ${ }_{1}^{1}$ |  | ${ }_{\text {l }}^{3.5892}$ |  |
| ${ }^{1205596}$ | ${ }^{2216}$ | ${ }^{\circ}$ | P | 1/2"crs |  | Lessstan of Gquat 0 (0 0 | ${ }_{\text {code }}$ coid | ${ }^{8}$ | - $31 / 6262017$ | ${ }^{3 / 1 / 6202017}$ | 1 |  | 18.699 | Emiss |
| 1105885 <br> 170751 <br> 1 |  | ${ }_{\text {c }}^{\text {M8 }}$ | $p$ | ${ }_{1 / 2} 2^{\prime \prime}$ crs | ${ }_{531}^{435}$ |  | ${ }_{\text {cole }}^{\substack{\text { code } \\ \text { Code } 1}}$ | ${ }_{8}^{8}$ | 4/3/7/2017 | ${ }_{\substack{3 / 2972017 \\ 4712017}}$ | ${ }_{1}^{1}$ |  | $\underbrace{1}_{\substack{18.699 \\ 3,17}}$ |  |
| ${ }^{170} 17098$ |  | ${ }^{\circ}$ | p | ${ }_{20}^{10}$ | ${ }^{171}$ | Lessstran of Equalto 6 | ${ }_{\text {code }}$ | 8 | $4 / 8 / 22017$ | $4 / 8 / 2017$ | 1 |  | ${ }_{\text {18,857 }}$ |  |
| 1107899 <br> 178951 <br> 1 | ${ }_{9}^{99902}$ | ${ }_{\text {c }}^{\text {M8 }}$ | p | ${ }_{1 / 2} 2^{2}$ cris | ${ }_{36} 3$ |  | ${ }_{\text {coid }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | ${ }_{4}^{4 / 11 / 12017}$ | ${ }_{4}^{4 / 111201217}$ | 1 |  | ${ }_{\substack{\text { 93,32 }}}^{\text {3,256 }}$ |  |
| 1707997 170935 1 |  | ${ }_{\text {M8 }}^{\text {м }}$ | ${ }_{p}^{\text {p }}$ | ${ }_{1 / 22^{2 \prime 2}}^{21}$ | ${ }_{\substack{807 \\ 183}}$ |  |  | ${ }_{8}^{8}$ | ${ }_{\text {a }}^{4 / 1 / 4212017}$ | ${ }_{\text {a }}^{4 / 1 / 172017}$ | 1 |  | ${ }_{\substack{6,319 \\ 2957}}$ |  |
| 170818 | ${ }^{22116}$ | ${ }_{0}$ | ${ }^{\text {p }}$ | ${ }^{3 / 4 / 4}$ | 680 | Less than or tuaitio 0 o | ${ }_{\text {code } 1}$ | - | 4/1/82017 | 4/18/2017 | 1 |  | 21.215 |  |
| ${ }^{17208388}$ | ${ }^{92154}$ | ${ }^{\text {oB }}$ | $p$ | 1/2/cts | 4 | Less than of Equat 106 | ${ }^{\text {code } 1}$ | ${ }^{8}$ | 415252017 | ${ }^{4 / 2552017}$ | 1 |  | ${ }^{18.689}$ |  |
| ${ }_{1}^{12089396}$ | ${ }_{\text {cker }}^{\substack{\text { g2113 }}}$ | ${ }_{\text {¢ }}^{08}$ | ${ }_{p}^{\text {pe }}$ | ${ }_{1 / 2 / 45}^{3 / 45}$ | ${ }_{760}^{12}$ | Leess shan of efuaitiow | code Code 1 | ${ }_{8}^{8}$ |  | ${ }_{4}^{4 / 2852017}$ | 1 |  | ${ }_{128.69}^{21215}$ |  |
| ${ }_{\substack{1790514 \\ 171031}}^{1}$ | ${ }_{\text {grem }}^{\text {g2105 }}$ | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }_{p}$ | ${ }_{\text {l }}^{1 / 2 / 20 \text { cris }}$ | ${ }_{460}^{3}$ |  | code 1 Code 1 coser | ${ }_{8}^{8}$ | ¢ |  | ${ }_{1}^{2}$ |  | ${ }_{\substack{12.817 \\ 18.609}}^{1}$ |  |
| ${ }^{1717127}$ |  | ${ }^{\text {OB }}$ | P | ${ }_{1210}^{1{ }^{\prime \prime}}$ | $\stackrel{2}{23}$ | Leesstha or teualto 6 | code 1 code coid | ${ }_{8}^{8}$ | ${ }_{\substack{\text { 5/222017 } \\ 5 \\ 5125017}}$ | ${ }_{\substack{\text { che } \\ 51222012017}}$ | 1 |  |  |  |
| ${ }_{1}^{17171387}$ |  | ${ }_{\text {¢ }}^{\text {м }}$ | ${ }_{p c}$ |  | ${ }_{1}^{538}$ |  | code <br> code 1 | ${ }_{8}^{8}$ | ¢ $51 / 1252017$ | ${ }_{\substack{5525 / 2017 \\ 6 / 2017}}$ | ${ }_{2}$ |  | ${ }_{6}^{6,319}$ |  |
| ${ }_{\substack{1712366}}^{17245}$ |  |  | ${ }_{\text {P }}^{\text {p }}$ | ${ }_{3 / 4 a^{\prime \prime}}^{1 / 2}$ | ${ }_{24}^{845}$ |  | code 1 Code 1 coil | ${ }_{8}^{8}$ | ${ }_{\text {c/em }}^{61 / 2 / 2017}$ | ${ }_{\text {c/iliz2017 }}^{6 / 1 / 2017}$ | ${ }_{2}^{1}$ |  | ${ }_{2}^{12.81295}$ |  |
| ${ }^{1727278}$ |  | ${ }^{\circ}$ | ${ }^{\text {p }}$ | ${ }^{3 / 4}$ | ${ }_{798} 98$ | Leessthar of Equalto 6 | code 1 code cold | ${ }^{8}$ | ${ }_{6}^{613132017}$ | ${ }_{6}^{611320217}$ | 1 |  | ${ }_{\substack{193359 \\ 18.69}}^{10}$ | Emisionesimeded tom |
| ${ }_{17171383}$ |  | ${ }_{\text {¢ }}^{\text {M8 }}$ | ${ }_{p c}$ | $3 / 4{ }^{2}$ | ${ }_{74}^{188}$ | Leess Lestano of equaitiow | code <br> code 1 | ${ }_{8}^{8}$ | ${ }_{\substack{\text { che } \\ 6 / 21220217}}^{6}$ | ${ }_{6}^{6 / 12120017}$ | 1 |  |  |  |
| 171359 173364 | ${ }_{\text {g2102 }}^{92102}$ | ${ }_{\text {¢ }}^{\text {¢ }}$ | ${ }_{p}$ | ${ }_{1 / 2}^{1 / 2}{ }_{2}$ crs | (706 | Leesstan of Equal 1 Le 60 |  | ${ }_{8}^{8}$ |  | ${ }_{\substack{\text { c/21220017 } \\ 6122017}}$ | ${ }_{1}^{1}$ |  | ${ }_{\substack{18.809 \\ 18.69 \\ 109}}^{10}$ |  |
| 177337 | ${ }^{92116}$ | ${ }^{\text {ob }}$ | ${ }^{p}$ | 11/4" | ${ }^{834}$ | Less than of Equalto 60 | code 1 | ${ }^{8}$ | ${ }^{6 / 1232017}$ | ${ }^{61 / 23202017}$ | 1 |  | ${ }^{18.609}$ |  |
| ${ }_{1}^{1124029}$ | ${ }_{\text {cker }}^{\text {g2118 }}$ | ${ }_{\text {O8 }}^{\text {OB }}$ | ${ }_{p}$ | ${ }_{1 / 2}^{1 / 2 / 2^{+1}}$ | ${ }_{522}^{668}$ | Leess Lestano of tauaitiow | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ |  |  | 1 |  | ${ }_{18}^{183699}$ |  |
| 1717349 <br> 171442 <br> 1 |  | ${ }^{\circ}{ }_{08}^{\text {O }}$ | ${ }_{p}^{p}$ | ${ }_{1 / 2 / 4 \text { Ps }}$ | ${ }_{\substack{569 \\ 668}}$ |  | code 1 <br> Code 1 | ${ }_{8}^{8}$ | $\xrightarrow{7 / 1 / 2 / 2017}$ | ${ }_{7}^{7 / 1 / 2017217}$ | 1 |  | ${ }_{\substack{10.192 \\ 997}}^{198}$ |  |
| ${ }_{\substack{1724588 \\ 171562}}$ |  | ${ }_{\substack{08 \\{ }_{88} \\ \hline}}$ | ${ }_{p}$ | ${ }^{1 / 2 / 2 \times \text { Pr }}$ | ${ }_{703}^{498}$ | Leess tha or feual it 60 | code 1 code 1 cole | ${ }_{8}^{8}$ | ${ }^{7} 71202017$ | $\underset{\substack{\text { l20,2017 } \\ 712202017}}{ }$ | 1 |  | ${ }_{\substack{18.699 \\ 18.69}}$ |  |
| ${ }_{1}^{1755926}$ |  | ${ }_{\text {O8 }}^{\text {OB }}$ | ${ }_{p c}$ | ${ }_{3 / 4}$ | ${ }_{1035} 108$ | Leess Lenan or otauaitiow | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | T/2282017 | ${ }^{7 / 2542017}$ | 1 |  | ${ }_{2121215}^{12,09}$ |  |
| cinctine |  | ${ }_{\text {OB }}^{\text {O }}$ | ${ }_{p}^{\text {pc }}$ | ${ }_{2}^{3 / 4}$ | ${ }_{5}^{823}$ | Leess hano of tual 1 Le 60 |  | ${ }_{8}^{8}$ | ¢ | $\substack{7 / 2882017 \\ 8822017}$ | 1 |  | ${ }_{\substack{29710 \\ 18.69}}$ |  |
| 1717552 | ${ }^{292104}$ | ${ }^{\text {ob }}$ | p | 1/2\% crs | ${ }^{175}$ | Less than of guatio 06 | ${ }_{\text {code }}$ | ${ }_{8}^{8}$ | ${ }_{8}^{8 / 3 / 2017}$ | 88 | 1 |  | cisisen |  |
| 1176603 171690 |  | ${ }_{\text {¢ }}^{\text {OB }}$ | p |  | ${ }_{391}^{69}$ | Leess than of tauatiow | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | ${ }_{\substack{81 / 2017 \\ 8 / 2017}}^{8}$ | $\underbrace{2}_{\substack{8 / 8 / 2017 \\ 8 / 23017}}$ | ${ }_{1}^{3}$ |  |  |  |
| ${ }_{\substack{172481 \\ 172859}}^{1}$ | ${ }_{9}^{91915}$ | ${ }_{\substack{\text { OB } \\ \text { ס }}}$ | ${ }_{p}{ }^{p}$ | ${ }_{1 / 2 \mathrm{c} \text { "Ts }}^{\text {IT }}$ | ${ }_{8}^{19}$ | Leess han or fuaulit 60 |  | ${ }_{8}^{8}$ | $\underbrace{}_{\substack{\text { 8/292017 } \\ 88302017}}$ | ${ }_{\substack{8 / 8 / 292017 \\ 8302017}}^{\text {a }}$ | 1 |  |  |  |
| 1712880 | ${ }^{92118}$ | ${ }^{\text {ob }}$ | p | ${ }_{1}{ }^{10}$ |  | Less than of tualtio 60 | code 1 | 8 | 9 9/12017 | $991 / 2017$ | 1 |  | ${ }^{12,9650}$ |  |
| ${ }_{1}^{1178350}$ |  | ${ }_{\text {¢ }}^{\text {¢ }}$ | ${ }_{p}$ | ${ }_{1}^{1 / 2} 1$ | ${ }_{884}^{69}$ |  | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | ${ }_{\text {9, }}^{9 / 2 / 2017}$ | ${ }_{\substack{9 / 6 / 2017}}^{9 / 2017}$ | 1 |  | ${ }_{\substack{18,399 \\ 6,319}}^{109}$ |  |
| 179930 171919 1 |  | ${ }_{\substack{\text { D8 } \\ \text { סg }}}$ | ${ }_{p}{ }^{\text {p }}$ | ${ }_{1 / 2}^{1 / 2}$ | 488 12 | Leess han or fuaulit 60 |  | ${ }_{8}^{8}$ | ${ }^{97 / 7 / 2017}$ | ${ }_{\text {9/7/72017 }}^{9 / 72017}$ | 1 |  |  |  |
| 1717228 | 92103 | ${ }^{\text {ob }}$ | p | 1/2\% ${ }^{\text {cos }}$ | 392 | Less than of tquatio 60 | code 1 | ${ }^{8}$ | 9 9/72017 | 9772017 | 1 |  | ${ }^{18.6099}$ |  |
| ${ }_{1}^{117995283}$ | ${ }_{\text {coser }}^{\substack{921031}}$ | ${ }_{\text {¢ }}^{\text {OB }}$ | p | ${ }_{1 / 2}^{1 / 2}$ | ${ }_{13}^{312}$ | Leess than of taval 1 tow | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | 9, 9/12/2017 | ${ }_{\text {9/112017 }}^{9 / 812017}$ | 1 |  | ${ }_{\text {18,69 }}^{2526}$ |  |
| 1720188 | ${ }_{\text {92104 }}^{2216}$ | ${ }_{\substack{\text { OB } \\ \text { ס }}}$ | ${ }_{p}{ }^{\text {p }}$ | cinco | ${ }_{47}^{337}$ | Less tha or feuat 10 60 |  | ${ }_{8}^{8}$ |  | 9/9202017 | 1 |  | 18.8909 <br> 18.69 |  |
| 172077 | ${ }^{92114}$ | ${ }^{\text {os }}$ | p | $1 / 2{ }^{1 / 1 / 1}$ | ${ }^{789}$ | Less than of Guatito 60 | code 1 | ${ }^{8}$ | 9 9/722017 | 912720017 | 1 |  | ${ }_{18}^{18.609}$ |  |
| ${ }_{1}^{121212038}$ |  | ${ }_{\text {¢ }}^{\text {¢ }}$ | p | ${ }_{1}^{1 / 2 / 21 /{ }^{\text {crs }}}$ | ${ }_{880}^{837}$ |  | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | cole |  | 1 |  | ${ }_{\substack{18,099 \\ 18.69}}^{109}$ |  |
| ${ }_{\substack{122052}}^{1721218}$ | ${ }_{\text {coser }}^{\text {2201 }}$ | ${ }_{\text {mb }}$ | ${ }_{p}$ |  | ${ }_{597}^{129}$ | Less tha or feual 10.60 | code 1 <br> code | ${ }_{8}^{8}$ | $\substack{\text { 101012017 } \\ \text { 10112017 }}^{1}$ | ${ }_{\substack{107112017 \\ 10112017}}$ | ${ }_{1}^{2}$ |  | ${ }_{\substack{5076 \\ 18.69 \\ 109}}$ |  |
| ${ }^{1272225}$ | ${ }^{29213}$ | ${ }^{\circ}$ | p |  | ${ }^{153}$ | Less than of tuatios | ${ }_{\text {code }}$ cod | ${ }^{8}$ | ${ }^{1012122017}$ | ${ }^{1012122017}$ | 1 |  | ${ }_{\text {coser }}^{18.609}$ |  |
| 1212698 <br> 172945 |  | ${ }_{\text {¢ }}^{08}$ | ${ }_{p}$ |  | ${ }_{514}^{515}$ | ${ }^{\text {Leess han of equan } 1060}$ | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { Code } 1}}$ | ${ }_{8}^{8}$ | ${ }_{\substack{1017217217 \\ \text { 101/2017 }}}$ | ${ }^{101 / 1720172017}$ | 1 |  | ${ }_{\substack{18.809 \\ 18.69}}^{1.09}$ |  |
|  | ${ }_{\text {2102 }}^{29205}$ | ${ }_{\text {OB }}^{\text {о }}$ | ${ }_{p}^{p}$ | ${ }^{1 / 2 / 1 / 4{ }^{1+1}}$ | ${ }_{\substack{1054 \\ 765}}$ | Less tha or feual 10.60 | code 1 <br> Code 1 | ${ }_{8}^{8}$ | ${ }_{\substack{\text { 1020202017 } \\ \text { 10232017 }}}$ | ${ }^{\text {10720202017 }} 1$ | 1 |  |  |  |
| ${ }^{1212323}$ | ${ }^{292100}$ | ${ }^{\circ}$ | ${ }_{p}$ | 1/21ps | 620 | Less than of tuatito 0 | ${ }_{\text {code }}^{\text {code }}$ | ${ }_{8}^{8}$ | ${ }^{1010242017}$ | ${ }^{10} 102429217$ | 1 |  | ${ }_{1}^{28.6929}$ |  |
| 1273720 <br> 123854 |  | ${ }_{\text {¢ }}^{\text {m }}$ | ${ }_{\substack{p c \\ p}}^{\text {p }}$ | ${ }^{3 / 4 / 4^{\prime \prime}}$ | a ${ }_{298}^{498}$ |  | ${ }_{\text {code }}^{\text {code }}$ Code | ${ }_{8}^{8}$ | ${ }_{\substack{\text { 102822017 } \\ \text { 10302017 }}}$ | ${ }_{\substack{1028820217 \\ 10302017}}$ | ${ }_{1}^{1}$ |  | ${ }_{6}^{212319}$ |  |
| ${ }_{1}^{1224299}$ |  | ${ }_{\text {OB }}^{\text {о }}$ | ${ }_{p}^{p}$ | ${ }_{1 / 2 / 45}$ | ${ }_{\substack{519 \\ 1054}}^{\text {108 }}$ | Less thar of Euaut 10.60 | code 1 <br> code | ${ }_{8}^{8}$ | (11/2017 | 11/32017 | 1 |  |  |  |
| 1724348 | ${ }^{91915}$ | ${ }^{\circ}$ | p | ${ }^{11}$ | ${ }_{32}$ | Less than of tuatit 60 | ${ }_{\text {code }}$ | 8 | $11 / 1 / 72017$ | 111/72017 | 1 |  | 18.609 |  |
| 1224699 <br> 1272802 <br> 1 |  | ${ }_{\text {¢ }}^{\text {¢ }}$ | $p$ |  | ${ }_{5}^{525}$ |  | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { Code } 1}}$ | ${ }_{8}^{8}$ | ${ }_{\text {l }}^{11 / 1 / 202027} 1$ |  | 1 |  | ${ }_{1}^{18.8099}$ |  |
| ${ }_{\text {125057 }}^{12125378}$ |  | ${ }_{\text {OB }}^{\text {о }}$ | ${ }_{p}$ |  | ${ }_{503}^{467}$ | Less tha or feual 10.60 | code 1 <br> code | ${ }_{8}^{8}$ | $\xrightarrow{111 / 72017} 1$ | ${ }^{111 / 72017} 11$ | 1 |  | 1.8899 <br> 18.69 |  |
| 1275395 | ${ }^{92114}$ | ${ }_{\text {¢ }}$ | p | $1 / 2{ }^{1 / 2}$ | 695 | Less than or tuaitioso | ${ }_{\text {code }}$ | 8 | 11/272017 | 11/27/2017 | 1 |  | 18.8099 |  |
| ${ }_{1}^{12755795}$ | ${ }_{\text {coser }}^{\substack{91192}}$ | ${ }_{\text {c }}^{\text {M8 }}$ | ${ }_{p}^{\text {p, }}$ | ${ }^{1 / 2 / 2 c^{4}}$ | 707 12 |  | code 1 <br> Code 1 | ${ }_{8}^{8}$ | ${ }_{\text {l }}^{11 / 2929217} 1$ | (11/292017 | 1 |  |  |  |
| ${ }_{\substack{127211 \\ 172623}}$ | ${ }_{\text {2205 }}^{29205}$ | ${ }_{\substack{\text { OB } \\ \text { ס }}}$ | ${ }_{\substack{\text { pc } \\ p}}^{\text {ch }}$ | ${ }_{3 / 44}^{3 / 44}$ | ${ }_{407}^{863}$ | Leess hano of tual 1 Le 60 | cole $\begin{aligned} & \text { code } 1 \\ & \text { Code } 1 \\ & \text { cole }\end{aligned}$ | ${ }_{8}^{8}$ |  | ${ }_{\text {12 }}^{12 / 6 / 2017} 1$ | 1 |  | ${ }_{2121215}^{21215}$ |  |
| 1726682 | ${ }_{9}^{91915}$ | м | p | ${ }^{*}$ | 37 | Less than of Guaitio 0 O | ${ }_{\text {code }}$ | 8 | 1212122017 | 12/12/2017 | 1 |  | 18.609 |  |
| ${ }_{\substack{1225507 \\ 172630}}^{120}$ |  | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }_{p}^{p}$ | ${ }_{11 / 22^{1 / 2}}^{1 / 2 c^{\prime \prime}}$ | ${ }_{528}^{758}$ |  | code code 1 coder | ${ }_{8}^{8}$ | ${ }_{\substack{12122017 \\ 12 / 129017}}$ | ${ }^{\text {12712/2017 }} 1$ | 1 |  | ${ }_{6}^{18.3199}$ |  |
| 1272095 |  | ${ }_{\substack{\text { OB } \\{ }_{08}}}$ |  | $\xrightarrow{1 / 2 \times \text { cris }}$ | 528 | Leess han of fuaul 1 (60) |  | ${ }_{8}^{8}$ | (12/12/2017 | (12/21/2017 | 1 |  |  |  |
| 1272126 | ${ }^{92116}$ | ${ }^{\circ}$ | p | $1 / 2 / 2$ Pr | ${ }_{828}^{528}$ | Less than or Guaitio 60 | ${ }_{\text {code }}$ | B | 1212227017 | ${ }_{12122 / 22017}$ | 1 |  | ${ }_{18,609} 18$ |  |
| ${ }_{\substack{127154 \\ 127370}}$ | ${ }_{\substack{\text { 92192 }}}^{9211}$ | ${ }_{\text {¢ }}^{\text {O8 }}$ | ${ }^{\text {p }}$ | ${ }^{1 / 2 / 20 \text { cris }}$ | ${ }_{32}^{430}$ | $\xrightarrow{\text { Less }}$ Lestan of teaun 10 60 | code <br> code 1 | ${ }_{8}^{8}$ | ${ }_{\substack{12 / 222017 \\ 122712017}}$ |  | 2 |  | ${ }_{1}^{18.6099} 1$ |  |
| ${ }_{\substack{127375 \\ 172750}}$ | ${ }_{\text {gren }}^{\text {g2101 }}$ | ${ }_{\text {OB }}^{\text {OB }}$ | ${ }^{p}$ |  | ${ }_{\text {liso }}^{480}$ | Less tha or feual to 60 |  | ${ }_{8}^{8}$ | ${ }_{\substack{12 \\ 12 / 27282017 \\ 1}}^{12017}$ |  | ${ }_{1}^{1}$ |  |  |  |
| 17700015 | $9991{ }^{\text {n }}$ | ${ }^{\circ}$ | p | $1 / 2$ cris | 98 | Less than of Guatit o60 | ${ }_{\text {code }}$ | 8 | 12/212017 | 12/22017 | 1 |  | ${ }^{18,6099}$ |  |
| $\xrightarrow{1700795}$ |  | ${ }_{\text {OB }}^{\text {O }}$ | ${ }_{p}$ | ${ }_{1 / 22^{10} \text { crs }}$ | 6 | $\xrightarrow{\text { Leess han or feuan } 1 \text { Ie } 60}$ | ${ }_{\text {cole }}^{\substack{\text { code } \\ \text { Code } 1}}$ | ${ }_{8}^{8}$ | lilliz2017 | ${ }_{\substack{1 / 2122017 \\ 1 / 2 / 2017}}$ | ${ }_{1}^{1}$ |  | (18.45 |  |
| 1201773 <br> 1702707 | ${ }_{\substack{9 \\ 92975 \\ 9215}}^{\text {E }}$ | ${ }_{\text {OB }}^{\text {O }}$ | ${ }_{p}^{p}$ | ${ }_{\text {d/3/4s }}^{1 / 2 c^{\text {cts }}}$ | 201 |  | code $\begin{gathered}\text { code } 1 \\ \text { code } 1 \\ \text { cole }\end{gathered}$ | ${ }_{8}^{8}$ | ¢ | (1/252017 | 1 |  | ${ }_{\substack{8289 \\ 785}}$ |  |
| ${ }^{1703122}$ | ${ }^{2029}$ | ${ }^{\circ}$ | p | 1/2"crs | ${ }_{5}^{529}$ | Less stan of guatio 06 | ${ }_{\text {code }}$ | ${ }^{8}$ | 2/132017 | 2/1312027 | 1 |  | ${ }^{18.689}$ |  |
|  |  | ${ }_{\substack{\text { OB } \\ \text { ס }}}$ | ${ }_{p}^{p}$ | ${ }_{3 / 44^{\prime \prime}}^{1{ }^{14}}$ | ${ }_{830}^{121}$ |  | ${ }_{\text {code }}^{\substack{\text { code } \\ \text { code }}}$ | ${ }_{8}^{8}$ | $\underbrace{}_{\substack{2 / 15212017 \\ 2 / 182017}}$ |  | ${ }_{1}^{2}$ |  | ${ }_{\substack{1.609 \\ 14.78}}^{1.085}$ |  |
| cincile | ${ }^{91977}$ | ${ }_{\substack{\text { ob } \\ \text { ס }}}$ | ${ }_{p}{ }_{p}$ | ${ }_{3 / 4 / 4}^{1 / 2}$ | ${ }_{\text {co6 }}^{515}$ | Leess han of fuaul 1 (6) |  | ${ }_{8}^{8}$ | - 3 3/2/2017 |  | 1 |  | 18.659 <br> 10.502 |  |
| ${ }^{1706337}$ | 9220 | ${ }^{\text {ob }}$ | p | 1/2/20 ${ }^{\text {cts }}$ |  | Less than of Equat 106 | ${ }^{\text {code } 1}$ | ${ }^{8}$ | ${ }^{3 / 2322017}$ | ${ }^{3 / 2322017}$ | 1 |  | ${ }^{18.609}$ ¢ |  |
|  |  | ${ }_{\text {¢ }}^{08}$ | $\stackrel{p}{p}$ |  | ${ }_{519}^{543}$ |  | ${ }_{\substack{\text { code } \\ \text { code } 1}}^{\text {coil }}$ | ${ }_{8}^{8}$ | ¢ 3 ¢11272017 | ${ }_{\substack{3 / 12420217 \\ 4 / 12017}}$ | 1 |  |  | See Expl |
| ${ }_{\substack{120981 \\ 170093}}^{1}$ | 9199 | ${ }_{\substack{\text { ¢8, } \\ \text { ס8 }}}$ | ${ }_{p}^{p}$ | ${ }_{3 / 4}^{1 / 2}$ | ${ }_{701}^{400}$ |  | ${ }_{\text {cole }}^{\substack{\text { code } \\ \text { code } 1}}$ | ${ }_{8}^{8}$ | $\underset{\substack{4 / 2 / 72017 \\ 5 / 18217}}{\text { a }}$ |  | 1 |  |  |  |





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SDG\&E, June 15, 2018
Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
In Response to Data Request, R15-01-008 2018 June Report

## Appendix 4; Rev. 03/31/18

Notes:
Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.
At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.
Distribution Main \& Service Pipeline Blowdowns:

| ID | Geographic Location | $\begin{gathered}\text { Number } \\ \text { of } \\ \text { Blowdown Events }\end{gathered}$ | Pipe Size (nominal) (in) | Length of Pipe <br> (ft) | Pressure (psi) | Annual Emissions (Mscf) | Explanatory Notes / Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| N/A | SDG\&E Territory | N/A | 3/4 | 35 | 320 | 0.003 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 2 | 27 | 320 | 0.014 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 4 | 58 | 320 | 0.123 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 6 | 3 | 320 | 0.014 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 8 | 24 | 320 | 0.203 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 10 | 36 | 320 | 0.476 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 16 | 4,089 | 320 | 138.410 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 1 | 23 | 320 | 0.003 | Abandoned HP Pipe |
| N/A | SDG\&E Territory | N/A | 1/2 | 192 | 55 | 0.001 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 1 | 1,489 | 55 | 0.038 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | $11 / 4$ | 4,864 | 55 | 0.196 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | $11 / 2$ | 3,769 | 55 | 0.219 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 2 | 45,597 | 55 | 4.709 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 3 | 29,135 | 55 | 6.770 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 4 | 1,316 | 55 | 0.544 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 6 | 776 | 55 | 0.721 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 10 | 64 | 55 | 0.165 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 12 | 21 | 55 | 0.078 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 16 | 118 | 55 | 0.780 | Abandoned MP Pipe |
| N/A | SDG\&E Territory | N/A | 1/2 | 53,919 | 55 | 0.348 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | 3/4 | 19,737 | 55 | 0.287 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | 1 | 3,773 | 55 | 0.097 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | $11 / 4$ | 4,299 | 55 | 0.173 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | $11 / 2$ | 1,579 | 55 | 0.092 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | 2 | 1,148 | 55 | 0.119 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | 3 | 141 | 55 | 0.033 | Abandoned MP Service |
| N/A | SDG\&E Territory | N/A | 4 | 2 | 55 | 0.001 | Abandoned MP Service |
| N/A | SDG\&E Territory | 250 | N/A | N/A | N/A | 0.672 | Distribution Odor Intensity Tests |
| N/A | 92108 | 1 | N/A | N/A | N/A | 97.600 | Tie-in project |
| N/A | 91910 | 1 | N/A | N/A | N/A | 13.600 | Pipe segment replacement |
| N/A | 91942 | 1 | N/A | N/A | N/A | 95.800 | Tie-in project |
| N/A | 91945 | 2 | N/A | N/A | N/A | 126.400 | Tie-in project |
| N/A | 92028 | 1 | N/A | N/A | N/A | 86.652 | Blowdown to maintain odorant level |


| ID | Geographic <br> Location | Number <br> of <br> Blowdown Events | Pipe Size <br> (nominal) <br> (in) | Length of Pipe <br> (ft) | Pressure <br> (psi) | Annual Emissions <br> (Mscf) | Explanatory Notes / Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

## SDG\&E, June 15, 2018

Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
In Response to Data Request, R15-01-008 2018 June Report
Appendix 4; Rev. 03/31/18
Notes:
Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.
At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.
The emissions captured on this tab represent the emissions associated with the operational design and function of the component. Any intentional release of natural gas for safety or maintenance purposes should be included on the Blowdowns worksheet.

Distribution Main \& Service Pipeline Component Vented Emissions (see note above):

| Total Number of Devices | Device <br> Type | Bleed Rate | Manufacturer | Engineering or Manufacturer's based Estimate of Emissions | Annual Emissions (Mscf) | Explanatory Notes / Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Note: No devices

## SDG\&E, June 15, 2018

Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
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Appendix 4; Rev. 03/31/18
Notes:
Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.
At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

Distribution Main \& Service Pipeline Component Fugitive Leaks (see note above):

| Total Number of Devices | Device Type | Bleed Rate | Manufacturer | Discovery Date (MM/DD/YY) | Repair Date (MM/DD/YY) | Number of <br> Days Leaking | Emission Factor (Mscf/day) | Annual Emission (Mscf) | Explanatory Notes / Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Sum Total

Appendix 4 - Rev. 03/31/18

| Header column "Comment" boxes displayed below for reference. |  |
| :---: | :---: |
| Column Heading | Description and Definition of Required Contents (IF not self-explanatory) |
| Pipeline Leaks |  |
| ID |  |
| Geographic Location | GIS, zip code, or equivalent |
| Pipe Classification | MA = distribution main, above ground <br> $\mathrm{MB}=$ distribution main, below ground <br> $D A=$ distribution service, above ground <br> $D B=$ distribution service, below ground |
| Pipe Material | $\begin{aligned} & \hline \mathrm{C}=\text { copper } \\ & \mathrm{Cl}=\text { cast iron } \\ & \mathrm{P}=\text { plastics (Acetyl, ABS, PE, PVC, etc.) } \\ & \mathrm{PB}=\text { cathodically protected steel, bare } \\ & \mathrm{PC} \text { = cathodically protected steel, coated } \\ & \mathrm{UB} \text { = unprotected steel, bare } \\ & \mathrm{UC} \text { = unprotected steel, coated } \end{aligned}$ |
| Pipe Size (nominal) |  |
| Pipe Age (months) |  |
| Pressure (psi) | MOP = maximum operating pressure over the past year |


| Column Heading | Description and Definition of Required Contents (IF not self-explanatory) |
| :---: | :---: |
| Leak <br> Grade | If the utility uses grades for above ground leaks, it is unnecessary to use the AH,AN, or AM designations. $\begin{aligned} & 1=\text { grade } 1 \\ & 2=\text { grade } 2 \\ & 2+=\text { grade } 2+ \\ & 3=\text { grade } 3 \end{aligned}$ <br> AH = Above Ground Hazardous synonymous with Grade 1. <br> AN = Above Ground Non-Hazardous, synonymous with Grade 2 and 2+. <br> AM = Above Ground Non-Hazardous Minor (akin to grade 3 below ground leak). <br> $\mathrm{N}=$ non-graded or ungraded |
| Upgraded Leak Grade or Downgraded Leak Grade | U: Upgraded Leak such as a grade 2 or 3 leak that was surveyed again and changed designation to grade 1 or 2. <br> D: downgraded leak, such as a grade 1 or 2 leak that was surveyed again and changed designation to grade 2 or 3 . |
| Above Ground or Below Ground | A = Above Ground <br> $B$ = below ground |
| Leak Discovery Method | S = Routine Leak Survey (This discovery method should be parsed and the emissions summarized into leaks carried over from before 2016, and those detected in 2016. The totals for these subcategories should be carried over to column C43 through D63 on the Unsurveyed Pipeline Leaks tab.) <br> $M=O \& M$ (E.G. O\&M Activities, Third party reports, customer odor reports etc.) <br> $\mathrm{O}=$ Other (This will be grouped with M in the summary categorization of leaks.) |
| Discovery Date (MM/DD/YY) |  |


| Column Heading | Description and Definition of Required Contents (IF not self-explanatory) |
| :---: | :---: |
| Re-Grade Date (MM/DD/YY) |  |
| Repair Date (MM/DD/YY) | Date that the pipeline repair stopped the leak. Any associated blowdowns resulting from the repair should be included in the blowdowns tab. |
| Scheduled Repair Date (MM/DD/YY) | If leak is open, specify the scheduled date of repair; <br> Otherwise type " $M$," signifying that the leak is being monitored with no scheduled date of repair; <br> Then, provide the reason for not scheduling a repair in Column P. |
| Reason for Not Scheduling a Repair | If Repair Date is blank, and Scheduled Repair Date (Column O ) $=$ " M ", then provide the reason for not scheduling a repair. |
| Number of Days Leaking | If the leak was discovered by survey in the year of interest, then assume leaking from January 1st of subject year thru repair date or December 31st of subject year, which ever is earlier. (E.G. Days Leaking = Repair - Jan 1st +1 day.) <br> (For days leaking for leaks carried over use January 1st as start date for emissions calculations.) <br> For O\&M discovered leaks, assume that the leak begins with the discovery date thru repair date or December 31st of subject year, whichever is earlier. |


| Column Heading |
| :--- |
| Description and Definition of Required Contents (IF not self-explanatory)  <br> Number of Days to Repair Use only Repair-Discovery +1. Do not use January 1st for time to repair. <br> For regraded leaks, use Repair Date - Regrade Date +1. <br> Emission Factor <br> (Mscf/Day)  <br> Annual Emissions <br> (Mscf)  <br> Explanatory Notes / Comments  |


| Unsurveyed Pipeline Leaks |  |
| :---: | :--- |
| $\mathbf{2 0 1 7}$ Emissions from O\&M* <br> Leaks Detected in 2016 <br> (Mscf) | O\&M Sources Include: <br> O\&M Activities <br> Customer Odor Reports <br> Third Party Reports <br> and other |
| $\mathbf{2 0 1 7}$ Estimated Emissions <br> from Unknown Leaks <br> (Mscf) | Calculation based on the input from column J above. |


| Pipeline Leaks Summary |  |
| :---: | :--- |
| Count of Leaks Carried over <br> from Prior Year | Based on a leak start date prior to the first day of the year of interest. |
| Count of Leaks Discovered in <br> the Year of Interest | If a leak is downgraded to not leaking, do not count it. |
| Count of Leaks Repaired in <br> the Year of Interest |  |


| Column Heading | Description and Definition of Required Contents (IF not self-explanatory) |
| :---: | :---: |
| Average Days to Repair Leaks | The average days to repair leaks should be baase on the formula: (Repair Date/Time minus Discovery Date/Time) plus (one day, unless using a discrete time stamp for leak repairs), then take the sum and divide by number of leaks repaired by grade to get the average days to repair. |
| Count of Estimated Unsurveyed Leaks in the Year of Interest | For leaks identified in Unsurveyed areas extrapolate the proportion of leak counts by grade that were found in the respective areas based on the year or periods used to estimate the unsurveyed leak count. <br> If the unsurveyed leak count was based on the current year leak count by grade detected then use the current proportion of graded leak count applied to the unsurveyed leaks. |
| Count of Remaining Leaks at final day of the Year of Interest $(12 / 31 / x x)$ | This count is only of the actual leaks detected in the operator's system that have not been repaired as of $12 / 31$ of the year of interest. |
| Emissions from Leaks Carried over from Prior Year. | Based on a leak start date prior to the first day of the year of interest. <br> This includes leaks discovered through O\&M and survey activities. |
| Emissions from Leaks Discovered in the Year of Interest. | The total number of leaks by grade or category discovered in the year of interest. <br> This includes leaks discovered through O\&M and survey activities. |


| Column Heading |
| :--- |
| Description and Definition of Required Contents (IF not self-explanatory)  <br> Emissions from Estimated <br> Unsurveyed Leaks in the <br> Year of Interest The emissions by grade would be on the same basis that used to extrapolate the <br> count of leaks in the unsurveyed areas. <br> For example: For leaks identified in Unsurveyed areas extrapolate the proportion <br> of leak emissions by grade that were found in the respective areas based on the <br> year or periods used to estimate the unsurveyed leak count. <br> If the unsurveyed leak count was based on the current year leaks detected then  <br> use the current proportion of graded leaks applied to the unsurveyed leak  <br> emissions.  |
| Total Emissions in the Year <br> of Interest <br> [Mscf of Natural Gas] |


| All Damages |  |
| :---: | :---: |
| ID |  |
| Geographic Location | GIS, zip code, or equivalent |
| Damage <br> Type | $\mathrm{E}=$ excavation damage <br> $\mathrm{N}=$ natural force damage <br> $\mathrm{O}=$ other outside force damage |
| Pipe Classification | MA = distriibution main, above ground <br> $\mathrm{MB}=$ distriibution main, below ground <br> DA = distribution service, above ground <br> DB = distribution service, below ground |
| Pipe <br> Material | $\begin{array}{\|l} \hline \mathrm{C}=\text { copper } \\ \mathrm{CI}=\text { cast iron } \\ \mathrm{P}=\text { plastics (Acetal, ABS, PE, PVC, etc.) } \\ \mathrm{PB}=\text { cathodically protected steel, bare } \\ \mathrm{PC}=\text { cathodically protected steel, coated } \\ \mathrm{UB}=\text { unprotected steel, bare } \\ \mathrm{UC}=\text { unptotected steel, coated } \\ \hline \end{array}$ |


| Column Heading | Description and Definition of Required Contents (IF not self-explanatory) |
| :---: | :---: |
| Pipe Size (nominal) |  |
| Pipe Age (months) |  |
| Pressure (psi) | MOP = maximum operating pressure over the past year |
| Leak <br> Grade | $\begin{aligned} & 1 \text { = grade } 1 \\ & 2 \text { = grade } 2 \\ & 2+=\text { grade } 2+ \\ & 3=\text { grade } 3 \\ & N=\text { Non-Graded } \end{aligned}$ |
| Above Ground or Below Ground | $\begin{aligned} & \mathrm{AH}=\text { above ground, hazardous } \\ & \mathrm{AN}=\text { above ground, non-hazardous } \\ & \mathrm{B}=\text { below ground } \end{aligned}$ |
| Discovery Date (MM/DD/YY) |  |
| Repair Date (MM/DD/YY) |  |
| Number of Days Leaking | If date and time stamp are reliable and used consistently by respondent, then emissions may be calculated based on actual time leaking. E.G. Repair time - damage event time = duration of event. <br> If respondent has average or historical leak duration based on the nature and circumstances of damages, then these may be applied to like damage events. The emissions factors should be adequately supported and explained in the filing. <br> If actual time stamps and historical averages are not available, then whole days should be used in the engineering calculation. The leak begins with the damage event date thru repair date or December 31st of subject year, whichever is later. E.G. Days Leaking = Repair date - date of damage +1 day. |

Column Heading Description and Definition of Required Contents (IF not self-explanatory)

| Emission Factor or Engineering <br> Estimate <br> (Mscf/Day) |  |
| :---: | :--- |
| Annual Emissions <br> (Mscf) |  |
| Explanatory Notes / Comments |  |


| Blowdowns |  |
| :---: | :--- |
| Geographic <br> Location | GIS, zip code, or equivalent |
| Number <br> of <br> Blowdown Events | If counting a series of small blowdowns associated with services such as MSA <br> replacement, or Service pipe of small diameter or section length then enter total <br> and the formula in the explanation column. |
| Pipe Size <br> (nominal) |  |
| Length of Pipe | MOP = maximum operating pressure over the past year |
| Pressure <br> (psi) |  |
| Annual Emissions <br> (Mscf) |  |
| Explanatory Notes / Comments |  |


| Component Vented Emissions |  |
| :---: | :---: |
| Total Number of Devices |  |
| Device <br> Type | $\mathrm{P}=$ pneumatic device <br> $\mathrm{H}=$ hydraulic valve operator <br> T = turbine valve operator <br> PR = pressure relief valve <br> $\mathrm{O}=$ other devices |


| Column Heading |
| :--- |
|  Description and Definition of Required Contents (IF not self-explanatory) <br> Bleed Rate L = low bleed <br> I = intermittent bleed <br> H = high bleed <br> NA = not applicable <br> Manufacturer  <br> Engineering or Manufacturer's <br> based Estimate of Emissions  <br> Annual Emissions  <br> (Mscf)  <br> Explanatory Notes / Comments  |


| Component Leaks |  |
| :---: | :--- |
| Total Number of Devices |  |
| Device <br> Type | P = pneumatic device <br> H = hydraulic valve operator <br> T = turbine valve operator <br> PR = pressure relief valve <br> O = other devices |
| Bleed Rate | L = low bleed <br> I = intermittent bleed <br> H = high bleed <br> NA = not applicable |
| Manufacturer | List the actual discovery date. <br> Discovery Date <br> (MM/DD/YY) |
| If the leak was discovered in the year of interest, then we will assume the <br> component was leaking from the beginning of the year for emissions reporting <br> purposes. |  |
| Repair Date <br> (MM/DD/YY) | Date that the component repair stopped the leak. Any associated blowdowns as <br> a result of the repair should be included in the blowdowns tab. |


|  Description and Definition of Required Contents (IF not self-explanatory) <br> Number <br> of <br> Days Leaking Assume Leaking from January 1 of subject year or prior survey date, <br> whichever is later, thru the repair date (if repaired in year of interest) or <br> December 31 of subject year, whichever is earlier. <br> Emission Factor <br> (Mscf/day) For O\&M discovered leaks, assume that the leak begins with the discovery <br> date thru repair date or December 31st of subject year, whichever is <br> earlier. <br> Annual Emission  <br> (Mscf)   <br> Explanatory Notes / Comments  |
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