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Sent: Friday, March 13, 2020 12:31 PM

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Subject: LNG Basin Interim Measure - Materials from Wednesday's meeting

Hi Dana –

Thank you for your time Wednesday to review model simulations and discuss the LNG Basin interim measure. Attached are the materials we shared with you on Webex. We are working on the additional simulations you requested as well as responding to the questions you emailed yesterday. Hope you have a safe and healthy weekend.

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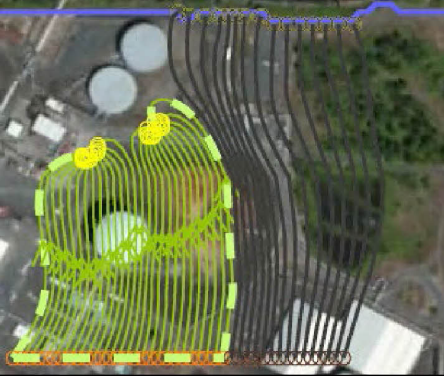
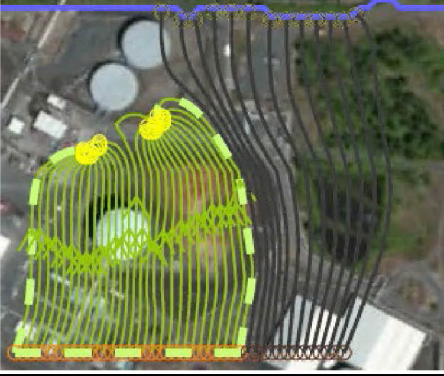
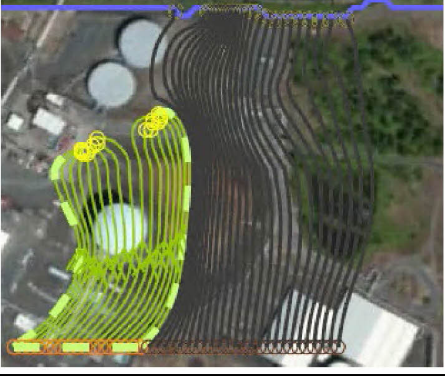
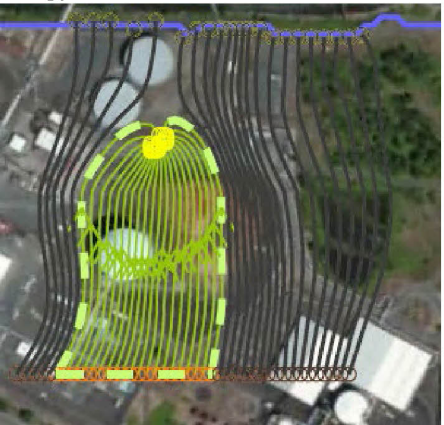
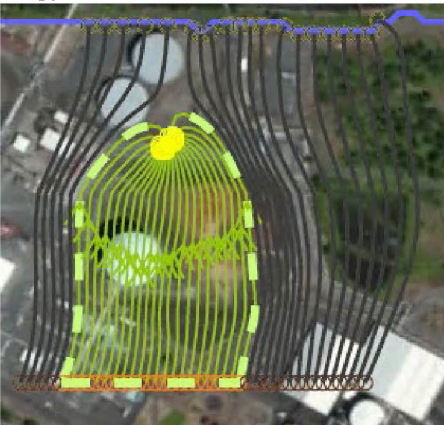
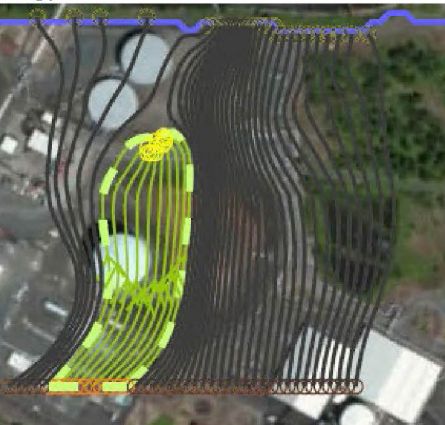
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River Stage (ft COP)	8.84	10.20	7.19
Rainfall (inches/month)	3.9	7.2	0.95
50-ft Long Trench in PacTerm Basin + 50-ft Long Trench near MW-49F	15 gpm 	27 gpm 	3.4 gpm 
	8.6 gpm 	16 gpm 	1.7 gpm 
	50-ft Long Trench in PacTerm Basin		

Figure 1a
 Simulated Capture Zones for 50-ft Long Trench in PacTerm Basin
 LNG Basin Interim Measure
 NW Natural Gasco Site

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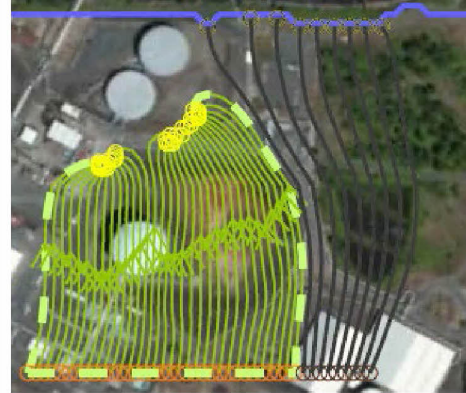
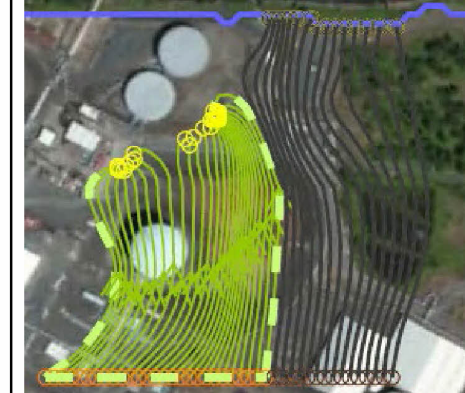
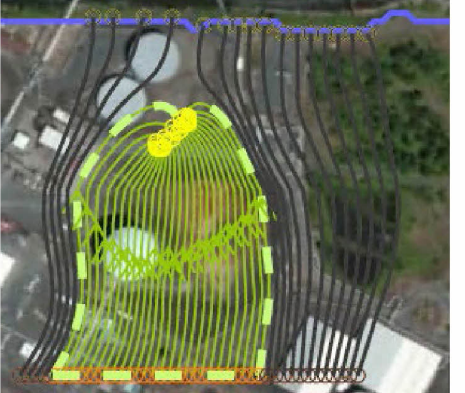
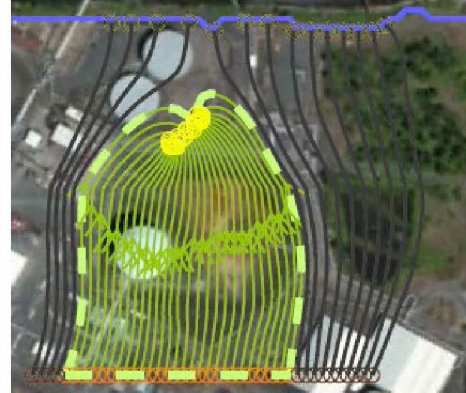
	Annual Average Condition	Wet Season (Dec to Mar Average)	Dry Season (Jun to Sept Average)
River Stage (ft COP)	8.84	10.20	7.19
Rainfall (inches/month)	3.9	7.2	0.95
100-ft Long Trench in PacTerm Basin + 50-ft Long Trench near MW-49F	17 gpm 	32 gpm 	4.5 gpm 
	100-ft Long Trench in PacTerm Basin	12 gpm 	22 gpm 

Figure 1b
 Simulated Capture Zones for 100-ft Long Trench in PacTerm Basin
 LNG Basin Interim Measure
 NW Natural Gasco Site

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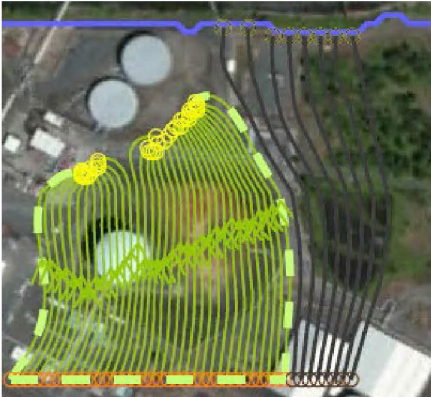
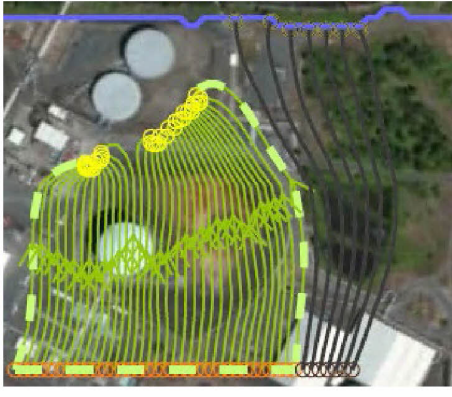

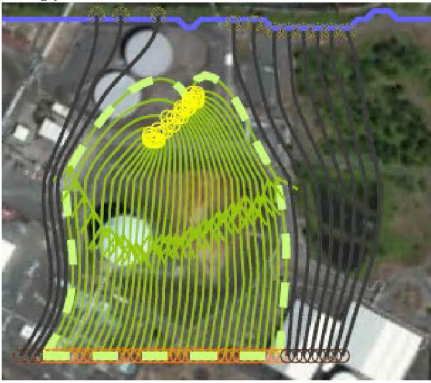
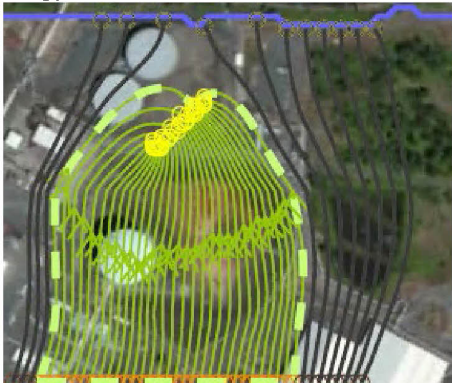
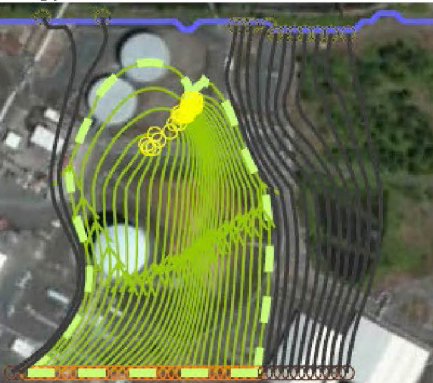
	Annual Average Condition	Wet Season (Dec to Mar Average)	Dry Season (Jun to Sept Average)
River Stage (ft COP)	8.84	10.20	7.19
Rainfall (inches/month)	3.9	7.2	0.95
150-ft Long Trench in PacTerm Basin + 50-ft Long Trench near MW-49F	20 gpm 	36 gpm 	5.7 gpm 
	15 gpm 	27 gpm 	4.3 gpm 

Figure 1c
 Simulated Capture Zones for 150-ft Long Trench in PacTerm Basin
 LNG Basin Interim Measure
 NW Natural Gasco Site

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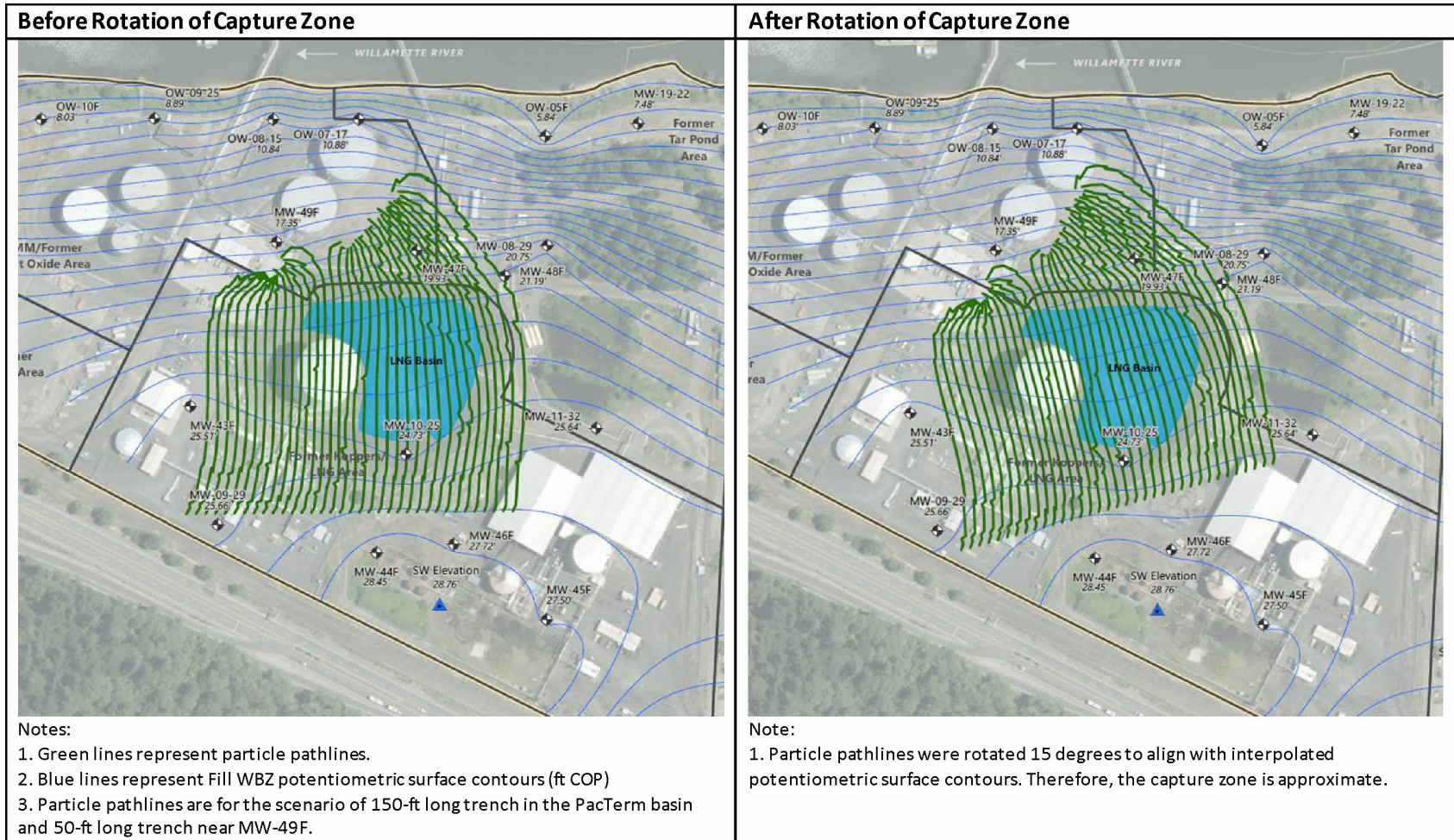
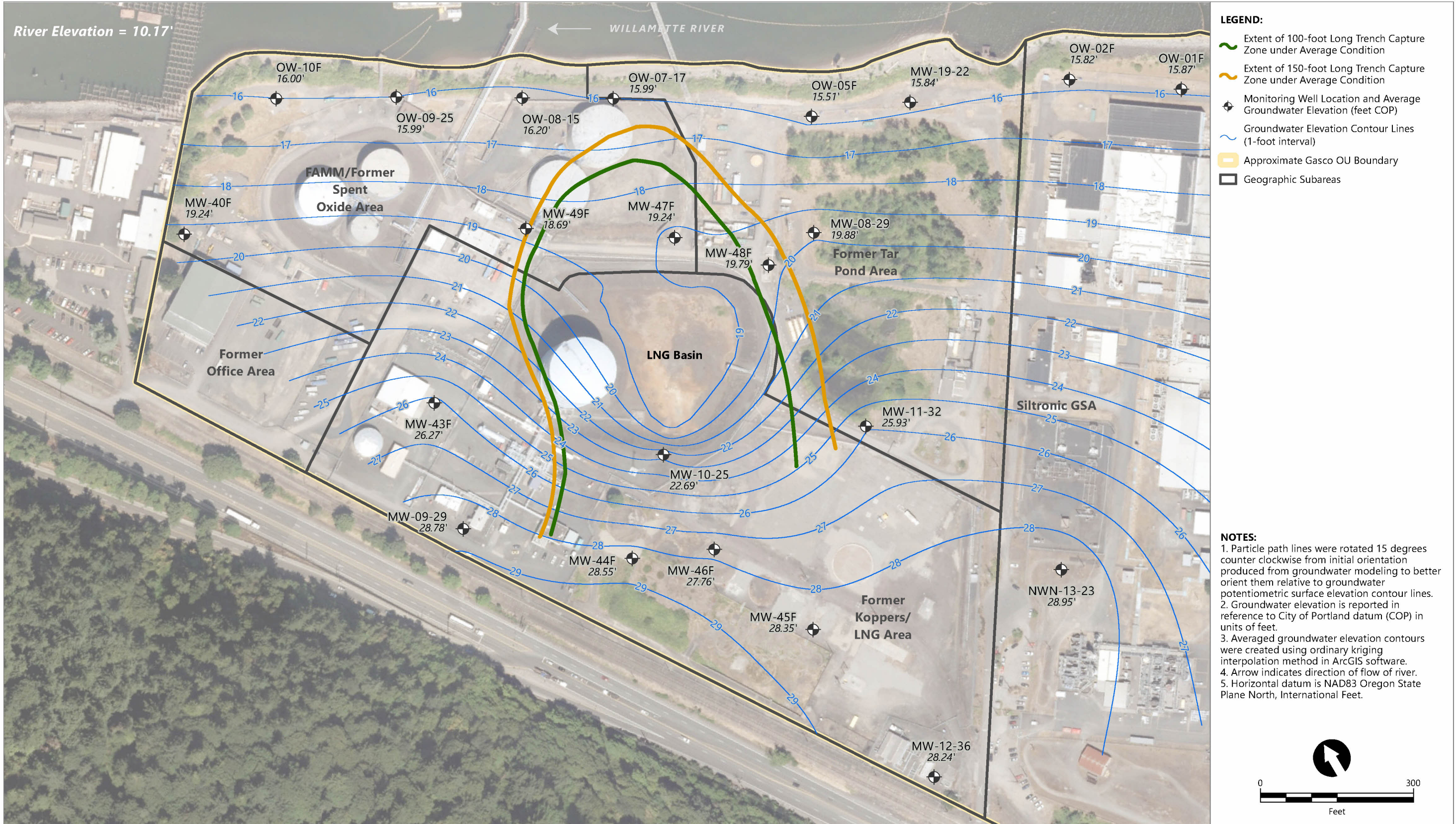


Figure 2
 Overlay of Simulated Capture Zone with Fill WBZ Potentiometric Surface Contours
 LNG Basin Interim Measure
 NW Natural Gasco Site

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Figure 3
 Fill WBZ Potentiometric Surface Contours Using Average Monthly Groundwater Elevations for May 2018 and Simulated Particle Path Lines for Pre-LNG Retrofit Conditions with 100- and 150-Foot Trench Options

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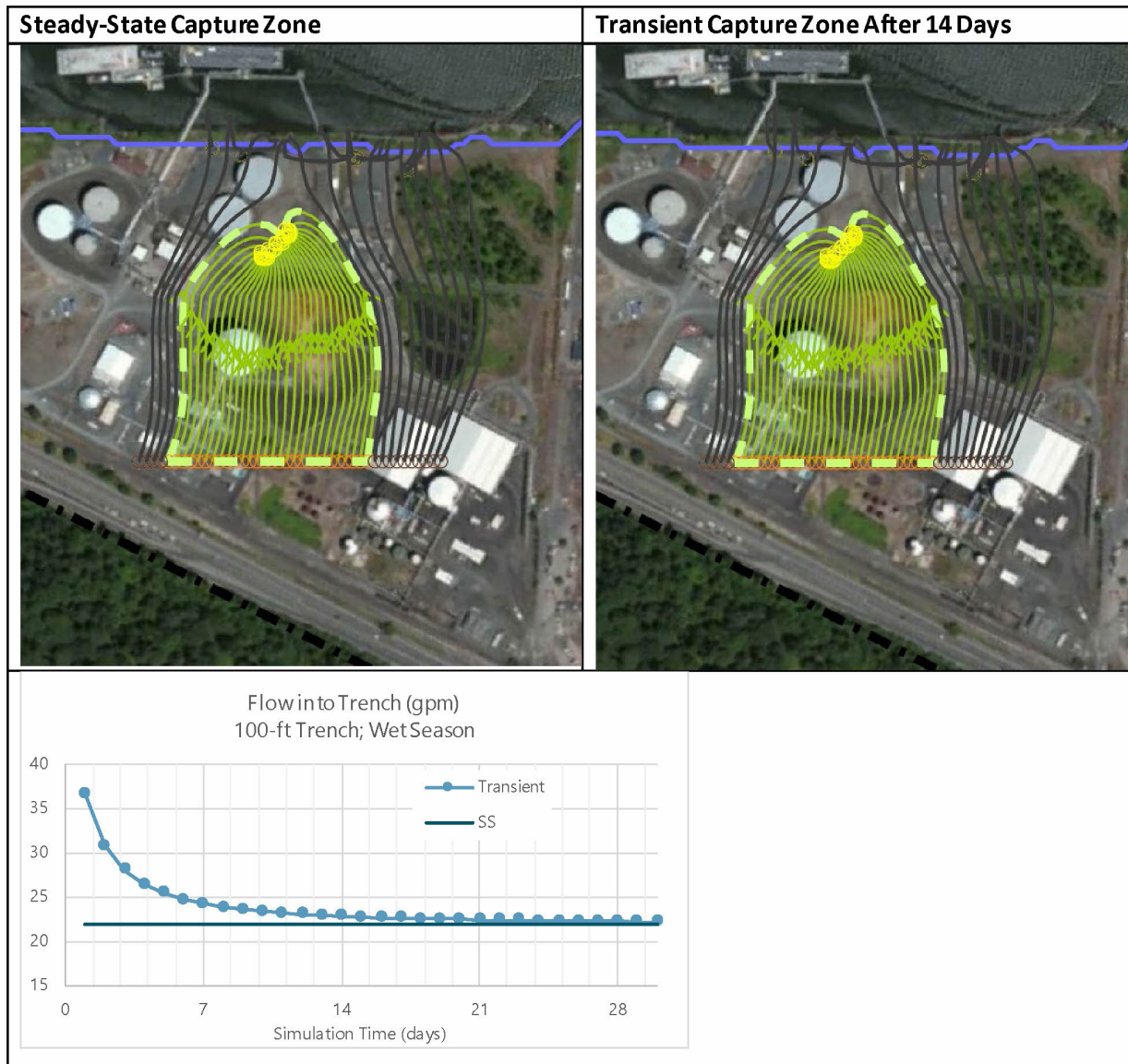


Figure 4
 Comparison of Capture Zones (100-ft Long Trench Wet Season)
 LNG Basin Interim Measure
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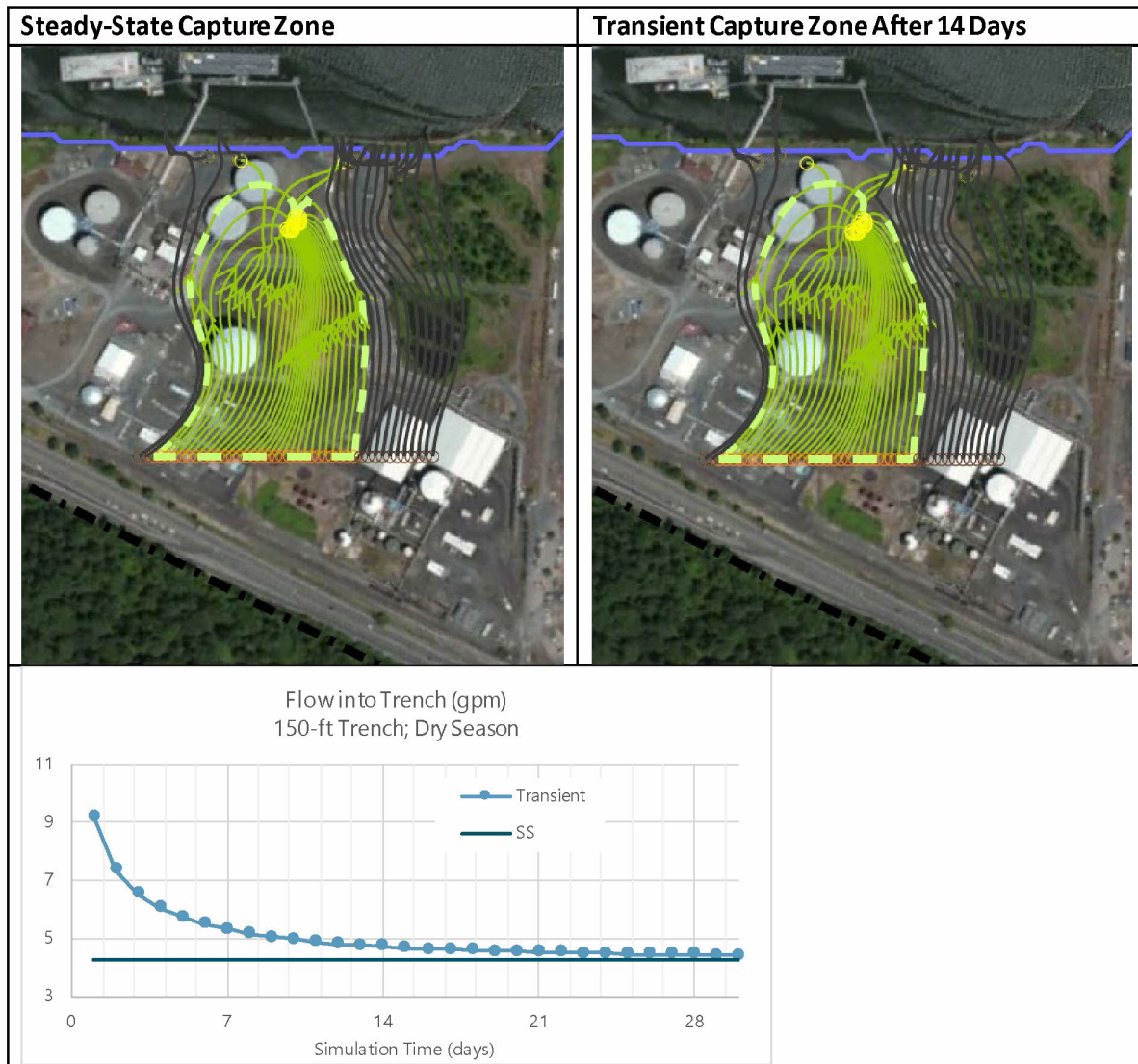


Figure 5
 Comparison of Capture Zones (150-ft Long Trench Dry Season)
 LNG Basin Interim Measure
 NW Natural Gasco Site