



Hazen and Sawyer  
498 Seventh Avenue, 11th Floor  
New York, NY 10018 • 212.539.7000

October 7, 2022

Liberty Utilities (New York Water) Corp. – Dykeer Operations District  
PWS ID No. NY5920065  
MCL Deferral for PFOA and PFOS  
Quarterly Report – Third Quarter 2022

## **Introduction**

On behalf of Liberty Utilities (New York Water) Corp. (Liberty), Hazen & Sawyer is providing this document in accordance with the requirements of the New York State Department of Health (NYSDOH) for public water suppliers who have been granted deferrals from maximum contaminant level (MCL) violations for PFOA and PFOS. Liberty was originally granted an MCL deferral for PFOA and PFOS in January of 2021 due to its proactive efforts toward the implementation of treatment for these compounds. Subsequently, Liberty was approved for a deferral extension in December of 2021 to December 25, 2022 due to regulatory review time and supply chain delays.

The enclosed is a report describing Liberty’s progress towards maintaining the highest quality of water for their customers and meeting the deadlines set forth in the deferral approval. The project schedule is contained in **Attachment A**.

## **Corrective Action Plan Milestones**

### Dykeer GAC Treatment

The Dykeer granular activated carbon (GAC) treatment project is approaching final completion, however, treatment was not placed into service in the third quarter of 2022. The start-up schedule was impacted by the extent of GAC media rinsing that was required to meet water quality requirements.

The GAC treatment vessels satisfied all water quality testing requirements needed for approval and the Application for Approval of Completed Works was submitted to the Westchester Department of Health (WCDOH) in September. Final site inspection by WCDOH is planned for October 19<sup>th</sup>. We anticipate final approval for use in the fourth quarter of 2022. In addition to placing the new GAC treatment system into service, final site restoration and landscaping will also be completed in the fourth quarter of 2022.

The Dykeer system has continued to minimize the usage of the affected wells by trucking in water to supplement the supply and blend down the contaminants at the system entry point.

## **Public Notification**

Public notification was given in the form of an email to the Homeowners Association. In addition, Liberty has uploaded this quarterly report to their website. Documentation of public notification is contained in **Attachment B**.

## Analytical Sampling

Samples for the wells for which deferrals were granted (#1, #3, #4, & #6) and entry point were collected during the third quarter of 2022 on July 25<sup>th</sup> and August 9<sup>th</sup>. The results are contained in the table below. Full laboratory reports are contained in **Attachment C**.

**Q3 2022 PFOA/PFOS Water Quality Monitoring Results (ng/l or ppt)**

Location	Date Sampled	PFOA	PFOS
<b>Well #1</b>	7/25/2022	8.90	<b>15.50</b>
	8/9/2022	10.00	13.00
<b>Well #3</b>	7/25/2022	<b>11.70</b>	6.60
	8/9/2022	<b>11.10</b>	4.10
<b>Well #4</b>	7/25/2022	<b>13.10</b>	9.20
	8/9/2022	<b>12.70</b>	5.30
<b>Well #6*</b>	N/A	N/A	N/A
<b>Entry Point</b>	7/25/2022	7.00	4.20
	8/9/2022	6.80	2.30

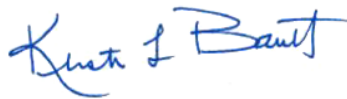
\*Well 6 Disconnected

## Conclusion

As demonstrated above, Liberty is actively working to preserve the quality of water for its customers and comply with the requirements put forth by the NYSDOH. Liberty looks forward to continuing to work towards completion of its treatment facilities.

Should you have any questions, please contact me via email at [KBarrett@hazenandsawyer.com](mailto:KBarrett@hazenandsawyer.com) or via phone at (917) 359-6809.

Very truly yours,



Kristen Barrett, PE  
Associate Vice President

Enclosure: Attachment A – Updated Project Schedule  
Attachment B – Public Notifications  
Attachment C – Laboratory Reports

cc: B. Rogers, P.E. (NYSDOH)  
D. Taylor (WCDOH)  
W. Schneider (WCDOH)  
C. Alario (Liberty)  
J. Kilpatrick (Liberty)  
C. Peters (Liberty)

**ATTACHMENT A**

**Project Schedule**



**ATTACHMENT B**

**Public Notifications**

## Christopher Peters

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**From:** Christopher Peters  
**Sent:** Thursday, August 18, 2022 5:19 AM  
**To:** Andre Ribeiro  
**Subject:** RE: TWH - Work Updates

Good Morning Andre,

I am realizing now that I never sent along the [quarterly report](#). Also, today we will be completing the final tie-in for the main and doing another set of sampling for the GAC treatment. After this, restoration efforts will begin in the coming weeks.

Christopher Peters | [Liberty Utilities](#) | Engineering Project Manager  
P: 516-632-2226 | C: 484-707-6797 | [christopher.peters@libertyutilities.com](mailto:christopher.peters@libertyutilities.com)  
60 Brooklyn Ave, Merrick, NY 11566

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**From:** Andre Ribeiro <[aribeiro@hudsonvalleymgt.com](mailto:aribeiro@hudsonvalleymgt.com)>  
**Sent:** Friday, July 1, 2022 12:34 PM  
**To:** Christopher Peters <[Christopher.Peters@libertyutilities.com](mailto:Christopher.Peters@libertyutilities.com)>  
**Subject:** RE: TWH - Work Updates

Thank you Chris, much appreciated. I will send this update to the Board only.

And yes, please send me the quarterly when you receive it.



*Andre Ribeiro*

225 Veterans Road, Yorktown Heights, NY 10598  
Phone: 914-234-0300 - Ext. 114  
Fax: 914-234-0889  
[www.hudsonvalleymgt.com](http://www.hudsonvalleymgt.com)

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**From:** Christopher Peters <[Christopher.Peters@libertyutilities.com](mailto:Christopher.Peters@libertyutilities.com)>  
**Sent:** Friday, July 1, 2022 12:18 PM  
**To:** Andre Ribeiro <[aribeiro@hudsonvalleymgt.com](mailto:aribeiro@hudsonvalleymgt.com)>  
**Subject:** RE: TWH - Work Updates

Andre,

In regards to the directional drill project, we intend on getting final sampling done next Tue/Wed and then we will submit for approval to the West Chester Department of Health. Once we obtain that approval, we will tie in the new main, fill any remaining excavations and begin restoration efforts. I would hope and anticipate getting approvals and beginning restoration this month.

In regards to the GAC treatment, we began the excavation for a waste tank, required for the backwashing of the new filters, this week. That tank should be delivered next week, and then we will backfill that hole. Any other major

construction on that project will be complete, and only restoration and landscaping will be needed. I will be putting out our required quarterly report next Friday and can share it with you.

Let me know if there are any questions.

**Christopher Peters** | [Liberty Utilities](#) | Engineering Project Manager  
P: 516-632-2226 | C: 484-707-6797 | [christopher.peters@libertyutilities.com](mailto:christopher.peters@libertyutilities.com)  
60 Brooklyn Ave, Merrick, NY 11566

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**From:** Andre Ribeiro <[aribeiro@hudsonvalleymgt.com](mailto:aribeiro@hudsonvalleymgt.com)>  
**Sent:** Friday, July 1, 2022 12:00 PM  
**To:** Christopher Peters <[Christopher.Peters@libertyutilities.com](mailto:Christopher.Peters@libertyutilities.com)>  
**Subject:** TWH - Work Updates

Hi Chris,

Any status updates on the work that is going on at the Willows.

Haven't heard anything in some time.



*Andre Ribeiro*

225 Veterans Road, Yorktown Heights, NY 10598

Phone: 914-234-0300 - Ext. 114

Fax: 914-234-0889

[www.hudsonvalleymgt.com](http://www.hudsonvalleymgt.com)



**ATTACHMENT C**

**Laboratory Reports**



575 Broad Hollow Road, Melville, NY 11747  
 TEL: (631) 694-3040 FAX: (631) 420-8436  
[www.pacelabs.com](http://www.pacelabs.com)

# Laboratory Results

Results for the samples and analytes requested  
 The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests

## Sample Information:

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506001**  
**Client Sample ID.: WELL 1-DYKEER**

Attn To : Natasha Niola

Federal ID : 5920065

Collected : 07/25/2022 10:15 AM Point WELL 1

Received : 07/26/2022 03:21 PM Location DYKEER

Collected By CLIENT

Parameter(s)	Results	Qualifier	D.F.	Units	Limit	Analyzed:	Container:
11CI-PF3OUdS	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
4:2 FTS	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
6:2 FTS	<3.7	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
8:2 FTS	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
9CI-PF3ONS	<1.8	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
ADONA	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
HFPO-DA	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
NFDHA	<1.8	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFBA	7.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFEESA	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFHpS	<1.8	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFMBA	<1.8	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFMPA	<1.8	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFPeA	7.6	P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
PFPeS	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorobutanesulfonic acid	8.9	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorodecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorododecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluoroheptanoic acid	2.6	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorohexanesulfonic acid	2.1	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorohexanoic acid	6.3	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorononanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Perfluorooctanesulfonic acid	<b>15.5*</b>	P4	1	ng/L	10	08/21/2022 7:57 PM	001 BP351/2
Perfluorooctanoic acid	8.9	L1,P4	1	ng/L	10	08/21/2022 7:57 PM	001 BP351/2
Perfluoroundecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C2-PFDoA (S)	54%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C24:2FTS (S)	105%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C26:2FTS (S)	92%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C28:2FTS (S)	86%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C3-PFBS (S)	100%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C3-PFHxS (S)	81%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C3HFPO-DA(S)	73%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C4-PFBA (S)	75%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C4-PFHpA (S)	71%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C5-PFHxA (S)	77%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C5-PFPeA (S)	82%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C6-PFDA (S)	68%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C7-PFUdA (S)	61%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C8-PFOA (S)	70%		1	%REC		08/21/2022 7:57 PM	001 BP351/2
Surr: 13C8-PFOS (S)	81%		1	%REC		08/21/2022 7:57 PM	001 BP351/2

**Qualifiers:**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit. Estimated value - below calibration range

U - Indicates the compound was analyzed for, but not detected

Jennifer Aracri

Test results meet the requirements of NELAC unless otherwise noted.

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Result(s) reported meet(s) NYS Regulatory Limit(s).  
 Result(s) flagged with \* Exceed NYS Regulatory Limit(s). Limit Noted.

Date Reported: 08/23/2022



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 TEL: (631) 694-3040 FAX: (631) 420-8436  
[www.pacelabs.com](http://www.pacelabs.com)

# Laboratory Results

Results for the samples and analytes requested  
 The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests

**Sample Information:**

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506001**  
**Client Sample ID.: WELL 1-DYKEER**

**Attn To :** Natasha Niola  
 Federal ID : 5920065  
 Collected : 07/25/2022 10:15 AM Point WELL 1  
 Received : 07/26/2022 03:21 PM Location DYKEER  
 Collected By CLIENT

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Surr: 13C9-PFNA (S) 70% 1 %REC 08/21/2022 7:57 PM 001 BP351/2

Qualifiers:

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# Laboratory Results

Results for the samples and analytes requested  
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## Sample Information:

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506002**  
**Client Sample ID.: WELL 3-DYKEER**

**Attn To : Natasha Niola**

Federal ID : 5920065

Collected : 07/25/2022 10:15 AM Point WELL 3

Received : 07/26/2022 03:21 PM Location DYKEER

Collected By CLIENT

Analytical Method: EPA 533		Prep Method: EPA 533			Prep Date: 08/20/2022 2:34 AM		
Parameter(s)	Results	Qualifier	D.F.	Units	Limit	Analyzed:	Container:
11CI-PF3OUdS	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
4:2 FTS	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
6:2 FTS	<3.7	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
8:2 FTS	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
9CI-PF3ONS	<1.8		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
ADONA	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
HFPO-DA	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
NFDHA	<1.8		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFBA	5.2	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFEESA	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFHpS	<1.8		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFMBA	<1.8		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFMPA	<1.8		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFPeA	8.6		1	ng/L		08/21/2022 8:13 PM	002 BP351/2
PFPeS	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorobutanesulfonic acid	5.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorodecanoic acid	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorododecanoic acid	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluoroheptanoic acid	3.1	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorohexanesulfonic acid	1.9	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorohexanoic acid	8.2	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorononanoic acid	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Perfluorooctanesulfonic acid	6.6		1	ng/L	10	08/21/2022 8:13 PM	002 BP351/2
Perfluorooctanoic acid	<b>11.7*</b>	L1	1	ng/L	10	08/21/2022 8:13 PM	002 BP351/2
Perfluoroundecanoic acid	<1.8	L1	1	ng/L		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C2-PFDoA (S)	75%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C24:2FTS (S)	100%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C26:2FTS (S)	88%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C28:2FTS (S)	93%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C3-PFBS (S)	101%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C3-PFHxS (S)	82%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C3HFPO-DA(S)	83%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C4-PFBA (S)	80%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C4-PFHpA (S)	76%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C5-PFHxA (S)	81%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C5-PFPeA (S)	87%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C6-PFDA (S)	71%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C7-PFUdA (S)	74%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
Surr: 13C8-PFOA (S)	73%		1	%REC		08/21/2022 8:13 PM	002 BP351/2
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Jennifer Aracri

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Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506002**  
**Client Sample ID.: WELL 3-DYKEER**

**Attn To :** Natasha Niola  
 Federal ID : 5920065  
 Collected : 07/25/2022 10:15 AM Point WELL 3  
 Received : 07/26/2022 03:21 PM Location DYKEER  
 Collected By CLIENT

---

Surr: 13C9-PFNA (S) 72% 1 %REC 08/21/2022 8:13 PM 002 BP351/2

Qualifiers:

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## Sample Information:

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506003**  
**Client Sample ID.: WELL 4-DYKEER**

**Attn To : Natasha Niola**

Federal ID : 5920065

Collected : 07/25/2022 10:15 AM Point WELL 4

Received : 07/26/2022 03:21 PM Location DYKEER

Collected By CLIENT

Analytical Method: EPA 533		Prep Method: EPA 533			Prep Date: 08/20/2022 2:34 AM		
Parameter(s)	Results	Qualifier	D.F.	Units	Limit	Analyzed:	Container:
11CI-PF3OUdS	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
4:2 FTS	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
6:2 FTS	<3.7	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
8:2 FTS	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
9CI-PF3ONS	<1.9		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
ADONA	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
HFPO-DA	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
NFDHA	<1.9		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFBA	7.0	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFEESA	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFHpS	<1.9		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFMBA	<1.9		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFMPA	<1.9		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFPeA	11.6		1	ng/L		08/21/2022 8:30 PM	003 BP351/2
PFPeS	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorobutanesulfonic acid	7.1	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorodecanoic acid	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorododecanoic acid	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluoroheptanoic acid	4.1	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorohexanesulfonic acid	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorohexanoic acid	9.4	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorononanoic acid	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Perfluorooctanesulfonic acid	9.2		1	ng/L	10	08/21/2022 8:30 PM	003 BP351/2
Perfluorooctanoic acid	<b>13.1*</b>	L1	1	ng/L	10	08/21/2022 8:30 PM	003 BP351/2
Perfluoroundecanoic acid	<1.9	L1	1	ng/L		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C2-PFDoA (S)	77%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C24:2FTS (S)	107%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C26:2FTS (S)	93%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C28:2FTS (S)	95%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C3-PFBS (S)	102%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C3-PFHxS (S)	82%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C3HFPO-DA(S)	85%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C4-PFBA (S)	81%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C4-PFHpA (S)	79%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C5-PFHxA (S)	85%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C5-PFPeA (S)	88%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C6-PFDA (S)	76%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C7-PFUdA (S)	78%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C8-PFOA (S)	76%		1	%REC		08/21/2022 8:30 PM	003 BP351/2
Surr: 13C8-PFOS (S)	85%		1	%REC		08/21/2022 8:30 PM	003 BP351/2

**Qualifiers:**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit. Estimated value - below calibration range

U - Indicates the compound was analyzed for, but not detected

Jennifer Aracri

Test results meet the requirements of NELAC unless otherwise noted.

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Result(s) reported meet(s) NYS Regulatory Limit(s).  
 Result(s) flagged with \* Exceed NYS Regulatory Limit(s). Limit Noted.

Date Reported: 08/23/2022



575 Broad Hollow Road, Melville, NY 11747  
 TEL: (631) 694-3040 FAX: (631) 420-8436  
[www.pacelabs.com](http://www.pacelabs.com)

# Laboratory Results

Results for the samples and analytes requested  
 The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests

**Sample Information:**

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506003**  
**Client Sample ID.: WELL 4-DYKEER**

**Attn To :** Natasha Niola  
 Federal ID : 5920065  
 Collected : 07/25/2022 10:15 AM Point WELL 4  
 Received : 07/26/2022 03:21 PM Location DYKEER  
 Collected By CLIENT

---

Surr: 13C9-PFNA (S) 78% 1 %REC 08/21/2022 8:30 PM 003 BP351/2

Qualifiers:

- DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
- ND - Not Detected at or above adjusted reporting limit.
- J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit. Estimated value - below calibration range
- U - Indicates the compound was analyzed for, but not detected

Jennifer Aracri

Test results meet the requirements of NELAC unless otherwise noted.

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Date Reported: 08/23/2022



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# Laboratory Results

Results for the samples and analytes requested  
 The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests

## Sample Information:

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Attn To : Natasha Niola**

Federal ID : 5920065

Collected : 07/25/2022 10:15 AM Point ENTRTY POINT

Received : 07/26/2022 03:21 PM Location DYKEER

Collected By CLIENT

**Lab No. : 70223506004**  
**Client Sample ID.: ENTRTY POINT- DYKEER**

Analytical Method: EPA 533		Prep Method: EPA 533			Prep Date: 08/20/2022 2:34 AM		
Parameter(s)	Results	Qualifier	D.F.	Units	Limit	Analyzed:	Container:
11CI-PF3OUdS	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
4:2 FTS	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
6:2 FTS	<3.5	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
8:2 FTS	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
9CI-PF3ONS	<1.8	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
ADONA	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
HFPO-DA	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
NFDHA	<1.8	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFBA	4.5	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFEESA	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFHpS	<1.8	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFMBA	<1.8	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFMPA	<1.8	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFPeA	5.7	P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
PFPeS	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorobutanesulfonic acid	3.5	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorodecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorododecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluoroheptanoic acid	2.3	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorohexanesulfonic acid	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorohexanoic acid	4.7	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorononanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Perfluorooctanesulfonic acid	4.2	P4	1	ng/L	10	08/21/2022 8:46 PM	004 BP351/2
Perfluorooctanoic acid	7.0	L1,P4	1	ng/L	10	08/21/2022 8:46 PM	004 BP351/2
Perfluoroundecanoic acid	<1.8	L1,P4	1	ng/L		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C2-PFDoA (S)	63%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C24:2FTS (S)	132%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C26:2FTS (S)	98%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C28:2FTS (S)	95%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C3-PFBS (S)	111%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C3-PFHxS (S)	89%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C3HFPO-DA(S)	83%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C4-PFBA (S)	80%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C4-PFHpA (S)	81%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C5-PFHxA (S)	88%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C5-PFPeA (S)	91%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C6-PFDA (S)	57%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C7-PFUdA (S)	60%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C8-PFOA (S)	71%		1	%REC		08/21/2022 8:46 PM	004 BP351/2
Surr: 13C8-PFOS (S)	88%		1	%REC		08/21/2022 8:46 PM	004 BP351/2

**Qualifiers:**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.  
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Jennifer Aracri

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 Result(s) flagged with \* Exceed NYS Regulatory Limit(s). Limit Noted.

Date Reported: 08/23/2022





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# Laboratory Results

Results for the samples and analytes requested  
 The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests

**Sample Information:**

Type: Drinking Water  
 Origin: Raw Well  
 Routine

**Liberty-NY - Upstate**  
**60 Brooklyn Ave.**  
**Merrick, NY 11566**

**Lab No. : 70223506004**  
**Client Sample ID.: ENTRTY POINT- DYKEER**

**Attn To :** Natasha Niola  
 Federal ID : 5920065  
 Collected : 07/25/2022 10:15 AM Point ENTRTY POINT  
 Received : 07/26/2022 03:21 PM Location DYKEER  
 Collected By CLIENT

---

Surr: 13C9-PFNA (S) 63% 1 %REC 08/21/2022 8:46 PM 004 BP351/2

Qualifiers:

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.  
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Jennifer Aracri

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 Result(s) flagged with \* Exceed NYS Regulatory Limit(s). Limit Noted.

Date Reported: 08/23/2022



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TEL: (631) 694-3040 FAX: (631) 420-8436  
[www.pacelabs.com](http://www.pacelabs.com)

**WorkOrder :**

70223506

## Laboratory Certifications

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**Pace Analytical Services Ormond Beach**

8 East Tower Circle, Ormond Beach, FL 32174  
Alaska DEC- CS/UST/LUST  
Alabama Certification #: 41320  
Colorado Certification: FL NELAC Reciprocity  
Connecticut Certification #: PH-0216  
Delaware Certification: FL NELAC Reciprocity  
Florida Certification #: E83079  
Georgia Certification #: 955  
Guam Certification: FL NELAC Reciprocity  
Hawaii Certification: FL NELAC Reciprocity  
Illinois Certification #: 200068  
Indiana Certification: FL NELAC Reciprocity  
Kansas Certification #: E-10383  
Kentucky Certification #: 90050  
Louisiana Certification #: FL NELAC Reciprocity  
Louisiana Environmental Certificate #: 05007  
Maine Certification #: FL01264  
Maryland Certification: #346  
Massachusetts Certification #: M-FL1264  
Michigan Certification #: 9911  
Mississippi Certification: FL NELAC Reciprocity  
Missouri Certification #: 236  
Montana Certification #: Cert 0074  
Nebraska Certification: NE-OS-28-14  
New Hampshire Certification #: 2958  
New Jersey Certification #: FL022  
New York Certification #: 11608  
North Carolina Environmental Certificate #: 667  
North Carolina Certification #: 12710  
North Dakota Certification #: R-216  
Ohio DEP 87780  
Oklahoma Certification #: D9947  
Pennsylvania Certification #: 68-00547  
Puerto Rico Certification #: FL01264  
South Carolina Certification: #96042001  
Tennessee Certification #: TN02974  
Texas Certification: FL NELAC Reciprocity  
US Virgin Islands Certification: FL NELAC Reciprocity  
Virginia Environmental Certification #: 460165  
West Virginia Certification #: 9962C  
Wisconsin Certification #: 399079670  
Wyoming (EPA Region 8): FL NELAC Reciprocity





Sample Condition Upon Receipt

WO#: 70223506

Client Name: Liberty Upstate

Project

PM: JSA Due Date: 08/05/22  
CLIENT: NYHW-UPSTATE

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other  
Tracking #: N/A

Custody Seal on Cooler/Box Present:  Yes  No Seals intact:  Yes  No  N/A

Packing Material:  Bubble Wrap  Bubble Bags  Ziploc  None  Other

Thermometer Used: TH097 T1148 Correction Factor: + 0.1

Cooler Temperature(°C): 5.2 Cooler Temperature Corrected(°C): 5.3

Temp should be above freezing to 6.0°C

USDA Regulated Soil (  N/A, water sample)

Date and Initials of person examining contents: AM 7/26 15:21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)?  Yes  No

Did samples originate from a foreign source including Hawaii and Puerto Rico)?  Yes  No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: (Triple volume provided for I) <input type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No -Includes date/time/ID, Matrix: <u>SL WY OIL</u>	12.
All containers needing preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
pH paper Lot #	Sample #
All containers needing preservation are found to be in compliance with method recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Initial when completed: Lot # of added preservative: Date/Time preservative added:
Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14. Positive for Res. Chlorine? Y N
KI starch test strips Lot #	
Residual chlorine strips Lot #	
SM 4500 CN samples checked for sulfide? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15. Positive for Sulfide? Y N
Lead Acetate Strips Lot #	
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if applicable):	

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted:

Date/Time:

Comments/ Resolution:

September 15, 2022

Natasha Niola  
Liberty-NY - Upstate  
60 Brooklyn Ave.  
Merrick, NY 11566

RE: Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

Dear Natasha Niola:

Enclosed are the analytical results for sample(s) received by the laboratory on August 10, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Melville
- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kimberley M. Mack for  
Jennifer Aracri  
jennifer.aracri@pacelabs.com  
(631)694-3040  
Project Manager

Enclosures

cc: Will Decker, Liberty-NY - Lynbrook OPS  
Anita Glisci, Liberty-NY - Merrick OPS  
Joshua Palmer, Liberty-NY - Lynbrook OPS



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

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### **Pace Analytical Services Ormond Beach**

8 East Tower Circle, Ormond Beach, FL 32174  
Alaska DEC- CS/UST/LUST  
Alabama Certification #: 41320  
Colorado Certification: FL NELAC Reciprocity  
Connecticut Certification #: PH-0216  
Delaware Certification: FL NELAC Reciprocity  
Florida Certification #: E83079  
Georgia Certification #: 955  
Guam Certification: FL NELAC Reciprocity  
Hawaii Certification: FL NELAC Reciprocity  
Illinois Certification #: 200068  
Indiana Certification: FL NELAC Reciprocity  
Kansas Certification #: E-10383  
Kentucky Certification #: 90050  
Louisiana Certification #: FL NELAC Reciprocity  
Louisiana Environmental Certificate #: 05007  
Maine Certification #: FL01264  
Maryland Certification: #346  
Massachusetts Certification #: M-FL1264  
Michigan Certification #: 9911  
Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236  
Montana Certification #: Cert 0074  
Nebraska Certification: NE-OS-28-14  
New Hampshire Certification #: 2958  
New Jersey Certification #: FL022  
New York Certification #: 11608  
North Carolina Environmental Certificate #: 667  
North Carolina Certification #: 12710  
North Dakota Certification #: R-216  
Ohio DEP 87780  
Oklahoma Certification #: D9947  
Pennsylvania Certification #: 68-00547  
Puerto Rico Certification #: FL01264  
South Carolina Certification: #96042001  
Tennessee Certification #: TN02974  
Texas Certification: FL NELAC Reciprocity  
US Virgin Islands Certification: FL NELAC Reciprocity  
Virginia Environmental Certification #: 460165  
West Virginia Certification #: 9962C  
Wisconsin Certification #: 399079670  
Wyoming (EPA Region 8): FL NELAC Reciprocity

---

### **Pace Analytical Services Long Island**

575 Broad Hollow Rd, Melville, NY 11747  
Connecticut Certification #: PH-0435  
Delaware Certification # NY 10478  
Maryland Certification #: 208  
Massachusetts Certification #: M-NY026  
New Hampshire Certification #: 2987

New Jersey Certification #: NY158  
New York Certification #: 10478 Primary Accrediting Body  
Pennsylvania Certification #: 68-00350  
Rhode Island Certification #: LAO00340  
Virginia Certification # 460302

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

Lab ID	Sample ID	Matrix	Date Collected	Date Received
70225337001	WELL 1 - DYKEER	Drinking Water	08/09/22 11:15	08/10/22 11:30
70225337002	WELL 3 - DYKEER	Drinking Water	08/09/22 11:15	08/10/22 11:30
70225337003	WELL 4 - DYKEER	Drinking Water	08/09/22 11:20	08/10/22 11:30
70225337004	ENTRY POINT - DYKEER	Drinking Water	08/09/22 11:20	08/10/22 11:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
70225337001	WELL 1 - DYKEER	EPA 522	AI1	2	PACE-MV
		EPA 533	SWR	41	PASI-O
70225337002	WELL 3 - DYKEER	EPA 522	AI1	2	PACE-MV
		EPA 533	SWR	41	PASI-O
70225337003	WELL 4 - DYKEER	EPA 522	AI1	2	PACE-MV
		EPA 533	SWR	41	PASI-O
70225337004	ENTRY POINT - DYKEER	EPA 522	AI1	2	PACE-MV
		EPA 533	SWR	41	PASI-O

PACE-MV = Pace Analytical Services - Melville

PASI-O = Pace Analytical Services - Ormond Beach

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

**Sample: WELL 1 - DYKEER**      **Lab ID: 70225337001**      Collected: 08/09/22 11:15      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>522 MSS 1,4 Dioxane (SIM)</b>									
Analytical Method: EPA 522    Preparation Method: EPA 522									
Pace Analytical Services - Melville									
1,4-Dioxane (p-Dioxane)	<b>0.084</b>	ug/L	0.020		1	08/25/22 14:08	08/26/22 01:44	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	90	%	70-130		1	08/25/22 14:08	08/26/22 01:44		
<b>533 PFAS Compounds, Water</b>									
Analytical Method: EPA 533    Preparation Method: EPA 533									
Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	763051-92-9	
4:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	757124-72-4	
6:2 FTS	<3.7	ng/L	3.7		1	09/02/22 11:54	09/10/22 05:15	27619-97-2	
8:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	39108-34-4	
9CI-PF3ONS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	756426-58-1	
ADONA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	919005-14-4	
HFPO-DA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	13252-13-6	
NFDHA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	1551772-58-	
Perfluorobutanesulfonic acid	<b>9.7</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	375-73-5	
Perfluorodecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	335-76-2	
Perfluorohexanoic acid	<b>6.1</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	307-24-4	
PFBA	<b>8.2</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	375-22-4	
PFEESA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	113507-82-7	
PFHpS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	375-92-8	
PFMBA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	863090-89-5	
PFMPA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	377-73-1	
PFPeA	<b>7.7</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	2706-90-3	
PFPeS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	2706-91-4	
Perfluorododecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	307-55-1	
Perfluoroheptanoic acid	<b>2.8</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	375-85-9	
Perfluorohexanesulfonic acid	<b>2.2</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	355-46-4	
Perfluorononanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	375-95-1	
Perfluorooctanesulfonic acid	<b>13.0</b>	ng/L	1.9		10	09/02/22 11:54	09/10/22 05:15	1763-23-1	
Perfluorooctanoic acid	<b>10</b>	ng/L	1.9		10	09/02/22 11:54	09/10/22 05:15	335-67-1	
Perfluoroundecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:15	2058-94-8	
<b>Surrogates</b>									
13C24:2FTS (S)	141	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C26:2FTS (S)	103	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C28:2FTS (S)	105	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C2-PFDoA (S)	60	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C3HFPO-DA(S)	93	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C3-PFBS (S)	124	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C3-PFHxS (S)	103	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C4-PFBA (S)	87	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C4-PFHpA (S)	87	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C5-PFHxA (S)	99	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C5-PFPeA (S)	100	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C6-PFDA (S)	67	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C7-PFUdA (S)	62	%	50-200		1	09/02/22 11:54	09/10/22 05:15		

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## ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

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**Sample: WELL 1 - DYKEER**      **Lab ID: 70225337001**      Collected: 08/09/22 11:15      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**533 PFAS Compounds, Water**      Analytical Method: EPA 533      Preparation Method: EPA 533  
Pace Analytical Services - Ormond Beach

**Surrogates**

13C8-PFOA (S)	80	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C8-PFOS (S)	97	%	50-200		1	09/02/22 11:54	09/10/22 05:15		
13C9-PFNA (S)	73	%	50-200		1	09/02/22 11:54	09/10/22 05:15		

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### ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

**Sample: WELL 3 - DYKEER**      **Lab ID: 70225337002**      Collected: 08/09/22 11:15      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>522 MSS 1,4 Dioxane (SIM)</b>									
Analytical Method: EPA 522    Preparation Method: EPA 522 Pace Analytical Services - Melville									
1,4-Dioxane (p-Dioxane)	0.067	ug/L	0.020		1	08/25/22 14:08	08/26/22 02:00	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	93	%	70-130		1	08/25/22 14:08	08/26/22 02:00		
<b>533 PFAS Compounds, Water</b>									
Analytical Method: EPA 533    Preparation Method: EPA 533 Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	763051-92-9	
4:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	757124-72-4	
6:2 FTS	<3.8	ng/L	3.8		1	09/02/22 11:54	09/10/22 05:32	27619-97-2	
8:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	39108-34-4	
9CI-PF3ONS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	756426-58-1	
ADONA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	919005-14-4	
HFPO-DA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	13252-13-6	
NFDHA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	1551772-58-	
Perfluorobutanesulfonic acid	5.4	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	375-73-5	
Perfluorodecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	335-76-2	
Perfluorohexanoic acid	7.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	307-24-4	
PFBA	5.2	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	375-22-4	
PFEESA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	113507-82-7	
PFHpS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	375-92-8	
PFMBA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	863090-89-5	
PFMPA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	377-73-1	
PFPeA	8.8	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	2706-90-3	
PFPeS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	2706-91-4	
Perfluorododecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	307-55-1	
Perfluoroheptanoic acid	3.0	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	375-85-9	
Perfluorohexanesulfonic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	355-46-4	
Perfluorononanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	375-95-1	
Perfluorooctanesulfonic acid	4.1	ng/L	1.9	10	1	09/02/22 11:54	09/10/22 05:32	1763-23-1	
Perfluorooctanoic acid	11.1	ng/L	1.9	10	1	09/02/22 11:54	09/10/22 05:32	335-67-1	
Perfluoroundecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:32	2058-94-8	
<b>Surrogates</b>									
13C24:2FTS (S)	138	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C26:2FTS (S)	103	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C28:2FTS (S)	103	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C2-PFDoA (S)	85	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C3HFPO-DA(S)	105	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C3-PFBS (S)	127	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C3-PFHxS (S)	107	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C4-PFBA (S)	94	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C4-PFHpA (S)	97	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C5-PFHxA (S)	106	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C5-PFPeA (S)	110	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C6-PFDA (S)	85	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C7-PFUdA (S)	88	%	50-200		1	09/02/22 11:54	09/10/22 05:32		

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## ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

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**Sample: WELL 3 - DYKEER**      **Lab ID: 70225337002**      Collected: 08/09/22 11:15      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**533 PFAS Compounds, Water**      Analytical Method: EPA 533      Preparation Method: EPA 533  
Pace Analytical Services - Ormond Beach

**Surrogates**

13C8-PFOA (S)	88	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C8-PFOS (S)	101	%	50-200		1	09/02/22 11:54	09/10/22 05:32		
13C9-PFNA (S)	87	%	50-200		1	09/02/22 11:54	09/10/22 05:32		

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### ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

**Sample: WELL 4 - DYKEER**      **Lab ID: 70225337003**      Collected: 08/09/22 11:20      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>522 MSS 1,4 Dioxane (SIM)</b>									
Analytical Method: EPA 522    Preparation Method: EPA 522									
Pace Analytical Services - Melville									
1,4-Dioxane (p-Dioxane)	0.077	ug/L	0.020		1	08/25/22 14:08	08/26/22 02:15	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	94	%	70-130		1	08/25/22 14:08	08/26/22 02:15		
<b>533 PFAS Compounds, Water</b>									
Analytical Method: EPA 533    Preparation Method: EPA 533									
Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	763051-92-9	
4:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	757124-72-4	
6:2 FTS	<3.9	ng/L	3.9		1	09/02/22 11:54	09/10/22 05:48	27619-97-2	
8:2 FTS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	39108-34-4	
9CI-PF3ONS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	756426-58-1	
ADONA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	919005-14-4	
HFPO-DA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	13252-13-6	
NFDHA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	1551772-58-	
Perfluorobutanesulfonic acid	6.8	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	375-73-5	
Perfluorodecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	335-76-2	
Perfluorohexanoic acid	8.8	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	307-24-4	
PFBA	6.7	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	375-22-4	
PFEESA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	113507-82-7	
PFHpS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	375-92-8	
PFMBA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	863090-89-5	
PFMPA	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	377-73-1	
PFPeA	10.8	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	2706-90-3	
PFPeS	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	2706-91-4	
Perfluorododecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	307-55-1	
Perfluoroheptanoic acid	3.8	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	375-85-9	
Perfluorohexanesulfonic acid	2.1	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	355-46-4	
Perfluorononanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	375-95-1	
Perfluorooctanesulfonic acid	5.3	ng/L	1.9	10	1	09/02/22 11:54	09/10/22 05:48	1763-23-1	
Perfluorooctanoic acid	12.7	ng/L	1.9	10	1	09/02/22 11:54	09/10/22 05:48	335-67-1	
Perfluoroundecanoic acid	<1.9	ng/L	1.9		1	09/02/22 11:54	09/10/22 05:48	2058-94-8	
<b>Surrogates</b>									
13C24:2FTS (S)	134	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C26:2FTS (S)	102	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C28:2FTS (S)	104	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C2-PFDoA (S)	42	%	50-200		1	09/02/22 11:54	09/10/22 05:48		S0
13C3HFPO-DA(S)	88	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C3-PFBS (S)	124	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C3-PFHxS (S)	102	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C4-PFBA (S)	86	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C4-PFHpA (S)	85	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C5-PFHxA (S)	97	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C5-PFPeA (S)	101	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C6-PFDA (S)	49	%	50-200		1	09/02/22 11:54	09/10/22 05:48		S0
13C7-PFUdA (S)	43	%	50-200		1	09/02/22 11:54	09/10/22 05:48		S0

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## ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

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**Sample: WELL 4 - DYKEER**      **Lab ID: 70225337003**      Collected: 08/09/22 11:20      Received: 08/10/22 11:30      Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**533 PFAS Compounds, Water**      Analytical Method: EPA 533      Preparation Method: EPA 533  
Pace Analytical Services - Ormond Beach

**Surrogates**

13C8-PFOA (S)	75	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C8-PFOS (S)	98	%	50-200		1	09/02/22 11:54	09/10/22 05:48		
13C9-PFNA (S)	64	%	50-200		1	09/02/22 11:54	09/10/22 05:48		

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## ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

**Sample: ENTRY POINT - DYKEER**    **Lab ID: 70225337004**    Collected: 08/09/22 11:20    Received: 08/10/22 11:30    Matrix: Drinking Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>522 MSS 1,4 Dioxane (SIM)</b>									
Analytical Method: EPA 522    Preparation Method: EPA 522									
Pace Analytical Services - Melville									
1,4-Dioxane (p-Dioxane)	<b>0.024</b>	ug/L	0.020		1	08/25/22 14:08	08/26/22 02:31	123-91-1	
<b>Surrogates</b>									
1,4-Dioxane-d8 (S)	93	%	70-130		1	08/25/22 14:08	08/26/22 02:31		
<b>533 PFAS Compounds, Water</b>									
Analytical Method: EPA 533    Preparation Method: EPA 533									
Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	763051-92-9	
4:2 FTS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	757124-72-4	
6:2 FTS	<b>&lt;3.8</b>	ng/L	3.8		1	09/02/22 11:54	09/10/22 06:05	27619-97-2	
8:2 FTS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	39108-34-4	
9CI-PF3ONS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	756426-58-1	
ADONA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	919005-14-4	
HFPO-DA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	13252-13-6	
NFDHA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	1551772-58-	
Perfluorobutanesulfonic acid	<b>3.4</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	375-73-5	
Perfluorodecanoic acid	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	335-76-2	
Perfluorohexanoic acid	<b>4.5</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	307-24-4	
PFBA	<b>4.2</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	375-22-4	
PFEESA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	113507-82-7	
PFHpS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	375-92-8	
PFMBA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	863090-89-5	
PFMPA	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	377-73-1	
PFPeA	<b>5.4</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	2706-90-3	
PFPeS	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	2706-91-4	
Perfluorododecanoic acid	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	307-55-1	
Perfluoroheptanoic acid	<b>2.3</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	375-85-9	
Perfluorohexanesulfonic acid	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	355-46-4	
Perfluorononanoic acid	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	375-95-1	
Perfluorooctanesulfonic acid	<b>2.3</b>	ng/L	1.9		10	09/02/22 11:54	09/10/22 06:05	1763-23-1	
Perfluorooctanoic acid	<b>6.8</b>	ng/L	1.9		10	09/02/22 11:54	09/10/22 06:05	335-67-1	
Perfluoroundecanoic acid	<b>&lt;1.9</b>	ng/L	1.9		1	09/02/22 11:54	09/10/22 06:05	2058-94-8	
<b>Surrogates</b>									
13C24:2FTS (S)	132	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C26:2FTS (S)	97	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C28:2FTS (S)	100	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C2-PFDoA (S)	64	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C3HFPO-DA(S)	94	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C3-PFBS (S)	127	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C3-PFHxS (S)	106	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C4-PFBA (S)	88	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C4-PFHpA (S)	88	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C5-PFHxA (S)	98	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C5-PFPeA (S)	104	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C6-PFDA (S)	59	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C7-PFUdA (S)	61	%	50-200		1	09/02/22 11:54	09/10/22 06:05		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

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**Sample: ENTRY POINT - DYKEER      Lab ID: 70225337004      Collected: 08/09/22 11:20      Received: 08/10/22 11:30      Matrix: Drinking Water**

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**533 PFAS Compounds, Water**      Analytical Method: EPA 533      Preparation Method: EPA 533  
Pace Analytical Services - Ormond Beach

**Surrogates**

13C8-PFOA (S)	80	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C8-PFOS (S)	98	%	50-200		1	09/02/22 11:54	09/10/22 06:05		
13C9-PFNA (S)	67	%	50-200		1	09/02/22 11:54	09/10/22 06:05		

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### QUALITY CONTROL DATA

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

QC Batch:	270855	Analysis Method:	EPA 522
QC Batch Method:	EPA 522	Analysis Description:	522 MSS 1,4 Dioxane
		Laboratory:	Pace Analytical Services - Melville

Associated Lab Samples: 70225337001, 70225337002, 70225337003, 70225337004

METHOD BLANK: 1368765 Matrix: Drinking Water

Associated Lab Samples: 70225337001, 70225337002, 70225337003, 70225337004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	<0.020	0.020	08/25/22 20:16	
1,4-Dioxane-d8 (S)	%	94	70-130	08/25/22 20:16	

LABORATORY CONTROL SAMPLE: 1368766

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	2	1.9	95	70-130	
1,4-Dioxane-d8 (S)	%			91	70-130	

MATRIX SPIKE SAMPLE: 1368767

Parameter	Units	70225227001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.74	2	2.7	96	70-130	
1,4-Dioxane-d8 (S)	%				93	70-130	

SAMPLE DUPLICATE: 1368768

Parameter	Units	70225227002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	<0.020	<0.020		30	
1,4-Dioxane-d8 (S)	%	90	94		30	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

QC Batch: 853300      Analysis Method: EPA 533  
QC Batch Method: EPA 533      Analysis Description: 533 PFAS Compounds, Water  
Laboratory: Pace Analytical Services - Ormond Beach  
Associated Lab Samples: 70225337001, 70225337002, 70225337003, 70225337004

METHOD BLANK: 4694821      Matrix: Drinking Water  
Associated Lab Samples: 70225337001, 70225337002, 70225337003, 70225337004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	<2.0	2.0	09/10/22 02:46	
4:2 FTS	ng/L	<2.0	2.0	09/10/22 02:46	
6:2 FTS	ng/L	<4.0	4.0	09/10/22 02:46	
8:2 FTS	ng/L	<2.0	2.0	09/10/22 02:46	
9CI-PF3ONS	ng/L	<2.0	2.0	09/10/22 02:46	
ADONA	ng/L	<2.0	2.0	09/10/22 02:46	
HFPO-DA	ng/L	<2.0	2.0	09/10/22 02:46	
NFDHA	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorobutanesulfonic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorodecanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorododecanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluoroheptanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorohexanesulfonic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorohexanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorononanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorooctanesulfonic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluorooctanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
Perfluoroundecanoic acid	ng/L	<2.0	2.0	09/10/22 02:46	
PFBA	ng/L	<2.0	2.0	09/10/22 02:46	
PFEESA	ng/L	<2.0	2.0	09/10/22 02:46	
PFHpS	ng/L	<2.0	2.0	09/10/22 02:46	
PFMBA	ng/L	<2.0	2.0	09/10/22 02:46	
PFMPA	ng/L	<2.0	2.0	09/10/22 02:46	
PFPeA	ng/L	<2.0	2.0	09/10/22 02:46	
PFPeS	ng/L	<2.0	2.0	09/10/22 02:46	
13C2-PFDoA (S)	%	68	50-200	09/10/22 02:46	
13C24:2FTS (S)	%	82	50-200	09/10/22 02:46	
13C26:2FTS (S)	%	83	50-200	09/10/22 02:46	
13C28:2FTS (S)	%	89	50-200	09/10/22 02:46	
13C3-PFBS (S)	%	92	50-200	09/10/22 02:46	
13C3-PFHxS (S)	%	86	50-200	09/10/22 02:46	
13C3HFPO-DA(S)	%	63	50-200	09/10/22 02:46	
13C4-PFBA (S)	%	70	50-200	09/10/22 02:46	
13C4-PFHpA (S)	%	73	50-200	09/10/22 02:46	
13C5-PFHxA (S)	%	75	50-200	09/10/22 02:46	
13C5-PFPeA (S)	%	79	50-200	09/10/22 02:46	
13C6-PFDA (S)	%	70	50-200	09/10/22 02:46	
13C7-PFUdA (S)	%	69	50-200	09/10/22 02:46	
13C8-PFOA (S)	%	69	50-200	09/10/22 02:46	
13C8-PFOS (S)	%	84	50-200	09/10/22 02:46	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

METHOD BLANK: 4694821 Matrix: Drinking Water  
Associated Lab Samples: 70225337001, 70225337002, 70225337003, 70225337004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C9-PFNA (S)	%	70	50-200	09/10/22 02:46	

LABORATORY CONTROL SAMPLE: 4694822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUdS	ng/L	7.6	7.8	102	70-130	
4:2 FTS	ng/L	7.6	7.3	96	70-130	
6:2 FTS	ng/L	7.6	6.5	86	70-130	
8:2 FTS	ng/L	7.6	7.7	101	70-130	
9Cl-PF3ONS	ng/L	7.6	7.6	100	70-130	
ADONA	ng/L	7.6	7.6	100	70-130	
HFPO-DA	ng/L	8	7.9	99	70-130	
NFDHA	ng/L	8	7.6	95	70-130	
Perfluorobutanesulfonic acid	ng/L	7.2	6.7	93	70-130	
Perfluorodecanoic acid	ng/L	8	7.7	97	70-130	
Perfluorododecanoic acid	ng/L	8	7.6	95	70-130	
Perfluoroheptanoic acid	ng/L	8	7.8	98	70-130	
Perfluorohexanesulfonic acid	ng/L	7.2	7.2	100	70-130	
Perfluorohexanoic acid	ng/L	8	7.8	98	70-130	
Perfluorononanoic acid	ng/L	8	7.9	99	70-130	
Perfluorooctanesulfonic acid	ng/L	7.6	6.0	79	70-130	
Perfluorooctanoic acid	ng/L	8	8.1	101	70-130	
Perfluoroundecanoic acid	ng/L	8	7.4	93	70-130	
PFBA	ng/L	8	7.9	98	70-130	
PFEESA	ng/L	7.2	7.6	106	70-130	
PFHpS	ng/L	7.6	7.2	95	70-130	
PFMBA	ng/L	8	7.4	93	70-130	
PFMPA	ng/L	8	7.5	94	70-130	
PFPeA	ng/L	8	7.8	97	70-130	
PFPeS	ng/L	7.6	7.7	102	70-130	
13C2-PFDoA (S)	%			71	50-200	
13C24:2FTS (S)	%			80	50-200	
13C26:2FTS (S)	%			85	50-200	
13C28:2FTS (S)	%			91	50-200	
13C3-PFBS (S)	%			92	50-200	
13C3-PFHxS (S)	%			85	50-200	
13C3HFPO-DA(S)	%			71	50-200	
13C4-PFBA (S)	%			71	50-200	
13C4-PFHpA (S)	%			72	50-200	
13C5-PFHxA (S)	%			76	50-200	
13C5-PFPeA (S)	%			82	50-200	
13C6-PFDA (S)	%			71	50-200	
13C7-PFUdA (S)	%			73	50-200	
13C8-PFOA (S)	%			70	50-200	

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### QUALITY CONTROL DATA

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

LABORATORY CONTROL SAMPLE: 4694822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
13C8-PFOS (S)	%			83	50-200	
13C9-PFNA (S)	%			71	50-200	

LABORATORY CONTROL SAMPLE: 4694823

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11CI-PF3OUdS	ng/L	1.9	<2.0	99	50-150	
4:2 FTS	ng/L	1.9	<2.0	102	50-150	
6:2 FTS	ng/L	1.9	<4.0	92	50-150	
8:2 FTS	ng/L	1.9	<2.0	100	50-150	
9CI-PF3ONS	ng/L	1.9	<2.0	95	50-150	
ADONA	ng/L	1.9	<2.0	91	50-150	
HFPO-DA	ng/L	2	<2.0	96	50-150	
NFDHA	ng/L	2	<2.0	98	50-150	
Perfluorobutanesulfonic acid	ng/L	1.8	<2.0	94	50-150	
Perfluorodecanoic acid	ng/L	2	<2.0	96	50-150	
Perfluorododecanoic acid	ng/L	2	<2.0	93	50-150	
Perfluoroheptanoic acid	ng/L	2	<2.0	94	50-150	
Perfluorohexanesulfonic acid	ng/L	1.8	<2.0	94	50-150	
Perfluorohexanoic acid	ng/L	2	<2.0	92	50-150	
Perfluorononanoic acid	ng/L	2	<2.0	93	50-150	
Perfluorooctanesulfonic acid	ng/L	1.9	<2.0	82	50-150	
Perfluorooctanoic acid	ng/L	2	<2.0	95	50-150	
Perfluoroundecanoic acid	ng/L	2	<2.0	100	50-150	
PFBA	ng/L	2	<2.0	98	50-150	
PFEESA	ng/L	1.8	<2.0	100	50-150	
PFHpS	ng/L	1.9	<2.0	89	50-150	
PFMBA	ng/L	2	<2.0	88	50-150	
PFMPA	ng/L	2	<2.0	91	50-150	
PFPeA	ng/L	2	<2.0	100	50-150	
PFPeS	ng/L	1.9	<2.0	99	50-150	
13C2-PFDoA (S)	%			62	50-200	
13C24:2FTS (S)	%			84	50-200	
13C26:2FTS (S)	%			84	50-200	
13C28:2FTS (S)	%			90	50-200	
13C3-PFBS (S)	%			96	50-200	
13C3-PFHxS (S)	%			85	50-200	
13C3HFPO-DA(S)	%			74	50-200	
13C4-PFBA (S)	%			69	50-200	
13C4-PFHpA (S)	%			70	50-200	
13C5-PFHxA (S)	%			74	50-200	
13C5-PFPeA (S)	%			84	50-200	
13C6-PFDA (S)	%			58	50-200	
13C7-PFUdA (S)	%			62	50-200	
13C8-PFOA (S)	%			65	50-200	

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**QUALITY CONTROL DATA**

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

LABORATORY CONTROL SAMPLE: 4694823

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
13C8-PFOS (S)	%			86	50-200	
13C9-PFNA (S)	%			60	50-200	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4695267 4695268

Parameter	Units	35739825002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
11CI-PF3OUdS	ng/L	0.00042U ug/L	1.8	1.8	<1.9	1.9	91	103	70-130		30	
4:2 FTS	ng/L	0.00054U ug/L	1.8	1.8	<1.9	<1.9	89	92	70-130		30	
6:2 FTS	ng/L	0.0033U ug/L	1.8	1.8	<3.8	<3.8	80	107	70-130		30	
8:2 FTS	ng/L	0.00045U ug/L	1.8	1.8	<1.9	<1.9	93	99	70-130		30	
9CI-PF3ONS	ng/L	0.00047U ug/L	1.8	1.8	<1.9	2.0	90	107	70-130		30	
ADONA	ng/L	0.00041U ug/L	1.8	1.8	<1.9	<1.9	93	99	70-130		30	
HFPO-DA	ng/L	0.00069U ug/L	1.9	1.9	<1.9	<1.9	98	92	70-130		30	
NFDHA	ng/L	0.00028U ug/L	1.9	1.9	<1.9	<1.9	94	95	70-130		30	
Perfluorobutanesulfonic acid	ng/L	0.00041U ug/L	1.7	1.7	<1.9	2.0	89	97	70-130		30	
Perfluorodecanoic acid	ng/L	0.00030U ug/L	1.9	1.9	<1.9	<1.9	89	94	70-130		30	
Perfluorododecanoic acid	ng/L	0.00051U ug/L	1.9	1.9	<1.9	<1.9	91	93	70-130		30	
Perfluoroheptanoic acid	ng/L	0.00042U ug/L	1.9	1.9	2.0	<1.9	99	88	70-130		30	
Perfluorohexanesulfonic acid	ng/L	0.00035U ug/L	1.7	1.7	2.2	<1.9	115	87	70-130		30	
Perfluorohexanoic acid	ng/L	0.00030U ug/L	1.9	1.9	2.0	2.1	94	93	70-130	1	30	
Perfluorononanoic acid	ng/L	0.00031U ug/L	1.9	1.9	<1.9	<1.9	91	91	70-130		30	
Perfluorooctanesulfonic acid	ng/L	0.00074J ug/L	1.8	1.8	2.1	2.1	77	74	70-130	1	30	
Perfluorooctanoic acid	ng/L	0.00030U ug/L	1.9	1.9	1.9	2.0	90	93	70-130	4	30	
Perfluoroundecanoic acid	ng/L	0.00040U ug/L	1.9	1.9	<1.9	<1.9	88	94	70-130		30	
PFBA	ng/L	0.00058U ug/L	1.9	1.9	2.1	2.2	95	99	70-130	6	30	
PFEESA	ng/L	0.00033U ug/L	1.7	1.7	<1.9	<1.9	100	96	70-130		30	
PFHpS	ng/L	0.00038U ug/L	1.8	1.8	<1.9	2.0	92	107	70-130		30	
PFMBA	ng/L	0.00025U ug/L	1.9	1.9	<1.9	<1.9	90	93	70-130		30	

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**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL DATA**

Project: 1,4 DIOXANE/533 8/9  
Pace Project No.: 70225337

Parameter	Units	4695267		4695268		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		35739825002 Result	MS Spike Conc.	MSD Spike Conc.									
PFMPA	ng/L	0.00031U ug/L	1.9	1.9	<1.9	<1.9	90	97	70-130		30		
PFPeA	ng/L	0.00038J ug/L	1.9	1.9	2.0	2.3	86	99	70-130	13	30		
PFPeS	ng/L	0.00033U ug/L	1.8	1.8	1.9	1.9	105	104	70-130	1	30		
13C2-PFDoA (S)	%						41	76	50-200				S0
13C24:2FTS (S)	%						98	102	50-200				
13C26:2FTS (S)	%						98	99	50-200				
13C28:2FTS (S)	%						103	107	50-200				
13C3-PFBS (S)	%						108	115	50-200				
13C3-PFHxS (S)	%						93	97	50-200				
13C3HFPO-DA(S)	%						82	79	50-200				
13C4-PFBA (S)	%						74	76	50-200				
13C4-PFHpA (S)	%						74	74	50-200				
13C5-PFHxA (S)	%						80	79	50-200				
13C5-PFPeA (S)	%						87	89	50-200				
13C6-PFDA (S)	%						42	70	50-200				S0
13C7-PFUdA (S)	%						38	76	50-200				S0
13C8-PFOA (S)	%						66	69	50-200				
13C8-PFOS (S)	%						98	94	50-200				
13C9-PFNA (S)	%						53	67	50-200				

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## QUALIFIERS

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 1,4 DIOXANE/533 8/9

Pace Project No.: 70225337

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
70225337001	WELL 1 - DYKEER	EPA 522	270855	EPA 522	270994
70225337002	WELL 3 - DYKEER	EPA 522	270855	EPA 522	270994
70225337003	WELL 4 - DYKEER	EPA 522	270855	EPA 522	270994
70225337004	ENTRY POINT - DYKEER	EPA 522	270855	EPA 522	270994
70225337001	WELL 1 - DYKEER	EPA 533	853300	EPA 533	854959
70225337002	WELL 3 - DYKEER	EPA 533	853300	EPA 533	854959
70225337003	WELL 4 - DYKEER	EPA 533	853300	EPA 533	854959
70225337004	ENTRY POINT - DYKEER	EPA 533	853300	EPA 533	854959

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WO#: 70225337



70225337

# Sample Request Form PUBLIC WATER SUPPLIER

WELL OFF LINE

Date: 8/19/22

Collected By: Rehmane

**Client Info:**

Name or Code: Liberty - Upstate Ops  
 Address: 60 Broadwell Ave.  
Meachuck NY 11566  
 Phone #: (516) 793-5844  
 Attn: William Decker  
 Proj. # or (Name): \_\_\_\_\_  
 Bill To: \_\_\_\_\_  
 Copies To: Mintasha Nicola

WELL RUN TO SYSTEM

YES  NO VOC'S PRESERVED WITH HCl

Accepted By: Sped P-H, 8/19/22, 11:30 AM

Cooler Temp: 0.4 °C (W)

Sample Types	Purpose	Origin	Treatment Types
PW - Potable Water	RO - Routine	D - Distribution	AST - Air Stripper
GW - Groundwater	RE - Resample	RW - Raw Well	GAC - Granular Activated Charcoal
SW - Surface Water	S - Special	TW - Treated Well	N - Nitrate Removal Plant
WW - Waste Water		T - Tank	FE - Iron Removal Plant
AQ - Aqueous		MW - Monitoring Well	O - Other
S - Soil		I - Influent	
		E - Effluent	

**Sample Info:**

Date/Time Collected:	Sample Type	Location	Origin	Treatment Type	Purpose	Field Readings Cl <sub>2</sub> pH/Temp	Analysis	Lab No.
8/19/11:15	GW	<del>well 1</del> well 1 - Dykeer	rw	/	ND	/	method 522 - 1,4 dioxane	
8/19/11:15	GW	well 3 - Dykeer	rw	/	ND	/	method 522 - 1,4 dioxane	
8/19/11:20	GW	well 4 - Dykeer	rw	/	ND	/	method 522 - 1,4 dioxane	
8/19/11:20	GW	Entry Point - Dykeer	rw	/	ND	/	method 522 - 1,4 dioxane	
8/19/11:15	GW	well 1 - Dykeer	rw	/	ND	/	method 533 - PFDA	
8/19/11:15	GW	well 3 - Dykeer	rw	/	ND	/	method 533 - PFDA	
8/19/11:20	GW	well 4 - Dykeer	rw	/	ND	/	method 533 - PFDA	
8/19/11:20	GW	Entry Point - Dykeer	rw	/	ND	/	method 533 - PFDA	

Remarks:



Sample Condition Upon Receipt

WO#: 70225337

Client Name: NYAW-UPSTATE

PM: JSA Due Date: 08/24/22 CLIENT: NYAW-UPSTATE

Courier: Fed Ex UPS USPS Client Commercial Pace Other Tracking #:

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No N/A Packing Material: Bubble Wrap Bubble Bags Ziploc None Other Thermometer Used: HH99 TH148 Correction Factor: + 0.1 Cooler Temperature: 4.30 H Cooler Temperature Corrected: .5 Temp should be above freezing to 6.0°C

Temperature Blank Present: Yes No Type of Ice: Wet Blue None Samples on ice, cooling process has begun Date/Time 5035A kits placed in freezer

USDA Regulated Soil (N/A, water sample)

Date and Initials of person examining contents: KW d/22

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? Yes No

Did samples originate from a foreign source including Hawaii and Puerto Rico? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

Table with 17 rows and 3 columns. Columns: Question, Yes/No/N/A, and Comments. Rows include Chain of Custody Present, Sample Labels match COC, All containers needing preservation checked, Samples checked for dechlorination, etc.

Client Notification/ Resolution: Field Data Required? Y / N Person Contacted: Date/Time: Comments/ Resolution:

\* PM [Project Manager] review is documented electronically in LIMS