

Company: L-DEO - Lamont - Doherty Earth Observatory  
Vessel: Marcus G. Langseth  
Client: Becel/NSF

Project: MGL2204  
Area: Guerrero Gap, Mexico  
Start Date: 14-May-22

Vessel Sensor Offsets

Towing Offsets

Towing Configuration

Acoustic Overhead

Gun Array Offsets

Streamer Front End

Streamer Tail End

Streamer Complete

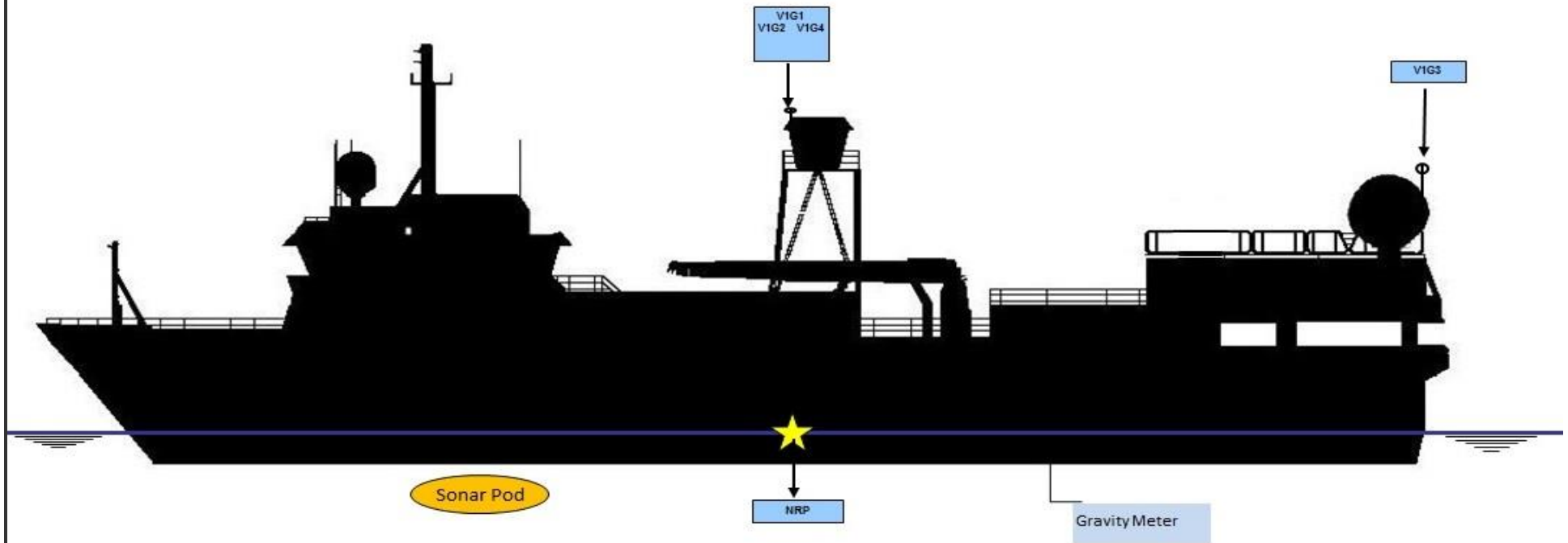
Hydrophone Offsets

Tailbuoy Offsets

Timing



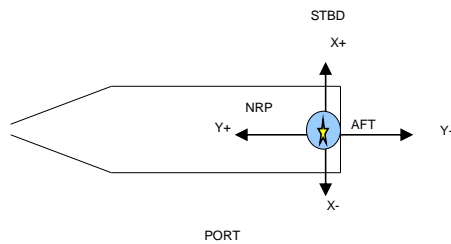
## R/V Marcus G. Langseth - Vessel Sensor Offsets



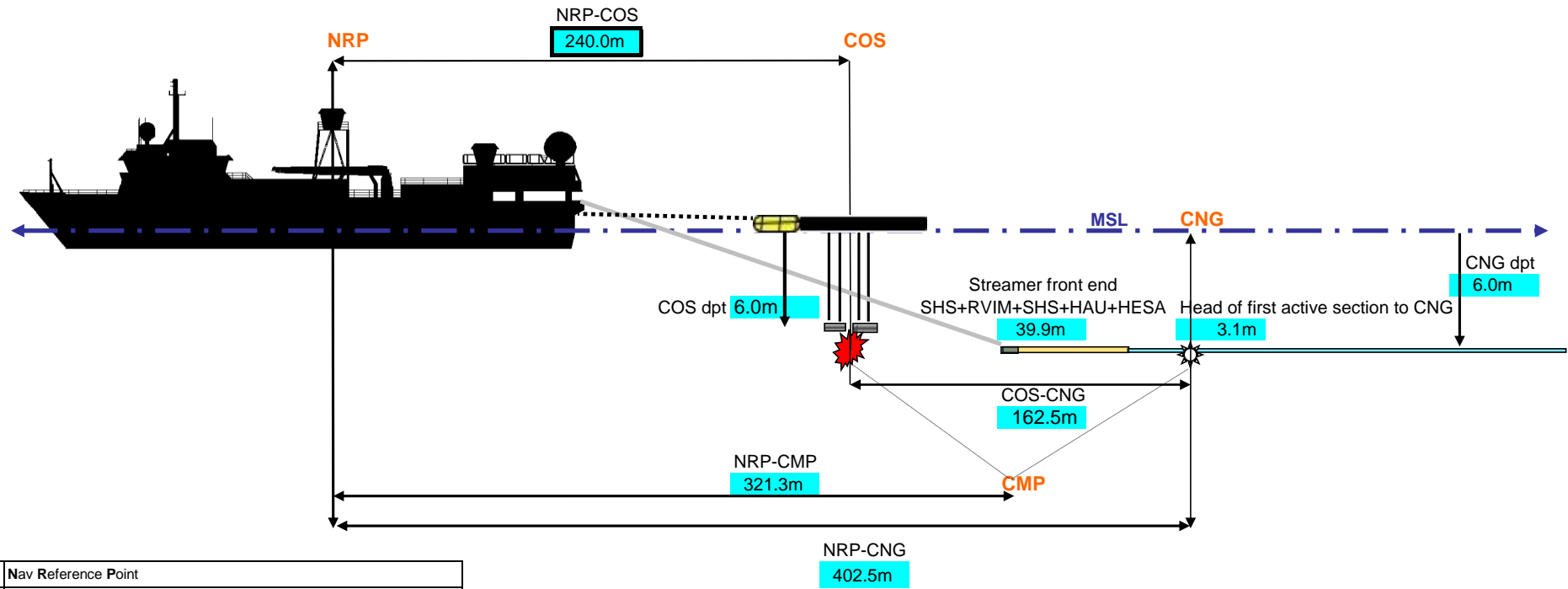
Negative values are above water line

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>	C-Nav 3050	0.00	0.00	-16.90	
<b>V1G2</b>	SeaPath 200	0.00	1.50	-16.90	
<b>V1G3</b>	C-Nav 2000	-2.10	-29.20	-14.50	
<b>V1G4</b>	Pos MV	-1.30	1.20	-16.90	
<b>V1R1</b>	PosNet	-1.30	0.00	-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	2.30	14.16	-4.30	
<b>BGM</b>	Bell Gravity Meter	0.00	-13.10	1.10	



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



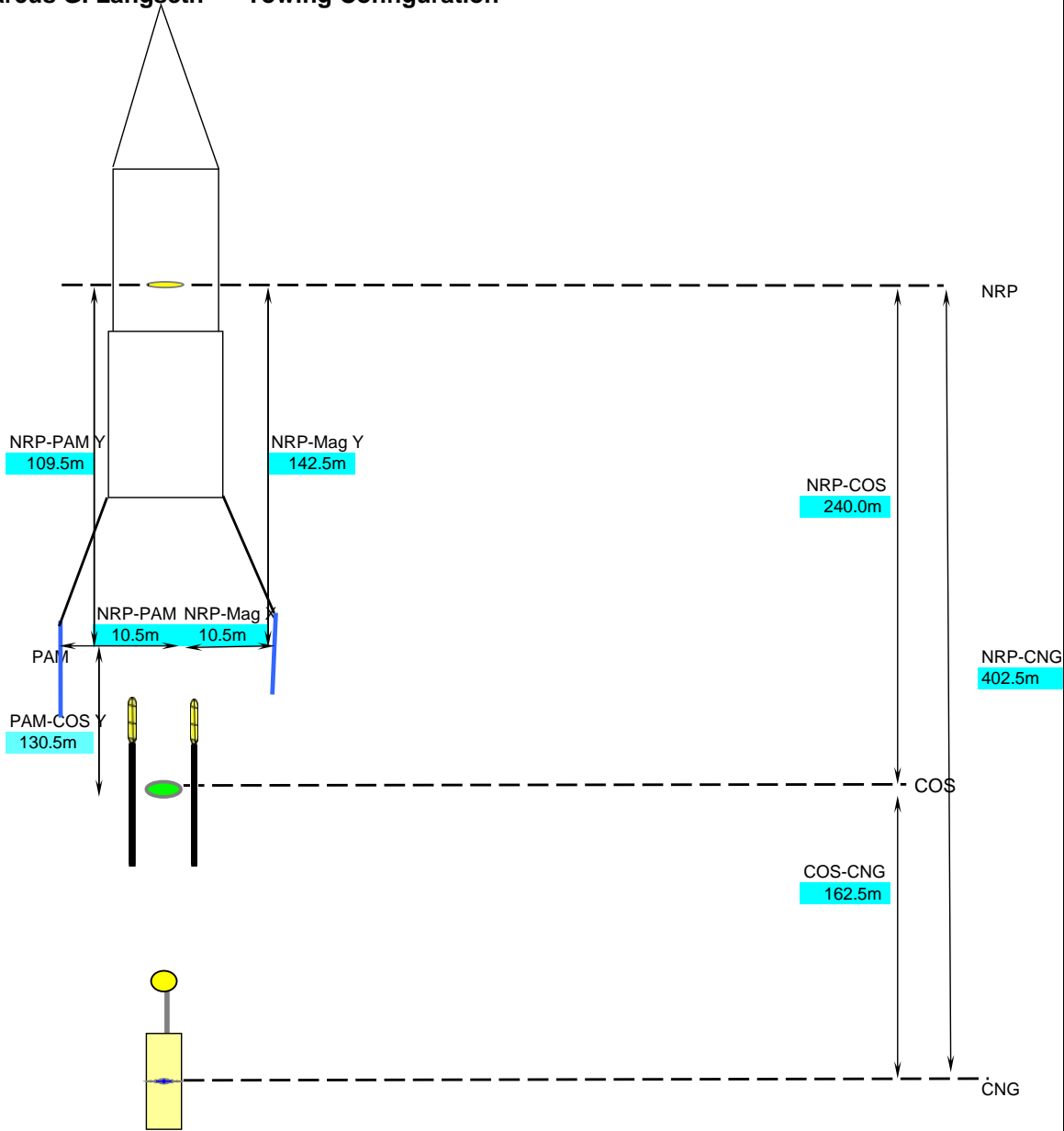
<b>NRP</b>	Nav Reference Point
<b>COS</b>	Centre of Source
<b>CNG</b>	Centre of Near Group
<b>CMP</b>	Common Mid-Point
<b>MSL</b>	Mean Sea Level
<b>NRP-Stern</b>	29.5m
<b>NRP-COS</b>	240.0m

All measurements in meters

Cell contents referenced from Config\_offsets tab

R/V Marcus G. Langseth - Towing Configuration

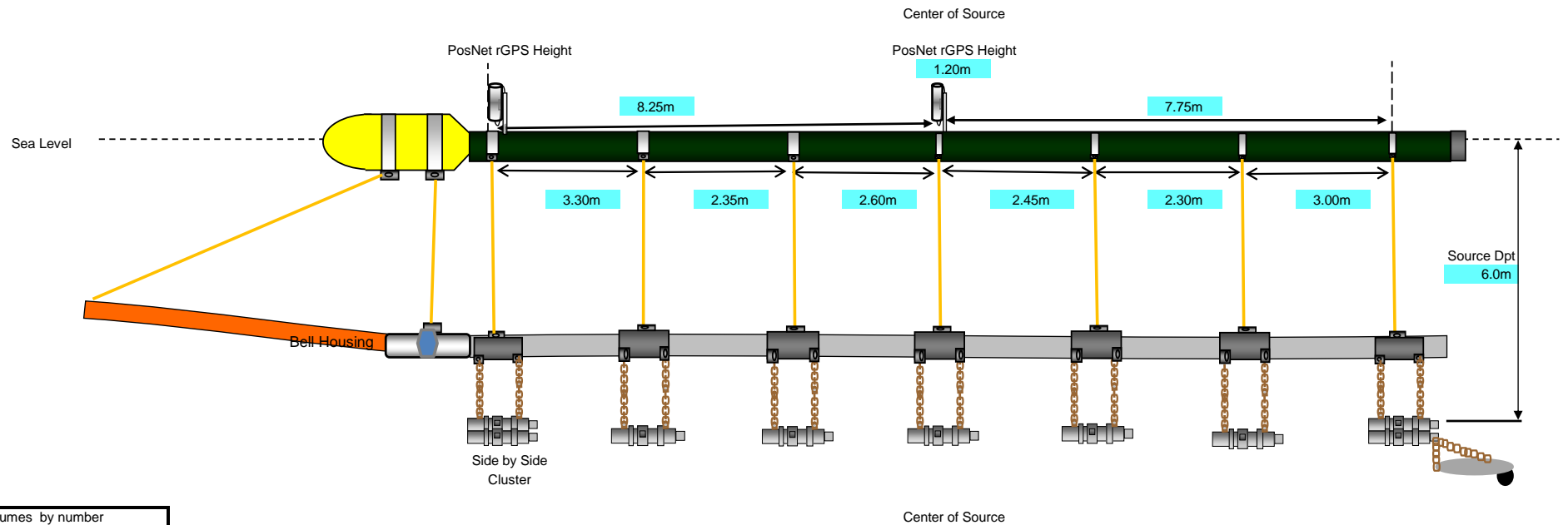
	# Streamers	Length	Channels	Spacing
SEAL	1	6000	528	6.25 and 12.5
# Gun Strings Used	2	Vol (in^3)	3300	



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.
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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

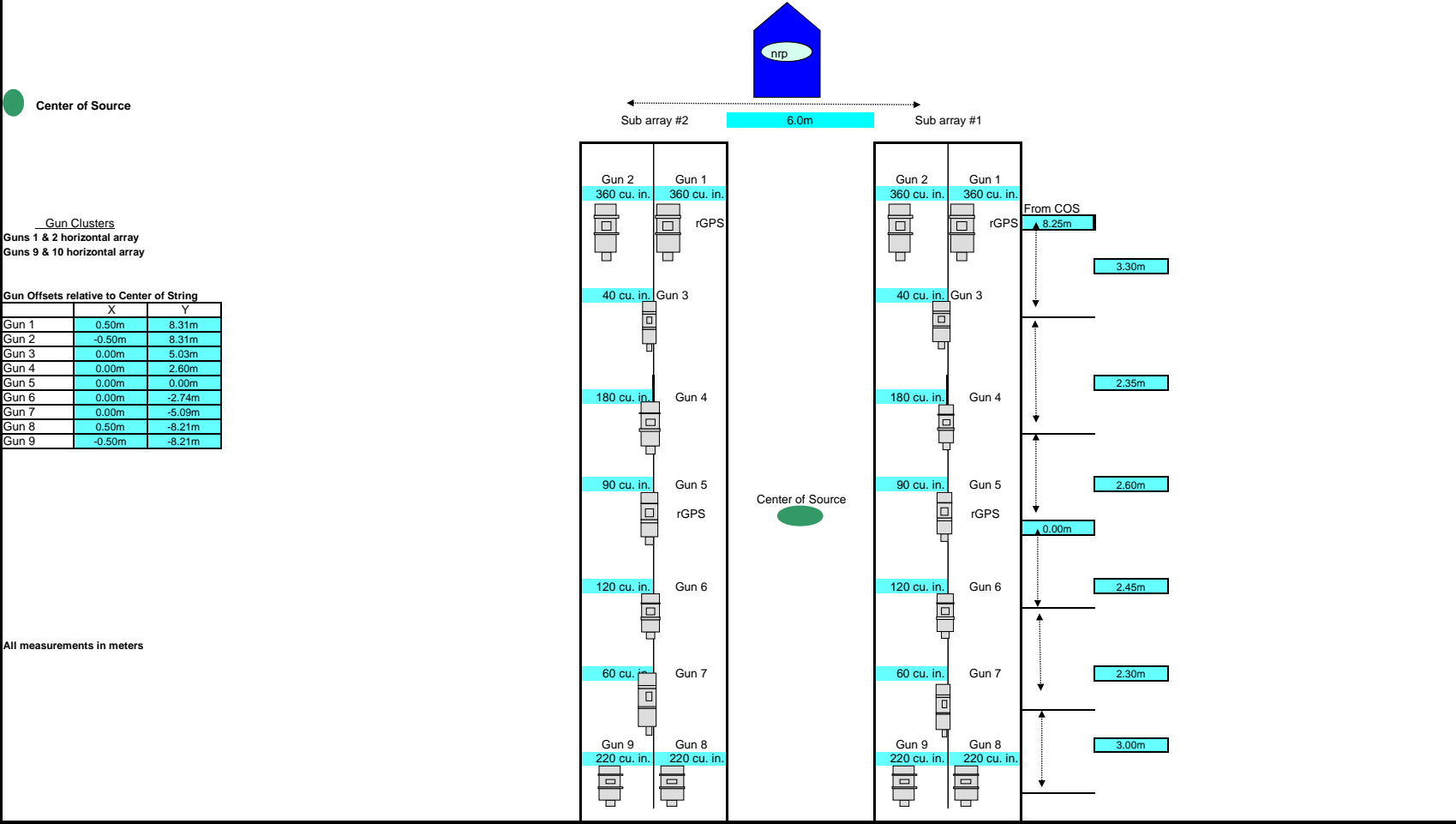
All gun volumes, numbering, locations, and offsets were inspected and verified by Chief Source Mechanic.

**All measurements in meters**

**NOTE: drawing not to scale**

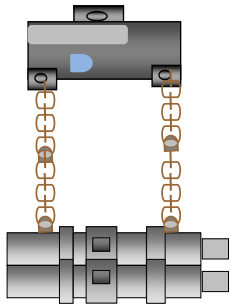
Cell contents referenced from Config\_offsets tab

R/V Marcus G. Langseth - Gun Configuration

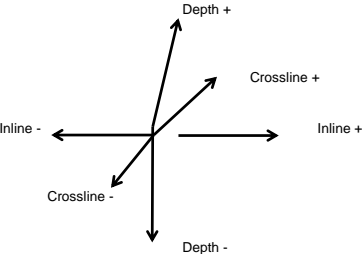


Distances in Meters

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		N/A	N/A	N/A
2	1	3.18	0.00	0.95
3	2	5.34	0.00	0.91
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.48	0.00	0.90
7		N/A	N/A	N/A

Gun String 2				
Plate	Phone	Inline	Crossline	Depth
1		N/A	N/A	N/A
2	1	3.05	0.00	0.93
3	2	5.48	0.00	0.96
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.50	0.00	0.92
7		N/A	N/A	N/A

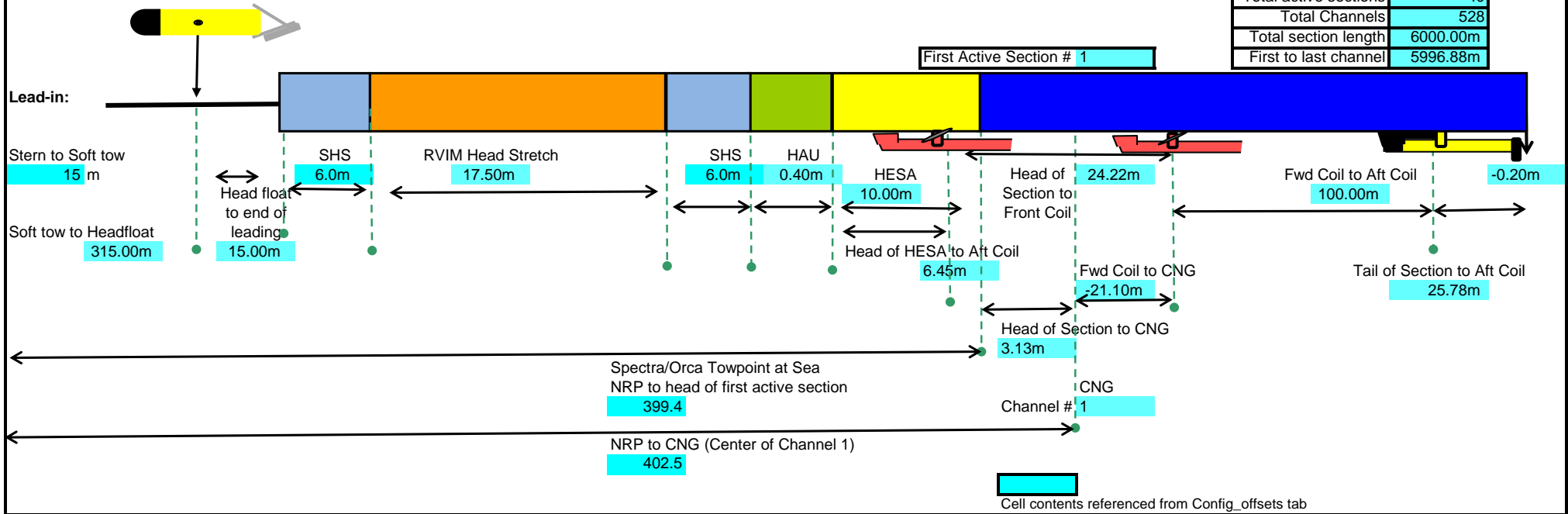
Depth Transducer Offsets

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	1.20
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

Total active sections	40
Total Channels	528
Total section length	6000.00m
First to last channel	5996.88m

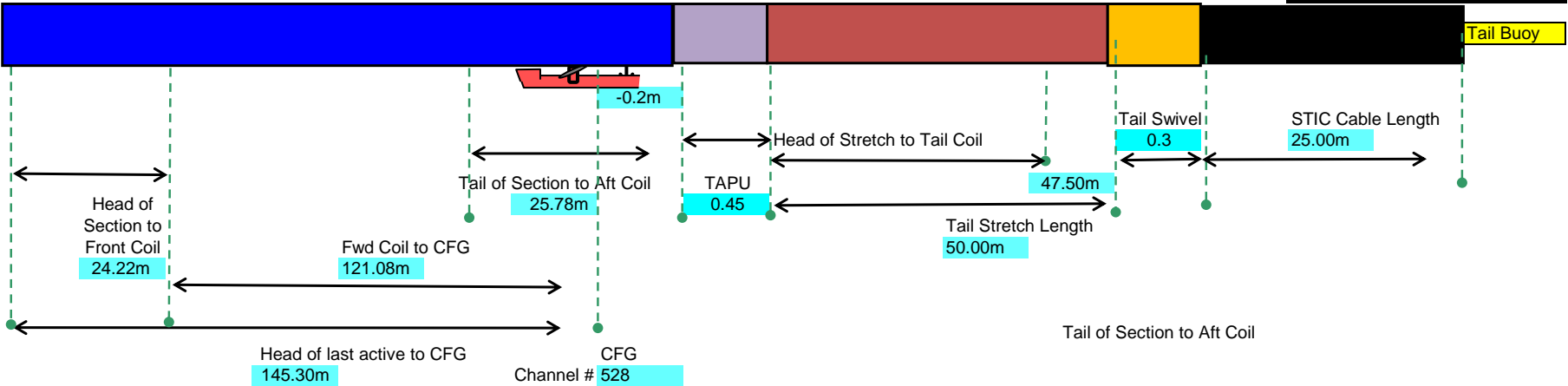




R/V Marcus G. Langseth - Streamer Tail End

Total active sections	40
Total Channels	528
Total section length	6000.00m
First to last channel	5996.88m
CFG to TB RGPS	81.95m

Last Active Section # 40

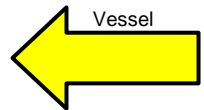


Cell contents referenced from Config\_offsets tab

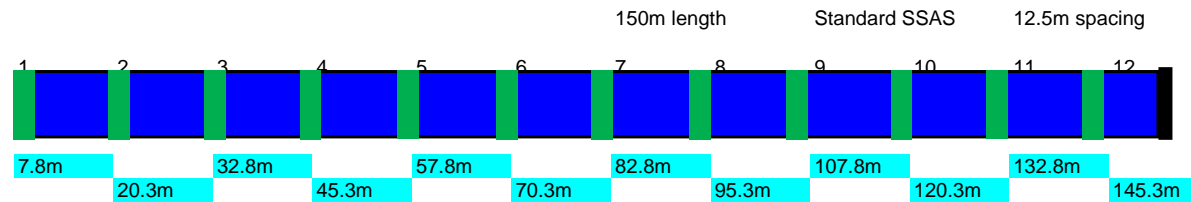
**R/V Marcus G. Langseth - Hydrophone Offsets**  
**Sercel 150meter SSAS**

Number of SSAS Sections **40**  
Total channels **528**

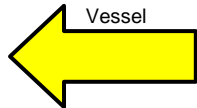
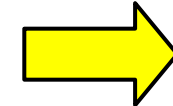
Standard SSAS 12 Channels Per Section  
SSAS-RD 24 Channels Per Section



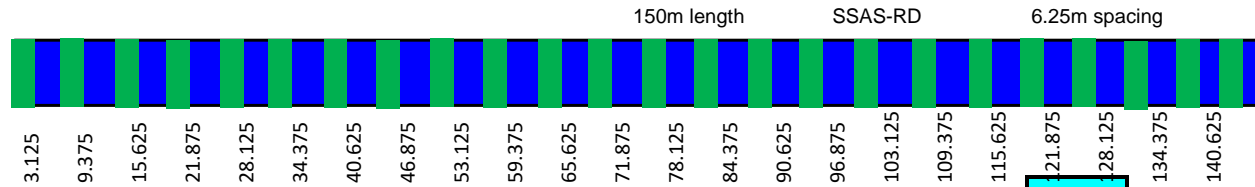
Vessel



Tail buoy



Vessel

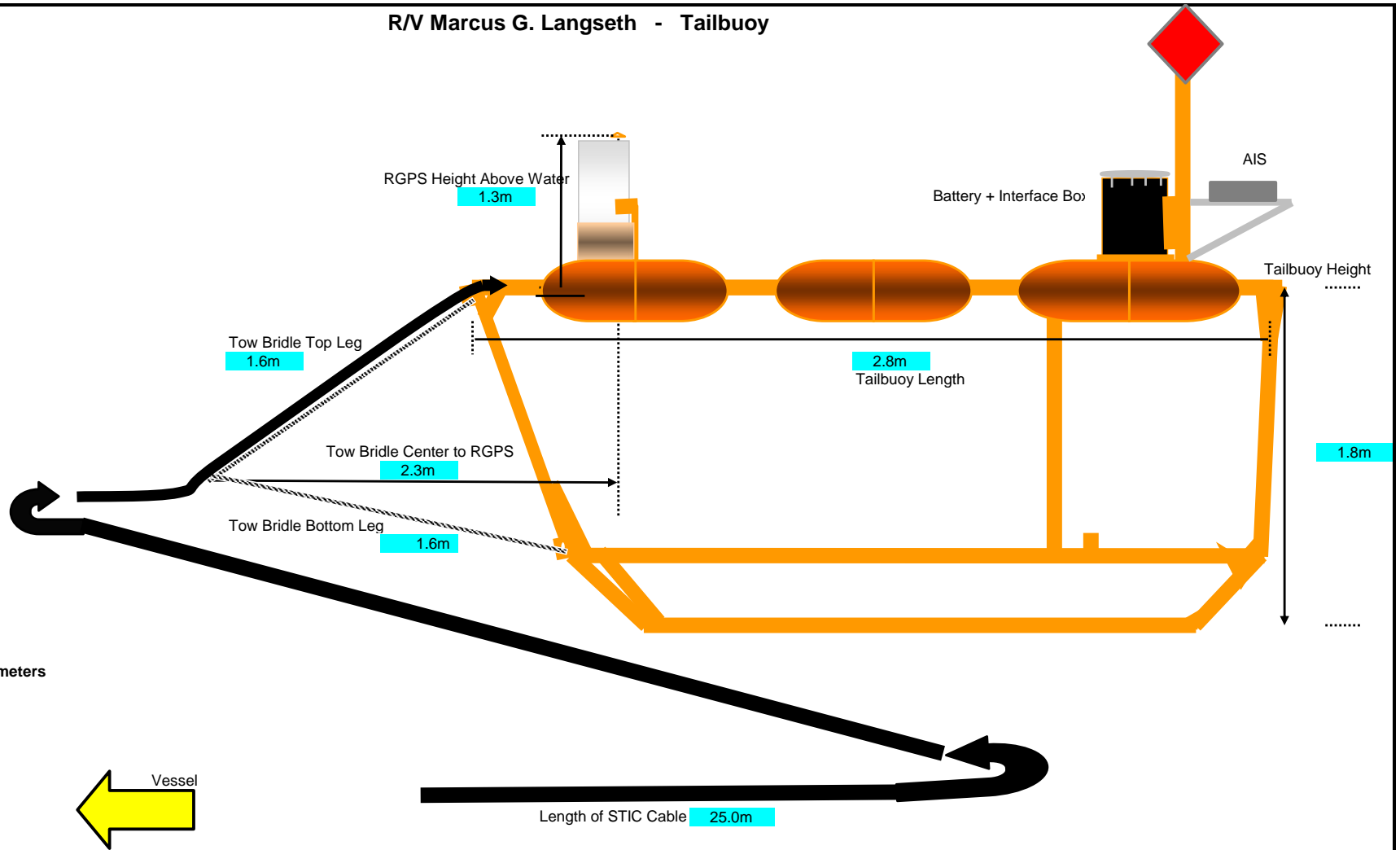


Tail buoy



Cell contents referenced from Config\_offsets tab

# R/V Marcus G. Langseth - Tailbuoy



All measurements in meters

Cell contents referenced from Config\_offsets tab

[illegible]

Tide buoy offsets	
RGPS height above waterline	1.3
TB lorch	2.8
TB height	1.83
BWDC LSW	1
Buoy BWDC	2.56
Top Leg	1.50
Bottom Leg	1.6
KTS	36
ACX below water line	1.3

General Chain Settings		
WSP to CWP		521-2025
COS-COS		162.526
COS-CFB		4587.3
WSP-Mag Y		142.5
WSP-Mag X		
WSP to sat from RSPS		8506.15
Total Length of Streamer section		6000
PWMA-COS Y		130.5
PWMA-COS X		130.5
WSP-PWMA Y		109.5
WSP-PWMA X		109.5
WSP-COS		402.525
Soft to length, stern to bottle		15
Max Riser 17.5m-25m		
LALIM 0.338m x 22 modules		7.445
OSCU 0.476 x (2 modules)		0.948
TAPU 0.4526		0.4526

Gums	
Reserve GPS-A002-V	0
Bracket distance 3-3	3.3
Bracket distance 3-4	3.35
Bracket distance 4-5	2.6
Bracket distance 4-6	<b>2.45</b>
Bracket distance 6-7	3
Bracket distance 7-8	3.3
GP04 - Acoustic V	<b>5.47</b>
GP05 bracket above water line	1.2
G1 Volume	360
G2 Volume	350
G3 Volume	40
G4 Volume	180
G5 Volume	180
G6 Volume	90
G7 Volume	120
G8 Volume	90
G9 Volume	90
G10 Volume	220

Parameters referenced to CNG or CGS	
ALTA	-0.50
ALTA1	-0.10
ALTA2	-0.15
ALTA3	-0.10
ALTA4	-0.50
ALTA5	-1.00
ALTA6	-1.00
ALTA7	-1.00
ALTA8	-1.00
ALTA9	-1.00
ALTA10	-1.00
ALTA11	-1.00
ALTA12	-1.00
ALTA13	-1.00
ALTA14	-1.00
ALTA15	-1.00
ALTA16	-1.00
ALTA17	-1.00
ALTA18	-1.00
ALTA19	-1.00
ALTA20	-1.00
ALTA21	-1.00
ALTA22	-1.00
ALTA23	-1.00
ALTA24	-1.00
ALTA25	-1.00
ALTA26	-1.00
ALTA27	-1.00
ALTA28	-1.00
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ALTA38	-1.00
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ALTA40	-1.00
ALTA41	-1.00
ALTA42	-1.00
ALTA43	-1.00
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ALTA45	-1.00
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ALTA86	-1.00
ALTA87	-1.00
ALTA88	-1.00
ALTA89	-1.00
ALTA90	-1.00
ALTA91	-1.00
ALTA92	-1.00
ALTA93	-1.00
ALTA94	-1.00
ALTA95	-1.00
ALTA96	-1.00
ALTA97	-1.00
ALTA98	-1.00
ALTA99	-1.00
ALTA100	-1.00

Derived Offsets (Formula)	
Towing Offsets Tab	
MRP-COS	240
MRP-CNG	402.520
MRP-CMP	321.2520
COS-CNG	162.520
CNG Channel #	1
MRP-Stem	29.25
Distance from Head of first section to CNG	3.125
Source Depth	6
Streamer Depth	6
Front End Length	39

Network Release Schedule	
Teaming Configuration TAB	
MRP-COS	240
MRP-ENG	402,525
COS-CNG	162,521
MRP-FRNG	6
COS-Prable	7,449,232
P-Cable	10,000
Prable-Sec	0
MRP-PAB Y	103,000
MRP-PAB X	10,000
PAB-COS Y	130,000
PAB-COS X	10,000
g Gun Strings	2
gun volume	33000
Gun separation	
# 2D Streamers	1
2D Streamer Ch Spacing	12,500
Number 2D Streamers	6000
2D Streamer	528
2D Streamer	0
MRP-MAG X	10,000
MRP-MAG Y	142,500

Normalised Acoustic Overhead TAB	
G1T1	-0.15
G2T1	-0.15
G3T1	-0.15
G4T1	-0.15
S1T1	-16.95
S1T2	-167.28
S1T3	-1232.82
S1T4	-1247.2
S1T5	1
S1T6	0
S1T7	0
S2T1	0
S2T2	0
S2T3	0
S2T4	0
S2T5	0
S2T6	0
S2T7	0
S3T1	0
S3T2	0
S3T3	0
S3T4	0
S3T5	0
S3T6	0
S3T7	0
S4T1	0
S4T2	0
S4T3	0
S4T4	0
S4T5	0
S4T6	0
S4T7	0
S5T1	0
S5T2	0
S5T3	0
S5T4	0
S5T5	0
S5T6	0
S5T7	0
S6T1	0
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S6T4	0
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S7T5	0
S7T6	0
S7T7	0
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S8T5	0
S8T6	0
S8T7	0
S9T1	0
S9T2	0
S9T3	0
S9T4	0
S9T5	0
S9T6	0
S9T7	0
S10T1	0
S10T2	0
S10T3	0
S10T4	0
S10T5	0
S10T6	0
S10T7	0
S11T1	0
S11T2	0
S11T3	0
S11T4	0
S11T5	0
S11T6	0
S11T7	0
S12T1	0
S12T2	0
S12T3	0
S12T4	0
S12T5	0
S12T6	0
S12T7	0
S13T1	0
S13T2	0
S13T3	0
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S13T5	0
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S15T4	0
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S15T6	0
S15T7	0
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S16T3	0
S16T4	0
S16T5	0
S16T6	0
S16T7	0
S17T1	0
S17T2	0
S17T3	0
S17T4	0
S17T5	0
S17T6	0
S17T7	0
S18T1	0
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S18T5	0
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S18T7	0
S19T1	0
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S25T2	0
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S25T7	0
S26T1	0
S26T2	0
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S26T6	0
S26T7	0
S27T1	0
S27T2	0
S27T3	0
S27T4	0
S27T5	0
S27T6	0
S27T7	0
S28T1	0
S28T2	0
S28T3	0
S28T4	0
S28T5	0
S28T6	0
S28T7	0
S29T1	0
S29T2	0
S29T3	0
S29T4	0
S29T5	

Gun array offsets	
Broader distance 1-2	0
Broader distance 2-3	3.3
Broader distance 3-4	5
Broader distance 4-5	2.6
Broader distance 5-6	4.5
Broader distance 6-7	2.3
Broader distance 7-8	5
SourceGPS-CDS Y	0
CDS - Accuside Y	-5.47
GPS height above 1	12
G1 Volume	300
G2 Volume	360
G3 Volume	495
G4 Volume	585
G5 Volume	180
G6 Volume	180
G7 Volume	90
G8 Volume	120
G9 Volume	225
G10 Volume	225
G-Depth 1	0.95
G-Depth 2	0.95
G-Depth 3	0.95
G-Depth 4	0.95
G-Depth 5	0.95
G-Depth 6	0.95
G-Depth 7	1.15
G-Depth 8	1.15
G-Depth 9	0.95
G-Depth 10	0.95
G-Depth 11	0.95
G-Depth 12	0.95
G-Depth 13	0.95
G-Depth 14	0.95
G-Depth 15	0.95
G-Depth 16	0.95
G-Depth 17	0.95
G-Depth 18	0.95
G-Depth 19	0.95
G-Depth 20	0.95
G-Depth 21	0.95
G-Depth 22	0.95
G-Depth 23	0.95
G-Depth 24	0.95
G-Depth 25	0.95
G-Depth 26	0.95
G-Depth 27	0.95
G-Depth 28	0.95
G-Depth 29	0.95
G-Depth 30	0.95
G-Depth 31	0.95
G-Depth 32	0.95
G-Depth 33	0.95
G-Depth 34	0.95
G-Depth 35	0.95
G-Depth 36	0.95
G-Depth 37	0.95
G-Depth 38	0.95
G-Depth 39	0.95
G-Depth 40	0.95
G-Depth 41	0.95
G-Depth 42	0.95
G-Depth 43	0.95
G-Depth 44	0.95
G-Depth 45	0.95
G-Depth 46	0.95
G-Depth 47	0.95
G-Depth 48	0.95
G-Depth 49	0.95
G-Depth 50	0.95
G-Depth 51	0.95
G-Depth 52	0.95
G-Depth 53	0.95
G-Depth 54	0.95
G-Depth 55	0.95
G-Depth 56	0.95
G-Depth 57	0.95
G-Depth 58	0.95
G-Depth 59	0.95
G-Depth 60	0.95
G-Depth 61	0.95
G-Depth 62	0.95
G-Depth 63	0.95
G-Depth 64	0.95
G-Depth 65	0.95
G-Depth 66	0.95
G-Depth 67	0.95
G-Depth 68	0.95
G-Depth 69	0.95
G-Depth 70	0.95
G-Depth 71	0.95
G-Depth 72	0.95
G-Depth 73	0.95
G-Depth 74	0.95
G-Depth 75	0.95
G-Depth 76	0.95
G-Depth 77	0.95
G-Depth 78	0.95
G-Depth 79	0.95
G-Depth 80	0.95
G-Depth 81	0.95
G-Depth 82	0.95
G-Depth 83	0.95
G-Depth 84	0.95
G-Depth 85	0.95
G-Depth 86	0.95
G-Depth 87	0.95
G-Depth 88	0.95
G-Depth 89	0.95
G-Depth 90	0.95
G-Depth 91	0.95
G-Depth 92	0.95
G-Depth 93	0.95
G-Depth 94	0.95
G-Depth 95	0.95
G-Depth 96	0.95
G-Depth 97	0.95
G-Depth 98	0.95
G-Depth 99	0.95
G-Depth 100	0.95

Downed Offsets	
Streamer Front End	
Downpoint at sea	315
downpoint at sea to end of section	15
DHS Length	0
rxm length	17.3
HALFTU Length	0.4
HESSA Lgth	10
Pd Coil to Ab Coil	100
Pd to Head	3.125
Pd Coil to CHC	-21.098
Pd to Head to Tail Coil	24.233
Tail to Ab Coil	25.771
CNG Channel #	1
Center of streamer to Ace	-0.1
First Section #	1
# channels	528
section length	6000
# sections	42
channel inactive	12.5
First to last	5596.875
HESSA Head to aft	6.45

Streamer Tail End	
Head to Feed Coil	24.22
Tail to AR Coil	25.77
Head to AR Coil	145.
Coil to Coil	10
TAPU 1 coals	0.4
Tail streamer	5
Twisted Length	0.
STIC 1 coals	2
Last active	4
# channels	52
# sections	4
total section length	600
First to last	5096.87
Stretch	0.
Center of streamer to AR	-0.
channel channel	12.
CFG #	52
Feed coil to CFG	121.07
CFG to transition	81.9
Stretch head to tail	2.
Stretch head to aft	47.

Demanded Offsets	
Steamer complete	
#Sections	4
# Channels	53
First to last	5595.87
Total section length	600

Channel Offsets	
Hydrophone Offsets	
Channel 1	7.82
2	20.32
3	32.82
4	45.32
5	57.82
6	70.32
7	82.82
8	95.32
9	107.82
10	120.32
11	132.82
12	145.32
# channels	1
# Active's	4
Total Channels	53

Derived Offsets	
Tailrubby offsets	
RGPS height above member	1.
TB length	2.
TB height	1.8
RGPS-AGX	
Bridle-arm	2.2
Top Leg	1.5
Bottom Leg	1.
STIC	2.
ACX below member top	1.