





## Missouri Landfill Leachate Test Results – 7.15.24

|  | Contaminant                                       | Feed<br>(PPT) | Nano Permeate<br>(PPT) | Nano<br>Concentrate<br>(PPT) | Nano<br>%<br>Reduction | RO<br>Permeate<br>(PPT) | RO<br>Concentrate<br>(PPT) | RO<br>%<br>Reduction |
|--|---|---------------|------------------------|------------------------------|------------------------|-------------------------|----------------------------|----------------------|
|  | Perfluorooctanoic acid<br>(PFOA)                  | 1,900         | 97.8                   | 3,650                        | 94.9%                  | 8.33                    | 4,620                      | 99.6%                |
|  | Perfluorooctanesulfonic<br>acid<br>(PFOS)         | 279           | ND<br>18.4             | 506                          | ≥86.3%<br>RL=38.1      | ND<br>1.40              | 622                        | ≥97.2%<br>RL=7.68    |
|  | Perfluorohexanesulfonic<br>acid<br>(PFHxS)        | 550           | 45.6                   | 878                          | 91.7%                  | ND<br>2.75              | 1,290                      | ≥98.6%<br>RL=7.68    |
|  | Perfluorononanoic acid<br>(PFNA)                  | 97.6          | ND<br>6.44             | 203                          | ≥61.0%<br>RL=38.1      | ND<br>0.49              | 243                        | ≥92.1%<br>RL=7.68    |
|  | Hexafluoropropylene<br>oxide dimer acid<br>(GENX) | 375           | ND<br>24.8             | 1,850                        | ≥89.8%<br>RL=38.1      | ND<br>1.88              | 2,270                      | ≥98.0%<br>RL=7.68    |
|  | Perfluorobutane sulfonic<br>acid<br>(PFBS)        | 4,980         | 418                    | 9,580                        | 91.6%                  | 28.6                    | 11,100                     | 99.4%                |

• The 6 Constituents of Concern, for Drinking Water, pulled from non-Drinking Water EPA Method 1633 to highlight effectiveness.

- In circumstances where values could be obtained/reported:
- Nano ranged from 92 to 95% reduction with an average of 93.4% reduction.
- RO ranged from 99.4 to 99.6% reduction with an average of 99.5% reduction.
- Said averages were utilized to extrapolate a more definitive value as opposed to "ND", Non-Detect, although ND is still reported.
- RL, reportable limit values, are also shown for context.



## **CONTEXT** for the previous slide

| PFAS |
|------|
| NANO |
| &    |
| RO   |

CASE STUDY

| Compound  | Final MCLG   | Final MCL (enforceable levels)                        |  |
|---|--------------|---|--|
| PFOA  | Zero         | 4.0 parts per trillion (ppt) (also expressed as ng/L) |  |
| PFOS  | Zero         | 4.0 ppt   |  |
| PFHxS   | 10 ppt       | 10 ppt  |  |
| PFNA  | 10 ppt       | 10 ppt  |  |
| HFPO-DA (commonly known as GenX Chemicals)                        | 10 ppt       | 10 ppt  |  |
|   | 1 (unitless) | 1 (unitless)  |  |
| Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS | Hazard Index | Hazard Index  |  |
|   |              |   |  |

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