

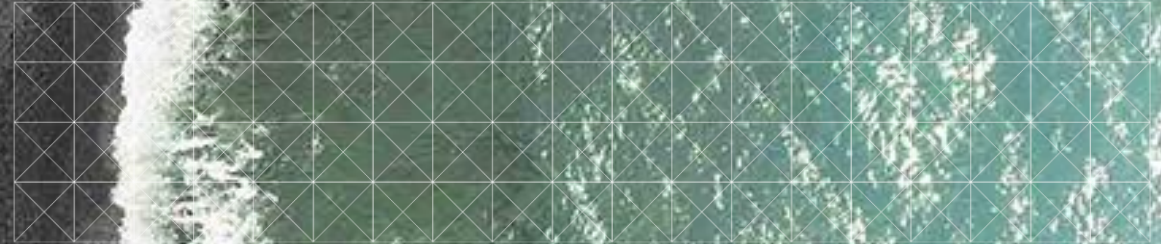
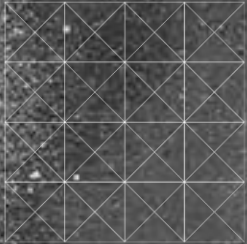


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PETROBRAS

KBOS Study (Preliminary Results)

8th June 2022





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Study Input Data

Provided by Petrobras [Ref. 1]

Input Parameters:

- Site Specific Details:
 - Location: Campos Basin
 - Water Depth: 107m
- Environment:
 - Assessed Combination: 95% Non-Exceedence
 - Wind Wave: $H_s = 3.0\text{m}$, $T_p = 8.8\text{s}$, $\text{Gamma} = 2.0$
 - Wind: $V_{\text{wind}} = 11.4\text{m/s}$
 - Current (Surface): $V_{\text{curr}} = 0.82\text{m/s}$
- EDS Sequence:
 - Petrobras Standard (Baseline): 50s
 - KBOS System: 9s (82% ↓)
- BOP Configurations:
 - Standard BOP, Class 8: 350mT
- BAP/BOP Connector capacity is low (1,220kips.ft)

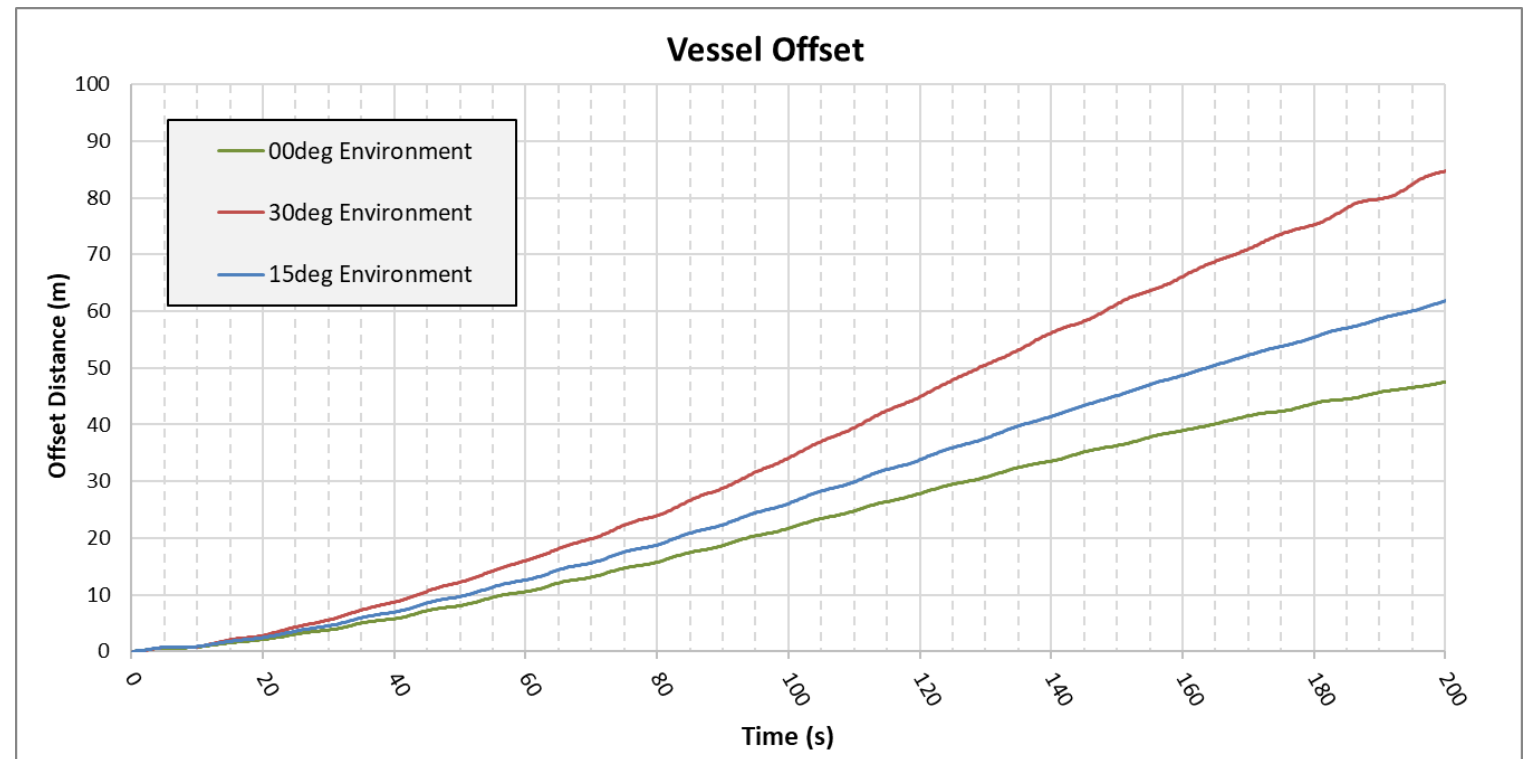
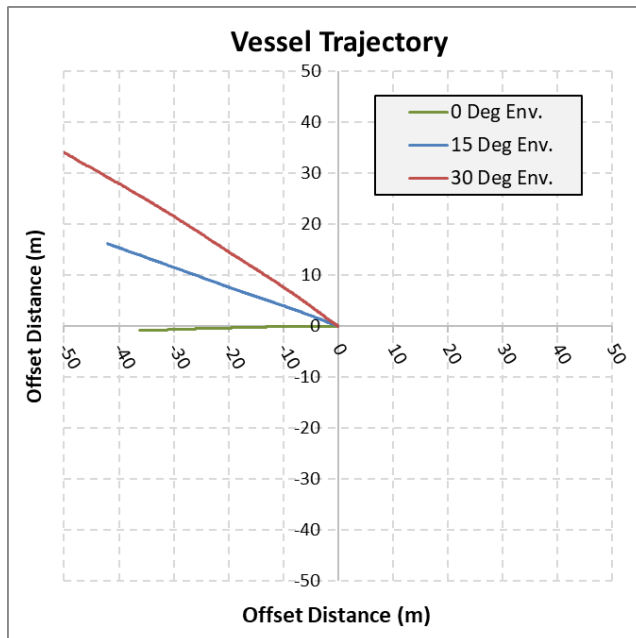


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Results

Drift-Off (PRELIMINARY)

- Environment: 95% Non-Exceedence
 - Wind Wave: $H_s = 3.0\text{m}$, $T_p = 8.8\text{s}$
 - Wind: $V_{\text{wind}} = 11.4\text{m/s}$
 - Current (Surface): $V_{\text{curr}} = 0.82\text{m/s}$





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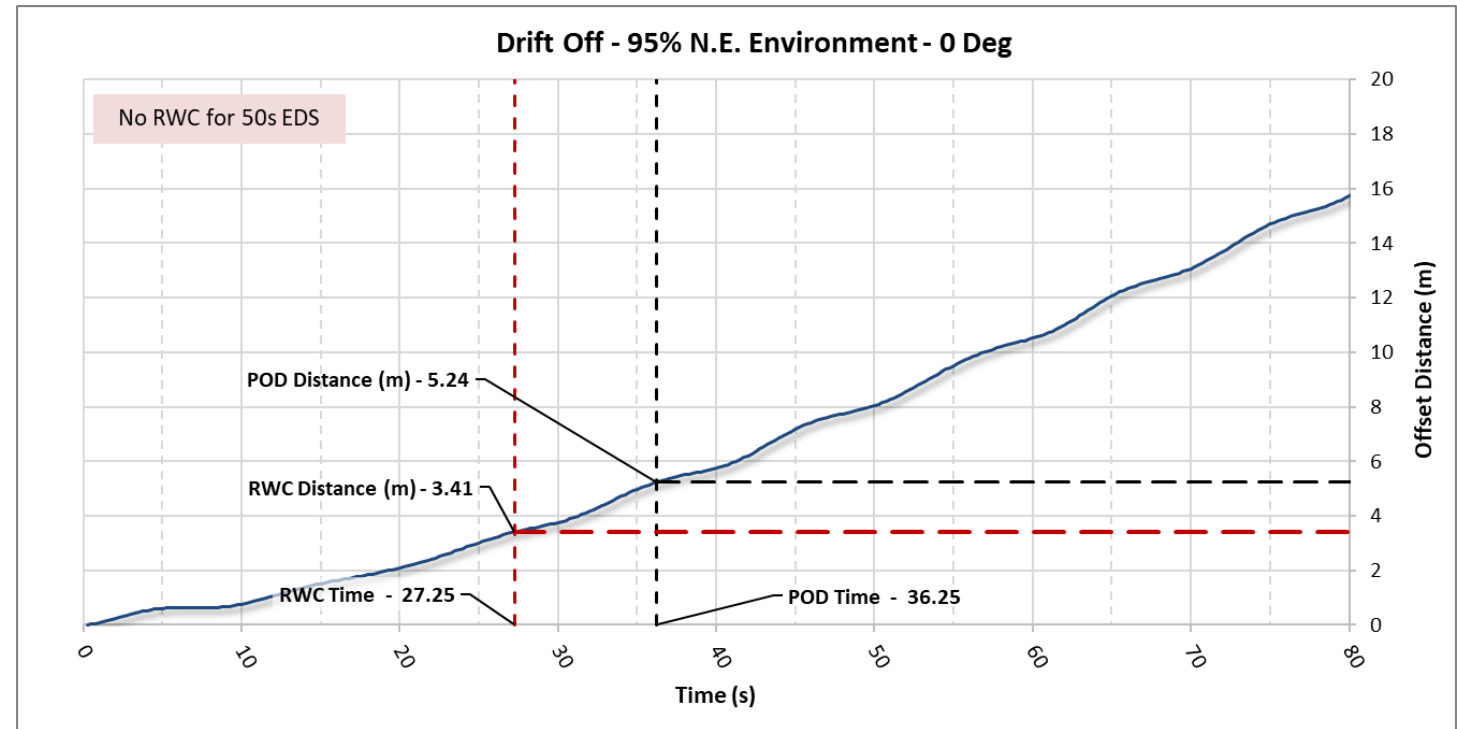
Results

Drift-Off (PRELIMINARY)

- Environment: 95% Non-Exceedence
- 0 Degree Heading Results:

Parameter	Unit	50s EDS	9s EDS
Limiting Criteria	-	BAP/BOP Connector	BAP/BOP Connector
POD Time	s	36.2	36.2
POD Distance	m	5.2	5.2
POD % W.D.	%	4.90%	4.90%
RWC Time	s	0.0 (No RWC)	27.2
RWC Distance	m	0.0 (No RWC)	3.4
RWC % W.D.	%	0.0% (No RWC)	3.19%

- No 50s EDS RWC determined: POD time < 50s
- BAP/BOP Connector is very limiting (1,220kips.ft)
- Next limiting component: UFJ at 73s (101% ↑)
& 14.0m (168% ↑)





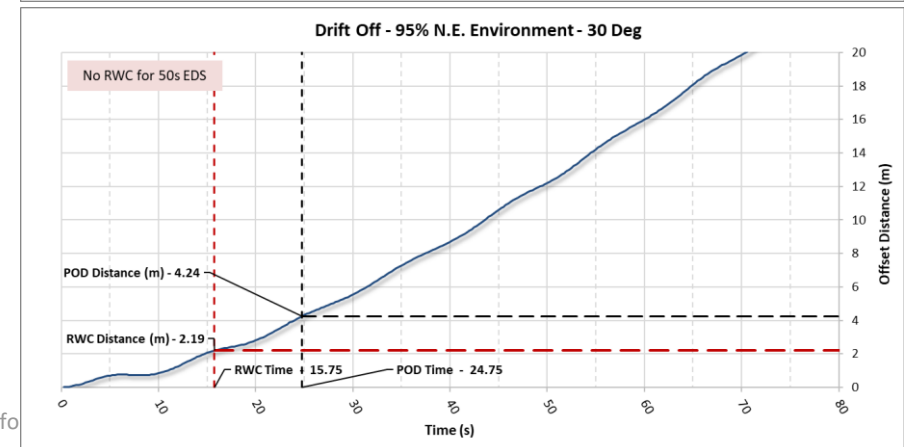
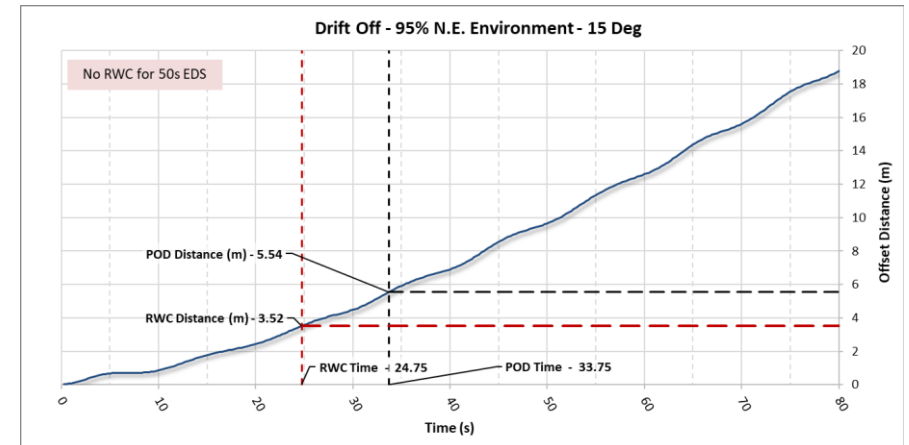
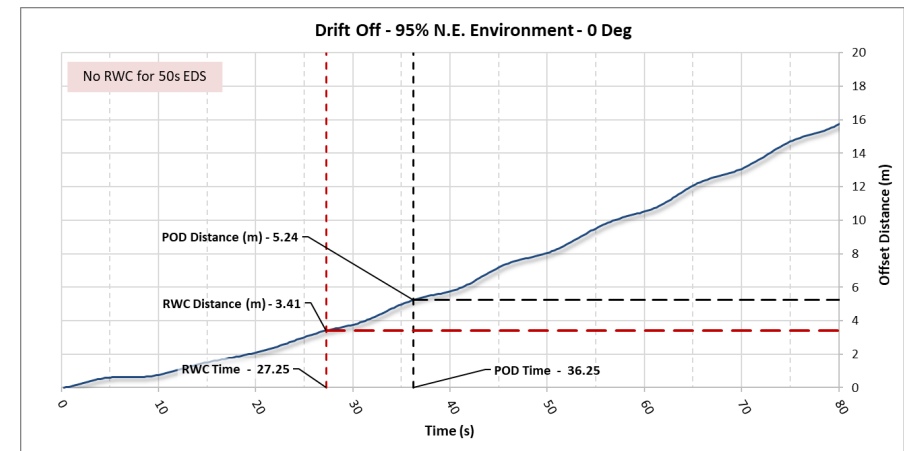
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Results

Drift-Off (PRELIMINARY)

- Environment: 95% Non-Exceedence
- 0 Degree Heading Results (9s EDS – K-BOS System):

Parameter	Unit	0 Deg	15 Deg	30 Deg
Limiting Criteria	-	BAP/BOP Connector	BAP/BOP Connector	BAP/BOP Connector
POD Time	s	36.2	33.7	24.7
POD Distance	m	5.2	5.5	4.2
POD % W.D.	%	4.90%	5.18%	3.96%
RWC Time	s	27.2	24.7	15.7
RWC Distance	m	3.4	3.5	2.2
RWC % W.D.	%	3.19%	3.29%	2.05%





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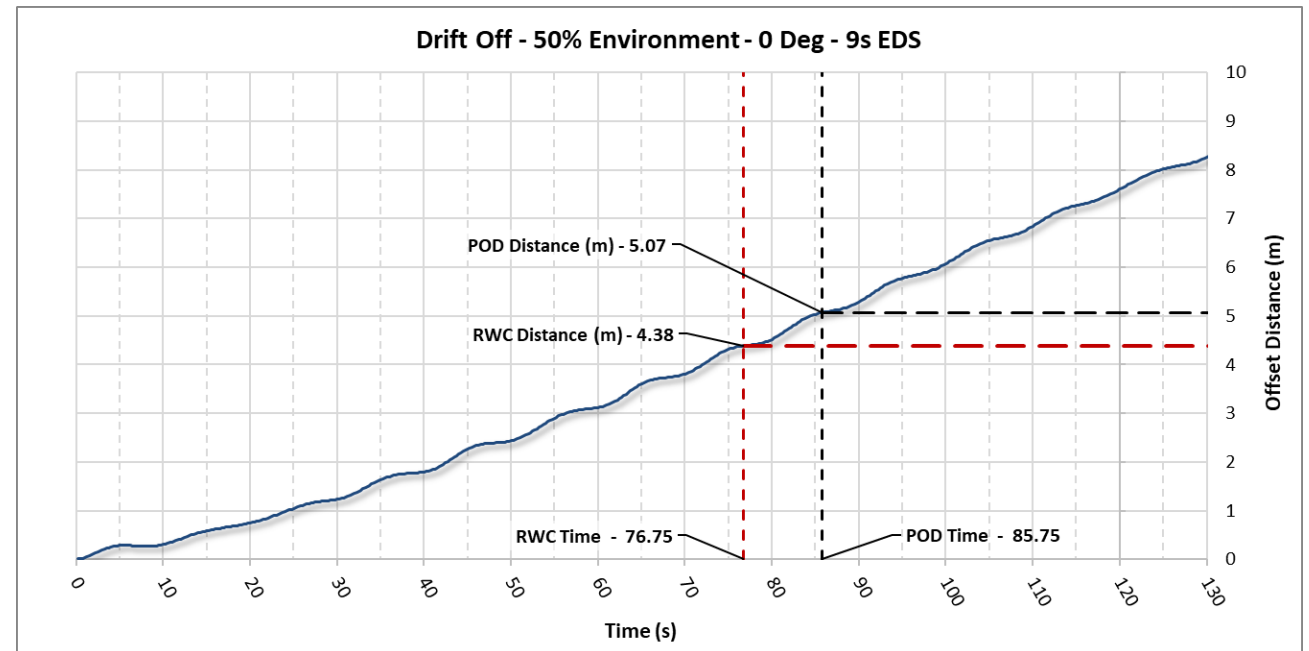
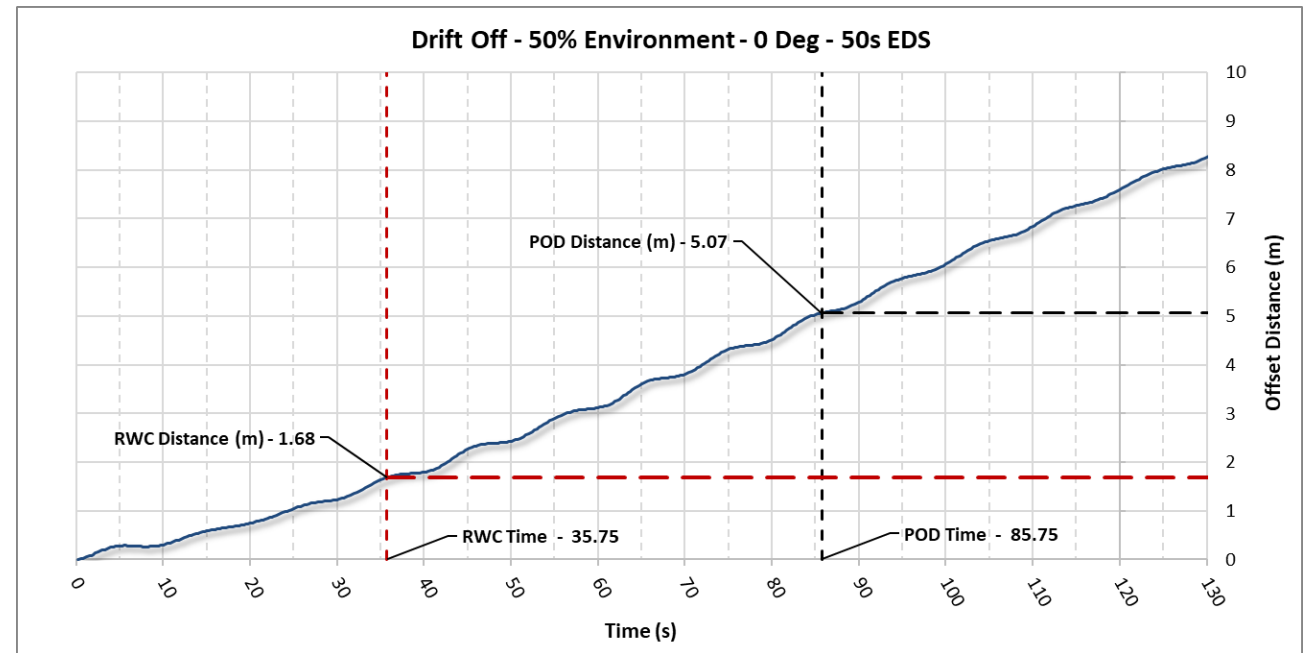
Results

Drift-Off (PRELIMINARY)

■ Reduced Environment:

(50% of 95% Non-Exceedence)

- Wind Wave: $H_s = 1.5\text{m}$, $T_p = 8.8\text{s}$
- Wind: $V_{\text{wind}} = 5.72\text{m/s}$
- Current (Surface): $V_{\text{curr}} = 0.41\text{m/s}$





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Results

Drift-Off (PRELIMINARY)

- Reduced Environment (50% of 95% N.E.)
- 0 Degree Heading Results:

Parameter	Unit	50s EDS	9s EDS
Limiting Criteria	-	BAP/BOP Connector	BAP/BOP Connector
POD Time	s	85.7	85.7
POD Distance	m	5.1	5.1
POD % W.D.	%	4.73%	4.73%
RWC Time	s	35.7	76.7
RWC Distance	m	1.7	4.4
RWC % W.D.	%	1.57%	4.10%

- Time to RWC increased by 41s (115% ↑)
- Distance to RWC increased by 2.7m (160% ↑)

