SCHOOL OF OCEANOGRAPHY

Show Client

Name Oceangate Inc.

Address 1205 Craftsman Way, Suite 112
 Everett, WA 98201

Admin Phone [redacted]

Technical Phone [redacted]

Admin Email [redacted]

Technical Email [redacted]

Bill Reports
21Dec Oceangate: $2000.00 01/04/22 OTS2568 Paid
20AugOceangate: $2600.00 08/27/20 OTS2343 Paid
20JulyOceangate: $1160.00 07/28/20 OTS2332 Paid
18MayOceangate: $800.00 05/29/18 OTS1833 Paid
16JulOceangate: $3115.00 07/25/16 OTS1247 Paid
OceanGate PV Mar 2016: $800.00 03/30/16 OTS1147 Paid
OceanGate PV Feb 2016: $480.00 03/02/16
OceanGate PV Dec 2015: $485.00 01/08/16 OTS1087 Paid
APL Dyer/OceanGate PV December 2015: $0.00 01/07/16

Total Bills: $11,440.00

Cost Center Pressure Test Vessel

Projects APL Dyer/ OceanGate

Edit

SCHOOL OF OCEANOGRAPHY

Bill Report

Incremental #	OTS2568
Reference #	21Dec Oceangate
PO #	30Nov_1Dec Pressure Testing
Total	$2000.00
Bill Notes	Payment posted on 2/24/22.
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	01-04-2022
Service End Date	01-04-2022
Invoice Date	01-05-2022
Date Paid	01-05-2022

Items

Total	Description	Hours/Qty	Rate
$2000.00	Pressure Testing	Hours/Qty: 12.5	Rate: $166.00/hr

SCHOOL OF OCEANOGRAPHY

Bill Report

Incremental #	OTS2343
Reference #	20AugOceangate
PO #	August 2020 Pressure Testing
Total	$2600.00
Bill Notes	Payment posted on 9/28/20
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	08-27-2020
Service End Date	08-27-2020
Invoice Date	08-28-2020
Date Paid	08-28-2020

Items

Total	Description	Hours/Qty	Rate
$2600.00	Aug20 Pressure Testing	Hours/Qty: 16.25	Rate: $166.00/hr

View as Invoice Edit Preview

SCHOOL OF OCEANOGRAPHY

Bill Report

Incremental #	OTS2332
Reference #	20JulyOceangate
PO #	27JulyPressureTest
Total	$1160.00
Bill Notes	Payment posted on 8/24/20
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	07-28-2020
Service End Date	07-28-2020
Invoice Date	07-29-2020
Date Paid	07-29-2020

Items

Total	Description	Hours/Qty	Rate
$1160.00	Pressure Test	Hours/Qty: 7.25	Rate: $166.00/hr

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SCHOOL OF OCEANOGRAPHY

Bill Reports Cost Centers Users Roles Files SEARCH kittie Log Out

New Cost Center New User New Role

Bill Report

Incremental #	OTS1833
Reference #	18MayOceangate
Worktag	99zz
PO #	10May18 Pressure test
Total	$800.00
Bill Notes	Payment posted on 6/11/18
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	05-10-2018
Service End Date	05-10-2018
Invoice Date	06-01-2018
Date Paid	06-01-2018

Items

Total	Description	Hours/Qty	Rate
$800.00	Pressure Test	Hours/Qty: 5.0	Rate: $166.00/hr

View as Invoice Edit Preview

SCHOOL OF OCEANOGRAPHY

Bill Reports | Cost Centers | Users | Roles | Files | SEARCH | kittie | Log Out

New Cost Center | New User | New Role

Bill Report

Incremental #	OTS1247
Reference #	16JulOceangate
Worktag	99zz
PO #	7Jul16 Pressure Test
Total	$3115.00
Bill Notes	Payment posted on 9/20/16
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	07-07-2016
Service End Date	07-07-2016
Invoice Date	08-03-2016
Date Paid	08-02-2016

Items

Total	Description	Hours/Qty	Rate
$75.00	Replacement Filters and Cleanup Equipment	Hours/Qty: 75.0	Rate: $1.00each
$1920.00	Cleanup and repairs	Hours/Qty: 12.0	Rate: $166.00/hr
$1120.00	Setup and pressure test	Hours/Qty: 7.0	Rate: $166.00/hr

View as Invoice | Edit | Preview

SCHOOL OF OCEANOGRAPHY

Bill Report

Incremental #	OTS1147
Reference #	OceanGate PV Mar 2016
Worktag	99zz
PO #	11Mar16 Pressure Test
Total	$800.00
Bill Notes	Payment posted on 4/14/16
Client	Oceangate Inc.
Cost Center	Pressure Test Vessel
Service Begin Date	03-11-2016
Service End Date	03-11-2016
Invoice Date	03-31-2016
Date Paid	03-31-2016

Items

Total	Description	Hours/Qty	Rate
$800.00	Pressure Test 11Mar	Hours/Qty: 5.0	Rate: $166.00/hr

SCHOOL OF OCEANOGRAPHY

Bill Reports Cost Centers Users Roles Files SEARCH kittie Log Out

New Cost Center New User New Role

Bill Report

This bill report is on hold

Reference # OceanGate PV Feb 2016

Total $480.00

Client Oceangate Inc.

Cost Center Pressure Test Vessel

Service Begin Date 02-01-2016

Service End Date 02-29-2016

Items

Total	Description	Hours/Qty	Rate
$480.00		Hours/Qty: 3.0	Rate: $166.00/hr

Add an Item

Preview

Bill Report

Incremental #	OTS1087
Reference #	OceanGate PV Dec 2015
PO #	2016-101
Total	$485.00
Bill Description	UW pressure vessel
Bill Notes	payment posted on 1/20/16
Client	Oceangate Inc.
Project	APL Dyer/ OceanGate
Cost Center	Pressure Test Vessel
Service Begin Date	12-21-2016
Service End Date	12-21-2016
Invoice Date	01-08-2016
Date Paid	01-08-2016

Items

Total	Description	Hours/Qty	Rate
$485.00	UW pressure vessel	Hours/Qty: 5.0	Rate: $103.00/hr

Bill Report

This bill report is on hold

This bill report has no items

Reference #	APL Dyer/OceanGate PV December 2015
PO #	2016-101
Client	Oceangate Inc.
Project	APL Dyer/ OceanGate
Cost Center	Pressure Test Vessel
Service Begin Date	12-01-2015
Service End Date	12-31-2015
Invoice Date	01-08-2016

Items

Total	Description	Hours/Qty	Rate

Preview

Ocean

OceanGate, Inc.

Date: January 4, 2016
P.O. #: 2016-101
Customer ID:

Vendor:

APL
[redacted]

Ship to:

OceanGate, Inc.
1205 Craftsman Way #112
Everett, WA 98201

Department	Asset	Chart #	Class	QUOTE
Water/Sub	1602			

Shipping Method	Shipping Terms	Delivery Date

Qty	Item #	Description	Job	Unit Price	Line Total
5.00	PJN 494-603	5 hours	Cyclops 2	$ 97.00	$ 485.00

1. Please send two copies of your invoice.
2. Enter this order in accordance with the prices, terms, delivery method, and specifications listed above.
3. Please notify us immediately if you are unable to ship as specified.
4. Send all correspondence to:

K.Thompson
OceanGate, Inc.
9825 141st PL NE, Woodinville, WA 98072
425-939-8409
email: kthompson@oceangate.com

Subtotal $ 485.00
Sales Tax
[redacted]

Note: Terms Net30

$ 485.00

From: [redacted] <[redacted]
To: [redacted]
Subject: August pressure testing
Date: Thu, 30 Jul 2020 03:38:56 -0700

Hi [redacted];
Would you like me to hold August 11-13 for you? If not, I need to know ASAP so that I can open those dates up for other users/tests and cancel the night test.
Thank you;
[redacted]

--
}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>
[redacted], Oceanographer. University of Washington.
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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[redacted] <[redacted]

To: [redacted]

Subject: Ballsting

Date: Tue, 4 Aug 2020 09:26:07 -0700

Hi [redacted]

I see that you are ballasting again this week. Because I will be running the vessel for Oceangate next week, and they have a history of catastrophic failures (implosions-just last week as a matter of fact), I suggest that you remove your connector at the conclusion of your testing, [redacted] seems to worry about it if there are implosions....

Cheers,

[redacted]

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}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>

[redacted], Oceanographer. University of Washington.

Marine Chemistry Laboratory Pressure Test Vessel

Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]

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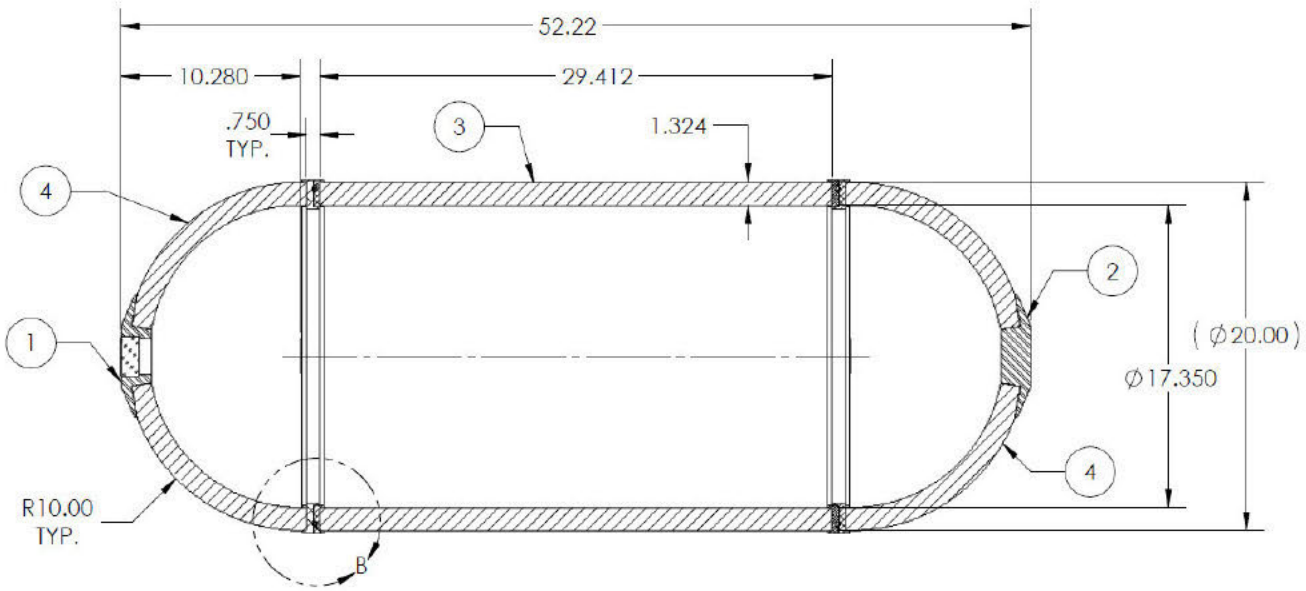
Applied Physics Laboratory
University of Washington

1013 NE 40th Street
Box 355640
Seattle, WA 98105-6698

FAX [redacted]
www.apl.washington.edu

Cyclops ¼ Scale Pressure Hull Pressure Test

The following is the procedure for the pressure test of the Oceangate ¼ Scale pressure hull system. The objective of the test is to validate the pressure vessel design is capable of withstanding seawater pressure corresponding to operating in the ocean at a depth of 6000 meters. The pressure vessel configuration is shown in Figure 1. The pressure vessel material is fiber spun carbon fiber with 17-4 PH1100 stainless steel interface rings.



SECTION A-A

Strain gages will be installed and monitored during this test. All gages will be internal to the test article and the signals will be brought out of the pressure test chamber via the Seacon connectors installed in the pressure chamber endcap. All strain data will be captured and recorded with an external laptop computer provided by APL-UW and operated by APL-UW.

The vessel will be received by APL-UW, which will then be transported to the School of Oceanography pressure test chamber (http://www.ocean.washington.edu/story/Pressure+Test+Vessel) located in Ocean Science Building at the University of Washington. The test will be conducted by [redacted] or TBD.

Pre and Post-test pressure vessel weights will be recorded as best as possible.

Pre-test weight _____

Post Test weight _____

The vessel will be suspended form the pressure test chamber top enclosure by way of a bridle. Ballast will be suspended from the bottom of the test article to prevent the test article from contacting the pressure chamber endcap once the chamber is filled with water. The vessel will be lowered into the test chamber, the chamber filled with water and the pressure test will begin. Standard operating procedures utilized by the OSB test chamber operator and the following pressure profile will be followed:
Depressurization

1) Pressure test to 9640 psi (or maximum allowed pressure) – this pressure is considered to provide testing to 6000 m with safety factor of greater than 1.0. The test will include stops at:

Test Step	Pressure Goal (psi)	SW Equivalent Depth (m)	Actual Pressure (psi)	Dwell Duration (minutes)	Cumulative Test Time	Comments
1	100	68		5		
2	500	342		5		
3	1000	685		5		
4	1500	1027		5		
5	2000	1369		5		
6	3000	2054		5		
7	4000	2739		10		
8	5000	3424		5		
9	5850	4006		10		
10	6500	4451		5		
11	7500	5135		5		
12	8775	6009		5		
13	**9640**	**6601**		15		Maximum allowable pressure for test chamber
Depressurization						
1	9400	6436		5		
2	5850	4006		5		
3	3000	2054		5		
4	100	68		5		
5	0	0				

* Max pressure increase rate of 1 to 2 m/s (88 to 175 psi per min)
* Max depressurization rate of 1 to 3 m/s (88 to 265 psi per min)

Dwell time at intermediate steps will be long enough to verify the pressure vessel is holding pressure. Dwell time at full pressure will be 15 minutes minimum or at the discretion of the test operator.

Total test time is anticipated to be TBD hours (hanging of vessel to removing vessel)

Following the full depth pressure test, the pressure will be relived at a control rate of 1 to 3 m/s ascent (88 to 265 psi) as close to as possible to the target ascent rate.

A second pressure test may be conducted.

The pressure vessel will be removed from the test chamber and the pressure vessel weight will be recorded.

Test data logged by the test operator will be emailed to [redacted] ([redacted] which will then be forwarded to Oceangate.

The following personnel will observe the pressure test in the test chamber room at the discretion of the OSB pressure chamber operator:

[redacted]	UW – pressure chamber operator [redacted]
[redacted]	APL-UW Lead and Customer test director [redacted]
[redacted]	APL-UW – support engr as required [redacted]
[redacted]	Oceangate - Customer [redacted]
[redacted]	Spencer Composites – Hull design engr and fabricator [redacted]

From: [redacted] <[redacted]
To: [redacted]" <[redacted]
Subject: Fwd: Would like to schedule a pressure test. (fwd)
Date: Tue, 28 Nov 2017 13:13:44 -0800
Importance: Normal

Hi[redacted];
Good to hear from you, it's been awhile! It sounds like you won't have any carbon fiber at all this time, so we can go ahead and run your assemblies. At what pressure would you like them tested? If you need testing above 6000PSI we'll have to schedule a building closure (like we have done for you in the past) Can we run them all at once or would we have to do multiple runs? Dimensions would be helpful.
Cheers;
[redacted]
---------- Forwarded message ----------
From: <[redacted]
Date: Mon, Nov 27, 2017 at 1:36 PM
Subject: Re: Would like to schedule a pressure test. (fwd)
To: "T. [redacted] <[redacted]

---------- Forwarded message ----------
Date: Mon, 27 Nov 2017 21:27:02 +0000
From: [redacted] <[redacted]
To: "[redacted] <[redacted]
Cc: "[redacted] <[redacted]
Subject: Re: Would like to schedule a pressure test.

Hi, [redacted].

[redacted], here, from OceanGate. We did a pressure test at your facility back in ~June/July of this year.

We'd like to schedule another pressure test with you in December. It won't be another 1/3 scale of our hull. It'll just be smaller components/assemblies we've
designed.

All the best,

[redacted]

Director of Engineering

OceanGate, Inc.

1205 Craftsman Way Suite 112
Everett, WA 98201
(direct) [redacted]

(office) [redacted]
www.oceangate.com

From: [redacted]
Sent: Tuesday, May 31, 2016 4:10:28 PM
To: [redacted]
Cc: [redacted]
Subject: Would like to schedule a pressure test.

Hello, [redacted].

I was passed along your contact information from [redacted] and [redacted] We, at OceanGate, would like to schedule another test in your facility for our 1/3 scale article.

What number is best to call so I can schedule a test and get all the requirements from you?

Our target test date would be ~June 24th.

Kindest regards,

[redacted]

Director of Engineering

OceanGate, Inc.

1205 Craftsman Way Suite 112

Everett, WA 98201

Mobile: [redacted]

www.oceangate.com

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}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>

[redacted], Oceanographer. University of Washington.
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]

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[redacted]

Oceangate c.f. cylinder loaded w/wood + non-compressable foam wrapped w/garden type ground cover

CA: 20" OD 45" Long Aluminum end caps

Time	PSI	Event
7/5/16		
1708.10	16.95	close/purge
1750	55.00	
1752.30	1002.07	Hold
1803	1010	Go To 1500
1803.50	1507.11	→2K
1805.50	2008.36	
1809.50	2002	→2500
1811.30	2506.93	
1812	2504	→3K
1814.04	3004.53	
1814.50	3003.31	→3500
1817	3504.58	
1819	3502	→4000
1820.50	4009.18	
1823.20	4007.32	→4500
1826.30	4508.66	→5000
1830.40	5001.15	→4500
1834	4500	→5000
1837.30	5005.63	→5500
1840.30	5506.17	→5000
1843.20	4994.21	→5500
1845	5505.13	→6000
1852.20	6004.21	→5500
1903.40	5507.54	→6000
1906 1904.40	6003.68	→6500
1912.50	6501.84	FAIL pressure sensor gone? - No just disconnected

28Mar18 Oceangate - Aluminum Can + 3D Plastic + Camera Unit + Foam

		Event
1126.20	15.69	Close purge
1137.20	55.33	R1 hold @55
~1152	~53	R2 to 500
1154.30	500.25	Hold
1156.10	498.61	R3 to 1000
1158	1002.30	Hold • bumped up pressure
1211.40	1001.30	Release
~~1230~~	~~1000~~	~~R4 to 1000~~
1504.30	17.71	R4 to ~~1000~~ 500
1506.30	503.92	
1507.00	503	
1508.20	~~1000~~ 1001.84	Hold
1510.40	~~100~~ 1000.13	Release
1521.40	16.64	R5 to ~~100~~ 8000
1525.30	1000.50	Hold
1527	1001.00	To 2810
1531.50	2809.43	Hold
1535	2805	To 3300
1537	3302.15	Hold
1544	3300	To 3800
1545.50	3801.71	Hold
	3800	To 4300
1548	4300	Hold
1550	4800	To 4800
	4800	Hold ∴ bumped up pressure
1556.40	4800	To 5300
1558.20	5301.40	Hold ∴
1602.40	5300	To 5800 Fail @ 5500

[redacted] Pass Thru Leaking

Time	PSI
822.20	15.40
	~55
829	302.27
839	301.90
846	57.46
854.40	602.64
902.30	1118.19
905	1491.40
915	1490.54
924.40	57.00
932.40	746.13
936.30	1491.95
946.30	1491.12
955.30	56.13
1004	745.86
1008.10	1491.44
1018.10	1490.39
1026.50	53.89
1035	746.06
1039	1491.96
1049	1490.99
1057.30	57.71
1105.40	745.78
1110.40	1641.79
1140.40	1641.80

Oceangate

time	psi	event	
813	15.41	close/purse (Filter blew off @ 1975 not holding psi	after
1058	1547	close/purge - restart	
1106	53.32		

O.G. end caps leaking!?

13 Aug 0700 →

Test I

time	psi	event
853	15.47	close/purge
900	51.87	to 745
904	745	
909	744	to 1476
911.40	1480.34	
916.40	1474.53	to 2206
919.30	2211.54 ∴	
924.30	2206.40	to 2937
927.30	2935.70 ∴	
937.30	2936.67	Release
1006.40	58	to 745
1009	749.31	
1014	747.84	to 1476
1016.40	1479.24	
1021.40	1477.34	to 2206
1025	2210.35	
1030	2206.82	to 2937
1033	2943.08	
1038	2937.76	to 3667
1040.40	3668.95	
1045.50	3658.33	[illegible]
1047.40	2941.72	
1055 ~~[illegible]~~	2939	to 3667
1057.30	3670.39	
1102.30	3666.73	to 4398

time	psi	event
1129.30	4399.46 ∴	
1134.30	4397.72	Release

Test II

~~Test~~ Time	~~58~~ psi	event
1237	51.94	to 4398
1335	4896 ∴	
[illegible]		to 4982

[illegible]

1431	2212	Release
1441	58	to ~~2206~~ 3960

11 March 2016
[redacted]
OceanGate
Test pressure:
Carbon fiber hull w/ c.f. hemisphere end caps wedge A

Time	Pressure	Event
1900	16.71	close tank + purge air
1910	55,60	up to 500 psi: up to 4009.01 in 500 psi steps - failure at 4009 psi - top endcap imploded

Pressure Test Vessel - February 2016

			ASSISTED		UNASSISTED		NON-UW	
DATE	NAME	BUDGET #	$97.00	CHARGE	$62.00	CHARGE	$160.00	CHARGE
2-Feb	Teledyne Instruments	PO#					6.50	$1,040.00
3-Feb	Teledyne Instruments						1.50	$240.00
4-Feb	Teledyne Instruments						4.00	$640.00
5-Feb	Teledyne Instruments						1.50	$240.00
8-Feb	OceanGate						3.00	$480.00
9-Feb	Teledyne Instruments						4.00	$640.00
11-Feb	Teledyne Instruments						5.25	$840.00
	Williamson						1.00	$160.00
12-Feb	[redacted]	66-9907			2.00	$124.00		
15-Feb	[redacted]	66-9907			6.00	$372.00		
16-Feb	Teledyne Instruments						7.50	$1,200.00
18-Feb	Teledyne Instruments						5.00	$800.00
22-Feb	[redacted]	66-9907			6.00	$372.00		
23-Feb	[redacted]	66-9907			8.00	$496.00		
24-Feb	Teledyne Instruments						4.00	$640.00
25-Feb	Teledyne Instruments						4.00	$640.00
29-Feb	Leidos						5.00	$800.00
	Teledyne Instruments						1.50	$240.00
		column totals	0.00	$0.00	22.00	$1,364.00	53.75	$8,600.00
							month total =	$9,964.00
	totals by client							
	Teledyne BlueView	PO	$7,160.00					
	OceanGate		$480.00					
	Williamsom		$160.00					
	[redacted]		$1,364.00					
	Leidos		$800.00					

		month total =	**$9,964.00**					

From: [redacted]
To: [redacted]
Subject: Pressure Vessel Charges
Date: Wed, 20 Jul 2016 11:14:51 -0700
Attachments: OceanGateItemizedCharges7_7_16.xlsx

Hi [redacted];
Just to give you a heads up before you see the actual invoice in August, please find attached a spreadsheet itemizing the charges for the 7Jul16 pressure test.
Charges include:

Setup and test
Cleanup and repairs
Cleanup equipment
Replacement parts

The good news is the pressure sensor is fine (that is actually an $8000 part).

[redacted]
UW Pressure Vessel

--
}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>
[redacted], Oceanographer. University of Washington.
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Office/VM: [redacted]
~~~~~<0> ~~~~~<0> ~~~~~<0> ~~~~~<0> ~~~~~<0> ~~~~~<0>
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From: [redacted] <[redacted]
To: [redacted] <[redacted]
Cc: "[redacted] <[redacted] [redacted]
<[redacted] <[redacted]
<[redacted] "[redacted] <[redacted]
Subject: Re: OceanGate test plan 11/30 - 12/1
Date: Mon, 29 Nov 2021 09:36:42 -0800
Importance: Normal

7am is good. I don't think the ice has to be melted before we pressurize, but the ramp rate/characteristics will be interesting....
What say you [redacted]?
I'm in the lab this morning [redacted]
Cheers;
[redacted]

On Mon, Nov 29, 2021 at 9:13 AM [redacted] wrote:

> Hi [redacted],
>
> I was hoping to get there around 7 AM tomorrow.
>
> We're going to load up all the gear tonight, and I'll get the ice at Safeway or QFC tomorrow AM.
>
> I now live [redacted] so I'm very close.
>
> Does all the ice need to melt before the chamber can be pressurized?
>
> I might try and call later today - is there a preferred number?
>
> Thanks,
> [redacted]
>
> ---
>
> **From:** [redacted] <[redacted]
> **Sent:** Monday, November 29, 2021 6:52 AM
> **To:** [redacted] <[redacted]
> **Cc:** [redacted] <[redacted]
> **Subject:** Re: OceanGate test plan 11/30 - 12/1
>
> What time would you like to get started tomorrow? I'm usually in by 6, but I don't know how much time you want to allow for chilling of the water in the vessel....
> Thanks;
> [redacted]
>
> On Thu, Nov 18, 2021 at 4:32 PM [redacted] wrote:
>
> > [redacted] has shared a OneDrive for Business file with you. To view it, click the link below.
> >
> > UW Pressure Chamber Test Plan.docx

[redacted],

Here is our test plan.

Thx

[redacted]

--
}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>
[redacted]
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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[redacted], Oceanographer. University of Washington.
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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From: [redacted] <[redacted]
To: [redacted]
Cc: [redacted] "[redacted]
<[redacted]
Subject: Re: Would like to schedule a pressure test.
Date: Fri, 3 Jun 2016 06:49:32 -0700
Importance: Normal

Hi [redacted] al...
After much deliberation and consultation we've decided that we can do the test but with a couple of caveats. Because this is an extremely busy time of year for us, we cannot afford to have any down time with cleanup or repairs to the pressure vessel. So, we would prefer the test to run to a max PSI of 9500-9800. But, given that you would like to test your pressure housing to our maximum allowed pressure, and that you acknowledge that this may be a pressure test to failure, we request that the pressure housing be filled as completely as possible with wood or another fairly incompressible dunnage material to help mitigate any possible implosion. We would also like to request that the article be wrapped or placed in a fabric bag to reduce the amount of detritus in the pressure vessel if the housing does implode.
If you're able to accommodate these requests, we're happy to schedule an overnight test for you on the 24th.
Cheers;
[redacted]

On Fri, Jun 3, 2016 at 5:38 AM, [redacted] <[redacted] wrote:
Good morning, [redacted].

I set up a meeting for Monday morning to discuss this test. Both of you may not need to join, but feel free to.

How are we looking to test on the 24th?

Best,

[redacted]
Director of Engineering
OceanGate, Inc.
1205 Craftsman Way Suite 112
Everett, WA 98201
Mobile: [redacted]
www.oceangate.com

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 1, 2016 11:05 AM
[redacted]
Cc: [redacted]
Subject: RE: Would like to schedule a pressure test.

[redacted]

I have forwarded your emails to [redacted] and he will be in tomorrow morning and will be able to discuss scheduling, etc. Pressure vessel is 8' deep and 24" in diameter.

[redacted]

On Wed, 1 Jun 2016, [redacted] wrote:

> Hello, [redacted]e.
>
> Any thoughts?
>
> Also, what are the dimension limitations of your pressure vessel?
>
> Best,
>
> [redacted]
> Director of Engineering
> OceanGate, Inc.
> 1205 Craftsman Way Suite 112
> Everett, WA 98201
> Mobile: [redacted]
> www.oceangate.com
>
> -----Original Message-----
> From: [redacted]
> Sent: Wednesday, June 1, 2016 4:41 AM
> To: [redacted]
> Cc: [redacted]
> Subject: RE: Would like to schedule a pressure test.
>
> Good morning, [redacted]
>
> We want to take the article to your facilities maximum capability. This may be a destructive test for us.
>
> Would Friday June 24th work for us? The previous tests we conducted at your facility had to be conducted at night (after normal working hours). I'm assuming that would be the same for this iteration, correct?
>
> Best,
>
> [redacted]
> Director of Engineering
> OceanGate, Inc.
> 1205 Craftsman Way Suite 112
> Everett, WA 98201
> Mobile: [redacted]
> www.oceangate.com
>
> -----Original Message-----
> From: [redacted]
> Sent: Tuesday, May 31, 2016 5:20 PM
> To: [redacted]
> Cc: [redacted]
> Subject: RE: Would like to schedule a pressure test.
>
> [redacted]
>
> [redacted]is out of the lab until tomorrow. Email is the best way to schedule. What is your test protocol?

> Thanks,
> [redacted]
>
> On Wed, 1 Jun 2016, [redacted] wrote:
>
>> Thanks, [redacted].
>>
>> Is there a number I can call? Better done by conversation?
>>
>> Cheers!
>>
[redacted]
>> Director of Engineering
>> OceanGate, Inc.
>> 1205 Craftsman Way Suite 112
>> Everett, WA 98201
>> Mobile: [redacted]
>> www.oceangate.com
>>
>> -----Original Message-----
>> From: [redacted]
>> Sent: Tuesday, May 31, 2016 5:01 PM
>> [redacted]
>> Cc: [redacted] <[redacted]
>> Subject: Re: Would like to schedule a pressure test.
>>
>> [redacted]
>>
>> Passing your information on to [redacted] to schedule the test. What test protocol are you wanting to run for this test?
>>
>> Thanks,
>> [redacted]
>>
>>
>>
>> On Tue, 31 May 2016, [redacted] wrote:
>>
>>>
>>> Hello, [redacted]
>>>
>>>
>>>
>>> I was passed along your contact information from [redacted] and
>>> [redacted] We, at OceanGate, would like to schedule another test in your facility for our 1/3 scale article.
>>>
>>>
>>>
>>> What number is best to call so I can schedule a test and get all the requirements from you?
>>>
>>>
>>>

>>> Our target test date would be ~June 24th.
>>>
>>>
>>>
>>> Kindest regards,
>>>
>>>
>>>
>>> [redacted]
>>>
>>> Director of Engineering
>>>
>>> OceanGate, Inc.
>>>
>>> 1205 Craftsman Way Suite 112
>>>
>>> Everett, WA 98201
>>>
>>> Mobile: [redacted]
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>>> www.oceangate.com
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[redacted]
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Office/VM: [redacted]
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From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: Re: Oceangate scale model pressure test
Date: Wed, 29 Apr 2020 13:34:21 -0700

Hi all;
I am working from home during this time and will try to address your query as best I can. The pressure sensor is a Paroscientific model # 9000-15K-101. I believe the output connection from the sensor is a serial connection, and I think the input to the computer is either serial or usb. The data acquisition software is Paroscientific's ("Digiquartz" http://paroscientific.com/software_manuals.php). The software records time and PSI, and a text file is generated. You might be able to put in some sort of splitter so that you can receive the output as well, but I'm not sure if you can get any meaningful data unless you have Paroscientific's software. Parosci. may be able to help you better than I, but that's the best I can do for now.

Best;
[redacted]

On Wed, Apr 29, 2020 at 11:40 AM [redacted] < [redacted] > wrote:

> Hi [redacted]
>
> My name is [redacted], with Oceangate, and I got your name from [redacted]
>
> I'm involved with developing some of the tools used to read strain and AE data for the test, and we were hoping there might be a way to get a digital stream of the pressure data from the test chamber.
>
> In the past we typically use a Sonar device (DVL) that has it's own pressure sensor, and read the rs-232 output from that and integrate the data into our strain and AE plots.
>
> However, because the final phase of the test is a test to failure, we don't want to risk damaging the DVL as it's an expensive device.
>
> Would it be possible to read the data from your sensor?
>
> Could you provide some details on the sensor and interface:
>
> 1. Protocol (rs-232, USB, etc)
> a. rs-232 baud rate, etc
> 2. Sample rate
> 3. Host computer (Windows or Linux?)
> 4. Is the sensor data ascii text or binary?
> 5. Are the samples time stamped?
>
> On our end - this is the format we have used in the past:
>
> 1. Teledyne Pioneer DVL
> a. rs-232, 9600 baud 8-N-1

2. Sample rate = 2.5 Hz (400 ms) or 10 hz (100 ms)
3. Linux host - Ubuntu 16.04 (Linux Mint 18.3)
4. Text data, converted to a socket stream
5. Host computer adds the time stamp

We have also considered getting a stand alone pressure sensor, and installing on the plate in a NPT threaded mounting - is this possible?

Another option might be to use a rs-232 serial port splitter device (assuming your sensor has rs-232 output) or possibly software on your host system to effectively split the data (send original depth data out a different serial port to our system)

Thanks very much [redacted]

[redacted]

Oceangate

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T[redacted]

Marine Chemistry Laboratory Pressure Test Vessel

Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]

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From: [redacted]
To: [redacted] <[redacted]
Subject: Re: Scale Hull 2.0 Pressure Test
Date: Mon, 13 Jul 2020 11:54:40 -0700
Inline-Images: Outlook-erns3fr5.png; Outlook-2ccafq20.png

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that would be better, i'll try for those days
aaron

On Mon, Jul 13, 2020 at 11:53 AM [redacted] <[redacted] wrote:

> Hi [redacted]
>
> Can you do the 11th, 12th, and 13th? of August? Evening being the 13th for the >6000 psi test.
>
> Best,
>
> [redacted]
> Engineering Project Manager & Submersible Pilot
> OceanGate Inc.
>
> 1205 Craftsman Way, Suite 112
> Everett, WA 98201
> Main Office: [redacted]
> Direct: [redacted]
>
> www.oceangate.com
>
> OceanGate
>
> ---
>
> **From:** [redacted]
> **Sent:** Monday, July 13, 2020 11:48 AM
> **To:** [redacted]
> **Subject:** Re: Scale Hull 2.0 Pressure Test
>
> Hi [redacted]
> 7 Aug is not a possibility. So I'll request for 4,5, 6Aug with the evening of 6Aug being the >6000psi test. Would that work?
> cheers;
> [redacted]
>
> On Mon, Jul 13, 2020 at 10:33 AM [redacted] wrote:
>
> > Hi [redacted]
> >
> > I hope you had a good weekend. As you know we are scheduled to test our pressure hull 1.0 with you starting the 27th.
> > I wanted to get ahead of the game and start scheduling our pressure test for scale hull 2.0- that will likely to be tested to failure.

With this being said we need to schedule 3 days of testing. The first two days will not exceed 6000psi, and imitate the 1.0 test, but by the end of the third day we will likely need to exceed 6000 psi.
I was hoping for the 5th, 6th, and 7th of August but the following week any days will do as well. What is your availability?

I look forward to hearing back.
Best,

[redacted]
Engineering Project Manager & Submersible Pilot
OceanGate Inc.

1205 Craftsman Way, Suite 112
Everett, WA 98201
Main Office: [redacted]
Direct: [redacted]

www.oceangate.com

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}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>
[redacted]
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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[redacted]
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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From: [redacted]
To: [redacted]
Subject: more Oceangate details
Date: Fri, 6 Mar 2020 17:14:39 -0800

Hi [redacted]
[redacted] and I have been working out the Oceangate test details. Turns out she was talking "4500 meters", and we were talking "4500psi" (their actual desired max would be ~6600psi). So, we've worked it out for tentatively scheduling for 26-29May, as the 25th is Memorial Day. Because of the higher PSI, I'm going to try for multiple days of OSB closure(s), W and Th probably going until 10ish and that Friday going later for the deep/failure test.
[redacted]

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}><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*> }><(((*>
[redacted]
Marine Chemistry Laboratory Pressure Test Vessel
Lab: [redacted] Pressure Vessel: [redacted] Office/VM: [redacted]
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