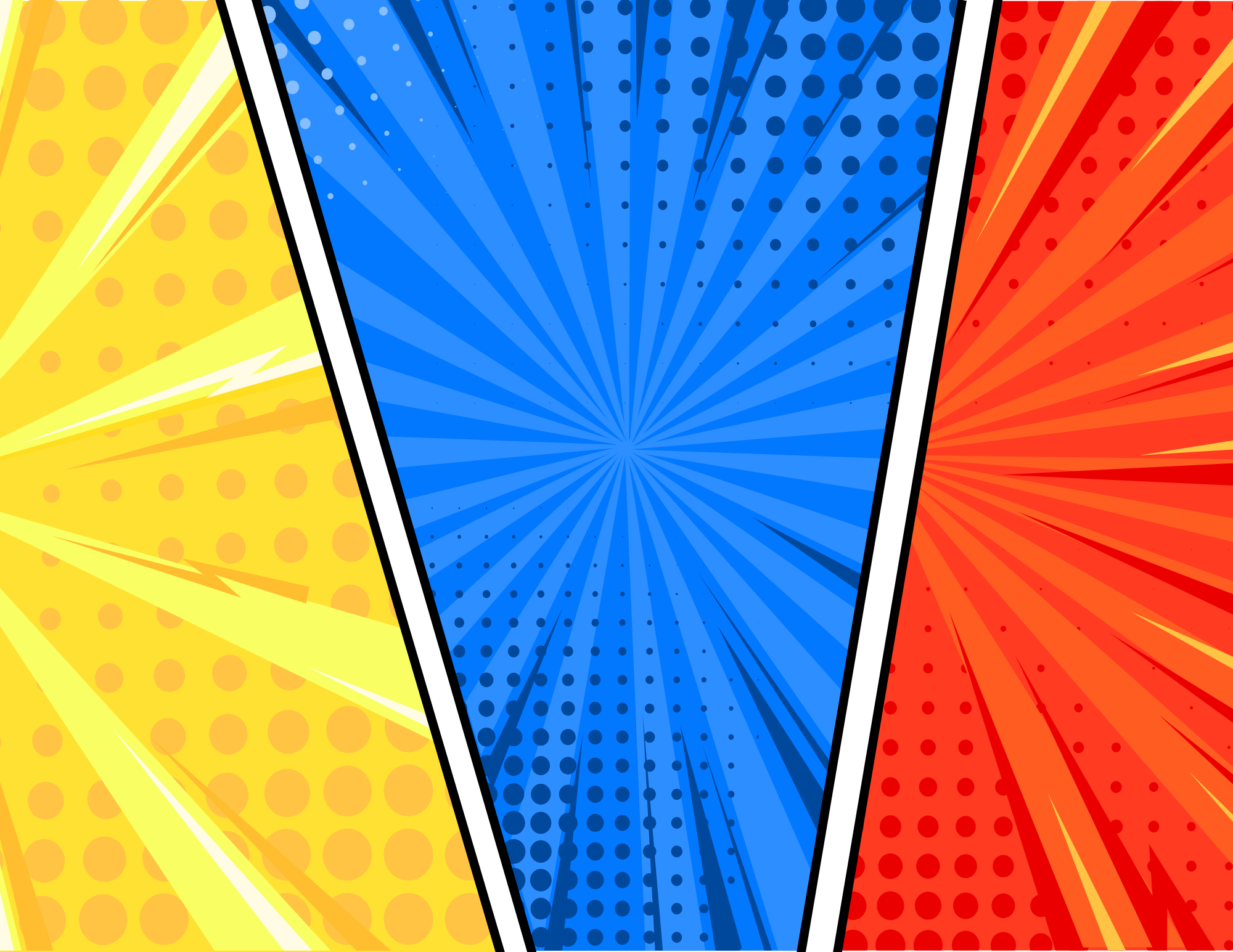
**Bioreactor ID: 17099**

**Collect Evidence (what do you know?)**

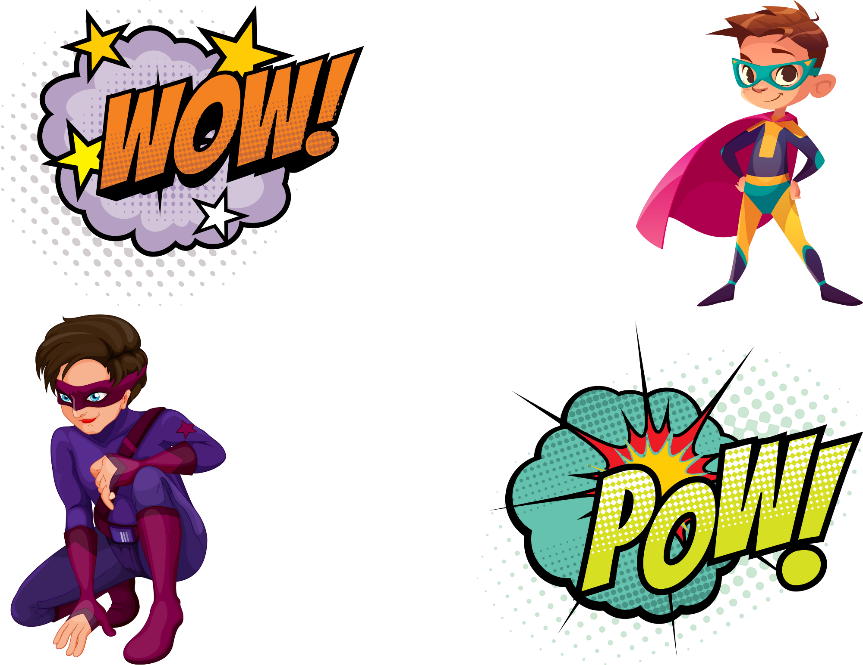
How old is the bioreactor? \_\_\_\_\_\_\_\_\_\_\_\_

What fill material(s) is used? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nitrate removal data:

|  |  |  |  |
| --- | --- | --- | --- |
| Test date | Nitrates in  (gN/m3 per day) | Nitrates out  (gN/m3 per day) | Nitrates removed  (gN/m3 per day) |
| May 2019 |  |  |  |
| April 2020 |  |  |  |
| June 2021 |  |  |  |
| April 2022 |  |  |  |

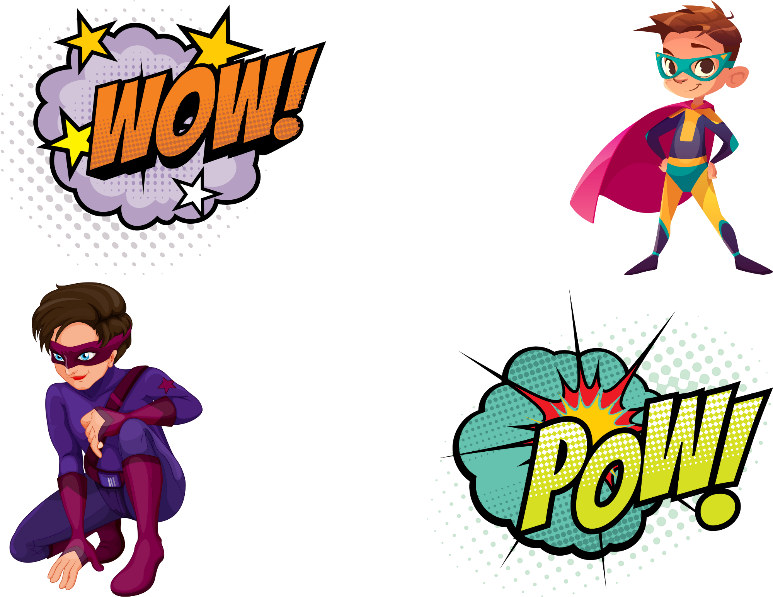
Is there any DNA evidence of pseudomonas aeruginosa bacteria in this bioreactor? ⬜ yes ⬜ no

**Establish Links (what have you learned?)**

1. Overall, how effective does this bioreactor seem to be regarding nitrate removal from field runoff water?
2. What evidence are you using to make this decision?

**Make an Argument (how effective is this bioreactor?)**

|  |  |  |
| --- | --- | --- |
| **Your claim** | **The evidence** | **Your reasoning** |
| Example: this bioreactor effectively removes nitrates due to the presence of denitrifying bacteria and woodchips as a fill material | Fill material, nitrates removed, DNA evidence of pseudomonas aeruginosa | Pseudomonas aeruginosa removes nitrates from water and woodchips provide a good place for the bacteria to live; data shows high levels of N removal. |
|  |  |  |

**Bioreactor ID: 80332**

**Collect Evidence (what do you know?)**

How old is the bioreactor? \_\_\_\_\_\_\_\_\_\_\_\_

What fill material(s) is used? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nitrate removal data:

|  |  |  |  |
| --- | --- | --- | --- |
| Test date | Nitrates in  (gN/m3 per day) | Nitrates out  (gN/m3 per day) | Nitrates removed  (gN/m3 per day) |
| May 2019 |  |  |  |
| April 2020 |  |  |  |
| June 2021 |  |  |  |
| April 2022 |  |  |  |

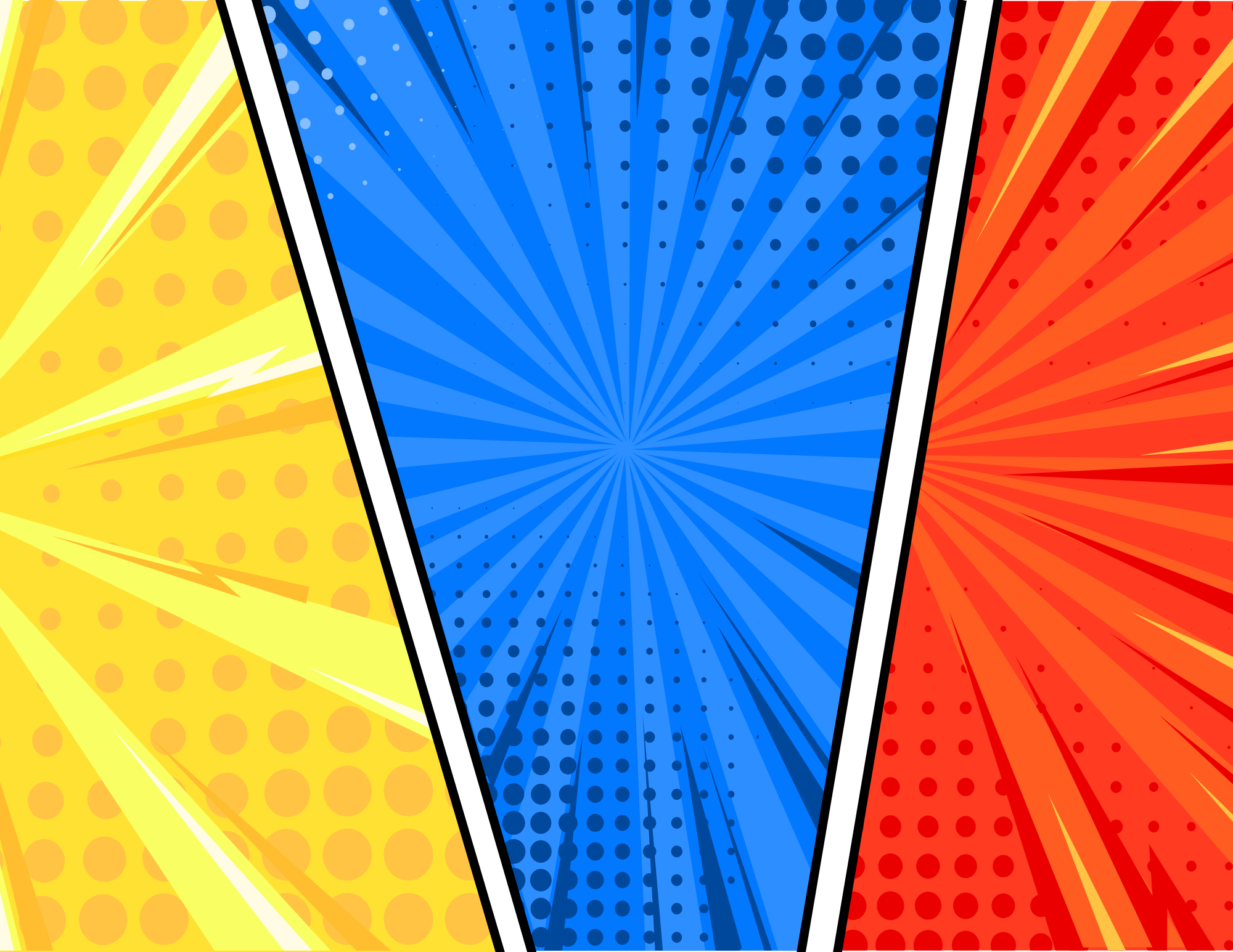
Is there any DNA evidence of pseudomonas aeruginosa bacteria in this bioreactor? ⬜ yes ⬜ no

**Establish Links (what have you learned?)**

1. Overall, how effective does this bioreactor seem to be regarding nitrate removal from field runoff water?
2. What evidence are you using to make this decision?

**Make an Argument (how effective is this bioreactor?)**

|  |  |  |
| --- | --- | --- |
| **Your claim** | **The evidence** | **Your reasoning** |
|  |  |  |

**Bioreactor ID: 01221**

**Collect Evidence (what do you know?)**

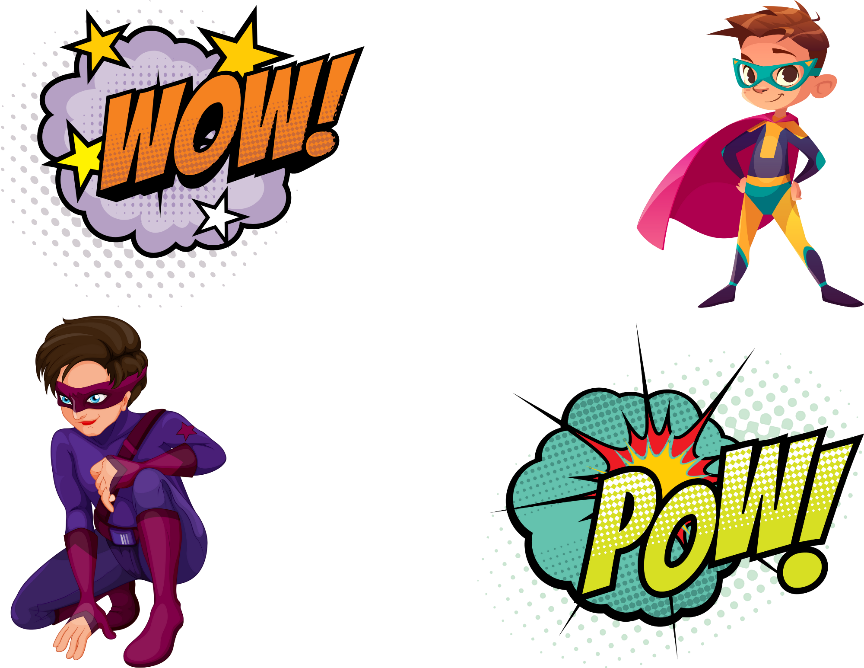
How old is the bioreactor? \_\_\_\_\_\_\_\_\_\_\_\_

What fill material(s) is used? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nitrate removal data:

|  |  |  |  |
| --- | --- | --- | --- |
| Test date | Nitrates in  (gN/m3 per day) | Nitrates out  (gN/m3 per day) | Nitrates removed  (gN/m3 per day) |
| May 2019 |  |  |  |
| April 2020 |  |  |  |
| June 2021 |  |  |  |
| April 2022 |  |  |  |

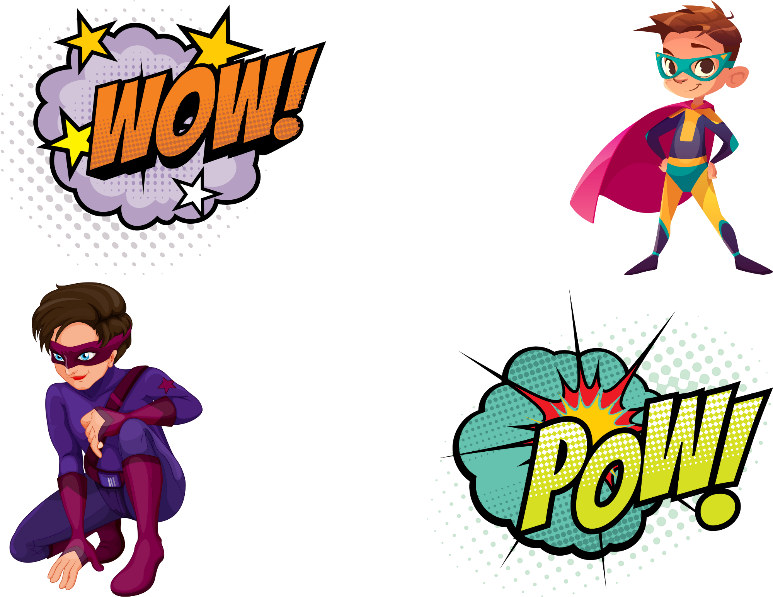
Is there any DNA evidence of pseudomonas aeruginosa bacteria in this bioreactor? ⬜ yes ⬜ no

**Establish Links (what have you learned?)**

1. Overall, how effective does this bioreactor seem to be regarding nitrate removal from field runoff water?
2. What evidence are you using to make this decision?

**Make an Argument (how effective is this bioreactor?)**

|  |  |  |
| --- | --- | --- |
| **Your claim** | **The evidence** | **Your reasoning** |
|  |  |  |

**Bioreactor ID: 56996**

**Collect Evidence (what do you know?)**

How old is the bioreactor? \_\_\_\_\_\_\_\_\_\_\_\_

What fill material(s) is used? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nitrate removal data:

|  |  |  |  |
| --- | --- | --- | --- |
| Test date | Nitrates in  (gN/m3 per day) | Nitrates out  (gN/m3 per day) | Nitrates removed  (gN/m3 per day) |
| May 2019 |  |  |  |
| April 2020 |  |  |  |
| June 2021 |  |  |  |
| April 2022 |  |  |  |

Is there any DNA evidence of pseudomonas aeruginosa bacteria in this bioreactor? ⬜ yes ⬜ no

**Establish Links (what have you learned?)**

1. Overall, how effective does this bioreactor seem to be regarding nitrate removal from field runoff water?
2. What evidence are you using to make this decision?

**Make an Argument (how effective is this bioreactor?)**

|  |  |  |
| --- | --- | --- |
| **Your claim** | **The evidence** | **Your reasoning** |
|  |  |  |