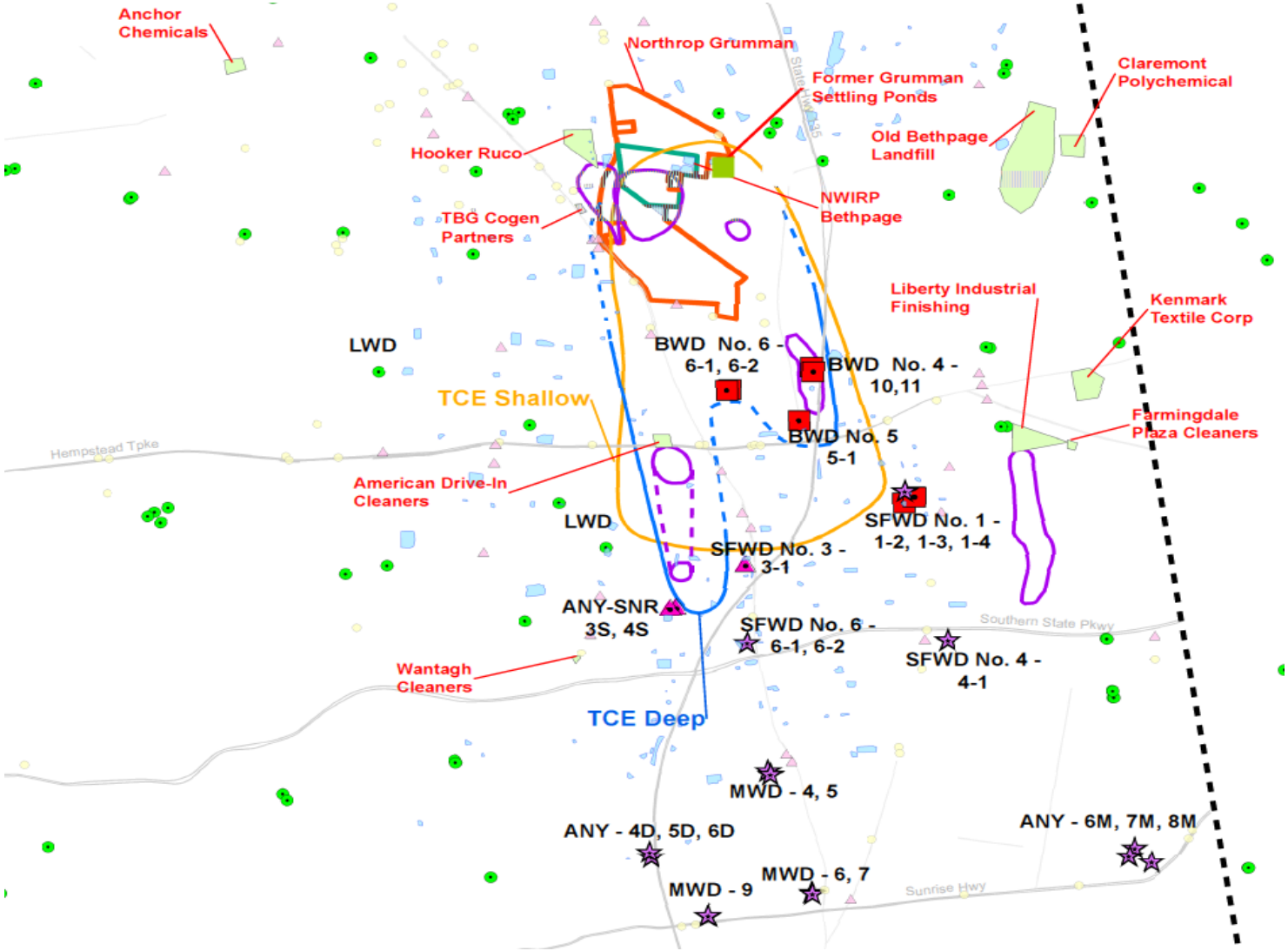
Study of Alternatives for Management of Impacted Groundwater at Bethpage (January *2012 Report)*

Naval Facilities Engineering Command Mid-Atlantic

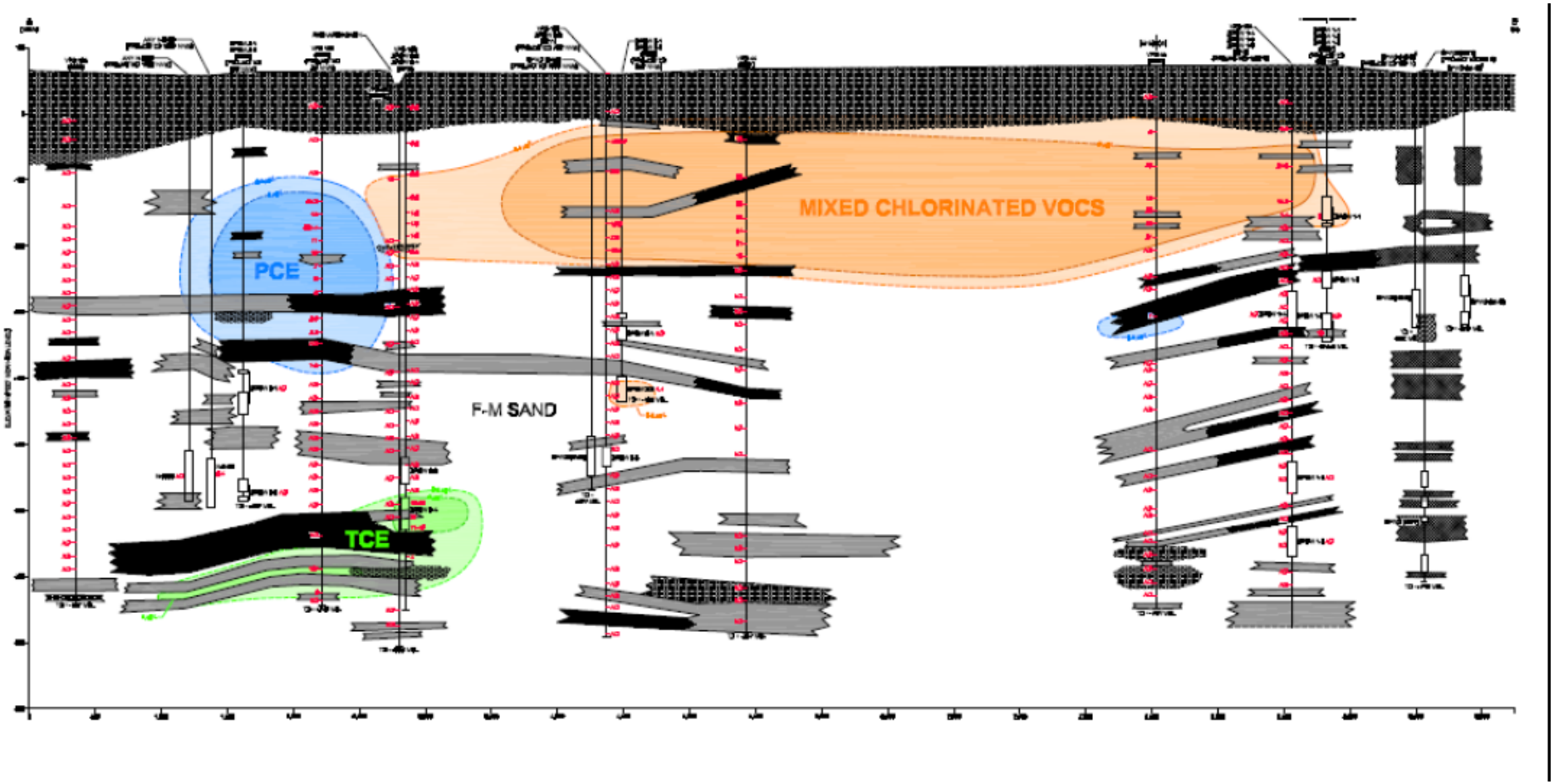
EPA/NYSDEC/NAVY

2 March 2012

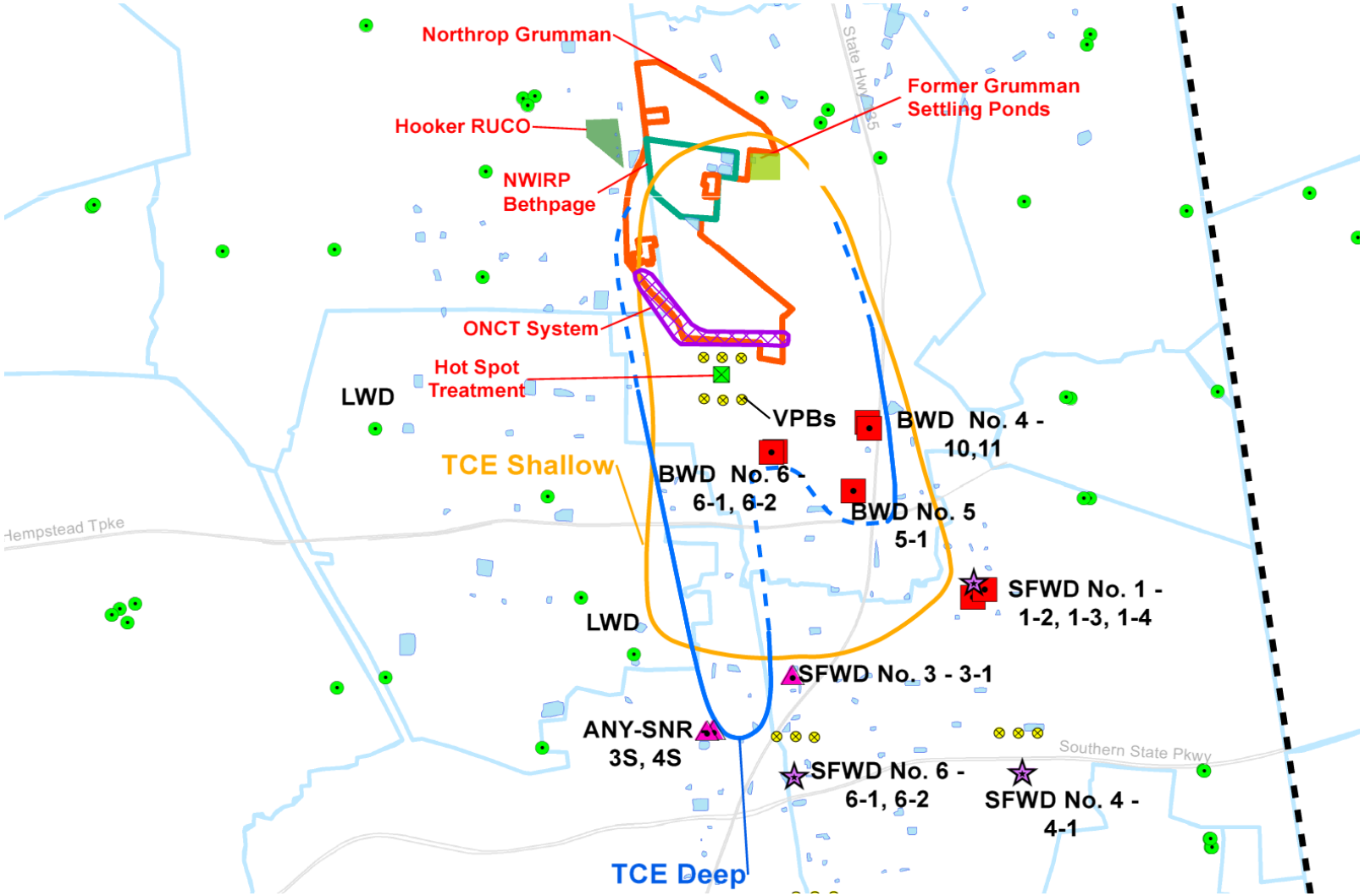
“Bethpage Plume” – A Collection of Plumes from Various Sources (Figure 1-10 in report)



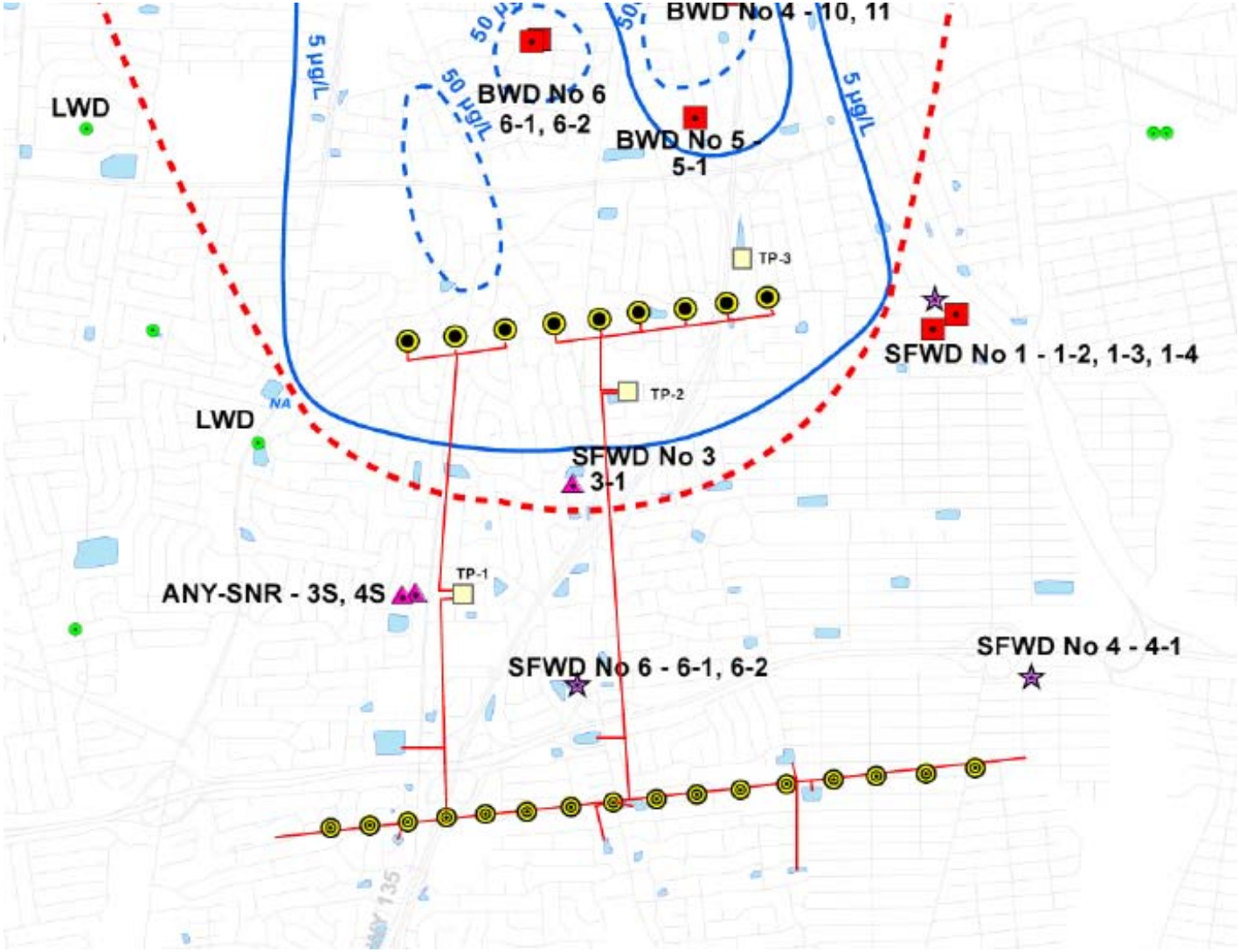
Bethpage Plume – Cross-Section C-C’ (Adapted from Figure 1-9 in Report)



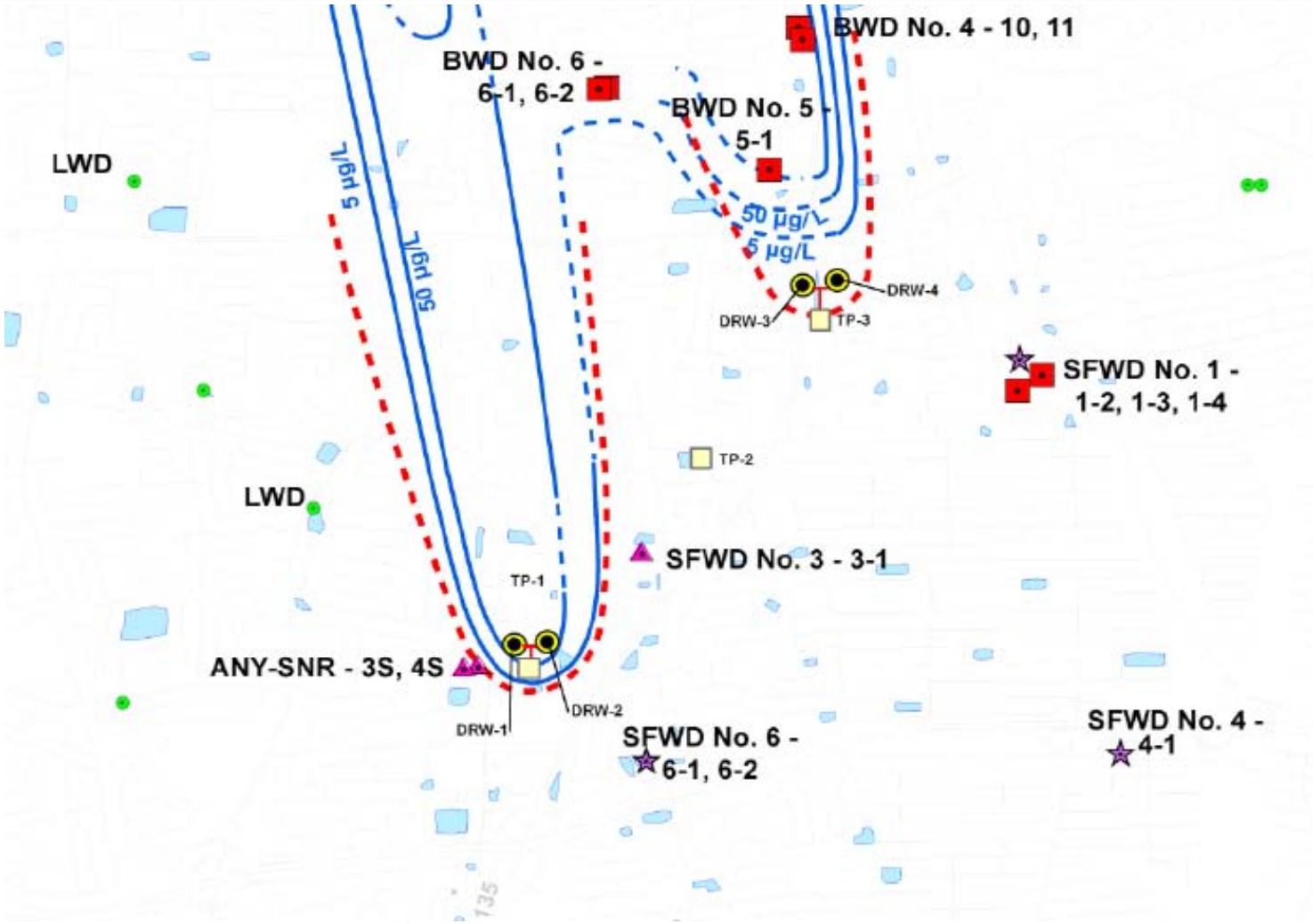
Alternative 1 and 2A (Figure 2-4 from report)



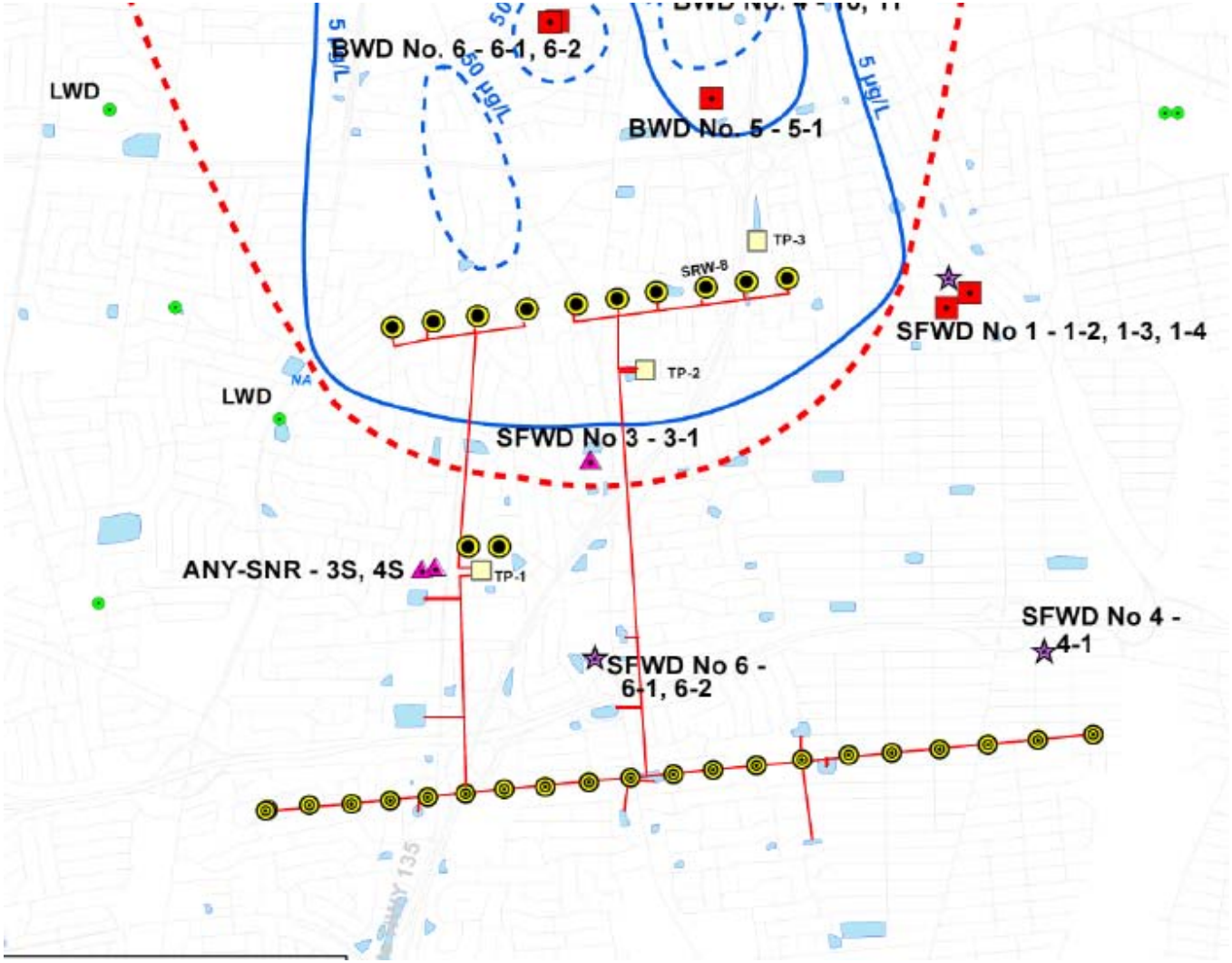
Alternative 2B
(Figure 2-5 from report)



Alternative 2B
(Figure 2-6 from report)



Alternative 2C
(Figure 2-11 in report)



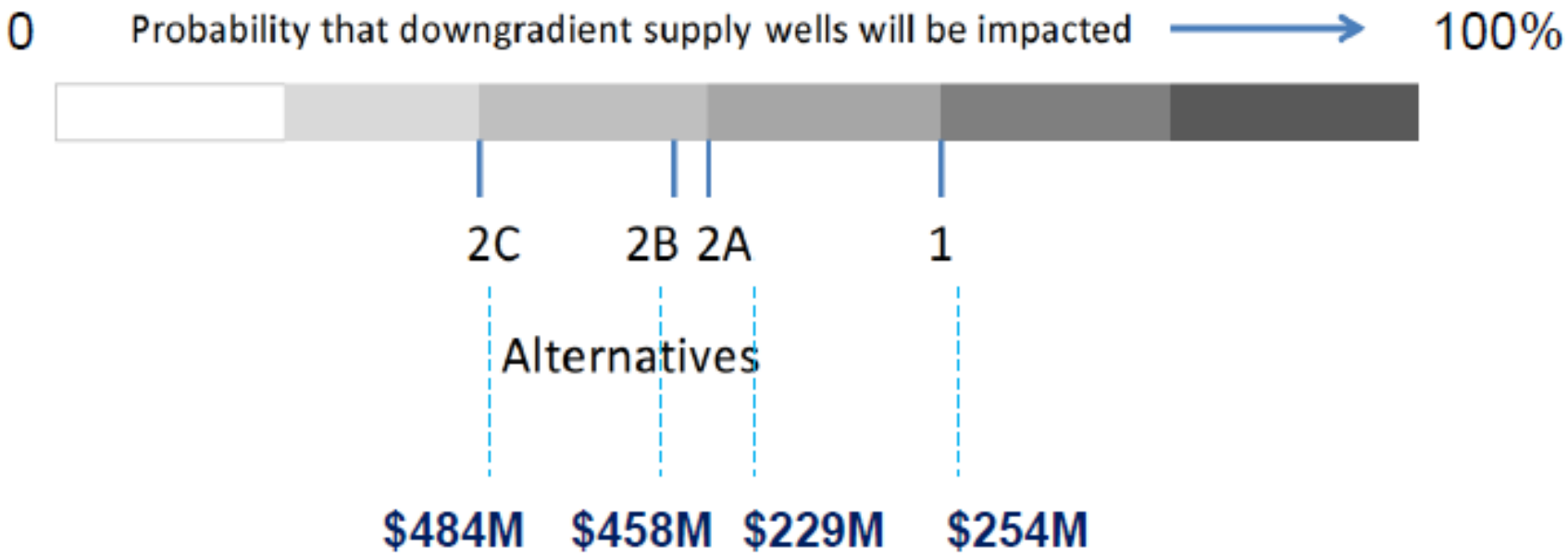
Study of Alternatives
– Downgradient Wellhead Treatment Assumptions

Alternative	Wellhead Treatment at 4 Supply Wells Installed After (yrs)	Wellhead Treatment at 5 Supply Wells Installed After (yrs)	Wellhead Treatment at 6 Supply Wells Installed After (yrs)
1. Current ROD	10	15	25
2A. Sustained pumping in strategic supply wells	10	20	30
2B. Plume containment	10	20	30
2C. Hydraulic containment	15	25	35
3. Accelerated wellhead treatment in downgradient wells	5	7	10

Study of Alternatives
–Capital and O&M Cost Estimate Comparison

Alternative	Total Cost (50 years)	Capital	O&M (50 years)
1. Current ROD	$254,000,000	$103,000,000	$151,000,000
2A. Sustained pumping in strategic supply wells	$229,000,000	$79,000,000	$150,000,000
2B. Plume containment	$458,000,000	$160,000,000	$298,000,000
2C. Hydraulic containment	$484,000,000	$167,000,000	$317,000,000
3. Accelerated wellhead treatment in downgradient wells	$277,000,000	$98,000,000	$179,000,000

Study of Alternatives – Probability of Impact to Downgradient Supply Wells



Study of Alternatives
– Sensitivity of Total Cost Estimates to Supply Wells Impacted

Alternative	100% of Downgradient Supply Wells are Impacted	50% of Downgradient Supply Wells are Impacted	0% of Downgradient Supply Wells are Impacted
1. Current ROD	$254,000,000	$161,000,000	$67,000,000
2A. Sustained pumping in strategic supply wells	$229,000,000	$141,000,000	$78,000,000
2B. Plume containment	$458,000,000	$382,000,000	$306,000,000
2C. Hydraulic containment	$484,000,000	$416,000,000	$347,000,000

Study of Alternatives
- Table 1-2 from report showing the 15 downgradient supply wells that don't have wellhead treatment installed or planned

Well ID	Well Depth (feet bgs)	Rated Well Capacity (gpm)	Status of VOC Treatment at Wellhead
ANY # 4D (5767)	385	1,935	No
ANY # 6M (7414)	530	1,667	No
ANY # 7M (8603)	893	1,607	No
ANY # 5D (8837)	680	1,154	No
ANY # 6D (9910)	780	1,667	No
ANY # 8M (10,863)	685	1,879	No
Well # 4 (MWD-6442	618	1,400	No
Well # 5 (MWD-6443)	825	1,400	No
Well # 6 (MWD-6866)	626	1,400	No
Well # 7 (MWD-6867)	492	1,400	No
Well # 9 (MWD-13,338)	645	1,400	No
Well # 1-4 (SFWD-7377)	758	1,400	No
Well # 4-1 (SFWD-6148)	566	1,200	No
Well # 6-1 (SFWD-8664)	610	1,400	No
Well # 6-2 (SFWD-8665)	560	1,400	No

List of Supply Wells in the Study Area

Well ID	Well Depth (feet bgs)	Rated Well Capacity (gpm)	Status of VOC Treatment at Wellhead
ANY # 4D (5767)	385	1,935	No
ANY # 6M (7414)	530	1,667	No
ANY # 7M (8603)	893	1,607	No
ANY # 3S (8480)	680	2,100	In progress
ANY # 5D (8837)	680	1,154	No
ANY # 4S (9338)	650	2,100	In progress
ANY # 6D (9910)	780	1,667	No
ANY # 8M (10,863)	685	1,879	No
Well # 4-1 (BWD-6915)	608	1,400	Yes
Well # 4-2 (BWD-6916)	611	1,400	Yes
Well # 5-1 (BWD-8004)	740	1,400	Yes
Well # 6-1 (BWD-3876)	386	1,400	Yes
Well # 6-2 (BWD-8941)	775	1,200	Yes
Well # 4 (MWD-6442	618	1,400	No
Well # 5 (MWD-6443)	825	1,400	No
Well # 6 (MWD-6866)	626	1,400	No
Well # 7 (MWD-6867)	492	1,400	No
Well # 9 (MWD-13,338)	645	1,400	No
Well # 1-2 (SFWD-4043)	382	1,200	Yes
Well # 1-3 (SFWD-5148)	369	1,200	Yes
Well # 1-4 (SFWD-7377)	758	1,400	No
Well # 3-1 (SFWD-6150)	612	1,400	In progress
Well # 4-1 (SFWD-6148)	566	1,200	No
Well # 6-1 (SFWD-8664)	610	1,400	No
Well # 6-2 (SFWD-8665)	560	1,400	No
	Total All Wells	37,109	
	Total Wells Without Treatment	22,309	

Questions

- Questions