

Company: L-DEO - Lamont - Doherty Earth Observatory  
Vessel: Marcus G. Langseth  
Client: LDEO, UT Austin, USGS

Project: MGL2306  
Area: Cape Fear  
Scope: Modern & Past Mass Transport Deposits  
Start Date: 9-May-23

**Vessel Sensor Offsets**

**Towing Offsets**

**Towing Configuration**

**Gun Array Offsets**

**Streamer Front End**

**Streamer Tail End**

**Streamer Complete**

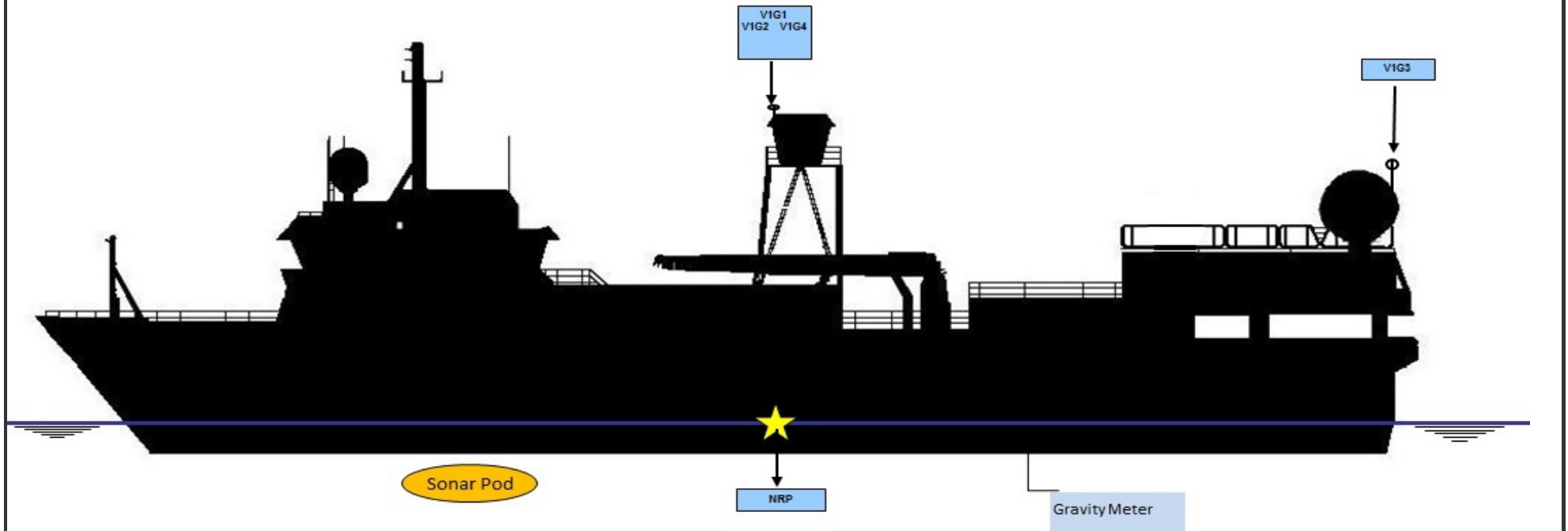
**Hydrophone Offsets**

**Tailbuoy Offsets**

**Timing**



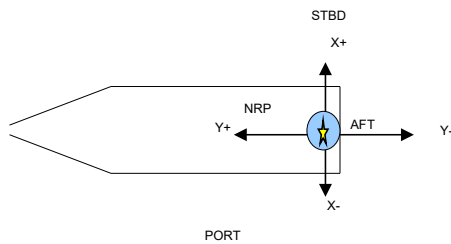
## R/V Marcus G. Langseth - Vessel Sensor Offsets



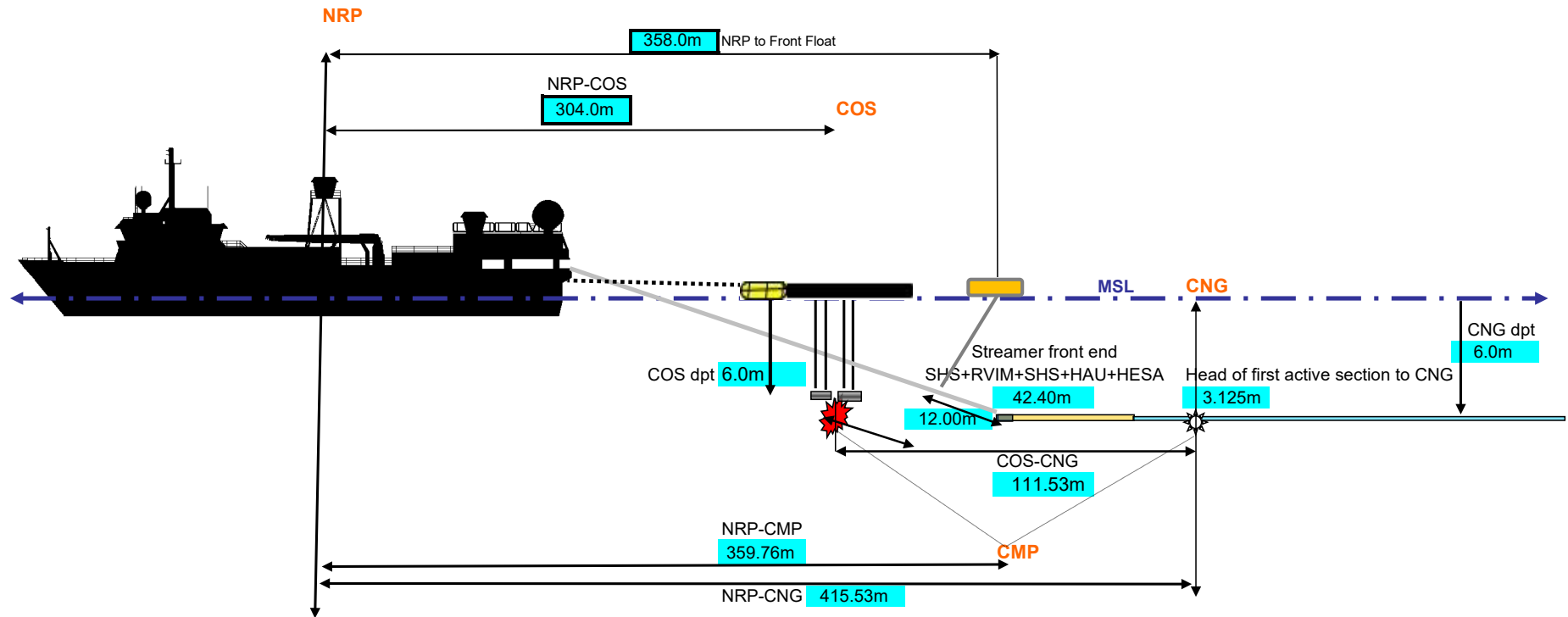
Negative values are above water line

All measurements in meters

			STBD/PORT (X)	FORE/AFT (Y)	UP/DOWN (Z)	
<b>NRP</b>	NAVIGATION REFERENCE POINT		0.00	0.00	0.00	
<b>V1G1</b>	SeaPath 330	Orca	0.00	0.00	-16.90	
<b>V1G2</b>	C-Nav3050 MMO Tower	Orca	0.00	0.00	-16.90	
<b>V1G3</b>	C-Nav3050 Stern	Orca	-1.95	-31.83	-14.50	
<b>V1G4</b>	Pos MV	Orca	2.39	12.75	-16.90	
	PosMV Output position is IMU mounted in stbd drylab					
<b>V1R1</b>	PosNet		-1.30	-0.02	-16.90	
<b>Sonar Pod</b>	EM122 Knudsen ADCP		0.00	20.20	7.49	
	EM122 Center Beam offset (in Spectra)		0.00	13.4	7.49	
<b>MRU</b>	Seapath MRU		2.39	12.75	-4.30	
<b>BGM</b>	Bell Gravity Meter		0.00	-13.10	1.10	



## R/V Marcus G. Langseth - Towing Offsets



<b>NRP</b>	Nav Reference Point
<b>COS</b>	Centre of Source
<b>CNG</b>	Centre of Near Group
<b>CMP</b>	Common Mid-Point
<b>MSL</b>	Mean Sea Level
<b>NRP-Stern</b>	29.2m
<b>NRP-COS</b>	304.0m

All measurements in meters

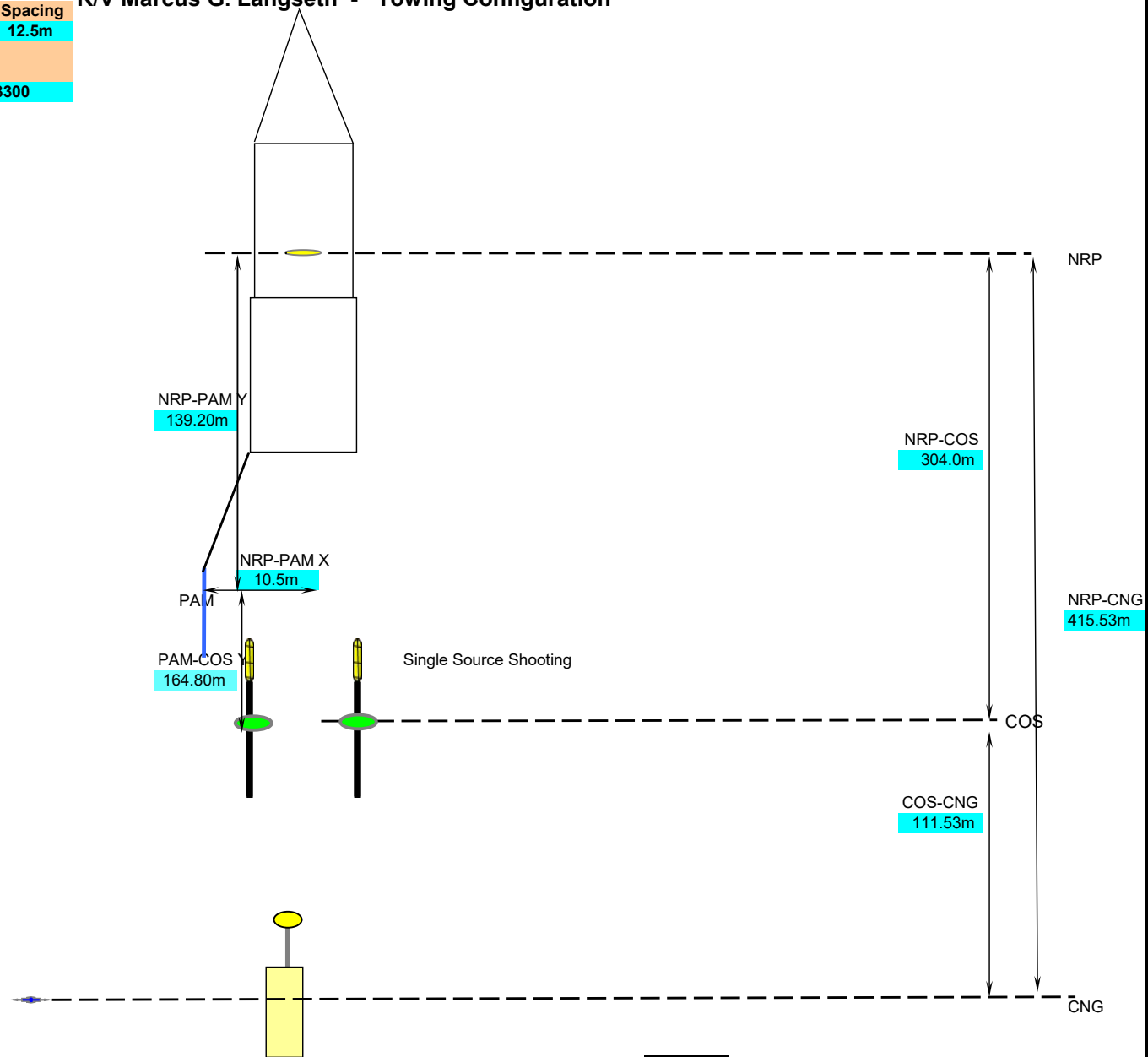
Cell contents referenced from Config\_offsets tab

# R/V Marcus G. Langseth - Towing Configuration

	# Streamers	Length	Channels	Spacing
SEAL	1	6000	552	12.5m

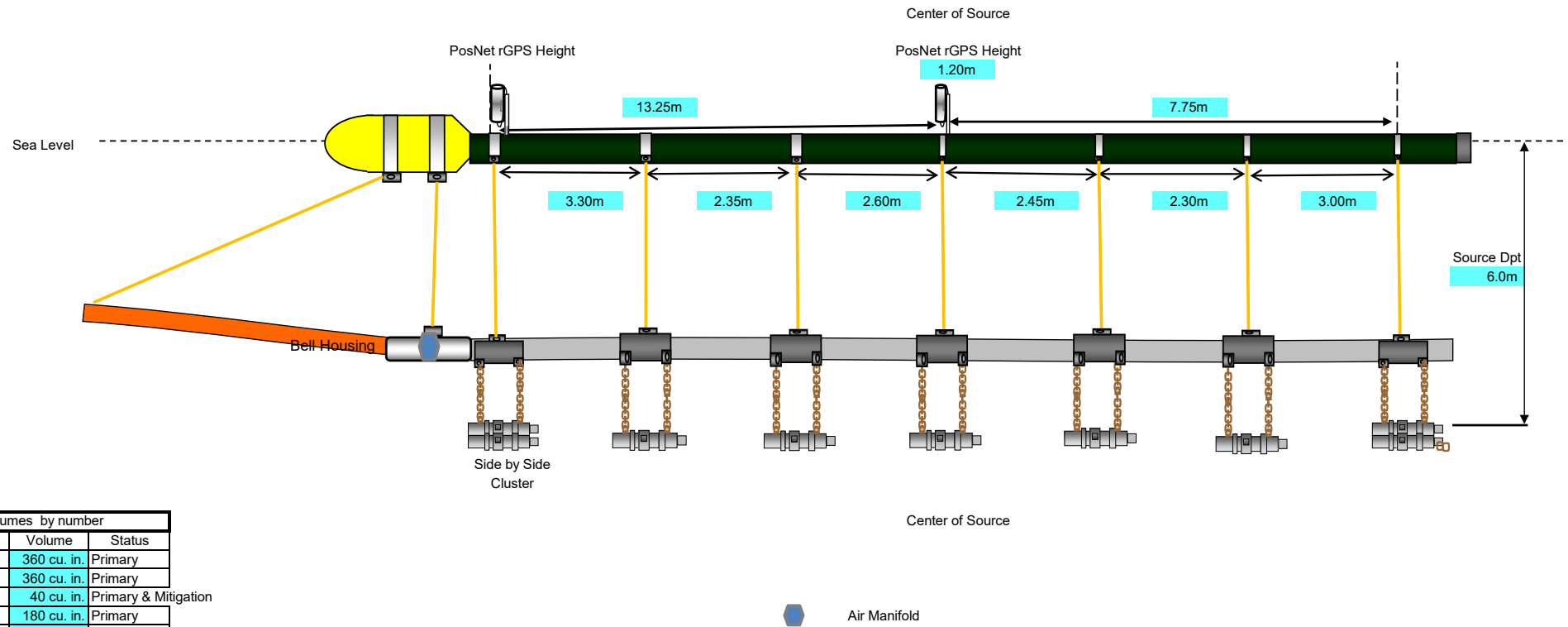
# Gun Strings Used	2	Vol (in^3)	3300
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NOT to Scale

Cell contents referenced from Config\_offsets tab

## R/V Marcus G. Langseth - Gun Array Offsets



Gun volumes by number		
Gun	Volume	Status
Gun 1	360 cu. in.	Primary
Gun 2	360 cu. in.	Primary
Gun 3	40 cu. in.	Primary & Mitigation
Gun 4	180 cu. in.	Primary
Gun 5	90 cu. in.	Primary
Gun 6	120 cu. in.	Primary
Gun 7	60 cu. in.	Primary
Gun 8	220 cu. in.	Primary
Gun 9	220 cu. in.	Primary

Array total volume (without spares) is 3300 cu. in. Total volume/string (without spare) 1650 cu. in.

Guns (1 & 2) & (8 & 9) in a horizontal cluster.

Gun clusters have 0.75m between guns and hang 0.95m from center of hanger

Horizontal Clusters are 1m from gun port to gun port

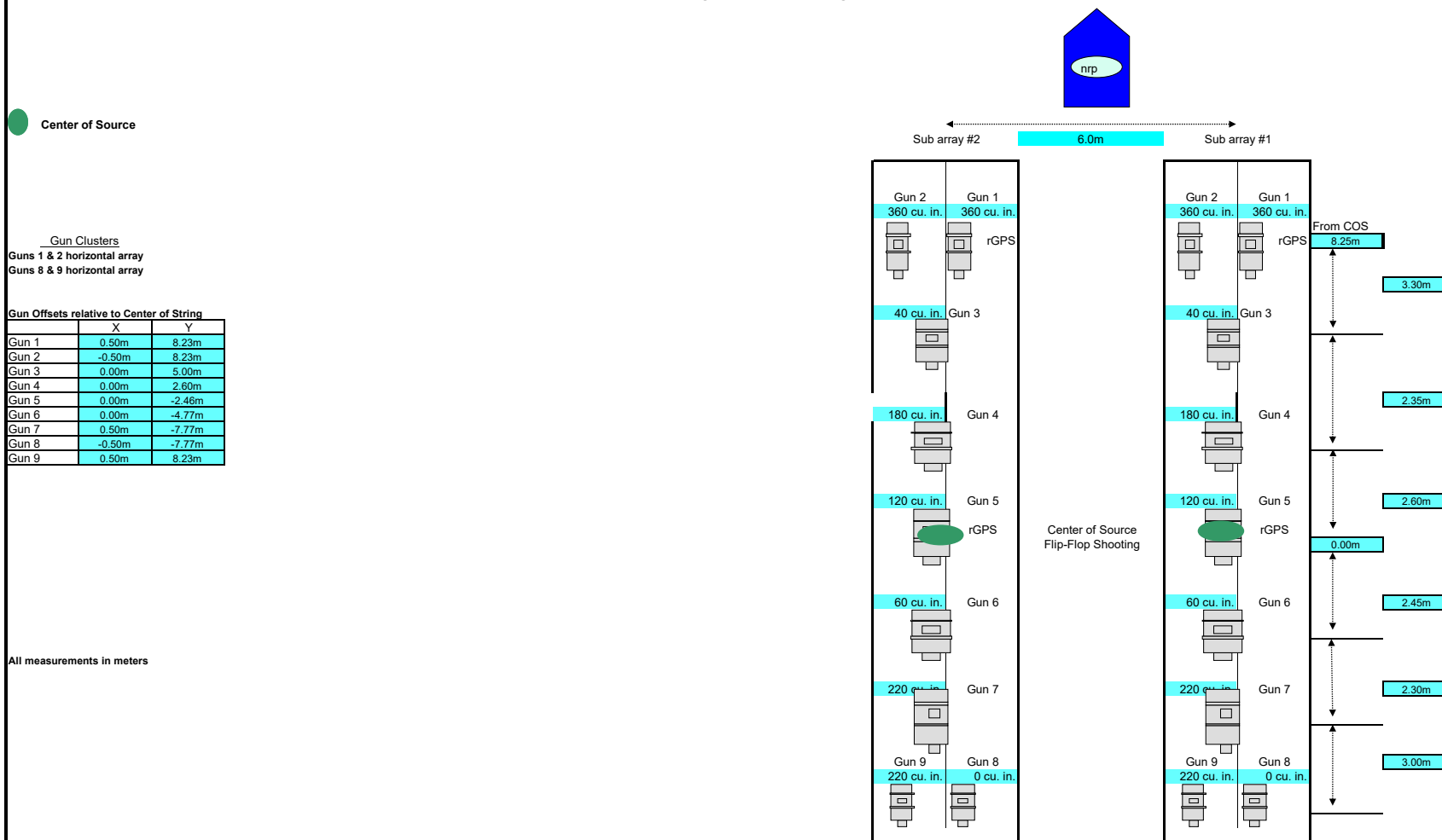
Single guns hang from hanger 1.15m

All gun volumes, numbering, locations, and offsets were inspected and verified by Chief Source Mechanic.

**All measurements in meters**  
**NOTE: drawing not to scale**

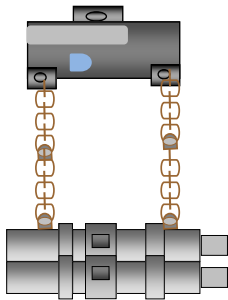
Cell contents referenced from Config\_offsets tab

# R/V Marcus G. Langseth - Gun Configuration

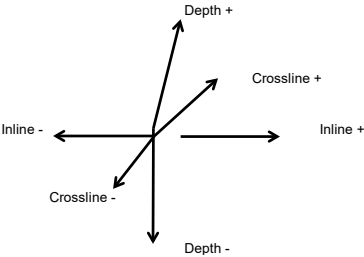


Distances in Meters

Gun Plate



Center of ports between guns 1 and 2 is the reference point



Hydrophone Offsets

Gun String 1				
Plate	Phone	Inline	Crossline	Depth
1	1	0.00	0.00	0.98
2	2	3.35	0.00	0.95
3	3	5.53	0.00	0.91
4	4	8.35	0.00	0.94
5	5	10.68	0.00	0.95
6	6	13.23	0.00	0.90
7	7	16.26	0.00	0.93

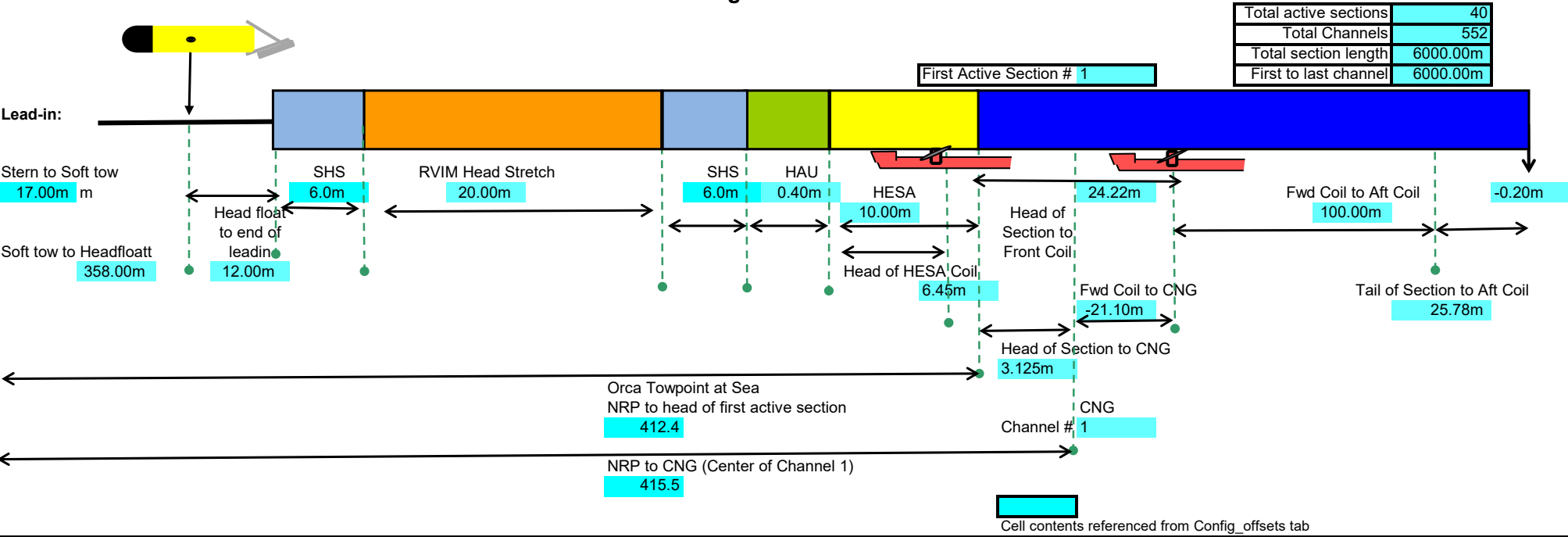
Gun String 2				
Plate	Phone	Inline	Crossline	Depth
1	1	0.00	0.00	0.94
2	2	3.25	0.00	0.93
3	3	5.63	0.00	0.96
4	4	8.37	0.00	0.96
5	5	10.71	0.00	0.92
6	6	13.21	0.00	0.92
7	7	16.14	0.00	0.97

Depth Transducer Offsets

Gun String 1				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.20
2		N/A	N/A	N/A
3	2	5.68	N/A	1.08
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	16.28	N/A	1.23

Gun String 2				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.23
2		N/A	N/A	N/A
3		N/A	N/A	N/A
4	2	8.00	N/A	1.07
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	16.08	N/A	1.30

R/V Marcus G. Langseth - Streamer Front End

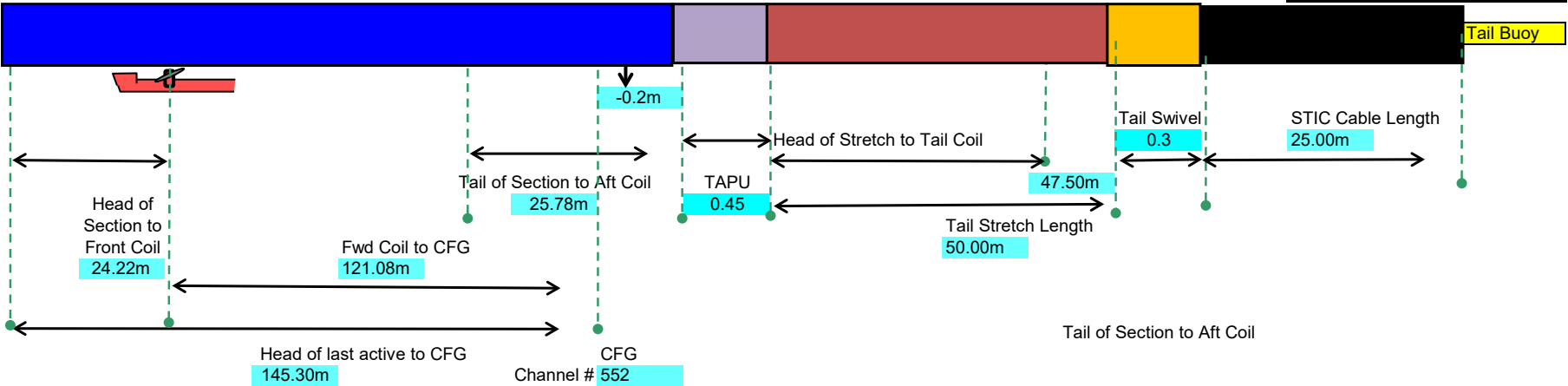




R/V Marcus G. Langseth - Streamer Tail End

Total active sections	40
Total Channels	552
Total section length	6000.00m
First to last channel	6000.00m
CFG to TB RGPS	81.95m

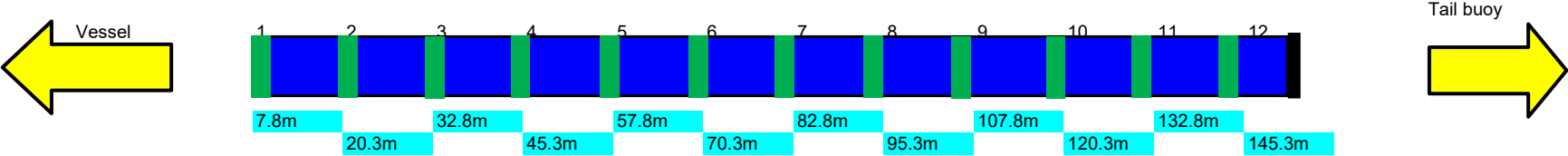
Last Active Section # 40



Cell contents referenced from Config\_offsets tab

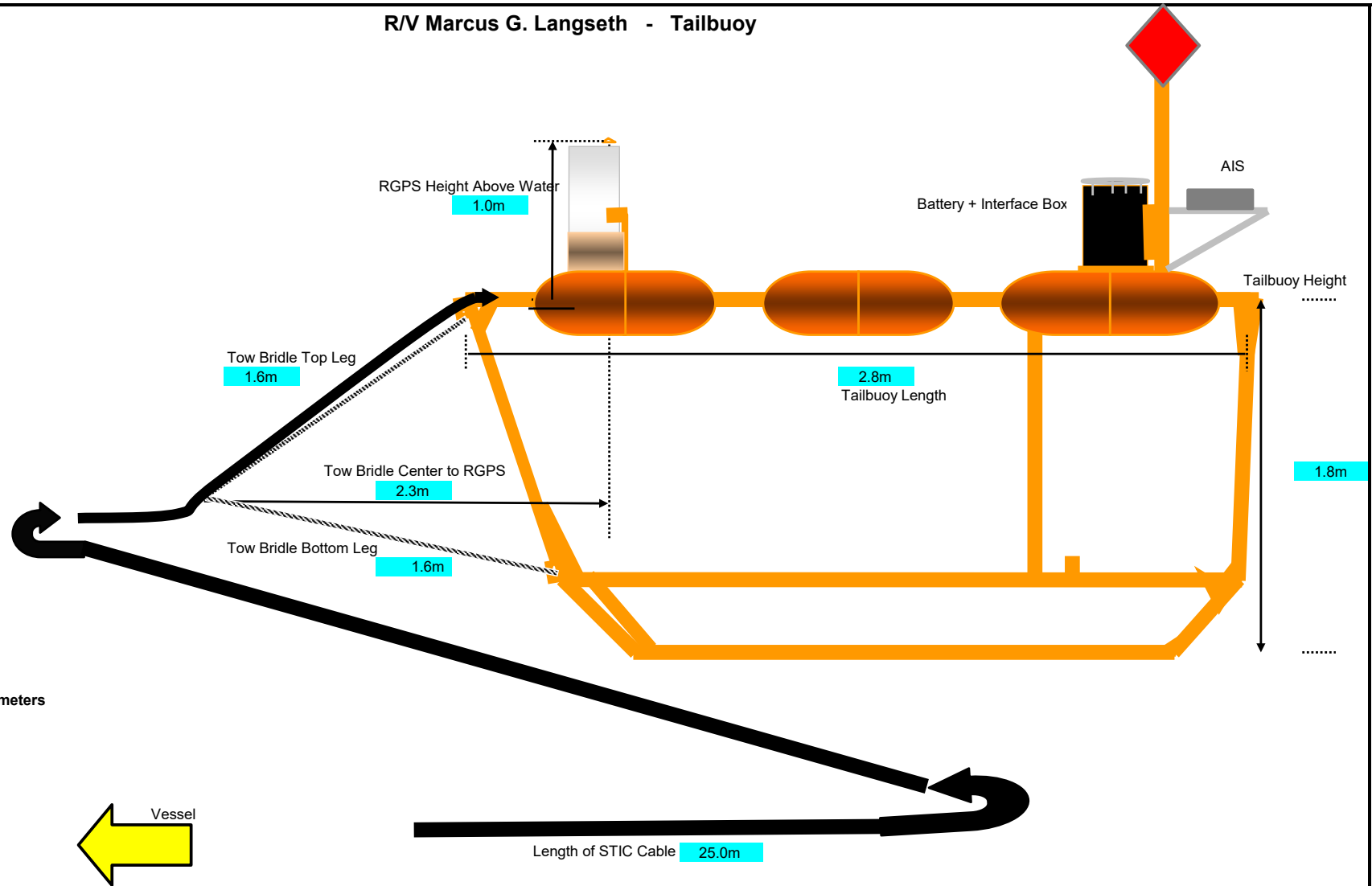
R/V Marcus G. Langseth - Hydrophone Offsets  
Sercel 150meter SSAS

Number of SSAS Sections 40  
Channels per active section 12  
Total channels 552



Cell contents referenced from Config\_offsets tab

# R/V Marcus G. Langseth - Tailbuoy



All measurements in meters

Cell contents referenced from Config\_offsets tab

Gun Specifics		
NRP to COS Y		304
NRP to COS X		0
Source Depth		
# streamer sections		40
# channels		52
CNG Channel #		1
CFG Channel #		52
WMCS Streamers		
lead-in stream to head		304
MCSS Streamer Seg		0
Gun volume total		3303
Volume per string		1650
# of guns used		18
# Gun Strings		2
gun string separation		6
PAMG Y from stream		110
PAMG X (outside of stream rail, ROFT)		110
Stream to MAG Y		110
Stream to MAG X (outside of stream rail)		110

Fixed Position Scheduling	
HPP to Stem	29
low point at sea to end of lead	12
H to H (middle length)	0.4
coil to coil	0.4
lead of section to end	24.22
lead of section to coil	25.77
channel spacing	12.5
HPP to PerVSTBD Rail	12.5
coil to End RK	3.92
Lead to Lead RK	14.5
Channels coil section	1
coil of section to sea transducer	-0.1
Area Number	1
SEA/SEA Length	8
STIS Length	6
RVIM Length	2
HESA Length	10
Active Section Length (ISAG)	150
TES lead shroud length	50
STIC	20
TES Ped Coil	2.5
TES AR Coil	47.5
HESA AR Coil	6.45

Tailbuoy offsets	
RGPS height above water	1
TB length	2.8
TB height	1.83
RGPS-ACX	6
Bride-RGPS	2.25
Top Leo	1.55
Bottom Leo	1.6
STC	21
ACX below water line	6

General Offload Statistics	
NFP to CMP	356.7622s
COS-COS	111.525s
CNG-CFG	-6687.87s
NFP-Adag Y	139.16s
NFP-Adag X	10.1s
NFP to last busy RDPS	6380.141s
Total Length of Streamer partitions	5000
PM4-COS Y	154.26s
PM4-COS X	10.5s
NFP-PM4 Y	139.2s
NFP-PM4 X	10.1s
NFP-CMP	415.5203s
Soft to launch, warn to finish	11s
Max length, warn to finish	20s
LAUM 0.3300 x 14 modules	4.7640s
LAUM 0.3300 x 2 modules	0.9440s
SSCU 0.474 x 2 modules	0.9440s
TAPU 0.4026	0.4026s

Gauss	
Source GPS AB - CORS Y	0
Distance GPS Fast - CORS Y	0
Bracket distance 2-3	2.30
Bracket distance 3-4	2.30
Bracket distance 4-5	2.50
Bracket distance 5-6	2.50
Bracket distance 6-7	2.10
Bracket distance 7-8	2.10
CORS - Accuracy Y	0
GPS Height above water line	1
G1 Volume	360
G2 Volume	360
G3 Volume	40
G4 Volume	180
G5 Volume	90
G6 Volume	120
G7 Volume	220
G8 Volume	220

Acronyms referenced to CHG or CGG	
G1T1	C
G2T1	C
G3T1	C
G4T1	C
G1T5	C
G1T2	C
G1T3	C
G1T4	C
G1T5	C
G1T6	C
G1T7	C
G2T1	C
G2T2	C
G2T3	C
G2T4	C
G2T5	C
G2T6	C
G2T7	C
G3T1	C
G3T2	C
G3T3	C
G3T4	C
G3T5	C
G3T6	C
G4T1	C
G4T2	C
G4T3	C
G4T4	C
G4T5	C
G4T6	C
G4T7	C

Towing Offsets Tab	
NRP-COS	304
NRP-CNG	415.523
NRP-CMP	359.7021
COS-CNG	111.523
CNG Channel #	1
NRP-Stream	29.2
Distance from Head of first section to CNG	3.125
Stream Depth	6
Shoarer Depth	6
Front End Length	42.4
Head of first section to base of first	12

G-Depth 1	0.95	
G-Depth 2	0.98	
G-Depth 3	1.16	
G-Depth 4	0.98	
G-Depth 5	0.75	
G-Depth 6	1.16	
G-Depth 7	1.16	
G-Depth 8	1.16	
G-Depth 9	0.95	

[illegible]

Towing Configuration TAB		
Unmanned Aerial Vehicle		
NRP-COS		304
NRP-CNG	415,525,525	111,525,525
NRP-Posible CNG		5
COS-Posible CNG		4,7604
PR-Cable Shrinkage Rate		5
NRP-PAM Y		139,2
PAM-COS Y		164,8
PAM-COS X		10,3
# Gun Strings		2
gun volume		3300
Gun separation		6
# 3D Streams		1
20" Streamer Ch Spacing		12,5
Number 2D		553
Streamer Length		6000
2D Streamer Size		5
NRP-MAG X		10,3
NRP-MAG Y		139,2

	0.5
	5.73
	-0.5
	5.73
	0
	4
	0
	2.5
	0
	0
	0
	-2.66
	0
	-4.77
	0.5
	-7.77
	-0.5
	-7.77
X	0.5
	5.73

	0.25
X	0
	5
X	0
	2.5
X	0
	0
X	0
	-2.48
X	0
	-4.77
X	0.5
	-7.77
X	-0.5
	-7.77

Estimated Offsets	
Acoustic Overhead TAB	
G1T1	0
G2T1	0
G3T1	0
G4T1	0
S1T1	0
S1T2	0
S1T3	0
S1T4	0
S1T5	0
S1T6	0
S1T7	0
S2T1	0
S2T2	0
S2T3	0
S2T4	0
S2T5	0
S2T6	0
S2T7	0
S3T1	0
S3T2	0

S373	0
S374	0
S375	0
S376	0
S377	0
S471	0
S472	0
S473	0
S474	0
S475	0
S476	0
S477	0
1 Month	0.02%
S173-S177	0
S173-S174	0
S174-S177	100.777

Demand Options Summary	
Gun array effects	
Bracket distance 1-2	5
Bracket distance 2-3	
Bracket distance 3-4	2.36
Bracket distance 4-5	2.6
Bracket distance 5-6	2.46
Bracket distance 6-7	2.3
Bracket distance 7-8	3
SourceGPS-COS Y	5
COS - Acoustic Y	
COS height above	1.2
G1 Volume	360
G2 Volume	360
G3 Volume	40
G4 Volume	180
G5 Volume	90
G6 Volume	120
G7 Volume	60
G8 Volume	230
G9 Volume	230
G10 Volume	9

G-Depth 1	0.95
G-Depth 2	0.95
G-Depth 3	1.15
G-Depth 4	0.95
G-Depth 5	0.95
G-Depth 6	1.15
G-Depth 7	1.15
G-Depth 8	1.14
G-Depth 9	0.95
G-Depth 10	0
G10 to Acc Z	0
G10 to Acc X	0
Offset to Acc	0
Fast bracket to COB	19.95
All bracket to COB	7.75

Schematic Details	
Steamer Front End	
Steam-Injector at sea	35
Injectors at sea to end of section	
SMS Length	
min length	2
HAUSTU length	0
HESA Lght	1
Feed Coil to Air Coil	10
Feed to First BIX	3.12
Feed Coil to ENG	-21.09
Feed to Feed Coil	24.22
Feed to Air Coil	25.77
CNG Channel #	
Center of steamer to air transducer	-0
First Section #	
# channels	50
section length	600
# sections	4
channel spacing	12
First to last	600
HESA Feed to air	6.4

10

Demarcation Certificate	
Streamer Trail End	
Head to Prod Coil	24
Tail to AB Coil	25
Head to CGF	54
Coil to Coil	
TAPU Length	6
Stretch	
Travelled Length	
STIC Length	
Last active	
# channels	1
# sections	
Total section length	6
First to last	6
Stretch Coil	
Center of streamer to A-Ace transducer	-
channel spacing	1
CFG #	1
Prod coil to CFG	120
CFG to TBINGPS	87
Stretch head to Prod coil	

Feed coil	
Stretch head to air coil	4

Demanded Criteria	
Streamer complete	
#Sections	4
# Channels	50
First to last	600
Total section length	600

Channel Offsets	
Hydrophone Offset	
Channel 1	7.5
2	20.0
3	32.5
4	45.0
5	57.5
6	70.0
7	82.5
8	95.0
9	107.5
10	120.0
11	132.5
12	145.0
# channels	
# Active's	
Total Channels	5

Dimensional Criteria	
Tidebuoy offset	
RGPS height above water	
TB length	
TB height	
RGPS-ACX	
Bottle- RGPS	
Top Leg	
Bottom Leg	
STIC	
ACX below water line	