

**US Army Corps  
of Engineers  
Baltimore District**

# **Fort Detrick Remedial Investigation/Feasibility Study**

**Recent Surface Water and Groundwater Findings  
Restoration Advisory Board Meeting (RAB)**

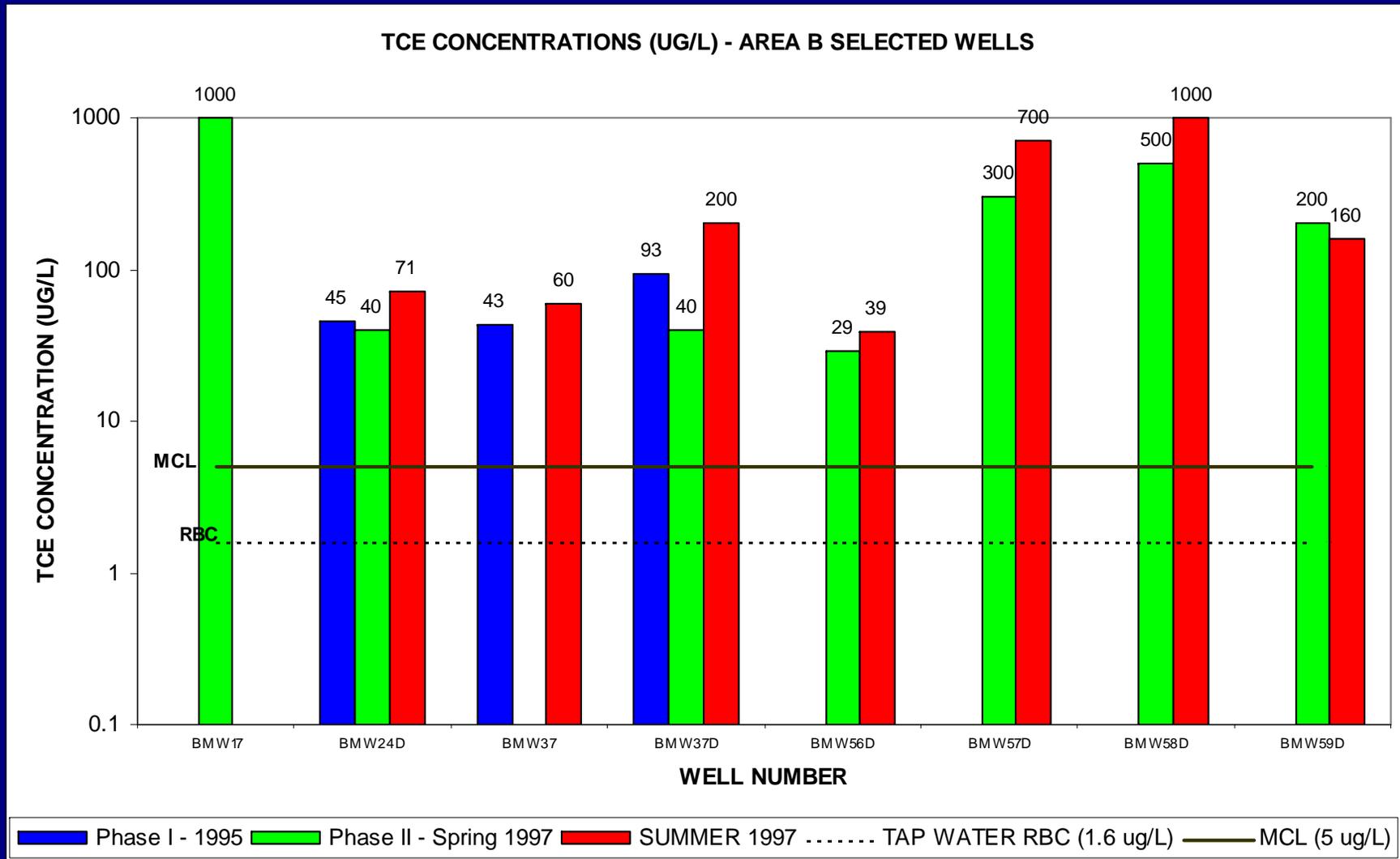
**13 November 1997 7:30 PM  
Fort Detrick, Frederick, Maryland**



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# Area B-Trichloroethene Data

Spring 1995, Spring and Summer 1997



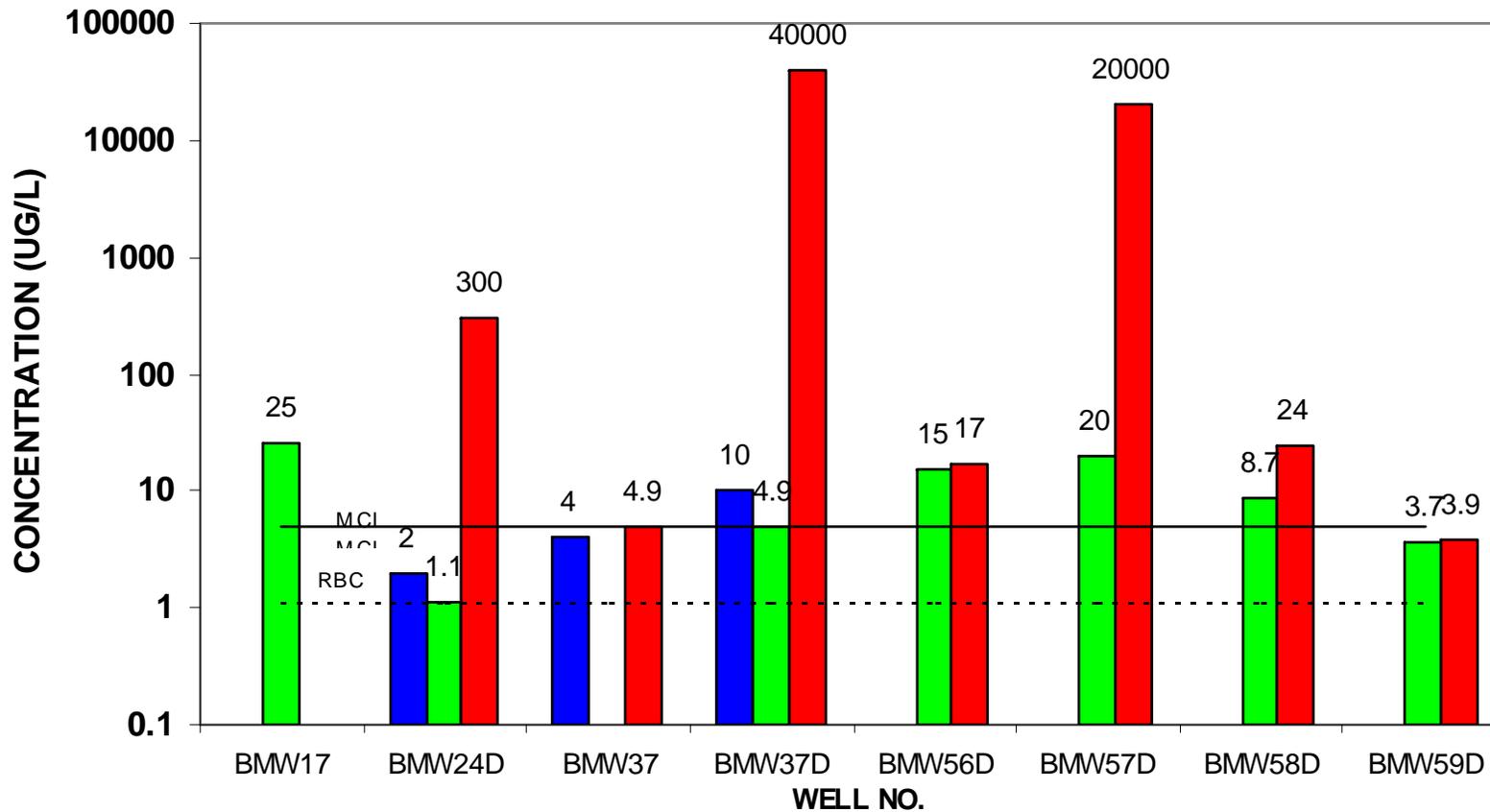


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# Tetrachloroethene Data

Spring 1995, Spring and Summer 1997

**PCE DATA - AREA B SELECTED WELLS**

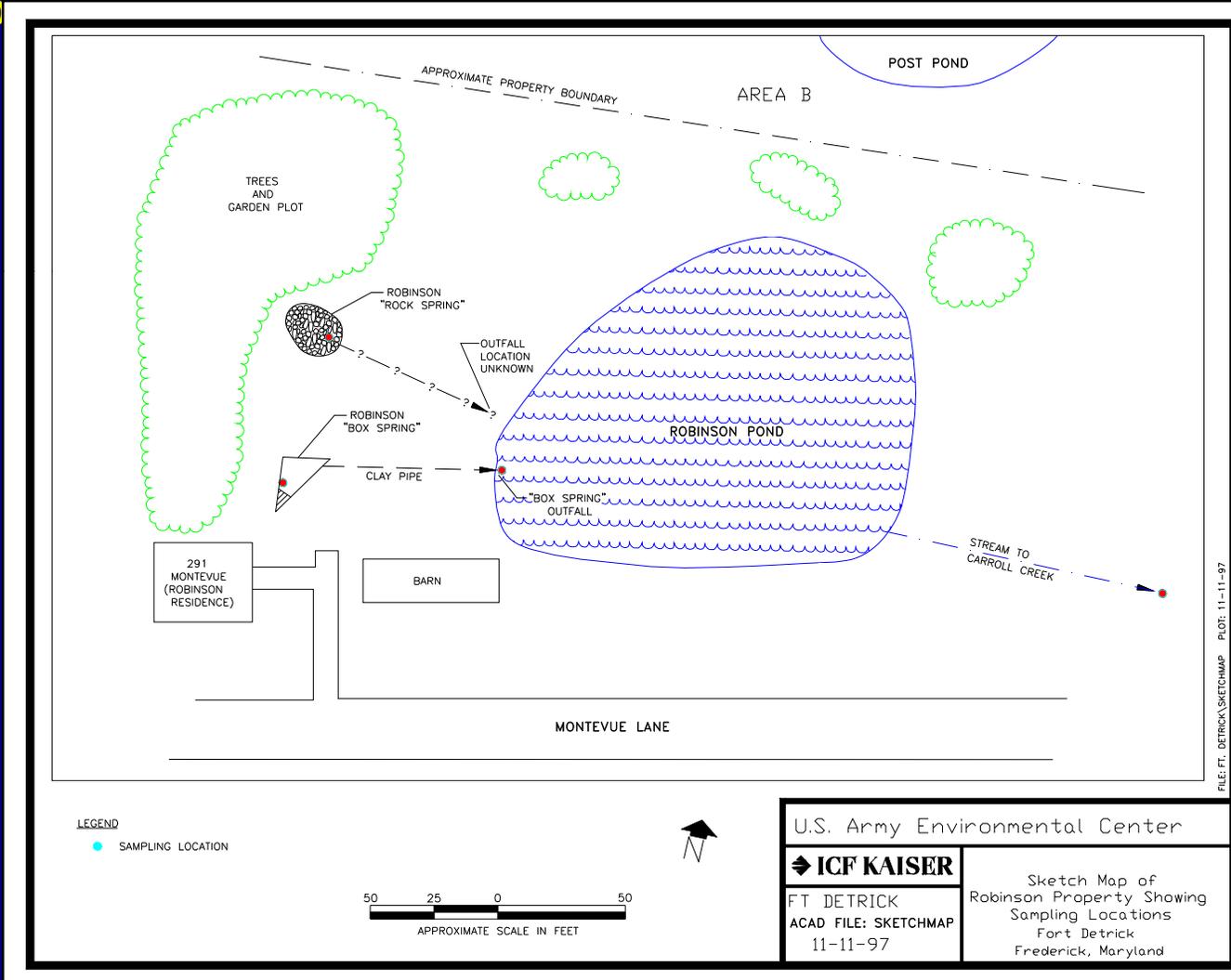


█ 1995 Phase I   
 █ Phase II - Spring 1997   
 █ SUMMER 1997   
 — MCL (5 UG/L)   
 - - - - - RBC (1.1 UG/L)



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# Robinson Spring Sketch Map



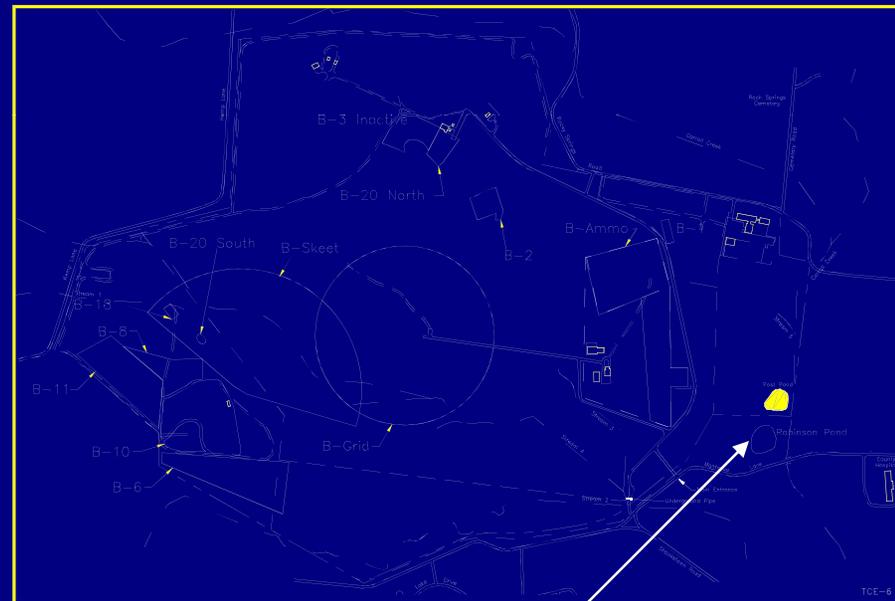


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# Robinson “Box Spring”



Sampling Point



LOCATION OF RI STUDY AREAS

Robinson “Box  
Spring”



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# Robinson Pond

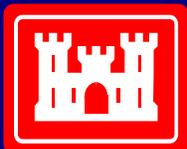


**Pond Sampling Point**



LOCATION OF PI STUDY AREAS

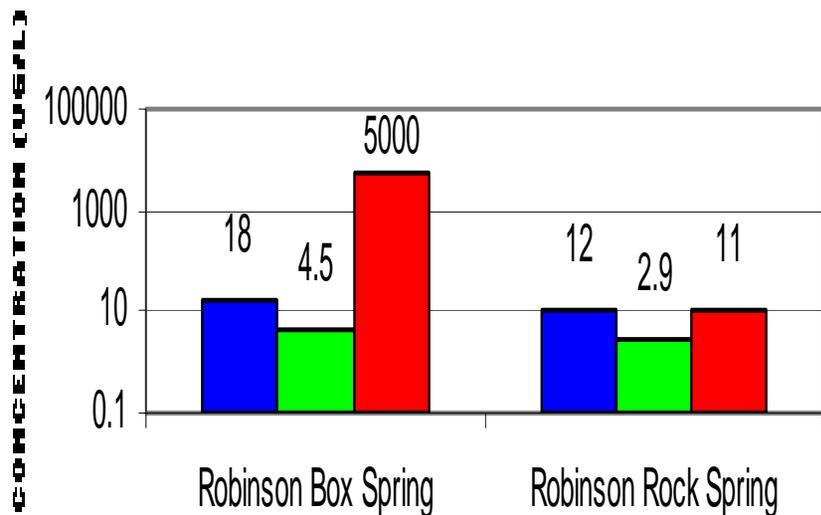
**Robinson Pond**



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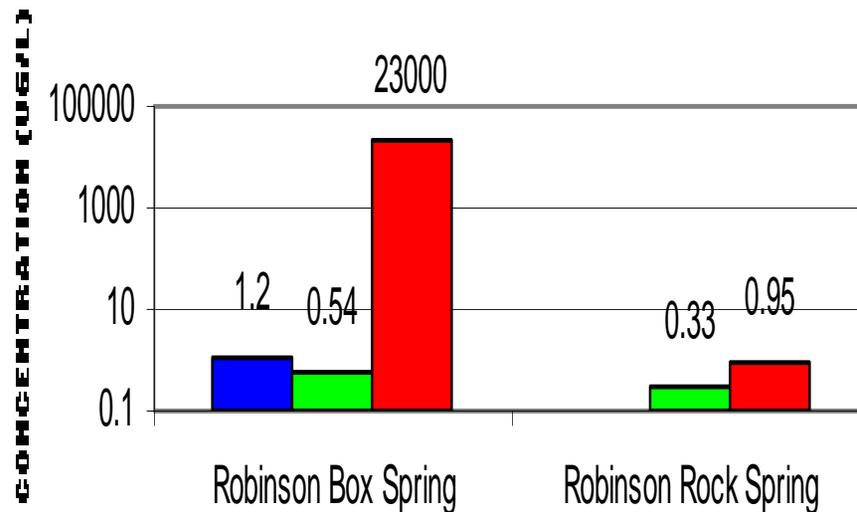
# Robinson Spring Data

## ROBINSON SPRING - TCE DATA



■ Spring 1995 Phase I ■ Spring 1997 Phase II ■ 21-Oct-97

## ROBINSON SPRING - PCE DATA

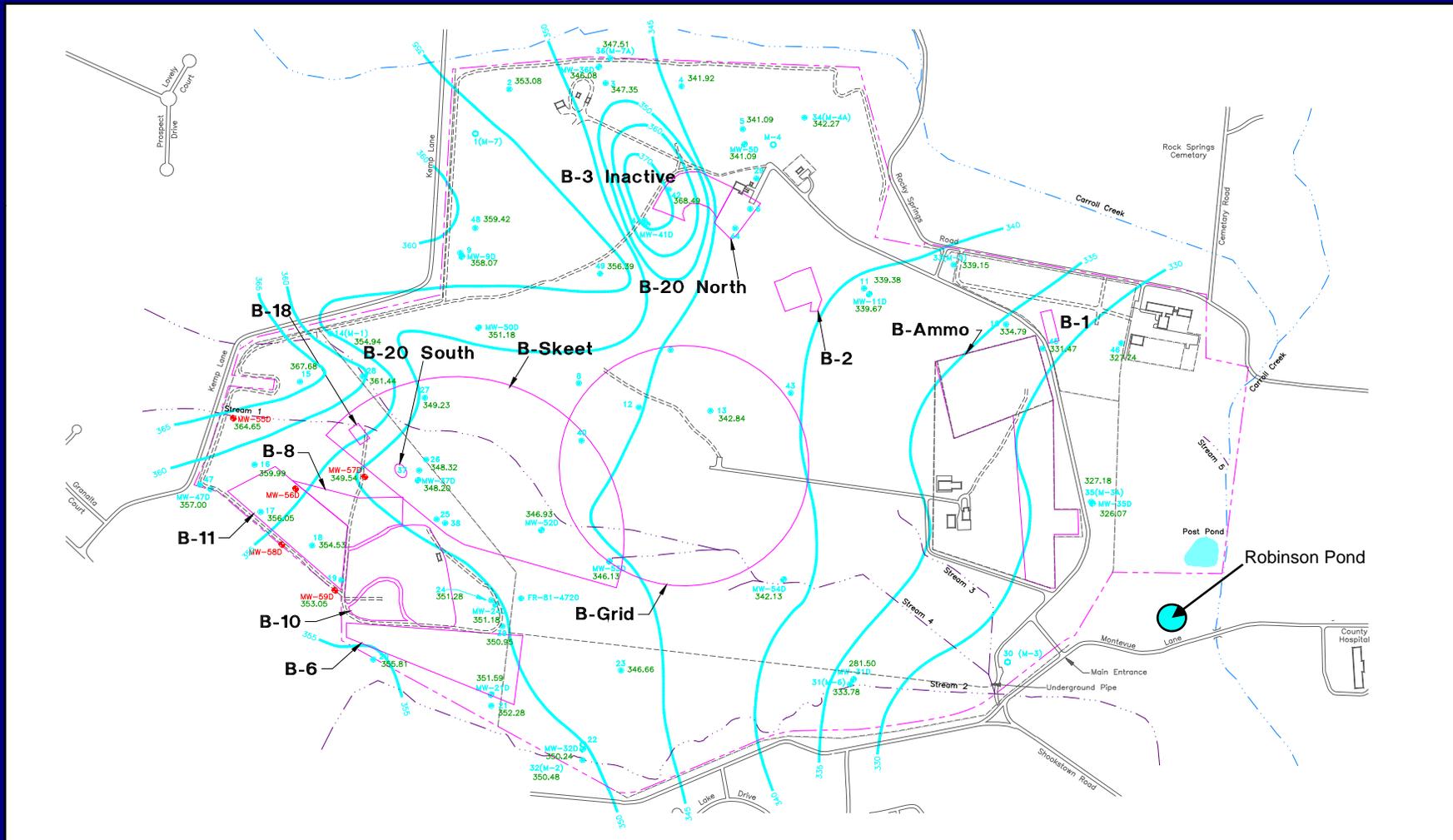


■ Spring 1995 Phase I ■ Spring 1997 Phase II ■ 21-Oct-97



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# Area B Groundwater Flow

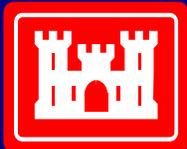




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# Robinson Spring Data

COMPOUND	Robinson "Box Spring"	Robinson "Box Spring"	Robinson "Box Spring"
SAMPLE ID	24906	RISP3	RISP3
SAMPLE DATE	2-May-95	16-Apr-97	21-Oct-97
COMPOUND	Result (ug/L)	Result (ug/L)	Result (ug/L)
Tetrachloroethene	1.2	0.54	23000
Trichloroethene	18	4.5	330
SITE	Robinson "Rock Spring"	Robinson "Rock Spring"	Robinson "Rock Spring"
SAMPLE ID	24897	RISP4	RISP4
SAMPLE DATE	2-May-95	16-Apr-97	10/21/1997
COMPOUND	Result (ug/L)	Result (ug/L)	Result (ug/L)
Tetrachloroethene	ND	0.33	0.95
Trichloroethene	12	2.9	11



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# Area B

## Selected Well Screen Intervals

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<b>Well Number</b>	<b>Screened Interval (ft bgs)</b>
<b>BMW17</b>	<b>25-35</b>
<b>BMW24D</b>	<b>164.25-174.45</b>
<b>BMW37</b>	<b>39.5-59.5</b>
<b>BMW37D</b>	<b>112.74-122.75</b>
<b>BMW52D</b>	<b>Open 170-175</b>
<b>BMW56D</b>	<b>71-91</b>
<b>BMW57D</b>	<b>102-122</b>
<b>BMW58D</b>	<b>109.5-129.5</b>
<b>BMW59D</b>	<b>163-183</b>



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# Proposed Additional Investigation - Area B

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- Re-sampling of selected monitoring wells, residential wells and springs to further assess VOC contamination in Area B and in downgradient off-post areas.
- Electromagnetic (EM61) geophysical survey and soil gas survey in the vicinity of areas showing elevated PCE concentrations.
- Downhole groundwater flow measurements near Area B-11 and along the property boundary of Area B to assess localized groundwater flow path directions,
- Installation of one deep monitoring well along the southern boundary of Area B at current well location 20 to further monitor boundary groundwater quality.



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# Proposed Additional Investigation - Area A

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- Installation of two well clusters (19 and 20) along the Area A boundary to assess potential contaminant migration off Fort Detrick property and to function as potential future monitoring points.
- Installation of one monitoring well (No. 21) between the southwestern extensions of the inferred plume to fill in a data gap area.
- Semiannual groundwater sampling of all new wells along the boundary of Area A and a sampling of the new well installed in the interior of the site.



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# Area B- TCE and PCE Data for Selected Wells

<b>TCE DATA (ug/L)</b>			
<b>Sample Date</b>	<b>Phase I - 1995</b>	<b>Phase II - 1997</b>	<b>Phase II - 1997</b>
<b>WELL NUMBER</b>	<b>Spring 1995</b>	<b>Spring 1997</b>	<b>Summer 1997</b>
BMW17	not sampled	1000	dry
BMW24D	45	40	71
BMW37	43	not sampled	60
BMW37D	93	40	200
BMW56D	not sampled	29	39
BMW57D	not sampled	300	700
BMW58D	not sampled	500	1000
BMW59D	not sampled	200	160
<b>PCE DATA (ug/L)</b>			
<b>Sample Date</b>	<b>Phase I - 1995</b>	<b>Phase II - 1997</b>	<b>Phase II - 1997</b>
<b>WELL NUMBER</b>	<b>Spring 1995</b>	<b>Spring 1997</b>	<b>Summer 1997</b>
BMW17	not sampled	25	dry
BMW24D	2	1.1	300
BMW37	4	not sampled	4.9
BMW37D	10	4.9	40000
BMW56D	not sampled	15	17
BMW57D	not sampled	20	20000
BMW58D	not sampled	8.7	24
BMW59D	not sampled	3.7	3.9



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# Summary of Events

## Summer and Autumn 1997

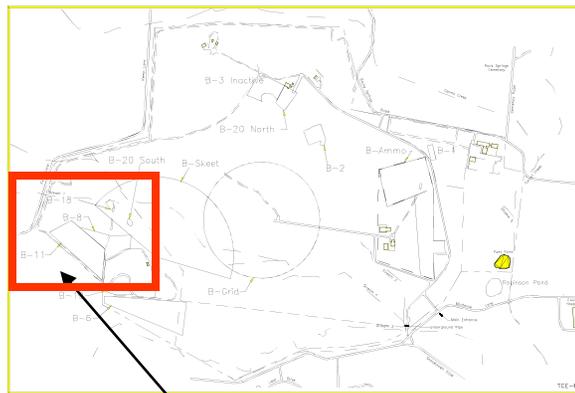
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- **August 1997** : Re-sample monitoring wells BMW 37D, 55D, 56D, 57D, 58D and 59D and domestic wells No. 2, 3, 16, 17, 20, and 23 to further evaluate increased levels of TCE detected in the Spring 1997 sampling round.
  
- **October 1997** : Analytical results for the August 1997 sampling round show elevated PCE concentrations in wells 37D (40,000 ug/L PCE), 57D (20,000 ug/L PCE) and 24D (300 ug/L PCE).
  
- **Based on results, Robinson Spring was re-sampled on October 21, 1997. Results Showed:**
  - PCE: 23,000 ug/L
  - TCE: 5,000 ug/L

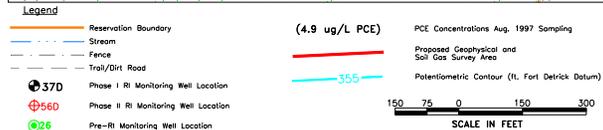
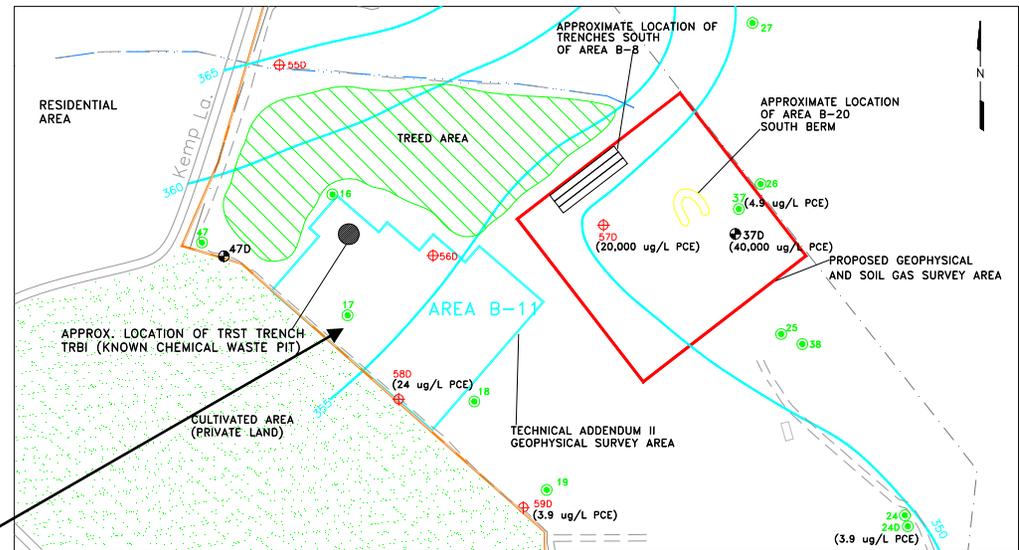


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# New Geophysical and Soil Gas Survey Areas for Area B



LOCATION OF RI STUDY AREAS

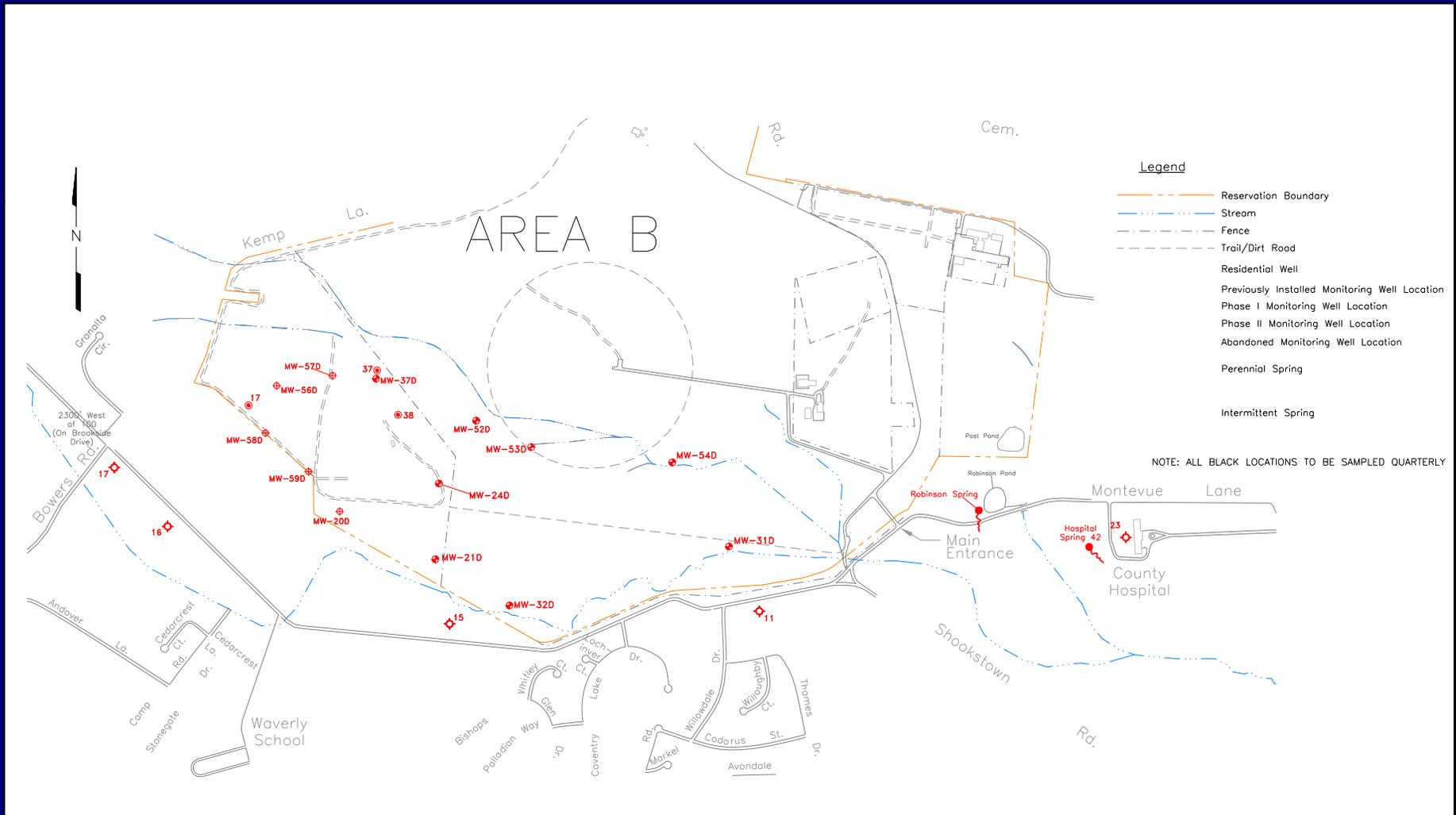




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# Fort Detrick

## Proposed Quarterly Sampling Locations - Area B





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# Robinson Spring

## Potential Remedial Alternatives - Area B

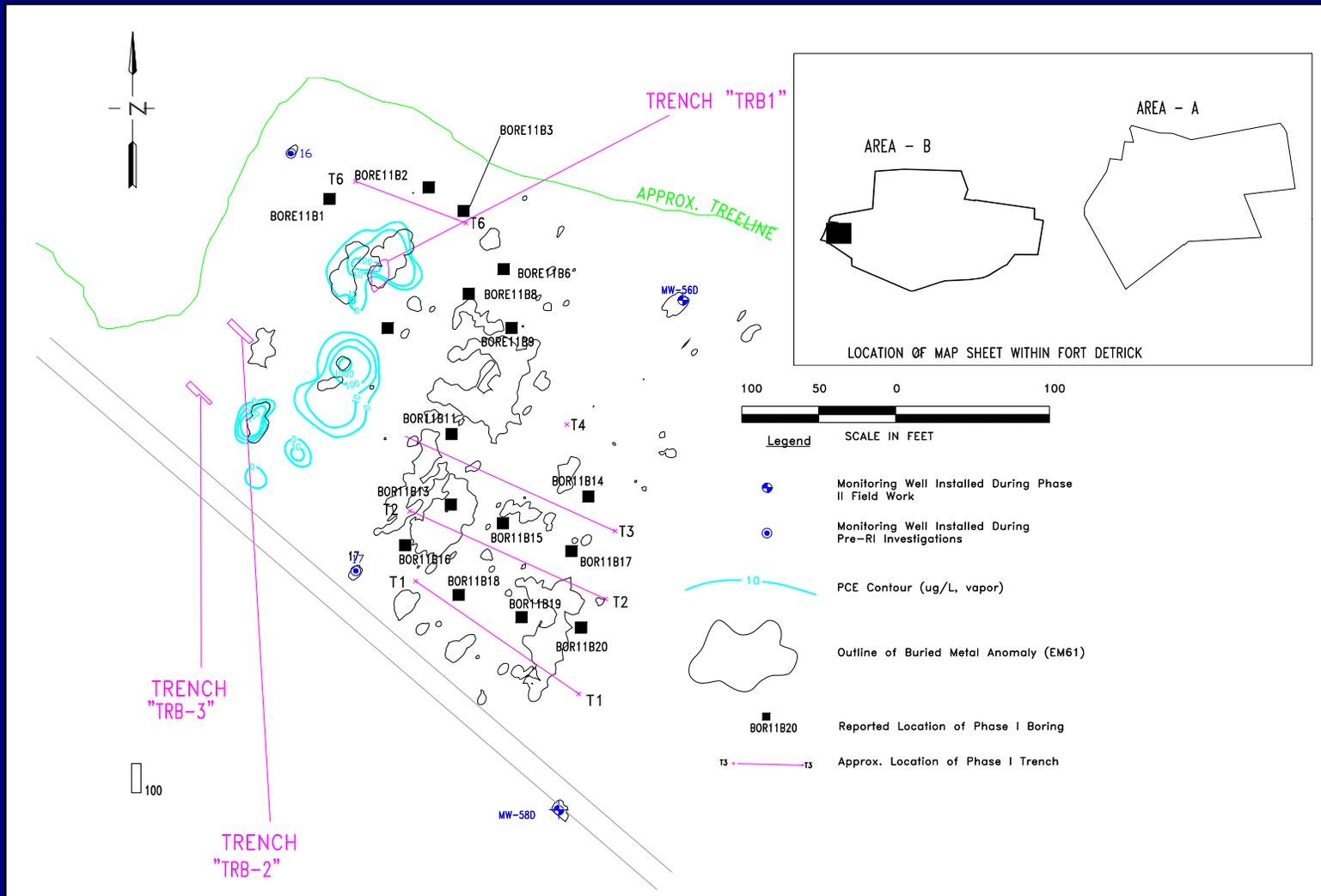
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- Active Air Stripping - Air Stripping Equipment
- Active Air Stripping - Aeration Fountain
- Carbon Adsorption or other Appropriate Technology



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# PCE Soil Gas Concentrations - Area B 11







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# Groundwater TCE Concentrations - Area B

